1.1 Declaration and Identification of Officials

Name of the person responsible for the content of the form	**Murilo Pinto de Oliveira Ferreira**
Position of person in charge	CEO
Name of the person responsible for the content of the form	**Luciano Siani Pires**
Position of person in charge	Investor Relations Officer

The officers, mentioned above, declare that:

a. They have reviewed the form in question;

b. All information contained in the form complies with the provisions of CVM Instruction 480, especially that regarding articles 14 to 19;

c. The set of information contained herein is a true, accurate complete picture of the economic and financial situation of the issuer and the risks inherent to its activities and the securities issued by them.

STATEMENT BY THE CEO

FOR THE PURPOSE OF ITEM 1.1 OF THE REFERENCE FORM

Murilo Pinto de Oliveira Ferreira, Brazilian citizen, married, business administrator, holder of the Identity Card IFP/RJ No. 004.922.272-2, registered with the CPF/MF under No. 212.466.706-82, resident and domiciled in the city and State of Rio de Janeiro, with commercial address at Avenida das Américas, 700, Bloco 8, Loja 318, 3rd floor, Barra da Tijuca, CEP 22640-100, in the city and State of Rio de Janeiro, in the position of CEO of **Vale S.A.**, a joint-stock company with headquarters in the city and State of Rio de Janeiro, at Avenida das Américas, No. 700, Bloco 8, Loja 318, 3rd. floor, Barra da Tijuca, CEP 22640-100, registered with CNPJ/MF under No. 33,592,510/0001-54 ("The Company"), for the purpose of item 1.1 regarding the above mentioned form for the Company, declares that:

a. He has reviewed the Company's Reference Form;

b. All information contained in the Reference Form complies with the provisions of the Securities Commission Instruction 480, dated December 7, 2009, as amended, especially regarding articles 14 to 19; and

c. The set of information contained herein is a true, accurate and complete picture of the Company's economic and financial situation and the risks inherent to its activities and the securities issued by it.

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Murilo Pinto de Oliveira Ferreira
CEO

STATEMENT BY THE EXECUTIVE FINANCE AND INVESTOR RELATIONS OFFICER

FOR THE PURPOSE OF ITEM 1.1 OF THE REFERENCE FORM

Luciano Siani Pires, Brazilian, married, mechanical engineer, holder of Identity Card IFP/RJ No. 07.670.915-3, enrolled with the CPF/MF under No. 013.907.897-56, resident and domiciled in the city and State of Rio de Janeiro, with Commercial address at Avenida das Américas, No. 700, Bloco 8, Loja 318, 3rd. floor, Barra da Tijuca, CEP 22640-100, in the city and State of Rio de Janeiro, as Executive Finance and Investor Relations Officer for **Vale S.A.**, a joint-stock company with headquarters in the city and State of Rio de Janeiro, at Avenida das Américas, 700, Bloco 8, Loja 318, 3rd. floor, Barra da Tijuca, CEP 22640-100, registered with CNPJ/MF under No. 33,592,510/0001-54 ("The Company"), for the purpose of item 1.1 regarding the above mentioned form for the Company, declares that:

a. He has reviewed the Company's Reference Form;

b. All information contained in the Reference Form complies with the provisions of the Securities Commission Instruction 480, dated December 7, 2009, as amended, especially regarding articles 14 to 19; and

c. The set of information contained herein is a true, accurate and complete picture of the Company's economic and financial situation and the risks inherent to its activities and the securities issued by it.

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Luciano Siani Pires
Executive Finance and Investor Relations Officer

2.1/2.2 - Identification and Remuneration of Auditors

Do you have an auditor?	YES
CVM code	418-9
Type of auditor	**National**
Company Name	KPMG Auditores Independentes
CPF/CNPJ	57.755.217/0001.29
Start of service contract:	04/30/2014
End of service provision:	Ongoing
Description of contracted service	Provision of professional services related to the audit of the financial statements, both for local and international purposes and certification work on internal controls (in compliance with Section 404 of the Sarbanes-Oxley Act of 2002) for the financial years ending on December 31, 2014, December 31, 2015 and December 31, 2016 and the review of Quarterly Financial Information (ITR) of June 30, 2014 until March 31, 2017. In addition, the scope of work also encompasses the provision of other audit-related services, such as issue of previously agreed procedural reports in accordance with NBC TSC4400.
Total amount of remuneration for independent auditors separated by service	The services contracted with the Company's external auditors for the financial year ended December 31, 2016 for the Company and its subsidiaries were as follows: Reais (thousand) Financial Audit 17,380 Auditing - Sarbanes Oxley Act 1,175 Audit Related Services (*) 101 **Total External Audit Services 18,656** (*) These services are mostly contracted for periods of less than one year and mainly relate to the issue of reports of previously agreed procedures in accordance with NBC TSC4400
Reason for substitution	Not applicable
Reason presented by the auditor in case of disagreement with the issuer's justification	Not applicable

Name of technician responsible	**Period of service**	**CPF**	**Address**

Manuel Fernandes Rodrigues de Sousa	As from 04/30/2014	783.840.017-15	Av. Almirante Barroso, 52 – 4º andar 20031-000, Rio de Janeiro, RJ e-mail: mfernandes@kpmg.com.br Telephone: (21) 3515-9336

2.3 - Other relevant information

The Vale Board of Directors, at a meeting held on November 28, 2013, approved the contracting of KPMG Auditores Independentes to provide audit services for the financial statements for a period of three years beginning in 2014. That service started to be provided as of the review of the quarterly information (ITRs) for the second quarter of 2014.

The Company has specific internal procedures for the pre-approval of services contracted with its external auditors, in order to avoid conflict of interest or the loss of objectivity of its independent auditors.

The Company's policy, in relation to independent auditors and in the provision of services not related to external auditing, is based on principles that preserve its independence.

In line with best corporate governance practices, all services provided by our independent auditors are pre-approved by our Fiscal Council and a letter of independence is also obtained from the external auditors.

In addition, the Company clarifies that there are no material transfers of services or resources between the auditors and parties related to the Company, as defined in CVM Deliberation 642/10, which approves Technical Pronouncement CPC 05 (R1).

3.1 - Financial Information - Consolidated

(Reais)	Fiscal Year (12/31/2016)	Fiscal Year (12/31/2015)	Fiscal Year (12/31/2014)
Equity	133,702,000,000.00	139,419,000,000.00	149,601,000,000.00
Total Assets	322,696,000,000.00	345,547,000,000.00	309,415,000,000.00
Net revenues	94,633,000,000.00	78,057,000,000.00	82,619,000,000.00
Gross Profit or loss	33,490,000,000.00	15,277,000,000.00	28,846,,000,000.00
Profit (Loss)	13,311,000,000.00	-44,213,000,000.00	954,000,000.00
Number of Shares, Ex-Treasury	5,153,374,926	5,153,374,926	5,153,374,926
Book value per Share (Reais/Unit)	25.94455127	27.05392136	29.02971395
Basic Earnings per Share	2.58000000	-8.58000000	0.19000000
Diluted Earnings per Share	2.58	-8.58	0.19

3.2 - Non-accounting measurements

a. Value of non-accounting measurements

The Company uses Adjusted EBITDA and Adjusted EBIT as a non-accounting method of measurement. In 2016, 2015 and 2014 respectively (i) Adjusted EBITDA was R$ 40,906 million, R$ 21,741 million and R$ 30,480 million, and (ii) Adjusted EBIT was recognized in the amount of R$ 28,130 million, R$ 8,227 million, R$ 20,050 million, respectively.

b. Reconciliation between the amounts disclosed and the amounts in the audited financial statements

	Fiscal Year Ended December 31,		
(In R$ million, except%)	**2016**	**2015**	**2014**
Net income (loss) for the year	17,454	(45.337)	2,404
(+) Income tax and social contributions	9,567	(19,339)	3,658
(+) Financial result	(6.302)	36.053	14.626
LAJIR (EBIT)	120,720	(28,623)	20,688
(+) Depreciation, amortization and depletion	12,107	12,450	9,128
EBITDA	**32,827**	**(16,173)**	**29,816**
Result of equity investments in *Joint ventures* and affiliates	(1,111)	1,526	(1,131)
Impairment of non-current assets and onerous contracts	3,940	33,945	(87)
Impairment of interest in joint ventures and associated companies	4,353	1,431	139
Result of non-current assets held for sale	228	(52)	441
Dividends received	669	1.064	1.302
Adjusted EBITDA	**40,906**	**21,741**	**30,480**
Dividends received	(669)	(1.064)	(1.302)
Depreciation, amortization and depletion	(12,107)	(12,450)	(9,128)
Adjusted EBIT	**28,130**	**8,227**	**20,050**

c. Reason why the Company is of the opinion that such measurement method is more appropriate for the correct understanding of its financial condition and its operational results.

We calculate the Adjusted EBITDA and Adjusted EBIT according to CVM Instruction 527 dated October 04, 2012 ("CVM Instruction 527").

The adjusted EBITDA corresponds to EBITDA adding the dividends received from affiliates and Joint ventures, and excluding the recoverable amount, onerous contracts and the profit or loss from the measurement or sale of non-current assets. It shows an approximate measure of the Company's cash generation, since it excludes non-recurring and non-cash effects.

Adjusted EBIT corresponds to Adjusted EBITDA including depreciation, amortization and depletion and dividends received from affiliates and Joint ventures.

Adjusted EBITDA and Adjusted EBIT are not measurement methods recognized under BR GAAP or the IFRS. Adjusted EBITDA does not represent the cash flow for the periods presented and therefore should not be considered as an alternative measure for profit (loss), as an isolated indicator of operating performance or as an alternative to the cash flow or as a source of liquidity.

The definitions of Adjusted EBITDA and Adjusted EBIT used by Vale may not be comparable to Adjusted EBITDA and Adjusted EBIT posted by other companies.

3.3 - Events subsequent to the latest financial statements

The Company does not provide guidance in the form of quantitative forecasts regarding its future financial performance. The Company seeks to disclose as much information as possible about its vision of the different markets in which it operates, guidelines, strategies and its execution, in order to provide participants in the capital markets with good conditions for the formation of expectations about their medium and long-term performance.

The Company's Consolidated Financial Statements for the financial year ended December 31, 2016 were issued on February 22, 2017.

The following events subsequent to the Company's Consolidated Financial Statements were verified, in accordance with the rules set forth in the Technical Pronouncement CPC 24, approved by CVM Deliberation No. 593/09:

- As of January 1, 2017, the Company will adopt Hedge accounting for its net investments abroad considering Vale International S.A. and Vale International Holdings GmbH as the object of the Hedge and its loans with the subsidiary company designated as the Hedge instrument, excluding interest, using exchange rates denominated in US dollars and euros for the amount of US$ 8,067 million (R$ 26,291) million and EUR 1,500 million (R$ 5,129 million) as a Hedge instrument, respectively.

  Accordingly, the Company plans to mitigate part of the exchange rate risk exposure, since the foreign exchange gains or Hedge (Effective portion) will be recognized in other covered income sources, offset by any gains and losses arising from the conversion of net investments in the aforementioned subsidiaries abroad. If the relationship is not considered effective, the exchange rate variations of the Hedge will be allocated to income for the year.

  In February 2017, the Company issued, through Vale Overseas Limited, bonds with a maturity in August 2026 totaling R$ 3,259 million (US$ 1,000 million). The bonds have a coupon value of 6.250% per annum, paid semi-annually, and were priced at 107.793% of the face value of the security. These bonds will be consolidated, and will form a single series with Vale Overseas bonds, issued in August 2016, at R$ 3,259 million (US$ 1,000) with a coupon value of 6.250%, as mentioned above. Vale has applied the net proceeds of this offer to anticipate a payment of EUR750, maturing in March 2018.

- On February 20, 2017, the Company announced that a new shareholders' agreement, entered into by Litel Participações S.A., Litela Participações S.A., Bradespar S.A., Mitsui & Co., Ltd. and BNDES Participações S.A. - BNDESPAR ("Valepar agreement"), as shareholders of Valepar S.A. ("Valepar"), jointly called the "Shareholders", to be effective only after the expiration of the current Valepar Shareholders' Agreement, as from May 10, 2017.

  The Valepar Agreement, in addition to the common rules regarding voting and preemptive rights in the acquisition of shares by the Shareholders, provides for the presentation by the Shareholders of a proposal to the Company in order to enable Vale's listing in the special segment of the New Market of BM & FBOVESPA (Brazil) and to transform it into a society without defined control, the ("Proposal"). The Proposal is binding on the Shareholders, and is subject to approval by the Company's corporate bodies. This Valepar Agreement has a term of 6 months, from the beginning of its validity.

  The operation contemplated by the Proposal consists of a series of inseparable and interdependent steps, the effectiveness of each being conditioned to the successful completion of the others. The Proposal consists, in addition to the practice of all acts and procedures required by the relevant legal and regulatory provisions, of:

  (i) Voluntary conversion of Vale's class A preferred shares into common shares in the ratio of 0.9342 common share per class A preferred share of Vale, and based on the closing price of the common and preferred shares, with the calculation based on the average of the last 30 trading sessions

on BM & FBOVESPA prior to February 17, 2017 (inclusive), weighted by the volume of shares traded in said trading sessions;

(ii) Altering Vale's Bylaws to adapt it as closely as possible to the rules of the special segment of the BM & FBOVESPA New Market until it can effectively list Vale in this special segment; and

(iii) Incorporation of Valepar into Vale with a substitution ratio that contemplates an increase in the number of shares held by Valepar's shareholders of 10% in relation to Valepar's current shareholding position in Vale, and represents a dilution of approximately 3% of the remaining Shareholders in its capital stock.

In line with what is stated in item (iii) above, Valepar's shareholders will receive 1,2065 common shares issued by Vale for each share issued and owned by Valepar. As a result, Vale will be issued 173,543,667 new common shares, all nominative and without par value in favor of Valepar shareholders, so that Valepar shareholders will hold a total of 1,908,980,340 common shares issued by Vale after the merger of Valepar.

The goodwill recorded in Valepar's financial statements and its potential tax benefit to be used by Vale will not be capitalized in favor of Valepar's shareholders, but only in favor of all Vale's shareholders. At the time of incorporation, Valepar will have sufficient cash and cash equivalents to fully offset its liabilities. The implementation of the Proposal is subject to (i) approval of the Proposal, including the merger of Valepar by the Company, and by Valepar and the Company's corporate bodies; and, (ii) adhesion of at least 54.09% of class A preferred shares to the aforementioned voluntary conversion, within 45 days of the resolution of the meeting on the matter, which shall result in a shareholder participation of less than 50% of Vale's common stock. During the deliberations on the voluntary conversion of class A preferred shares into Vale common shares and on the merger of Valepar under the proposed terms, Valepar and the Shareholders will not exercise their voting rights in the respective general shareholders' meetings of Vale.

Holders of American Depositary Shares representing Vale's class A preferred shares (Preferred ADSs) may join the voluntary conversion, in which case they will receive American Depositary Shares representing common shares of Vale (common ADSs) under the same conditions offered to holders of class A preferred shares. Class A preferred shares and preferred ADSs that have not adhered to the voluntary conversion mentioned above will continue in circulation.

On the effective date of the merger of Valepar into Vale, if approved, there will be a new shareholders' agreement ("Vale Agreement"), which will bind only 20% of the total number of common shares issued by Vale, and will be in force until November 9, 2020, without any renewal.

The shareholders bound by the Vale Agreement will still be obliged, during the six-month term, from the effective date of the Vale Agreement, not to dispose, in any form, directly or indirectly, the shares issued by Vale that they may own as a result of the implementation of the Proposal ("Lock-Up"), except for (i) the transfer by the Shareholders of shares of Vale to its affiliates and current shareholders, which will nevertheless still remain subject to Lock-Up and (ii) disposal of unrelated shares held prior to the merger of Valepar.

For more information on the above, see item 6.6 of this Reference Form.

3.4 - Policy for allocation of net earnings

	Fiscal Year Ended December 31,		
	2016	**2015**	**2014**
a. Rules on Retained Earnings	Pursuant to Article 43 of the Bylaws, the constitution of the distribution of earnings should be considered in the proposal for the; (i) tax incentive reserve to be constituted in accordance with current legislation, and (ii) investment reserve, with the purpose of ensuring the maintenance and development of the main activities that make up the Company's corporate purpose, in an amount not greater than fifty percent (50%) of net earnings distributable up to the maximum limit of the Company's capital stock.		
Retained Earnings Values	Of the total amount of R$ 13,311,455,285.00, (i) R$ 665,572,764.25 was allocated to the legal reserve, (ii) R$ 1,227,570,177.73 to the tax incentive reserve, (iii) R$ 5,894,586,907.98 to Investment reserve.	The net loss in the amount of R$ 44,212,186,731.00 was determined, and said loss was absorbed in accordance with the sole paragraph of Article 189 of Law 6,404 / 1976. Accordingly, no earnings were retained from profits for the financial year ended December 31, 2015.	Of the total amount of R$ 954,384,414.00, (i) R$ 47,719,220.70 was allocated to the legal reserve and (ii) R$ 161,770,077.08 (17%) to the tax incentive reserve.
b. Dividend distribution rules	Pursuant to Article 44 of the Bylaws, at least 25% (twenty-five percent) of the annual profits, adjusted according to the law, will be used to pay dividends. In accordance with art. 5, paragraph 5 of the Bylaws, holders of class A and special preferred shares will be entitled to participate in the dividend to be distributed and calculated in accordance with Chapter VII of the Bylaws, and in compliance with the following criteria: (a) priority in the receipt of the dividends corresponding to (i) a minimum of 3% (three percent) of the net equity value of the share, calculated based on the financial statements that were used as reference for the payment of the dividends or (ii) 6% (six percent) calculated on the portion of the capital constituted by this share class, whichever is greater; (b) the right to participate in distributed profits, under equal conditions with the common shares, after having secured a dividend equal to the minimum priority established in accordance with item "a" above; (c) the right to participate in any bonuses, under equal conditions with the common shares, observing the priority established for the distribution of such dividends.		
c. Frequency of dividend distributions	From the net earnings of the financial year of 2016, R$ 5,523,725,435.04 were paid as interest on own capital, of which R$ 856,975,000.00 was paid in December 2016 and (ii) R$ 4,666,750,435.04 was paid in April 2017.	In accordance with the practices adopted by the Company, dividend payments during the financial year ended December 31, 2015, were made in two semi-annual instalments, in the months of April and October. It should be noted that the shareholder remuneration policy was changed at the Ordinary and Extraordinary General Meeting held on April 25, 2016. For information on this policy, see item 3.9 below.	In accordance with the practices adopted by the Company, dividend payments during the financial year ended December 31, 2014 were made in two semi-annual instalments, in April and October.

d. Any restrictions on the distribution of dividends imposed by special legislation or regulations applicable to the issuer, as well as contracts, judicial, administrative or arbitration decisions	None	None	None

3.5 - Distribution of dividends and retention of net income

(Reais)	Fiscal Year 12/31/2016	Fiscal Year 12/31/2015	Fiscal Year 12/31/2014
Adjusted net income	11,761,350,206.85	0.00000	744,895,116.22
Dividend distributed in relation to adjusted net income	46.97000000	0.00000	100.00000000
Rate of return in relation to the issuer's net equity	10.46165	0.00000	0.65184
Total Distributed Dividend	5,523,725,435.04	0.00000	9,738,750,000.00
Net Income Withheld	7,787,729,849.96	0.00000	161,770,077.08
Retention approval date	20/04/2017	25/04/2016	17/04/2015

01/01/2016 to 12/31/2016

Type of Share	Class of Share	Distributed Dividend	Amount (Unit)	Dividend Payment
Ordinary		Interest on Equity	2,884,837,166.99	28/04/2017
Preferential	Preferred Class A	Interest on Equity	1,781,913,268.06	28/04/2017
Ordinary		Interest on Equity	529,754,775.95	16/12/2016
Preferential	Preferred Class A	Interest on Equity	327,220,224.04	16/12/2016

01/01/2015 to 12/31/2015

Type of Share	Class of Share	Distributed Dividend	Amount (Unit)	Dividend Payment
Ordinary		Interest on Equity	1,917,001,706.26	30/04/2015
Preferential	Preferred Class A	Interest on Equity	1,184,098,296.20	30/04/2015
Ordinary		Compulsory Dividend	1,190,190,329.63	30/10/2015
Preferential	Preferred Class A	Compulsory Dividend	735,159,669.85	30/10/2015

01/01/2014 to 12/31/2014

Type of Share	Class of Share	Distributed Dividend	Amount (Unit)	Dividend Payment
Ordinary		Interest on Equity	2,863,596,635.71	30/04/2014
Preferential	Preferred Class A	Interest on Equity	1,768,793,364.29	30/04/2014
Ordinary		Compulsory Dividend	1,083,253,396.32	31/10/2014
Preferential	Preferred Class A	Compulsory Dividend	669,106,603.68	31/10/2014
Ordinary		Interest on Equity	2,073,336,466.96	31/10/2014
Preferential	Preferred Class A	Interest on Equity	1,280,663,533.04	31/10/2014

3.6 - Declaration of dividends from retained earnings or reserves

Dividends distributed from (in R$ thousand):	Financial Year Ended December 31,		
	2016	2015	2014
Retained Earnings	-	-	-
Realization of Reserves	-	5,026,450	8,993,855

3.7 - Level of indebtedness

Accounting year	Sum of current liabilities and non-current liabilities	Index Type	Indebtedness ratio	Description and reason for using another ratio
12/31/2016	R$ 188,994,000,000.00	Indebtedness Ratio	1.50000000	
12/31/2016	0	Other ratios	2.40000000	Gross Debt/Adjusted EBITDA. The index is based on the US dollar. Gross debt consists of the sum of "Short-term loans and financing", "Current portion of long-term loans" and "Long-term loans and financing". Adjusted EBITDA is calculated as described in item 3.2.b of this Annualized Reference Form covering the last twelve months - ADJUSTED EBITDA. The Gross Debt ratio/ Adjusted EBITDA indicates the approximate time it would take for a company to pay all debts using only its cash generation. The Company adopts the Gross Debt ratio/Adjusted EBITDA and the Adjusted EBITDA-to-Interest Coverage/Interest Expenses ratio. These ratios are widely used by the market (rating agencies and financial institutions) and serve as a reference to evaluate the Company's financial situation.
12/31/2016	0	Other ratios	6.8000000	Adjusted EBITDA / Interest Expense - This ratio is based on the US dollar. Adjusted EBITDA is calculated as described in item 3.2.b of this Reference Form excluding non-recurring items. Interest expenses comprise the sum of all interest appropriated or capitalized, whether paid or not, in a given period, arising from Company debt. The interest coverage ratio (Adjusted EBITDA / Interest Expense) is used to determine a company's ability to generate sufficient cash flow to cover its interest expense. The Company adopts the Gross Debt ratio/Adjusted EBITDA and the Adjusted EBITDA-to-Interest Coverage/Interest Expenses ratio. These ratios are widely used by the market (rating agencies and financial institutions) and serve as a reference to assess the Company's financial situation.

3.8 - Obligations according to the nature and maturity term

Most recent accounting info (12/31/2016)							
Type of obligation	**Type of Guarantee**	**Other Guarantees or Privileges**	**Less than a year**	**One to three years**	**Three to five years**	**Greater than five years**	**Total**
Debt securities	Unsecured		R$ 1,325,867,490.98	R$ 5,837,900,000.00	R$ 8,732,974,999.99	R$ 35,138,106,934.36	R$ 51,034,849,425.33
Loans	Other guarantees or privileges	Unsecured and Real. See the topic "Remarks" below.	R$ 4,190,460,893.61	R$ 17,868,511,728.29	R$ 13,208,047,798.94	R$ 9,261,939,854.87	R$ 44,528,960,275.71
Total			**R$ 5,516,328,384.59**	**R$ 23,706,411,728.29**	**R$ 21,941,022,798.93**	**R$ 44,400,046,789.23**	**R$ 95,563,809,701.04**

Note: The information contained in this item refers to the Company's consolidated financial statements. Debts without a real or floating guarantee, regardless of whether they have a personal guarantee, were classified as unsecured debts. The debts guaranteed with third party assets, while they did not encumber the Company's assets, were considered as unsecured debts and classified as such. The debt securities field comprises debt securities and capital market operations. The Loans field was composed on December 31, 2016 for (i) R$ 1.54 billion of loans secured by real guarantees and (ii) R$ 42.99 billion refers to unsecured loans.

3.9 - Other relevant information

Additional Information on Financial Contracts

Part of the financing agreements entered into by the Company, as well as the outstanding debt securities issued by the Company (for more information on such securities, see item 18 of this Reference Form) contain clauses that determine the early maturity of the outstanding instalments in the event of early maturity (Cross acceleration) of another financial agreement signed with the same counterpart and/or any other financial agreement.

The Company also clarifies that since the end of the fiscal year ended December 31, 2016, the Company has already prepaid EUR 750 million of debt in March (corresponding to R$ 2.54 billion) and another of US$ 740 million in April (corresponding to R$ 2.37 billion). On March 31, 2017, net debt totaled US$ 22.777 billion (corresponding to R$ 72.27 billion), with a cash position of US$ 6.779 billion (corresponding to R$ 21.52 billion). This cash position will be used to implement the liability management program with the intention of reducing gross debt in 2017.

Additional Information on Dividend Distributions

Vale recorded a net loss of R$ 44,212 million related to the fiscal year ended December 31, 2015, and this said loss is absorbed in accordance with the sole paragraph of art. 189 of Law No. 6404/1976. Accordingly, no distribution of dividends was approved by the Annual Shareholders' Meeting held on April 25, 2016.

Note that the dividends and interest on shareholders' equity distributed by the Company in said fiinancial year of 2015, as indicated in item 3.6 above, were distributed based on the retained earnings reserves approved in the balance sheet for 2014. Considering these retentions, the Board of Directors, at its meeting on (a) April 14, 2015, approved the payment, as of April 30, 2015, of the first instalment of minimum compensation to Vale's shareholders for 2015, in the total Gross amount of R$ 3,101,100,000.00 in the form of interest on equity, corresponding to the total gross amount of R$ 0.601760991 per outstanding common or preferred share, issued by Vale, which is subject to Income Tax at the current rate; (b) October 15, 2015, payment, as of October 30, 2015, of the second instalment of the compensation to shareholders for 2015 in the form of dividends, in the total gross amount of R$ 1,925,350,000.00, corresponding to the value of R$ 0.3773609533 per outstanding common or preferred share issued by Vale.

Additionally, the Company clarifies that an amendment to the shareholder remuneration policy was approved at the Annual and Extraordinary Shareholders' Meeting held on April 25, 2016. Under the terms of the approved policy:

- Shareholder remuneration will be at the discretion of the Board of Directors, who will deliberate on the amount to be distributed according to the situation of the Company's business, considering, among other factors, the Company's level of leverage and future cash commitments.

- The proposal for remuneration to the shareholders will be analyzed and should payment be authorized, it will be made in two payments. The first instalment (initial instalment) will be analyzed and, if applicable, paid in October of the current year and the second instalment (complementary instalment) will be analyzed and, if applicable, paid until the end of April of the following year. The amount of the first instalment will be determined based on the accumulated results of the period by the Company and the estimated free cash flow generation for that year. The value of the second instalment will be defined after the calculation of the result for the fiscal year.

- The proposal for the first instalment of shareholders' remuneration will be submitted by the Executive Board for deliberation by the Board of Directors in October of each year and will be announced to the market as soon as it is approved. The second portion of the remuneration will be included in the proposed allocation of net income for the year, to be submitted by the Executive Board to the Board of Directors within the first three months of the subsequent year. The amount related to the second instalment will be announced to the market after its approval by the Board of Directors, with payment subject to approval by the Annual General Meeting.

- The amount of the first parcel of the shareholder's remuneration will be expressed in US dollars and the payment will be made in the form of dividends and/or interest on equity. The amount determined will be paid in Brazilian currency, with the conversion of the amount proposed in US dollars into Reais made based on the US dollar exchange rate (Ptax-option 5), quoted by the Central Bank of Brazil (BACEN), on the business day immediately prior to the meeting of the Board of Directors who deliberated on the declaration and the respective payment of such remuneration to the shareholders. The value of the second instalment will be expressed and paid in Reais, and payment may be made in the form of dividends and/or interest on equity. The equivalent value in US dollars will be calculated based on the US dollar exchange rate (Ptax-option 5), published by the Central Bank of Brazil (BACEN), on the business day immediately prior to payment.

- During the year, the Board of Executive Officers may propose to the Board of Directors, based on an analysis of the Company's cash flow evolution and the availability of profits or reserves of existing profits, for the distribution to shareholders of a remuneration in addition to those amounts paid in October or April.

4.1 - Description of risk factors

(a) Risks related to the Company

The Company may not be able to adjust production volume in a timely or cost-effective manner in response to changes in demand.

Lower utilization of the Company's capacity during periods of weak demand may expose the Company to higher production costs per unit, since a significant part of its cost structure is fixed in the short term due to the high capital intensity of mining operations. In addition, efforts to reduce costs during periods of weak demand may be limited by labor regulations or collective bargaining agreements or by agreements made with the previous government.

On the other hand, during periods of high demand, Vale's ability to rapidly increase production is limited, which may make it unable to meet the demand for its products. In addition, it is possible that the Company may not be able to complete expansions and new Greenfield projects in time to take advantage of the growing demand for iron ore, nickel or other products. When demand outstrips its production capacity, the Company will be able to meet the excess demand through the purchase of iron ore, iron ore pellets or nickel from joint ventures or resell them, increasing their costs and reducing their operating margins. If it is not able to meet the excess demand of its customers in this way, Vale may lose these customers. In addition, operating near full capacity may expose the Company to higher costs, including over-stay rates (Demurrage) due to constraints on the capacity of their logistics systems.

Lower cash flows, due to the fall in prices of the Company's products, negatively affected the Company's credit ratings, as well as the cost and availability of financing.

The lower prices for the Company's products can adversely affect its future cash flows, Credit ratings and the ability to obtain financing at attractive rates. This may also adversely affect their ability to finance their capital investments, pay dividends and meet financial commitments (Covenants) included in some of its long-term debt securities.

In addition, certain Canadian provinces where the Company operates require the provision of financial guarantees from Vale, such as letters of credit, sureties or guarantees, to cover certain closing and recovery costs upon completion of its operations. The Company may be required to increase the value of these financial guarantees if its credit assessment is downgraded to certain levels. If Vale is unable to provide such financial guarantees, it will have to discuss with other competent jurisdictions alternative options and, ultimately, this could affect its ability to operate in such jurisdictions.

It is possible that the Company may not be able to implement its strategy regarding divestitures and strategic partnerships.

In recent years, the Company has entered into contracts for the sale of assets and strategic partnerships, in order to optimize its business portfolio and implement its financing strategy and capital investment plans. It is possible that the Company will continue to seek divestitures and strategic partnerships in the future. The Company is exposed to a number of risks in relation to these transactions, including the imposition of regulatory conditions, the inability to meet the conditions for completion or receipt of additional payments, in addition to negative market reactions. If the Company is unable to complete divestitures or strategic partnerships, especially the sale of its fertilizer business or the partnership in its coal assets in Mozambique, it may have to review its business and financing strategy and incur additional costs, which could, in turn, adversely affect its operating results, financial condition or reputation.

The Company is involved in lawsuits that may have a material adverse effect on its business in the event of unfavorable results.

The Company is involved in lawsuits in where the opposing parties are claiming substantial amounts, including various lawsuits and investigations related to the breach of the Fundão tailings dam owned by Samarco. Although the Company is vigorously contesting these actions, the outcome is uncertain and may result in obligations that could materially adversely affect its business and the value of the securities issued by Vale and its subsidiaries. For information on such processes, see items 4.3 to 4.7 below.

The Company's projects are subject to risks that may result in an increase in costs or a delay in their implementation.

The Company is investing to maintain and increase its production capacity and logistics. Vale regularly reviews the economic viability of its projects. As a result of this analysis, the Company may decide to delay, suspend or interrupt the implementation of certain projects. Its projects are also subject to several risks that may adversely affect their prospects for growth and profitability, including the following:

- The Company may not be able to obtain financing at attractive rates.
- There may be delays or costs greater than that anticipated in obtaining the necessary equipment or services and in implementing new technologies to build and operate a project.
- Efforts to develop projects on schedule may be hampered by the lack of infrastructure, including reliable telecommunication and energy supply services.
- Suppliers and contractors may not fulfil their contractual obligations assumed with the Company.
- Unexpected weather conditions or other force majeure events could be faced.
- The Company may not be able to obtain the permits and licenses required to construct a certain project, or it may suffer delays or costs that are greater than those expected for obtaining or renewal of certain permits and licenses
- Changes in market conditions or regulations may make the project less profitable than expected at the time the work is started.
- There may be accidents or incidents during project implementation.
- One can face shortage of qualified personnel.

Operational problems can negatively and significantly affect the Company's business and financial performance.

Inefficient project management and operational failures can lead to the suspension or reduction of the Company's operations, causing a general reduction in its productivity. Operational incidents can lead to failures in plants and machinery. It is never certain that inefficient project management or other operational problems will not occur. Any losses to the Company's projects or delays in its operations caused by inefficient project management or operational incidents can negatively and significantly affect its business and operational results.

The Company's businesses are subject to several operational risks that may adversely affect the results of its operations, such as:

- Unexpected climatic conditions or other force majeure events.

- Adverse mining conditions can delay or hinder their ability to produce the expected amount of minerals and meet the specifications required by customers, which can lead to price adjustments.

- There may be accidents or incidents involving mines and associated infrastructure, such as dams, power plants, railways, railway bridges, ports and ships.

- Delays or interruptions in the transportation of their products, including on the railways, in ports and ships.

- Tropical diseases, HIV/AIDS and other contagious diseases in regions where some of its operations or some of its projects are located, posing risks to the health and safety of its employees.

- Labor lawsuits may interrupt their operations from time to time.

- Changes in market conditions or regulations may affect the economic prospects of an operation and render it incompatible with the Company's business strategy.

- Failure to obtain renewal of required licenses and permits, or delays with obtaining same, or higher-than-expected costs to obtain them.

- Interruptions or unavailability of crucial information technology services or systems resulting from accidents or malicious acts.

The Company's business may be adversely affected by the failure of its counterparts to meet their obligations.

Customers, suppliers, contractors, financial institutions, joint ventures and other counterparts may fail to comply with existing contracts and obligations and may have an unfavorable impact on the Company's operations and financial results. The ability of the Company's suppliers and customers to meet their obligations may be adversely affected in times of financial stress or during an economic downturn.

Through joint ventures, Vale currently operates a significant part of its ore segments Iron, pelletizing, nickel, coal, copper, fertilizers, bauxite and steel. Important parts of its investments and electrical energy projects are operated through consortiums or joint ventures. The projections and plans for these joint ventures and consortiums are based on the premise that their partners will fulfill their obligations to make their capital contributions, purchase products and, in some cases, provide qualified and competent management personnel. If any of their partners fail to meet their commitments, the joint venture or the affected consortium may not be able to operate in accordance with its business plans, or it is possible that the Company may have to increase the level of its investment to implement those plans.

Some of the Company's investments are controlled by partners or may have a separate and independent management. These investments may not fully comply with the Company's standards, controls and procedures, including health, safety, environment and community standards. Failure to adopt the appropriate standards, controls and procedures by any of its partners or joint ventures can raise costs, reduce production or cause environmental, health and safety incidents or accidents, which can adversely affect the Company's results and reputation.

The Company may not have adequate insurance coverage for some of the risks concerning its business.

The Company's business is generally subject to various risks and dangers, which may result in damage or destruction of property, plant and equipment. The insurance that Vale maintains against typical risks in its business may not provide adequate coverage. Insurance against certain risks (including liability for pollution or certain damages to the environment or disruption of certain activities of their business) may not be available at a reasonable cost or at any cost. Even when available, the Company may self-insure when determining that such an act will bring a greater cost-benefit. As a consequence, accidents or other negative occurrences involving the mining, production, or transportation facilities may adversely affect the operations.

The Company's reserve deposit estimates may differ materially from the mineral volumes that the Company can actually recover. Their estimates of mine useful productive life may not be accurate, and fluctuations in market prices and changes in operating and capital costs may make certain ore reserves economically nonviable for mining.

Reported reserves are estimated amounts of ore and minerals that the Company determines to be economically feasible to be mined and processed, in accordance with present and future assumed conditions. There are numerous uncertainties inherent in estimating the quantity of reserves and projecting possible future mineral production rates, including factors beyond the Company's control. The reserve report involves estimating mineral deposits that cannot be measured accurately and the accuracy of any reserve estimates is a function of the quality of the data available and the interpretation and judgement of engineers and geologists. As a result, it is not possible to guarantee that the quantity of ore indicated will be recovered or that it will be recovered at the rates that the Company expects. Reserve estimates and the mine`s useful life may require revisions based on actual production experience, projects, up-to-date exploratory drilling data, and other factors. For example, lower market prices for minerals and metals, reduced recovery rates or increased operating costs and capital costs due to inflation, exchange rates, changes in regulatory requirements or other factors, may make proved reserves unprofitable for exploitation and eventually result in a reduction of these reserves. Such reduction may affect depreciation and amortization rates and cause a negative impact on the Company's financial performance.

The Company may not be able to rebuild its reserves, which may adversely affect its mining prospects.

The Company is involved in mineral exploration, which is highly uncertain in nature, involves many risks and is often unproductive. Its exploration programs, which involve significant expenses, may not result in the expansion or replacement of reduced reserves through current production. If the Company does not develop new reserves, it will not be able to sustain its current level of production beyond the remaining useful lives of its existing mines.

The viability of new mineral projects may change over time.

Once mineral deposits are discovered, it may take several years from the initial drilling phases until production is possible, a period in which the economic viability of production may change. Substantial time and expenses are required to:

- Establish ore reserves through drilling;
- Determine the appropriate mining and metallurgical processes to optimize the recovery of the metal contained in the ore;
- Obtain environmental and other licenses;
- Construct mining and processing facilities and infrastructure necessary for Greenfield

operations; and

- to obtain the ore or extract the minerals from the ore.

If it is proven that a project is not economically viable at the time the Company is able to exploit it, it may suffer substantial losses and be required to write off the assets. In addition, possible changes or complications involving metallurgical processes and other technological processes that arise during a project can result in delays and excess costs which, in turn, may make the project not economically viable.

The Company faces an increase in extraction costs or investment requirements as reserves are reduced.

Reserves are gradually reduced during the normal course of a given underground or open-cast mining operation. As mining progresses, distances from the primary crusher and tailing deposits become larger, trenches become steeper, mines can shift from open-cast to underground, and underground operations become deeper. In addition, in some types of reserves, the mineralization content reduces and the solidity increases with greater depths. As a result, over time, the Company generally experiences an increase in the unit extraction costs of each mine, or may need to make additional investments, including adaptation or construction of processing plants and expansion or construction of tailing dams. Many of the Company's mines have been operated for long periods, and it is probable that the Company will experience an increase in unit extraction costs in the future in these special operations.

Labor lawsuits may eventually interrupt the Company's operations.

A considerable number of Company employees and some of the employees of their subcontractors are represented by unions and are backed by collective agreements or other labor agreements, which are subject to periodic negotiation. Strikes and other work stoppages in any of its operations may adversely affect the operation of these facilities, the completion period, and the cost of the Company's major projects. For more information on labor relations, see item 14 of this Reference Form.

In addition, the Company may be adversely affected by work stoppages involving third parties who maybe providing us with goods or services.

Higher costs with energy or energy shortages can negatively affect the Company's business.

Fuel, diesel and electricity costs are a significant component of the Company's production cost, accounting for 10.9% of its total cost of goods sold in 2016. To meet its demand for energy, the Company relies on the following resources: petroleum products, which accounted for 36% of total energy needs in 2016, electricity (32%), natural gas (15%), coal (15%) and other sources of energy (2%).

Electricity costs accounted for 3.9% of its total cost of goods sold in 2016. If the Company cannot guarantee safe access to electrical energy at acceptable prices, it may be required to reduce production or may experience higher production costs, both of which may adversely affect its operating results. The Company faces the risk of energy shortages in countries where it maintains operations and projects, especially in Brazil, due to lack of infrastructure or climatic conditions, such as floods or droughts. Future scarcity and government efforts to respond to or avoid shortages may have an adverse impact on the cost or supply of electricity to the Company's operations.

Failures in the Company's information technology systems or difficulties in integrating new business resource planning software may interfere with the normal operation of the Company's business.

The Company has technology information systems ("IT") for the operation of several of their business processes. Failures in the IT systems, whether caused by accident or malicious acts, can result in the disclosure or theft of sensitive information, misappropriation of resources, and disruption to one's operations.

The Company's governance and compliance processes may fail to avoid regulatory penalties and damage to its reputation.

The Company operates in a global environment and its activities span multiple jurisdictions and complex regulatory structures with increasing legal obligations worldwide. Its governance and compliance processes, which include analysis of internal controls through financial reporting, may not be able to prevent future violations of the law, of their accounting standards or governance. The Company may be subject to violations of its Code of Ethics and Conduct, its anti-corruption policies, business conduct protocols, and instances of fraudulent behavior and dishonesty on the part of its employees, contractors and other agents. Failure to comply with applicable of laws and other standards by the Company may result in fines, loss of operating licenses and loss of reputation.

It may be difficult for investors to enforce any court judgement issued outside Brazil against the Company or any of its associates.

The Company's investors may be located in jurisdictions outside Brazil and may file lawsuits against it or against the members of the Board or executive officers under the Judiciary of its forums of origin. Vale is a Brazilian company, and most of its directors and members of the Board reside in Brazil. The vast majority of the Company's assets and the assets of its directors and members of the Board are likely to be located in jurisdictions other than the jurisdictions of its foreign investors. It may not be possible for investors located outside Brazil to file the summons within their jurisdiction against the Company or its directors or members of the Board of Directors residing outside its jurisdiction. In addition, a final foreign judgement may be executed in the Brazilian judiciary without a new examination of merit, only if previously filed with the Superior Court of Justice, and the filing will only be granted if the foreign judgement: (a) complies with all the formalities required for its taxability under the law of the country where it was issued; (b) has been rendered by a competent court after the due summons of the defendant, as required by applicable law; (c) is not subject to appeal; (d) does not conflict with a final and un-appealable decision rendered by a Brazilian court; (e) has been authenticated by a Brazilian consulate in the country where it was issued or is duly filed in accordance with the Convention for the Abolishment of the Requirement of Legalization for Foreign Public Documents and accompanied by a sworn translation into Portuguese, unless such procedure has been exempted by an international treaty signed by Brazil; (f) does not cover matters which should be under the exclusive competence of the Brazilian judiciary; and (g) is not contrary to Brazilian national sovereignty, public policies or good customs. Therefore, investors may not obtain a favorable judgement in any legal proceedings against the Company or its directors and executive officers in judgements in the courts of origin from these courts when such judgement is based on the laws of such foreign courts.

(b) Risks related to the Controller or Controlling Group of the Company and (c) Risks related to the Company's shareholders.

The controlling shareholder of the Company has significant influence over Vale, and the Brazilian Federal Government has certain veto rights.

On March 31, 2017, Valepar S.A. ("Valepar") held 53.9% of the common shares and 33.7% of the Company's total capital. As a result of this equity interest, Valepar may elect a majority of the members of the Board of Directors and control the results of certain actions that require the approval of the shareholders. Valepar's shareholders are part of a shareholders' agreement

governing Valepar's shares as if they were Vale's shareholder. The current shareholders' agreement came into effect on May 10, 2017 and will be in force for a period of six months or until Valepar's merger with Vale. The new shareholders' agreement contemplates a proposal to change the Company's governance structure and to enter into a shareholders' agreement at the Vale level, binding on 20% of its common shares, which will continue to provide significant influence to these shareholders. For a description of the Company's shareholding structure, regarding Valepar's current shareholders' agreement, see item 15 of this Reference Form.

The Brazilian Federal Government holds 12 special class preferred shares (Golden shares*)* of Vale, which give it veto power over certain matters involving the Company, such as changes in the corporate name, location of its headquarters and its corporate purpose, regarding mining activities. For a detailed description of the veto power of these *Golden shares*, see item 18.1 of this Reference Form.

The implementation of a change in the Company's capital structure and governance, and any potential benefits are subject to uncertainty and may not lead to the benefits that the Company expects to achieve.

In accordance with the Valepar shareholders' agreement, which entered into force on May 10, 2017, Valepar presented a proposal to simplify the Company's shareholding structure and corporate governance, with the purpose of eventually allowing Vale to be listed on the special segment of the BM & FBOVESPA New Markets, making it a company without defined control.

The implementation of the proposal to simplify the Company's shareholding structure is subject, among other requirements, to (i) the approval of the proposal, including the merger of Valepar by Vale, by the shareholders, Executive Officers and members of the Board of Directors of Vale and Valepar and (ii) the acceptance of at least 54.09% of the class A preferred shares from the voluntary conversion into common shares within 45 days of the shareholders' meeting decision on the matter. It is not possible to predict how long it will take to implement all the necessary steps or whether even if they will be implemented successfully. Finally, the Company cannot predict whether or when it will migrate to the New Market segment of BM & FBOVESPA, since the listing is subject to the conversion of all its preferred shares into common shares.

Uncertainty about timing and actual implementation may delay or limit the Company's ability to derive certain benefits that may be derived from the simplified corporate structure and the eventual migration to the New Market, such as increased liquidity for shareholders. There can be no assurance that these benefits will be fully realized and any failure to achieve these benefits may affect the value of the Company's shares and ADSs.

(d) Risks related to the Company's subsidiaries.

For information on the risks related to companies invested by the Company, see the Risk Factor described in item (a) above: "*The Company may have its business affected adversely if its counterparts do not meet their obligations."*

(e) Risks related to Company suppliers

For information on risks related to the Company's suppliers, see the Risk Factors described in item (a) above: "*Higher costs with energy or energy shortages can affect the Company's business* negatively" and "*The Company may have its business affected adversely if its counterparts do not meet their obligations."*

(f) Risks related to the Company's clients

The Company's business may be adversely affected by declines in demand and prices of products produced by its clients.

Demand for iron ore, coal and nickel products depends on global demand for steel. Iron ore and pellets, which accounted for 71.5% of the Company's net operating revenues in 2016, are used for the production of carbon steel. Nickel, which accounts for 11.1% of the Company's net operating revenue in 2016, is mainly used to produce stainless steel and steel alloys. Demand for steel depends largely on global economic conditions, but it also depends on a variety of regional and sectoral factors. The prices of different types of steel and the performance of the global steel industry are highly cyclical and volatile, and these business cycles in the steel industry affect the demand and prices of their products. In addition, the vertical integration of the number of steel and stainless steel industries and the use of scrap can reduce global trans-ocean trade in iron ore and primary nickel. Demand for copper is affected by demand for copper wire and a sustained decline in demand in the construction industry could have a negative impact on the Company's copper business.

For information on other risks related to the Company's customers, see the Risk Factor described in item (a) above: and "*The Company may have its business affected adversely if its counterparts do not meet their obligations."*

(g) Risks Relating to the Economy Sectors in which the Company operates

The Company's businesses are exposed to the cyclical effect of global economic activity and require significant capital investments.

As a mining company, Vale is a supplier of industrial raw materials. Industrial production tends to be the most cyclical and volatile component of all global economic activity, affecting the demand for minerals and metals. At the same time, investment in mining requires a substantial amount of financial resources in order to replenish reserves, expand and maintain production capacity, build infrastructure, preserve the environment, and minimize social impacts. Sensitivity to industrial production, coupled with the need for significant long-term capital investments, are important sources of potential risk to Vale's financial performance and growth prospects.

The adverse economic developments in China may have a negative impact on Vale's revenue, cash flow and profitability.

China has been the main driver of global demand for minerals and metals in recent years. In 2016, China's demand accounted for 72% of global transoceanic demand for iron ore, 52% of global demand for nickel and 48% of global demand for copper. The percentage of the Company's net operating revenue attributable to consumer sales in China was 46.4% in 2016.

Therefore, any slowdown in China's economic growth may result in a reduction in demand for products, leading to a reduction in revenue, cash flow and profitability. Weak performance in Chinese real estate, the largest consumer of carbon steel in China, would also have a negative impact on the Company's results.

(h) Risks Relating to the Regulation of Sectors in which the Company operates

Political, economic and social conditions in countries where the Company operates or has projects may have an adverse impact on its business.

Vale may have its financial performance negatively affected by regulatory, political, economic and social conditions in the countries where it operates or has relevant projects. In many of these jurisdictions, Vale is exposed to a number of risks, including political instability, bribery, extortion, corruption, robbery, sabotage, kidnapping, civil war, acts of war, guerrilla activities, piracy on international transportation routes, and terrorism.

These problems may adversely affect the economic conditions and other conditions under which the Company operates in various ways, significantly impairing its business. For example, sections of the Carajás (EFC) railroad in the Brazilian State of Pará and other railroads around the world are subject to disruptions that may adversely affect operations and adversely affect the Company's business.

Disagreements with the local communities where the Company operates may have a negative impact on its business and reputation.

There may be disputes with the communities where the Company operates. In some cases, the Company's operations and mineral reserves are located on indigenous lands or on neighboring lands owned or used by indigenous tribes or other interested parties.

Some of the Company's mining operations and other operations are located in territories whose ownership may be subject to disputes or uncertainties, or in areas intended for agriculture, or for agrarian reform purposes, which may lead to disagreements with landowners, community organizations, local communities and the government. The Company may be required to consult such groups and negotiate with them as part of the process to obtain the necessary licenses to operate in order to minimize the impact on their operations or to gain access to their land.

Disagreements or legal disputes with local groups, including indigenous groups, organized social movements, and local communities may cause delays or disruptions to operations, adversely affecting the Company's reputation, or impair its ability to develop its reserves and conduct its operations. There have already been situations where demonstrators acted to interrupt the Company's operations and projects, and may continue to do so in the future, which could adversely affect the Company's operations and adversely affect its business.

The Company may be adversely affected by changes in public policies or by trends such as the nationalization of resources, including the imposition of new taxes or royalties on mining activities.

Mining is subject to government regulation, including taxes and Royalties, which may have a material financial impact on the Company's operations. In the countries where the Company is present, the Company is exposed to potential renegotiation, cancellation or forced modification of existing contracts and licenses, expropriation or nationalization of properties, exchange controls, changes in local laws, regulations and policies. The Company is also exposed to new taxes or increased tax rates and royalties, reduction in exemptions and tax benefits, renegotiation of fiscal stabilization agreements or changes in the calculation basis in a way unfavorable to the Company. Governments that have committed themselves to establishing a stable taxation or regulatory environment can change or shorten the duration of these commitments.
The Company also faces the risk of having to submit to the jurisdiction of a foreign arbitration forum or tribunal, or having to enforce a judgement against a sovereign nation within its own territory.

The Company is also required to meet internal processing requirements in certain countries in which it operates, such as local processing standards, export taxes or restrictions, or charges on unprocessed ores. The imposition or increase of such requirements, taxes or charges can significantly increase the risk profile and operating costs in those jurisdictions. The Company and the mining sector are subject to a tendency to increase the nationalism of resources in certain countries where it operates, which may result in restrictions on its operations, increased taxation or even expropriations and nationalization.

The concessions, authorizations, licenses and permits are subject to expiration, limitation or renewal and various other risks and uncertainties.

Vale's operations depend on authorizations and concessions from government regulatory agencies in the countries where it operates. The Company is subject to the laws and regulations in many jurisdictions, which may change at any time, and such changes in laws and regulations

may require modifications to Vale's technologies and operations, resulting in unexpected capital expenditures.

Some of Vale's mining concessions are subject to fixed expiration dates and may only be renewed for a limited number of times, for a limited period. In addition to the mining concessions, it is possible that the Company will have to obtain several authorizations, licenses and permits from public agencies and regulatory agencies regarding the planning, maintenance, operation and closure of the Company's mines and associated logistics infrastructure, which may be subject to fixed expiry dates or periodic revision or renewal. There is no guarantee that such renewals will be granted when requested, and there is no guarantee that new conditions will not be imposed up on renewal. The fees due for mining concessions may increase substantially over time, from that of the original issue of each individual exploration license. If this happens, the costs of obtaining or renewing the mining concessions may render the Company's business objectives unfeasible. Accordingly, the Company needs to continuously assess the mineral potential of each mining concession, especially at the time of renewal, in order to determine whether the maintenance costs of the concessions are justified by the results of operations so far, and thus may opt to allow some concessions to expire. It cannot be certain that such concessions will be obtained on terms favorable to the Company, or even obtained, for the Company's mining plans or future exploration targets.

In several jurisdictions where the Company has exploration projects, it may be required to return to the State a certain portion of the area covered by the exploration license as a condition to renew the license or obtain a mining concession. This obligation may lead to a substantial loss of part of the mineral deposit originally identified in its feasibility studies. For more information on mining concessions and other similar rights, see "Regulation of mining activities" in item 7 of this Reference Form.

(i) Risks related to ADSs (*American Depositary Shares*) belonging to The Company

If holders of ADSs exchange their ADSs for underlying shares, they risk losing the ability to remit foreign currency abroad.

The custodian of the underlying shares of the Company's ADSs maintains a registration with the Central Bank of Brazil, giving it the right to remit US dollars outside Brazil for dividend payments and other distributions related to the shares underlying the ADSs or through disposal of the underlying shares. If the holder of an ADR exchanges his ADSs for the underlying shares, he will

be entitled to rely on the custodian's registration for only five business days from the date of exchange. Thereafter, an ADR holder may not be able to obtain and remit foreign currency abroad through the disposal or distributions relating to the underlying shares unless he obtains his own registration in accordance with applicable regulations allowing qualified foreign institutional investors to buy and sell securities at the BM & FBOVESPA. If the ADR holder attempts to obtain his registration, he may incur expenses or be late in the application process, which may delay the receipt of dividends and other distributions relating to the underlying shares or the return of capital in a timely manner.

The record of the custodian or any record obtained may be affected by future changes in the law, and additional restrictions applicable to holders of ADRs, the disposal of the underlying shares or the repatriation of the proceeds from the sale may be imposed in the future.

Holders of ADRs may not be able to exercise their preemptive rights in respect of the underlying shares of their ADSs.

The ability of ADR holders to exercise their preemptive rights is not assured, especially if the applicable law in the holder's jurisdiction (for example, the *Securities Act* in the United States) to require that a registration statement be effective or an exemption from registration be available

in respect of such rights, as in the case of the United States. The Company is not required to extend the offer of preemptive rights to ARDS holders, to file a registration statement in the United States, or to make any similar registration under any other jurisdiction, regarding preemptive rights, or to take such measures as may be necessary to provide exemptions from the registration, and cannot assure the holders that it will make any registration statement or take such measures.

Holders of ADRs may find it difficult to exercise their voting rights.

Holders of ADRs do not have shareholder rights. They have only the contractual rights established regarding their benefit in the deposit agreements. Holders of ADRs are not permitted to attend general meetings and may only vote by providing instructions to the depositary. In practice, the ability of a holder of ADRs to instruct the depositary on how to vote will depend on the timing and procedures for providing instructions to the depositary, either directly or through the holder's clearing and custody rights. With respect to ADSs for which no instructions are received, the depositary may, subject to certain limitations, grant a power of attorney to a person designated by the Company.

Legal protections for holders of the Company's securities differ from one jurisdiction to another and may be inconsistent, unfamiliar or less effective in relation to investor expectations.

Vale is a global company with securities traded in various markets and with investors located in many different countries. The legal regime for investor protection varies across the world, sometimes in important respects, and investors in our securities must recognize that the protections and remedies available to them may be different from those they are accustomed to in their local markets. The Company is subject to securities legislation in several countries that have different standards, monitoring and enforcement practices. The only Corporate S.A. law applicable to the company is the Brazilian corporation law, with its specific and substantial legal rules and procedures. The Company is also subject to corporate governance standards in several jurisdictions where its securities are listed, but only as a foreign private issuer, the Company is not required to follow many of the corporate governance standards applied to US domestic issuers with securities listed in the New York Stock Exchange and is not subject to US procurement rules.

(j) Risks related to socio-environmental issues

The potential obligations and liabilities arising from the rupture of the tailings dam owned by Samarco Mineração S.A. ("Samarco") in Minas Gerais may adversely affect the Company's business, financial condition and reputation.

In November 2015, the Samarco-owned Fundão tailings dam broke, causing environmental damage. The rupture of the Samarco tailings dam has adversely affected and will continue to affect the Company's business, but the overall impact is still uncertain and cannot yet be estimated. Below is an account of the main effects of the rupture of the dam on the Company's business.

- *Court lawsuits.* The Company is involved in several processes and investigations related to the dam rupture of Fundão, and other processes and investigations may be initiated in the future. These lawsuits include alleged collective actions by US investors against the Company and some of its directors, a criminal proceeding in Brazil, public civil actions filed by the Brazilian authorities and several lawsuits involving significant claims related to damages and remedial measures. Adverse results in such processes may adversely affect the liquidity and financial condition of the Company. For more information on these processes, see items 4.3 to 4.7 of this Reference Form.

Obligations of redress and other obligations. In March 2016, Samarco and its shareholders, Vale and BHP Billiton Brasil Ltda. ("BHPB"), a Brazilian subsidiary of BHP Billiton plc, concluded the Transaction Agreement and Adjustment of Conduct TAAC with some government authorities that Samarco, Vale and BHPB agree to create a foundation to develop and implement long-term compensation and compensation programs. In addition, in January 2017, Samarco, Vale and BHPB entered into preliminary agreements with the Federal Public Ministry ("MPF"), which provides, inter alia, for the appointment of experts selected by the MPF to review and monitor the repair programs created under the March 2016 TTAC, provide guarantees to ensure certain repair obligations, and a timetable for negotiation of a final agreement. For more information, see items 4.7 and 7.9 of this Reference Form.

As Samarco is currently unable to resume its activities, the Company and BHPB are financing the foundation and providing funds directly to Samarco in order to preserve its operations and support certain remedial measures undertaken by Samarco. Should Samarco continue to be unable to resume its operations or generate enough cash flows to finance the necessary repair measures under these agreements, the Company will be obliged to continue financing these repair measures, which in turn may adversely affect its financial condition and the results of its operations.

- *Risk of additional environmental damage.* Samarco continues to strengthen and improve its dams to contain the remaining tailings. Failure to contain the remaining tailings may cause additional environmental damage, additional impacts on Company operations, and additional claims, fines and lawsuits against Samarco and the Company. Failure to contain the remaining tailings could also affect the viability and schedule for the resumption of Samarco operations.

- *Other impacts*. The Company may face delays in obtaining an environmental operation permit for other tailing dams, and Brazilian authorities may impose stricter conditions in connection with the licensing process of its projects and operations. In addition, as one of Samarco's shareholders, the Company's reputation has been adversely affected by the rupture of the Samarco tailings dam.

The Company's business is subject to environmental, health and safety incidents.

The Company's operations involve the use, handling, storage, discharge and disposal of hazardous substances in the environment and the use of natural resources. As a result, the mining industry is generally subject to significant risks and dangers, including fire, explosion, toxic gas leakage, polluting substances or other hazardous materials, rock slides, dam-related accidents, failure of other operating structures and accidents involving vehicles, machinery and mobile equipment. This may occur by accident or by breach of operating and maintenance standards and may result in significant environmental and social impacts, damage or destruction of mineral property or production facilities, injury, illness or death of employees, service providers or members from the surrounding community to operations, environmental damage, production delays, financial losses and possible civil liability. In addition, in remote locations, employees may be exposed to tropical and contagious diseases that may affect their health and safety. Notwithstanding the Company's rules, policies and controls, its operations remain subject to incidents or accidents, which may adversely affect its stakeholders or reputation.

The Company's business may be adversely affected by environmental and health and safety regulations, including regulations related to climate change.

Almost all aspects of their activities, products, services and projects around the world are subject to environmental, health and safety regulations, which may expose them to increased liability or costs. Such regulations require Vale to have environmental permits, permits and authorizations

for its operations and projects and to carry out environmental and social impact assessments in order to obtain approval of its projects and permission to start construction. Significant changes in existing operations are also subject to these requirements. Difficulties in obtaining or renewing permits can lead to delays in construction, cost increases and may adversely impact production volumes. Environmental, health and safety regulations also impose standards and controls on activities related to mineral exploration, mining, pelleting activities, rail and maritime services, ports, decommissioning, refining, distribution and marketing of its products. Such regulation can entail significant costs and responsibilities. Disputes related to these and other matters may adversely affect the financial condition or harm the Company's reputation.

Environmental and health and safety regulations in many of the countries where Vale operates have become stricter in recent years, and it is possible that further regulation or stricter enforcement of existing regulations may adversely affect the Company by imposing restrictions in their activities and products, creating new requirements for the issuance or renewal of environmental licenses, increasing their costs or forcing them to engage in costly repair efforts. For example, changes in Brazilian legislation to protect diggings forced the Company to carry out extensive technical studies and negotiate compensatory measures with Brazilian environmental regulators in order to continue operating in certain locations. It is possible that in some of its iron ore operations or projects Vale may be required to limit or modify its mining plans or incur additional costs to preserve or compensate for impact, with potential consequences on the volumes of production, costs or reserves in its iron ore business. For more details on Brazilian environmental regulations regarding workings, see item 7 of this Reference Form.

In response to the rupture of the Samarco tailings dam in Minas Gerais, additional environmental, health and safety regulations and standards may arise in Brazil and authorities may impose stricter conditions regarding the licensing process of the Company's projects and operations. In addition, Vale may face delays in receiving the operating license for other tailing dams.

National policies and international regulations on climate change can affect many of the Company's businesses in several countries. Ratification of the Paris Accord in 2016 has increased international pressure to establish a global carbon price and on companies to adopt carbon pricing strategies. Pricing for greenhouse gas emissions can affect its operating costs, mainly through higher fossil fuel prices, since mining is an energy-intensive industry. The consumption of coal, one of the products that the Company sells, is facing pressure from international institutions due to its carbon intensity.

Regulatory initiatives at national and international levels that affect shipping practices could increase costs or force Vale to make new investments.

Natural disasters can cause serious damage to the Company's operations and projects in the countries in which it operates and may have a negative impact on its sales to countries affected by such disasters.

Natural disasters, such as windstorms, droughts, floods, earthquakes and tsunamis, can negatively affect Vale's operations and projects in the countries where it operates, and may generate a contraction in sales to affected countries, among other factors, by interrupting the supply of energy and the destruction of industrial facilities and infrastructure. The physical impact of climate change on business remains uncertain, but Vale may experience changes in precipitation patterns, rising temperatures, water shortages, rising sea levels, increasing frequency and intensity of storms because of climate change, which may adversely affect its operations. On some occasions in recent years, the Company has determined that force majeure events occurred due to the effect of bad weather on its mining and logistics activities.

4.2 – Description of main market risks

Political and economic instability in Brazil could affect the Company's business and the market price of its securities.

The Brazilian federal government's economic policies could have major effects on Brazilian companies, including Vale, and on market conditions and the prices of Brazilian companies' securities. The Company's financial condition and its operations' results could be negatively affected by the following factors and the federal government's reaction to these factors:

- Exchange rate movements and volatility;
- Inflation and high interest rates;
- Current account deficit financing;
- Liquidity of domestic capital and credit markets;
- Tax policy;
- Political instability resulting from allegations of corruption involving political parties, authorities or other elected public employees; and
- Other political, diplomatic, social and economic occurrences in Brazil or that affect Brazil.

Historically, Brazil's political situation has influenced the performance of the Brazilian economy and political crises have affected the confidence of investors and the general public, resulting in economic slowdowns and higher volatility in securities issued abroad by Brazilian companies. In August 2016, the Brazilian Congress approved the impeachment of President Dilma Rousseff. In addition, investigations into corruption under way have resulted in allegations against public officials, members of many political parties, and the managers and directors of various Brazilian companies. Political instability could exacerbate Brazil's economic uncertainties and increase the volatility of securities issued by Brazilian companies.

In 2015 and 2016, Brazil experienced an economic recession, adverse fiscal developments and political instability, which could continue in 2017. Brazil's GDP declined 3.6% in 2016 and 3.85% in 2015, while the unemployment rate rose from 6.9% in 2015 to 11.5% in 2016. Inflation as measured by the Extended National Consumer Price Index (IPCA) was 6.29% in 2016, 10.67% in 2015, and 6.41% in 2014. The Central Bank's base rate (SELIC) was 13.75% as of December 31, 2016, 14.25% as of December 31, 2015, and 11.75% as of December 31, 2014. Future economic, social and political events in Brazil could harm the Company's business, its financial conditions or the results of its operations, or depress the market value of its securities and shares.

Significant market risks applicable to the Company

The Company is exposed to various market risk factors that could impact its cash flow. Considering the nature of the Company's businesses and operations, the main market risk factors to which it is exposed are:

- exchange rates and interest rates;
- prices of products and inputs.

Exchange rate risk

The Company's cash flow is subject to the volatility of several currencies, given that the prices of its products are predominantly indexed to the US dollar, while a significant share of its costs, expenses and investments are indexed to other currencies, mainly the Brazilian real and Canadian dollar, as highlighted in the risk statement below:

Variations in the exchange rates of the currencies in which the Company carries out its operations could negatively affect its financial conditions and operating results.

A substantial share of the Company's revenue and debt is denominated in US dollars, and given that the Company's functional currency is the Brazilian real, variations in exchange rates could result in: (i) losses or gains in its net debt denominated in US dollars and in its accounts receivable; and (ii) losses or gains in the fair value of its exchange rate derivatives used to stabilize its cash flow in US dollars. In 2016, the Company posted exchange rate gains of US$3.3 billion, while in 2015 and 2014, the Company posted exchange rate losses of US$7.0 billion and US$2.1 billion, respectively. In addition, variations in the Brazilian real, Canadian dollar, Australian dollar, Indonesian rupee and other currencies in relation to the US dollar affect the Company's results, given that most of the costs of the products it sells are denominated in currencies other than the US dollar, especially the Brazilian real (55% in 2016) and Canadian dollar (12% in 2016), while the Company's revenues are mainly denominated in US dollars. Exchange rate fluctuations are likely to continue to affect the Company's revenues, financial expenses, and cash flow.

Significant volatility in exchange rates could also result in the interruption of foreign exchange markets and limit the Company's capacity to transfer or convert certain currencies into US dollars and other currencies in order to make interest and capital payments on its debts on time. The central banks and governments of the countries where the Company operates may establish restrictive exchange rate policies in future and levy taxes on exchange rate operations.

Interest rate risk

The Company is also exposed to the interest rates on its loans and financing. Debts with floating interest rates in US dollars mainly consist of loans that include operations for prepayment of exports and loans from commercial banks and multilateral organizations. In general, these debts are indexed to the London Interbank Offered Rate (Libor). Floating debts denominated in Brazilian reais are mainly indexed to the Brazilian Interbank Deposit Certificate rate (CDI), the Long-Term Interest Rate (TJLP), and Extended National Consumer Price Index (IPCA), but a large share of these debts are converted to fixed rates in US dollars through swap operations.

As of December 31, 2016, 70.3% of the Company's debts were denominated in US dollars (US$), corresponding to R$67,185.9 million, including R$43,284.8 million at fixed interest rates and R$23,901.0 million linked to Libor. Another 22.6% of the debt was denominated in Brazilian reais (R$), corresponding to R$21,589.1 million, including R$11,977.1 million linked to CDI, R$8,693.4 million linked to TJLP, and R$918.6 million at fixed interest rates and other arrangements. The 7.1% remaining part of the Company's debts, corresponding to R$6,788.6 million at fixed interest rates, was mainly denominated in euros (€).

Product and input price risk

The Company is exposed to market risks related to volatility in the prices of its products and production inputs, as highlighted below:

The prices charged by the Company, including the prices of iron ore, nickel, copper and coal, are subject to volatility.

International metal prices are subject to significant fluctuations and they are affected by many factors, including macroeconomic conditions and real and expected global policies, levels of supply and demand, the availability and cost of substitutes, inventory levels, technological developments, regulatory and foreign trade issues, investments by commodity funds, and actions by commodity market participants. The continuation of low market prices for the products sold by the Company could result in the suspension of some of its projects and operations, a reduction in its mineral reserves, and a decline in the value of its assets. This could negatively affect the Company's cash flow, financial situation and operational results.

The Company is most affected by movements in iron ore prices. For example, a price reduction of US$1 per dry metric ton in the average price of iron ore would have reduced the Company's operating profit in the year ending December 31, 2016 by approximately US$325 million. Average iron ore prices have changed significantly in the last four years, from US$135 per dry metric ton in 2013 to US$97 per dry metric ton in 2014 to US$ 55,5 per dry metric ton in 2015 and US$58.5 in 2016, according to the average Platts IODEX index (62% Fe CFR China). As of February 28, 2017, the average iron ore price in the Platts IODEX index was US$84.8 per dry metric ton. In addition to lower demand for iron ore, excess supply has also negatively affected the Company's prices since 2014, and supply could increase because of the planned completion of certain iron ore project in the next few years.

International nickel prices were adversely affected by lower demand in the first half of 2016, but in the second half of 2016 they benefited from higher demand, especially in the Chinese stainless steel sector. Nickel refining in China, which mainly uses imported nickel ores and related raw materials, expanded significantly between 2006 and 2015, and Chinese output of nickel pig iron represented 19% of global nickel production. Since 2014, Chinese nickel pig iron production has been adversely affected by export restrictions in nickel ore producing countries, but the revoking or loosening of export restrictions in these countries, such as Indonesia, could benefit nickel pig iron production in China, which in turn could adversely affect international nickel prices. In January 2017, the Indonesian government issued a ministerial decree permitting the controlled resumption of nickel ore exports from Indonesia.

For additional information on the average prices obtained for the products sold by the Company, see item 10.2 of this Reference Form.

For information on risks related to inputs, see the Risk Factors described in item 4.1(a) below: "*Higher energy costs or energy shortages could negatively affect the Company's business.*"

4.3 – Non-confidential, significant legal, administrative or arbitration proceedings

As of December 31, 2016, the [Company was not party to any non-confidential arbitration.]

(i) Labor lawsuits

As of December 31, 2016, the Company and its subsidiaries were party to 23,617 labor lawsuits, involving a total value of R$17.0 billion, for which the Company has made provisions of R$1.7 billion in light of the risks involved. The labor lawsuits filed against the Company are related to subjects such as overtime, paid traveling time, hazard pay, salary equalization, and outsourcing, among others.

The tables below present an individual description of the labor lawsuits considered significant to the businesses of the Company and/or its subsidiaries as of December 31, 2016:

1) Lawsuit 01266-2006-012	
Court	6th Panel of Superior Labor Court
Level of court	3rd instance
Date instigated	November 27, 2006
Parties	Labor Prosecutors' Office of Minas Gerais ("MPT-MG") (plaintiff) and Vale (defendant)
Sums, assets or rights involved	R$13,950,698.31
Main facts	On November 27, 2006, MPT-MG filed a class action lawsuit aimed at stopping the outsourcing of the following services: (i) operation of mining machines and equipment, such as wheel loaders, excavators and drilling rigs; (ii) monitoring and reading of instruments at tailings dams and waste rock piles; and (iii) production and execution of blasting plan. On August 20, 2009, a ruling was made (partially upheld), ordering Vale to stop outsourcing the aforementioned services, and to execute these activities using internal employees. The court deemed such services to be part of the Company's core activities, and therefore ineligible for being outsourced. On February 22, 2010, the Regional Labor Court of the 3rd Region ("TRT3") turned down the appeal filed by Vale and partially upheld the appeal by MPT-MG to grant temporary protection, forcing Vale to immediately start complying with the ruling. On May 18, 2010, Vale filed an appeal to review the case with the Superior Labor Court, claiming a violation of article 129, III of the Federal Constitution and article 83 of Complementary Law 75 of 1993, as well as a discrepancy in case law regarding a lack of collective interest in authorizing the filing of the class action lawsuit by MPT-MG, thereby making the lawsuit illegitimate and justifying ending the process without judgment of its merit (article 267, I and VI and article 295, V of the Code of Civil Procedure). Vale also argued that the case violates article 5, parts XXII, LIV and LV of the Federal Constitution, and article 899 of the Consolidated Labor Laws, due to the ungrounded judicial guarantee determined by TRT3 without instigating an enforcement procedure. Finally, Vale argued there had been a violation of parts II and XIII of article 5 and the main paragraph of article 170 of the Federal Constitution,

	due to disrespect for the right to free exercise of labor, in accordance with legal qualifications, given that the activities performed by service providers are specialized and may be legitimately hired. On May 21, 2010, in the case records of the provisional remedy requested by Vale, the Superior Labor Court approved the request for an injunction to suspend the temporary order calling for immediate compliance with the ruling. On July 19, 2010, Vale filed an appeal with the Superior Labor Court due to the inadmissibility of the appeal filed by TRT3. On March 18, 2015, the appeal filed by Vale requesting consideration of Vale's review appeal was upheld. On April 8, 2015, the review appeal was judged partially in Vale's favor, annulling the decision in response to the appeal requesting clarification issued by TRT3. Despite the aforementioned decision, MPT-MG deems that a fine is payable for alleged non-compliance with its decision and, as a precaution, Vale has calculated the amount demanded by the Public Prosecutors' Office (around R$7.6 million), which would be added to the original demands in the case and classified as a "remote loss" contingency. Because of the aforementioned questioning by MPT-MG, the amount involved in the case has been reassessed in order to consider new allegations made by MPT-MG regarding non-compliance with the court decision. Thus, the case's value was reassessed from R$856,000 on December 31, 2014 to R$12.8 million on December 31, 2015, even though Vale does not agree with the claim of non-compliance, nor with the levying of the fine. The case has returned to TRT3 for a new judgment of the appeal requesting clarification. A new review appeal has been filed and, because of its inadmissibility, another appeal has been filed, which is pending judgment by the 6th Panel of the Superior Labor Court.
Chance of loss	1.83% of the updated total demand has been classified as a Probable Loss, and the remaining amount has been classified as a Remote Los.
Analysis of impact in event of loss / Reasons this case is significant to the Company	If the unfavorable decision is upheld, Vale will be obliged, in the state of Minas Gerais, to abstain from outsourcing the aforementioned services, and instead it will have to execute these activities using its own employees, as well as terminate the outsourcing contracts it has for these services.
Notes	There is only one individual labor lawsuit filed by an employee of a service provision company containing on the list included in the case records of the class action lawsuit in question. The aim of this individual lawsuit is to recognize the worker's employment relationship with Vale (Ouro Preto Labor Court, lawsuit 1562-2012-069). Regarding the request to recognize the worker's employment relationship with Vale, the lawsuit was struck down at first and second instances, and the case

	was definitively ended on February 24, 2014.

2) Lawsuit 0000676-11.2012.5.24.0041	
Court	Corumbá Labor Court, Mato Grosso do Sul
Level of court	1st instance
Date instigated	October 24, 2012
Parties	Labor Prosecutors' Office of Mato Grosso do Sul ("MPT-MS") (plaintiff) and Mineração Corumbaense Reunida ("MCR") (defendant)
Sums, assets or rights involved	R$203,990.13
Main facts	MPT-MS filed a class action lawsuit, alleging that MCR must be forced to comply with the labor safety rules set forth in the Labor Regulations. On December 12, 2012, MCR presented its defense, arguing that it has always complied with the Regulations, and that the accident described in the lawsuit happened because the employee failed to follow the safety procedures and rules demanded by the Company. After the initial hearing, it was decided to hold an investigation to find out whether or not the Regulations were violated. A court decision was handed down, of no monetary value, ordering MCR merely to register its Specialized Safety Engineering Service (SESMT) and Workplace Medicine Service in accordance with the Regulations. Failure to comply with this order will result in a R$60,000 fine per occurrence, payable to the Worker Support Fund ("FAT") or another social fund that supports society, to be indicated in due course. The other requests were deemed groundless. MPT-MS filed an ordinary appeal, which was turned down, and it then filed a review appeal. The review appeal was upheld and it is now pending judgment.
Chance of loss	Considering that the 1st instance condemnation related to the court order was confirmed, a probable loss of R$1 was recorded. However, given that MCR has already complied with the order, correctly registering its SESMT with the Labor Ministry, the imposed levy is recorded as a possible loss.
Analysis of impact in event of loss / Reasons this case is significant to the Company	Non-compliance with the court order will lead to a fine of R$60,000 per occurrence, payable to FAT or another social fund, to be indicated in due course. The obligation imposed on MCR has already been complied with.

3) Lawsuit 00329.2006.92020003	
Court	Maruim Labor Court, Sergipe
Level of court	3rd instance (Superior Labor Court)
Date instigated	January 23, 2001
Parties	Vale S.A. (defendant) and Iron Mining, Base Metals and Precious Metals Labor Union (SINDIMINA) (plaintiff)
Sums, assets or rights involved	Guarantee of operational activities at potassium chloride mine in Sergipe
Main facts	Lawsuit filed by SINDIMINA in state of Sergipe on January 23, 2001, to demand that the working conditions of employees in the underground potash mine in Sergipe comply with

	Regulations NR-15, especially regarding mine temperature and noise level. Vale presented its defense on February 14, 2001, arguing that the union acted illegitimately in filing the lawsuit and that Regulations NR-15 had not been violated, to be proven in the evidence production phase. On February 20, 2006, a ruling was handed down, ordering measures to be taken within 30 days to improve the mine's cooling system, under penalty of the activities being halted until the implementation of the measures and a daily fine of R$100,000. On September 25, 2006, Vale filed an appeal with the Regional Labor Court. On August 7, 2007, the court partially upheld Vale's appeal to annul the sentence ordering the halting of mining activity and payment of a R$100,000 daily fine. On November 29, 2007, Vale filed an appeal with the Superior Labor Court, which was turned down on December 19, 2011. On February 6, 2012, Vale filed an appeal requesting clarification, which was turned down. In March 2012, Vale filed an appeal with the First Individual Disputes Section (SDI-1), and also an extraordinary appeal with the Supreme Federal Court. In November 2013, the parties filed a request for conciliation, and during a conciliation hearing it was agreed that a technical commission would be set up to examine the mine's working conditions. On May 18, 2015, the case was reassigned due to a move by Judge Walmir Correia da Costa. The technical report had already been produced by the parties, and the record is ready to be sent back to Judge Lélio Bentes from TST for continuing conciliantion.
Chance of loss	Probable
Analysis of impact in event of loss / Reasons this case is significant to the Company	Any unfavorable decision could result in the adoption of measures to adjust working hours and temperatures in the underground mine, under penalty of specific performance, fines and, in the worst scenario, the total or partial closure of the underground potassium chloride mine's activities. No provisions have been made for this lawsuit, (only a symbolic value of R$ 1.00), as it concerns specific performance (a court order to ensure that working conditions comply with relevant legal rules and regulations), with an impact on the future, but without any impact on past and present results. It should be noted that, regardless of the results of the demand, Vale has already been making improvements to the mine's conditions. In addition, the ruling only provides for the payment of a daily fine if the company continues its mining activities without meeting the obligations contained in the judgment. Therefore, the Company will only be subject to this fine: (i) when the judgment becomes final; and (ii) if a technical report proves that the measures taken by the company were not sufficient to adjust the working environment to legal orders.

4) Lawsuit 0292800-44.2009.5.08.0117	
Court	2nd Marabá Labor Court, Pará
Level of court	1st instance
Date instigated	December 10, 2009
Parties	Vale S.A. (defendant) and Labor Prosecutors' Office of Pará ("MPT-PA") (plaintiff)
Sums, assets or rights involved	R$1,883,584.74
Main facts	In 2009, after a Company employee had a fatal accident, MPT-PA filed a class action lawsuit, demanding measures related to workplace health and safety, and at the end demanding that the company be ordered to pay R$1 million as compensation for collective pain and suffering, as well as a R$50,000 fine for having not complied with certain obligations. Subsequently, MPT-PA amended the initial demand to increase the amount of compensation for pain and suffering to R$10 million. On June 11, 2015, the judge in Marabá handed down a sentence, ordering the Company to pay damages for collective pain and suffering of R$44.1 million, i.e. an amount much higher than that requested by MPT-PA. The judge also took it upon himself to order Vale to pay R$326.3 million for "social dumping," retroactive late-payment interest of R$310.2 million, a R$7.7 million fine for litigation in bad faith, and procedural costs of R$15.8 million, adding up to a total of R$804.1 million. On June 16, 2015, an injunction filed by Vale with the Regional Labor Court was published, determining a reduction in the procedural costs to R$200,000, in order to not harm the Company's right to challenge the sentence issued by the judge in Marabá. On October 20, 2015, following an ordinary appeal by Vale, the Second Regional Labor Court of the Eighth Region handed down a sentence, largely favorable to Vale, determining a reformulation of the decision made by the judge in Marabá, reducing the sum of compensation for collective pain and suffering to R$1 million, and removing the order to pay compensation for social dumping and the fine for litigation in bad faith handed down by the judge in Marabá. As a result of this second-instance decision, the total amount Vale was ordered to pay was reduced from R$804 million to R$1.1 million. On October 26, 2015, Vale filed an appeal requesting clarification, aiming to contest an omission and contradiction, namely a lack of challenge regarding the amount of money demanded in the case. Vale reiterated its initial challenge, arguing that the plaintiff was unable to increase the amount of money attributed to the case more than 10-fold without any justification and grounds. However, in August 2016, the appeal requesting clarification was rejected. On September 27, 2016, MPT filed a review appeal, which was accepted, and the Company then challenged it. The review

	appeal was filed with the Superior Labor Court on March 16, 2017, and it is pending judgment.
Chance of loss	Possible loss, because after the second-instance judgment, all the items recognized in the sentence were removed and only compensation for collective pain and suffering of R$1.1 million was maintained. The values of the other demands made by the first-instance judge, as well as the plaintiff's request, are considered remote losses.
Analysis of impact in event of loss / Reasons this case is significant to the Company	The Company considers the case significant because of the amount involved that was recognized in the first-instance judgment (R$804 million) and the impact on the adoption of various health and safety measures in the location (Carajás).

5) Infraction notices 20.588.905-1 and 20.589.903-0	
Administrative sphere	Labor Ministry
Level	2nd administrative instance
Date instigated	February 12, 2015
Parties	Labor Ministry and Vale
Sums, assets or rights involved	R$430,847.70 (R$520.96 related to notice 20.588.905-1 and R$430,262.74.90 related to notice 20.589.903-0)
Main facts	In February 2015, the Labor Ministry inspected the activities of Ouro Verde Locação e Serviços S.A. ("Ouro Verde"), a company providing services for Vale, transporting end products between Pico Mine (in Itabirito, Minas Gerais) and railroad terminals at Fábrica Mine (in Congonhas, Minas Gerais). This inspection resulted in infraction notices being issued by the Labor Ministry, related to the following: (i) inappropriate hygiene conditions; (ii) breaches of safety rules; (iii) excessive working days; (iv) outsourcing of activity involving end products – considered a core activity and therefore ineligible for outsourcing; and (v) due to the set of aforementioned infractions, the Labor Ministry issued an infraction notice for slave labor-like practices. Despite all the practices described in the infraction notices being related to Ouro Verde, as the outsourcing was considered illegal, all the notices were filed against Vale. Vale presented its administrative defenses to the Labor Ministry, claiming: (i) that the product transportation activity is eligible for being outsourced; (ii) that there was no direct employment relationship between Vale and Ouro Verde employees; and (iii) that the alleged irregularities were wrongfully classified as "slave-like labor." The administrative defenses were not accepted and Vale appealed to the second administrative level. In April 2016, Vale's appeals were turned down. Having exhausted the administrative sphere, Vale requested a provisional remedy (process 0010627-83.2016.5.03.0005), which was granted to Vale, to suspend the demand for the fine. The main lawsuit, to annul the infraction notices, was assigned to the court on May 27, 2016.

	As a result of the infraction notices issued by the Labor Ministry, the Labor Prosecutors' Office instigated civil public inquiry 3212.2014.03.000/9-12, to investigate the alleged practice of slave-like labor in the services provided by Ouro Verde, and Vale entered into Conduct Adjustment Agreement 118/2015 with the Labor Prosecutors' Office, through which preventive and corrective measures to guarantee the labor rights of service providers' employees were agreed upon. The commitments made are being duly implemented. For information on the Conduct Adjustment Agreement, see item 4.7. By adopting a broad interpretation of the law, the Labor Ministry concluded that the employees were working in slave-like conditions. Upon learning of the discoveries, the Company promptly solved the problems and subsequently terminated the contract with the transportation company. However, the Ministry of Labor filed an administrative proceeding against the Company. Vale presented its defense, which was rejected, the subsistence of the records being maintained. Against this decision, an administrative appeal was filed, which was not accepted, and the administrative proceeding was terminated. In June 2016, Vale filed a lawsuit against the administrative decisions and requesting the annulment of administrative rulings to the Labor Ministry to be prevented from classifying it as a company involved in slave-like practices. For information on these processes, see items 6 and 7 below.
Chance of loss	Porbable
Analysis of impact in event of loss / Reasons this case is significant to the Company	Low financial value, but major impact on image.

6) Lawsuit 0010784-59.2016.5.03.0004	
Court	5th Labor Court of Belo Horizonte, Minas Gerais
Level of court	1st instance
Date instigated	May 27, 2016
Parties	Vale S.A. (plaintiff) Federal government (defendant)
Sums, assets or rights involved	R$536,743.73
Main facts	This lawsuit is aimed at annulling infraction notice 20.588.905-1, filed against the Company by the Labor Ministry. The infraction notice was based on the understanding of the oversight authority that the transportation of iron ore along the Pico-Fábrica road is ineligible for outsourcing and so the contract between the Company and Ouro Verde Locação e Serviços S.A. ("Ouro Verde") was illegal from an exclusively labor perspective. Considering that the infraction notices were upheld in the administrative sphere, the sums involved in the present lawsuit have been recorded as a possible loss.
Chance of loss	Possible

Analysis of impact in event of loss / Reasons this case is significant to the Company	Maintenance of the understanding of illegality will oblige the Company to insource the transportation of iron ore, even when it is an end product, along the Pico-Fábrica route. Loss of this lawsuit could cause harm to the Company's finance and reputation.

7) Lawsuit 0010787-11.2016.5.03.0005	
Court	5th Labor Court of Belo Horizonte, Minas Gerais
Level of court	1st instance
Date instigated	May 27, 2016
Parties	Vale S.A. (plaintiff) Federal government (defendant)
Sums, assets or rights involved	R$614.13
Main facts	This lawsuit is aimed at annulling infraction notice 20.589.903-0, filed against Vale by the Labor Ministry. The infraction notice was based on the understanding of the oversight authority that employees of Ouro Verde Locação e Serviços S.A. ("Ouro Verde") were working in slave-like conditions, subject to exhaustive working hours and degrading working conditions. Because of the understanding argued by the Labor Ministry's auditors, regarding the illegality of outsourcing between the Company and Ouro Verde, the infraction notice related to slave-like labor was filed against the Company. Considering that the infraction notice was upheld in the administrative sphere, the sums involved in the present lawsuit have been recorded as a possible loss.
Chance of loss	Possible
Analysis of impact in event of loss / Reasons this case is significant to the Company	Loss of this lawsuit could cause the Company significant financial and reputation harm.

(ii) Tax lawsuits

The tables below present an individual description of the tax lawsuits considered significant to the businesses of the Company and/or its subsidiaries.

Because of certain tax disputes involving Vale group companies, the Company has made a provision that as of December 31, 2016 amounted to R$695 million, of which (i) R$522 million is related to foreign subsidiaries, (ii) R$120 million is related to Brazilian subsidiaries, and (iii) R$53 million is related to the Company's other tax lawsuits.

Regarding the lawsuits indicated below that question the levying of corporate income tax (IRPJ) and the social contribution on net profits tax (CSLL) on the earnings of the Company's subsidiaries and affiliates abroad, the following is notable: (i) the Company's understanding is that the base year of 2011 and earlier are barred by peremption. However, one cannot rule out the adoption of a different understanding on the part of the Treasury, according to which only the base year 2010 and earlier would be barred by peremption; (ii) In relation to the part of the IRPJ and CSLL sums questioned in Writ of Security 2003.51.01.002937-0 (item 1 of this section), the Company opted for the Special Installment mechanism established by Law 12,865 of October 9, 2013 ("Special Installment "); and (iii) In relation to the other part of the IRPJ and CSLL debts under discussion in Writ of Security 2003.51.01.002937-0 (item 1 of this section), regarding the year 2002 (containing triggering events in the period from 1996 to

2002), some of the debts related to the year 2005 (regarding tax credits recorded in Outstanding Debt Certificates 70.2.12.000303-20 and 70.6.12.000814-20, arising from Administrative Process 18471.001.243/2007-69, and supported in Tax Enforcement Process 0015197-06.2012.4.02.5101), and related to 2013 and subsequent years, were not included in the payment installment arrangement.

The debts related to the years 1996 to 2002 have not been included in the tax recovery program due to the non-retroactive nature of the law – a principle violated by the main paragraph of article 74 of Provisional Measure 2158 of 2001, which, only instituted in 2001, set out, through a legal fiction, to demand taxes for past events (1996 to 2001) in 2002. With regard to the part of the tax credits related to the year 2005, the Company did not include them, given that this share corresponds to tax demands arising from the disallowance of offset tax losses built up in previous years (1996 to 2002). Regarding 2013 and subsequent years, the debts were not included because the payment installment program in question only permits the payment of debts whose triggering events occurred up to December 31, 2012. These years are therefore outside the scope of the installment arrangement. The total value of tax disputes in the period between 1996 and 2002 is R$2,179,069,165.41.

Furthermore, in view of the favorable decision obtained by the Company in May 2012, granting active suspending effect to its extraordinary appeal and consequently striking down the demand for the sums in question, duly endorsed by a full session in April 2013, there is no need to provide a guarantee while this decision remains in force. Accordingly, the Company has withdrawn all letters of guarantee offered and cancelled a guarantee linked to the third infraction notice (for the year 2007).

The special appeal made to the Superior Court of Appeals was judged and incorporated into the case records of Writ of Security 2003.51.01.002937-0 during the session of November 26, 2013. On this occasion, the case's rapporteur, Judge Napoleão Maia, accepted part of the appeal, while Judge Sérgio Kukina rejected another part of the appeal. Judgment was resumed on March 25, 2014, when Judge Ari Pargendler voted in line with the rapporteur, Napoleão Nunes Maia Filho, considering improper the taxation of profits made by Vale's foreign subsidiaries, and arguing that international double taxation treaties ought to prevail. The judgment session ended on April 24, 2014, when the First Panel of the Superior Court of Appeals decided, by majority vote, in favor of Vale. The ruling was published on May 20, 2014.

This ruling determined: (i) the incompatibility of the tax regime on the profits of subsidiaries and affiliates domiciled abroad introduced by article 74 of Provisional Measure 2,158-35 of 2001 with certain international treaties to avoid double taxation; (ii) the illegality of taxation of equity accounting income in line with article 7 of Regulatory Instructions 213 of 2002; and (iii) that the profits posted by Vale in Bermuda are subject to article 74 of Provisional Measure 2,158-35 of 2001. The National Treasury Attorney's Office filed an extraordinary appeal to the Supreme Federal Court, which is pending judgment.

The debts related to the aforementioned Writ of Security and under discussion in the case records of the following processes were included in the Special Installment arrangement: (i) Tax Enforcement 0023959-11.2012.4.02.5101 (IRPJ and CSLL debts related to the years 2003 to 2006); (ii) Tax Enforcement 2011.51.01.518168-2 and Tax Enforcement Motion 2011.51.01.509917-5 (IRPJ and CSLL debts related to the year 2007); (iii) Tax Enforcement 0023958-26.2012.4.02.5101 (IRPJ and CSLL debts related to the year 2007); (iv) Tax Enforcement 0011487-75.2012.4.02.5101 (CSLL debts related to the year 2008); (v) Tax Enforcement 0011476-46.2012.4.02.5101 and Tax Enforcement Motion 0013553-28.2012.4.02.5101 (IRPJ debts related to the year 2008); and (vi) Tax Enforcement 0023974-77.2012.4.02.5101 (IRPJ and CSLL debts related to the year 2008).

As determined in legislation on the Special Installment mechanism, on November 29, 2013, the Company made the initial payments of the sums owed for IRPJ and CSLL on the profits of foreign

affiliates and subsidiaries, in line with participation in the aforementioned payment installment scheme. At this time, the Company also formally accepted the terms of the Special Installment arrangement, by submitting the respective appendices specified in National Treasury Attorney's Office / Federal Revenue Service Joint Ordinance 9 of 2013. The monthly installments have been duly paid since then.

Participation in the Special Installment scheme involved a R$5.940 billion payment to the Federal Revenue Service Secretariat at the end of November 2013. In addition, under the terms of the REFIS arrangement of Law 12,865 of 2013, the Company paid R$6.0 billion in 2013, including the early payment of an initial installment, and the Company agreed to pay the remaining R$16.3 billion in monthly installments. On December 31, 2016, the balance of US$5.419 billion (R$17.662 billion) remains due in 142 monthly installments, subject to interest at the SELIC baseline interest rate.

Total tax disputes for the years 2003 to 2012, including fined and non-fined periods for the Company and its subsidiaries, are estimated to amount to R$45.0 billion: R$17.084 billion of principal, R$9.831 billion of fines, R$11.983 billion of interest and interest on fines, and R$6.094 billion of charges.

Out of the options offered by legislation, the Company decided to make a one-off payment for the principal related to 2003, 2004 and 2006, and to pay the principal, fines and interest related to 2005 and 2007 to 2012 in installments. In accordance with legislation, in the case of one-off payments, only the tax principal is due, while under the installment option, 80% of the fines, 50% of the interest and 100% of the charges are waived.

The option chosen by the Company has an estimated face value of R$22.214 billion: R$16.222 billion of principal, R$1.565 billion of fines, and R$4.427 billion of interest and interest on fines. The reduction in principal is due to the R$857 million discount arising from accumulated losses in Brazil. The present value of this option after tax benefits is R$14.425 billion. This is better than the option to pay the full amount in one go, by reducing pressure on the Company's liquidity and minimizing the present value of the payments.

In 2014, the financial expenses that impacted net profit related to interest that makes up the REFIS payments amounted to US$451 million (R$1.0 billion). Regarding REFIS in 2015, the Company had financial expenses of US$546 million (R$1.798 billion), and in 2016, the Company had financial expenses of US$515 million (R$1.788 billion).

On this subject, it is noteworthy that on December 18, 2013, to comply with Law 12,865 of 2013, the Company filed a petition in the case records of the process in question to the Superior Court of Appeals, requesting the partial ending of the dispute and withdrawal of the legal arguments underpinning these lawsuits, all in line with the parameters of partial renunciation/withdrawal specified in Writ of Security 2003.51.01.002937-0.

Administrative processes 18471.000141/2008-15, 12897.000868/2009-98, 10569.000135/2011-64, 12897.000023/2010-36; 10569.000199/2010-84; 16682.720029/2012-61 and 18471.001243/2007-69 have ended. The subject continued to be discussed in the judicial sphere, and it was the subject of tax enforcements. These enforcements, in turn (except the tax enforcement originating in Tax Administrative Process 18471.001243/2007-69) were the subject of renunciation for the purpose of participating in the Special Installment arrangement, in accordance with the requirements specified in Law 12,865 of 2013, and the respective procedural developments are described in items 3.1 and 3.2, 4.1 to 4.4, and 5.1 to 5.3.

1) Writ of Security 2003.51.01.002937-0	
Court	Superior Court of Appeals and Supreme Federal Court
Level of court	3rd instance
Date instigated	February 3, 2003
Parties	Vale (plaintiff) and National Treasury (defendant)

Sums, assets or rights involved	Not applicable
Main facts	In February 2003, Vale filed a Writ of Security to ensure its right not to be subjected to IRPJ and CSLL taxes on the profits of its foreign subsidiaries and affiliates, in accordance with article 74 of Provisional Measure 2,158-34 of 2001, and subsequent amendments. The Company's arguments: (i) Article 74 of the Provisional Measure ignores the double taxation treaties signed by Brazil; (ii) the National Tax Code prohibits the aforementioned taxation through a Provisional Measure; (iii) Even if article 74 of the Provisional Measure were valid, exchange rate variations ought to be excluded from calculations of taxes due; (iv) Illegality of Regulatory Instructions 213 of 2002; and (v) Violation of the principle that taxes may only be instituted for future years, whereas the triggering events in question occurred before December 2001. In February 2003, an injunction was granted to suspend the demand for the tax credits resulting from the contested legislation, in order to continue complying with the regime of Law 9,532 of 1997. In August 2005, a judgment of inadmissibility was issued, which led to the revocation of the injunction obtained by Vale previously. Vale filed an appeal, which was accepted on September 29, 2005, reestablishing the suspension of the demand for the tax credits that had been obtained by the Company in the injunction. On March 29, 2011, the Regional Federal Court of the 2nd Region turned down the appeal, rejecting Vale's arguments. After analyzing the judgment, published on May 30, 2011, Vale altered its prognosis from "remote" to "possible," as reflected in its quarterly financial information of June 30, 2011, filed on July 28, 2011. On June 3, 2011, Vale filed an appeal (appeal requesting clarification) against the ruling of the Regional Federal Court of the 2nd Region, pointing out omissions related to exchange rate movements and the unconstitutionality of the main paragraph of article 74 of the Provisional Measure (a contradiction related to the application of double taxation treaties). The contradiction argued by Vale was based on the fact that the aforementioned ruling simultaneously recognized that: (a) article 7 of the double taxation treaties prohibits Brazil from taxing the profits of foreign affiliates and subsidiaries; (b) the treaties prevail over domestic laws; and (c) nevertheless, this conventional provision would not impede the application of article 74 of Provisional Measure 2,158-35 of 2001. On November 28, 2011, a ruling was published that partially accepted the appeal (appeal requesting clarification), to exclude exchange rate movements from the value of foreign

	investments, but it rejected the other requests and it annulled the suspensive effect granted when the appeal was filed. On December 13, 2011, Vale filed a special appeal (with the Superior Court of Appeals) and extraordinary appeal (with the Supreme Federal Court). The special and extraordinary appeals were accepted on May 7, 2012, the same day when Vale requested provisional remedies in the Superior Court of Appeals and Supreme Federal Court, requesting that the special and extraordinary appeals be granted suspensive effect. The provisional remedies were aimed at suspending the demand for the tax credits in question. In the Superior Court of Appeals, although the injunction was granted initially, the ruling on the provisional remedy rejected Vale's argument and struck down the injunction. In the Supreme Federal Court, the injunction was accepted on May 9, 2012 and confirmed by a full session of the Supreme Federal Court on April 10, 2013. On October 22, 2013, Vale's special appeal (in the Superior Court of Appeals) was included in the judgment agenda, but subsequently removed at the request of the Federal Public Prosecutors' Office, which then rejected Vale's request. On November 26, 2013, the First Panel of the Superior Court of Appeals resumed judgment of the appeal. The case's rapporteur, Judge Napoleão Maia, accepted part of the appeal, while Judge Sergio Kukina rejected another part of the appeal. Judgment was resumed on March 25, 2014, when Judge Ari Pargendler voted in line with the rapporteur, Napoleão Nunes Maia Filho, considering improper the taxation of profits made by Vale's foreign subsidiaries, arguing that international double taxation treaties ought to prevail. The judgment session ended on April 24, 2014, when the First Panel of the Superior Court of Appeals decided, by majority vote, in favor of Vale. The ruling was published on May 20, 2014. In short, the ruling determined: (i) the incompatibility of the tax regime on the profits of subsidiaries and affiliates domiciled abroad introduced by article 74 of Provisional Measure 2,158-35 of 2001 with certain international treaties to avoid double taxation; (ii) the illegality of taxation of equity accounting income in line with article 7 of Regulatory Instructions 213 of 2002; and (iii) that the profits posted by Vale in Bermuda are subject to article 74 of Provisional Measure 2,158-35 of 2001. The National Treasury Attorney's Office filed an extraordinary appeal to the Supreme Federal Court, which is pending judgment.
Chance of loss	Possible (regarding the remaining dispute, whose debts will not be included in the tax recovery program).
Analysis of impact in event of loss / Reasons this case is significant to the Company	In the event of a final ruling that is unfavorable regarding all the arguments presented by the Company, the tax credits will be demanded by the Brazilian Federal Revenue Service, in accordance with the right to full defense and due legal process in administrative and legal processes for specific tax demands. This impact relates to the period that is not the subject of the renunciation/withdrawal, for inclusion in the Special Installment

	scheme, corresponding to R$1.710 billion for IRPJ (December 2016) and R$0.469 billion for CSLL (December 2016), totaling R$2.179 billion. Values related to debts from 1996 and 2002, the 2005 installment and 2013 are not included.
Notes	1 – On September 20, 2012, Vale received a summons from the Brazilian Federal Revenue Service, recognizing the extinction of the sums related to exchange rate movements, worth approximately R$1.6 billion. This extinction was due to the partially favorable decision handed down in the judgment of an appeal (appeal requesting clarification) made by the Company in this Writ of Security 2003.51.01.002937-0, as described above, in the "Main facts" item. 2 – Judgment of the direct action of unconstitutionality filed by the National Confederation of Industry (CNI) questioning the constitutionality of article 74 of Provisional Measure 2,158-35 of 2001 resumed on April 3, 2013. On April 10, 2013, the results of this direct action of unconstitutionality were announced: it was determined that article 74 does not apply to affiliated companies located in countries without "favored taxation" (not tax havens), but it is applicable to subsidiaries based in countries with "favored taxation" (tax havens). It was also decided that the main paragraph of article 74 of the Provisional Measure is non-retroactive, meaning that it is impossible to apply this legislation to triggering events prior to 2002. On the same date, the extraordinary appeals filed by Mourãoense Agricultural Cooperative (COAMO) and EMBRACO were judged. The injunction in Vale's provisional remedy was unanimously upheld, as described in item 1.1 below. 3 – On December 18, 2013, in compliance with the requirements of Law 12,865 of 2013, the Company filed a petition to the Superior Court of Appeals requesting the partial ending of the dispute and withdrawal of the legal arguments underpinning the lawsuit. On February 19, 2014, in the case records of the special appeal, partial renunciation of the right underpinning the lawsuit was filed, in line with the terms requested by Vale. The partial ending of the dispute produces effects for all other tax contingencies related to the subject, as described below.

1.1) Development of Writ of Security 2003.51.01.002937-0: Provisional Remedy 3,141	
Court	Supreme Federal Court
Level of court	3rd instance
Date instigated	May 7, 2012
Parties	Vale (plaintiff) and federal government (defendant)
Sums, assets or rights involved	Not applicable
Main facts	On May 7, 2012, Vale applied for a provisional remedy to try to grant suspensive effect to the extraordinary appeal filed in the case records of the main Writ of Security (item 1), aimed at suspending the demand for the IRPJ and CSLL sums in question. On May 9, 2012, Judge Marco Aurélio Mello of the Supreme Federal Court granted an injunction to this effect. On May 25, 2012, the federal government challenged this. On May 28, 2012, it filed an appeal against the decision that granted

	the injunction. On June 8, 2012, Vale presented its response to this appeal. On April 10, 2013, the federal government's appeal was unanimously rejected and the injunction favorable to Vale was upheld. This decision was published on September 30, 2013 and no appeal was lodged against it. Therefore, unless the judges reconsider their decision, the suspensive effect granted will remain in place until the judgment of the extraordinary appeal. On December 18, 2013, Vale filed a petition for cancellation in line with its decision to participate in REFIS. On February 14, 2014, a decision ordering the filing of a copy of the request for partial cancellation and the approval decision granted in the main writ of security was published (item 1 above). On February 24, 2014, Vale presented the requested documents, and the process moved forward to be examined by the rapporteur judge. The case records have been pending judgment since then.
Chance of loss	Possible (regarding the remaining dispute, whose debts will not be included in the tax recovery program).
Analysis of impact in event of loss / Reasons this case is significant to the Company	In the event of an unfavorable final ruling, it will be possible to demand a guarantee for the disputed sums. This impact relates to a period that is not subject to renunciation/withdrawal, for participation in the Special Installments arrangement.

2) Infraction Notice 18471.001243/2007-69	
Court	Administrative Council of Tax Appeals
Level of court	2nd administrative instance
Date instigated	December 10, 2007
Parties	Federal Revenue Service Secretariat (plaintiff) and Vale (defendant)
Sums, assets or rights involved	Total debt – R$2.179 billion (December 2016)
Main facts	On November 12, 2007, Vale became aware of this Infraction Notice, aimed at demanding alleged IRPJ and CSLL debts owed for equity accounting gains at foreign subsidiaries in the base years 1996 to 2002. On December 10, 2007, Vale presented its defense (challenge), alleging that these demands were ungrounded and that the fine could not be applied, as the injunction obtained by Vale in Writ of Security 2003.51.01.002937-0 remained in effect (item 1 above). The Federal Revenue Service Judgment Office partially upheld this challenge. On August 18, 2008, Vale filed an appeal. The National Treasury also filed an appeal, regarding the partial reduction in the CSLL entry. The Administrative Council of Tax Appeals judged these appeals on May 19, 2010, but some of Vale's arguments were not examined, because according to the council, the subject had already been submitted to the judiciary for appraisal. Furthermore, (i) Vale's allegation that the right to charge taxes related to events in 1996 and 1997 had lapsed was rejected, (ii) the fine imposed on Vale was cancelled, and (iii) the National Treasury's appeal was rejected.

	On September 26, 2011, Vale filed a new appeal (appeal requesting clarification), arguing the existence of omissions in the Administrative Council of Tax Appeals' decision, but this appeal was turned down. On October 3, 2011, the National Treasury filed a special appeal with the Superior Chamber of Tax Appeals against the Administrative Council of Tax Appeals' decision regarding the withdrawal of the fine. Vale presented its response to the National Treasury's appeal, as well as the special appeal in the Superior Chamber against the Administrative Council of Tax Appeals' decision, regarding the rejection of the allegation that the right to charge taxes had lapsed. On January 24, 2012, the Special Office for Large Taxpayers (DEMAC), interpreting the decision of the Regional Federal Court of the 2nd Region in Writ of Security 2003.51.01.002937-0 (item 1 above), considering that there was an overlap between the discussions in this administrative process and the writ of security, struck down all the administrative appeals and ordered the immediate charging of part of the credits that are currently the subject of Tax Enforcement 0015197-06.2012.4.02.5101 (item 2.2). Accordingly, the appeals filed by Vale and the National Treasury against the Administrative Council of Tax Appeals' decision were not examined by the Superior Chamber of Tax Appeals. This process has been closed without a decision, but the subject remains under discussion in the judicial sphere, and is the subject of Tax Enforcement 0015197-06.2012.4.02.5101. Vale filed a writ of security (0001899-44.2012.4.02.5101 – item 2.1 below) to try to annul DEMAC's decision and guarantee the proper continuation of the administrative process. At the same time, it made a request for reconsideration to DEMAC, which was rejected. On October 25, 2016, a decision rejecting the request was published, and the case records were filed on November 23, 2016.
Chance of loss	Impaired, due to the ending of the administrative sphere for charging via tax enforcement.
Analysis of impact in event of loss / Reasons this case is significant to the Company	Any financial impact will only occur if the final ruling in the respective judicial demand is unfavorable.

2.1) Development of Infraction Notice 18471.001243/2007-69: Writ of Security 0001899-44.2012.4.02.5101	
Court	28th Federal Court of the Judiciary Section of Rio de Janeiro
Level of court	1st instance
Date instigated	February 6, /2012
Parties	Vale (plaintiff) and DEMAC (defendant)
Sums, assets or rights involved	Not applicable
Main facts	On February 6, 2012, Vale filed a writ of security aimed at annulling DEMAC's decision and guaranteeing the continuation of administrative process 18471.001243/2007-69 (item 2

	above). The request for an injunction made in this writ of security was rejected, and against this decision Vale filed an appeal and a request for reconsideration. Both were rejected. On October 25, 2016, a decision rejecting the request was published, and the case records were filed on November 23, 2016.
Chance of loss	Impaired, due to the ending of the Writ of Security.Described above
Analysis of impact in event of loss / Reasons this case is significant to the Company	Not applicable

2.2) Development of Infraction Notice 18471.001243/2007-69: Tax Enforcement 0015197-06.2012.4.02.5101	
Court	5th Tax Enforcement Court of Rio de Janeiro
Level of court	1st federal instance
Date instigated	March 13, 2012
Parties	National Treasury (plaintiff) and Vale (defendant)
Sums, assets or rights involved	Total debt – R$2.179 billion (December 2016)
Main facts	On March 12, 2012, the National Treasury filed a tax enforcement to charge IRPJ and CSLL sums allegedly owed, in light of DEMAC's decision, mentioned in item 2 above. On April 25, 2012, the National Treasury filed a petition requesting the seizure of the dividends that Vale planned to distribute on April 30, 2012. On April 26, 2012, Vale filed a petition challenging the federal government's request and instead offering a bank guarantee to guarantee the debt. On the same day, a decision was issued, accepting the offer of this guarantee, which was presented by Vale on April 27, 2012. On May 8, 2012, the National Treasury presented a request to freeze the sums via the BACENJUD system, through which judges have direct access to all bank accounts in the country. After Vale challenged this request, it was rejected, because of the injunction granted by Judge Marco Aurélio de Mello, which suspended the demand for the tax credits that are the subject of this enforcement (item 1.1 above). Vale then requested recognition of the lack of need for a deposit in court – given that the demand for the credits had been suspended – and the withdrawal of the bank guarantee letter previously offered to guarantee the enforcement process, and this request was accepted by the court. Given this decision, on May 14, 2012, Vale withdrew the aforementioned guarantee letter. Because of the aforementioned injunction granted in the provisional remedy of item 1.1, the process is suspended, given that the National Treasury may not demand credits that are not due. On July 17, 2014, Vale filed a petition requesting the extinction of the tax enforcement, in light of the Supreme Federal Court's decision in Direct Action of Unconstitutionality 2,588, which declare the unconstitutionality of the main paragraph of article 74 of Provisional Measure 2,158-35 of 2001.

	On October 19, 2016, the National Treasury declared that Vale's request was inadmissible. On December 2, 2016, a decision was published, describing the Company's petition as a pre-execution exception and rejecting it. On December 9, 2016, Vale filed a request for reconsideration, which was turned down in a decision published on March 8, 2017. This decision received a request for reconsideration from Vale as an appeal requesting clarification, aimed at suspending the process until the final decision of the Writ of Security 2003.51.01.002937-0.
Chance of loss	Remote
Analysis of impact in event of loss / Reasons this case is significant to the Company	In the event of an unfavorable decision in the case records of the provisional remedy that is the subject of item 1.1 above, Vale may have to offer a new guarantee for the sums disputed in this tax enforcement process.

3.1) Development of Administrative Process 18471.000141/2008-15: Writ of Security 0004826-69.2012.4.01.3400	
Court	14th Federal Court of Judiciary Section of Federal District
Level of court	1st instance
Date instigated	January 25, 2012
Parties	Vale (plaintiff) and president of the 2nd Chamber of the Administrative Council of Tax Appeals (defendant)
Sums, assets or rights involved	Not applicable
Main facts	On January 25, 2012, Vale filed a writ of security against a decision taken by the president of the 2nd Chamber of the Administrative Council of Tax Appeals issued within the scope of Administrative Process 18471.000141/2008-15. On January 27, 2012, an injunction was granted to suspend the effects of this decision and order the proper continuation of administrative processes 18471.000141/2008-15 and 12897.00868/2009-98. The National Treasury presented a request to suspend the injunction (0009426-51.2012.4.01.0000), and on March 13, 2012, a decision was published, suspending the effectiveness of the injunction obtained by the Company in the writ of security obtained within the scope of Administrative Process 18471.000141/2008-15. Vale then filed an appeal, but it was rejected. Soon after, in April 2012, a petition was filed, reporting the injunction granted by Judge Teori Zavascki of the Superior Court of Appeals, suspending the charging of the allegedly owed sums. On November 25, 2013, a ruling favorable to Vale was published. On December 18, 2013, Vale filed a petition for cancellation in line with its decision to participate in REFIS. On February 13, 2014, the judge issued a decision, stating that he was unable to examine the request for cancellation as he understood that, following the publication of the ruling, the judge had ended his jurisdictional activity, and he ought to limit himself to correcting any material and calculation errors. On May 2, 2014, the National Treasury Attorney's Office filed an appeal, and Vale then reiterated its request to end the process because of its participation in the Special Installment scheme under Law 12,865 of 2013. On June 10, 2014, an order was issued, specifying that the National Treasury's appeal had been

	accepted, and Vale had 15 days to present its counterarguments. Vale then reiterated its request for cancellation. The process was submitted to the Regional Federal Court of the 1st Region and assigned to rapporteur Hercules Fajoses. On March 10, 2017, a decision was published, approving the request for cancellation formulated by Vale.
Chance of loss	Not applicable, due to Vale's participation in REFIS.
Analysis of impact in event of loss / Reasons this case is significant to the Company	Not applicable, due to Vale's participation in REFIS.

3.2) Development of Administrative Process 18471.000141/2008-15: Tax Enforcement 0023959-11.2012.4.02.5101	
Court	7th Tax Enforcement Court of Rio de Janeiro
Level of court	1st instance
Date instigated	March 13, 2012
Parties	National Treasury (plaintiff) and Vale (defendant)
Sums, assets or rights involved	R$14,216,689,702.56 (as of November 2013, the date when Vale joined REFIS), without the reduction factors provided for in the tax recovery program. This figure is included in the total sum for Administrative Process 18471.000141/2008-15.
Main facts	On May 8, 2012, even before the publication of the sentence handed down by the Superior Court of Appeals in the provisional remedy mentioned in the item above, and therefore when the suspensive effect of the injunction granted in that provisional remedy was still in effect, the National Treasury, despite the demand for the credits having been suspended, filed a tax enforcement to demand IRPJ and CSLL sums allegedly owed. In the National Treasury's understanding, this was possible, given the decision made by the president of the 2nd Chamber of the Administrative Council of Tax Appeals, mentioned in item 3.1 above. On May 11, 2012, Vale filed a petition, reporting the granting of the injunction by the Supreme Federal Court, which suspended the demand for the credits (item 1.1 above). On the same date, a decision was issued, suspending the tax enforcement in question. On December 18, 2013, Vale filed a petition, arguing that the subject of enforcement had been lost due to Vale's participation in REFIS. On February 24, 2014, a sentence was issued, ordering: (a) the National Treasury to express its opinion on the payment in question; and (b) Vale to provide a power of attorney, which the Company did. After the National Treasury requested a 90-day extension of the deadline, on November 26, 2014, the National Treasury was once again instructed to express its opinion on the payment installments specified by Vale. On December 16, certificates were issued, showing that the National Treasury had not expressed its opinion, and granting the suspension of the process. The decision on this request has not yet been given.
Chance of loss	Not applicable, given that the debt was eliminated by joining REFIS.
Analysis of impact in	Not applicable, due to Vale's participation in REFIS.

event of loss / Reasons this case is significant to the Company	

4.1) Development of Administrative Process 12897.000868/2009-98 of January 11, 2010: Writ of Security 2011.51.01.005614-9	
Court	32nd Federal Court of Rio de Janeiro
Level of court	2nd instance
Date instigated	April 29, 2011
Parties	Vale (plaintiff) and National Treasury (defendant)
Sums, assets or rights involved	Not applicable
Main facts	On March 15, 2011, Vale received a collection letter demanding IRPJ and CSLL taxes that, according to the Federal Revenue Service, were not the subject of the appeal filed by the Company in the case records of Administrative Process 12897.000868/2009-98. On March 23, 2011, Vale filed a petition, requesting the cancellation of the demand, arguing that the sums demanded were indeed encompassed by the appeal. On April 15, 2011, Vale received a summons from the Federal Revenue Service, reiterating the demand. On April 29, 2011, Vale filed a writ of security to suspend the demand. The request for an injunction deduced in this writ of security was rejected. On May 25, 2011, the Company made an appeal against this decision, which rejected the request for an injunction to suspend the demand. On July 15, 2011, the request for suspensive effect deduced in this appeal was also rejected. On January 15, 2013, a judgment of inadmissibility for the writ of security was published. On January 30, 2013, Vale filed an appeal against the sentence. On March 14, 2013, the judge accepted the appeal and attributed a suspensive effect to it. On December 18, 2013, Vale filed a petition for cancellation in line with its decision to participate in REFIS. The process was submitted to the judge for examination. Despite the unfavorable decisions issued in this writ of security, the demand for the tax credits in question was suspended by the Supreme Federal Court's decision (item 1.1 above). On May 17, 2016, the process was included in the judgment agenda but removed from it later the same day. On June 14, 2016, an order was published, approving the cancellation, in line with Vale's decision to participate in REFIS. On November 10, 2016, the case records were returned to the court of origin (the 32nd Federal Court of Rio de Janeiro). On November 21, 2016, the case records were filed.
Chance of loss	Not applicable, due to Vale's participation in REFIS.

Analysis of impact in event of loss / Reasons this case is significant to the Company	Not applicable, due to Vale's participation in REFIS.

4.2) Development of Administrative Process 12897.000868/2009-98 of January 11, 2010: Tax Enforcement 2011.51.01.518168-2	
Court	11th Tax Enforcement Court of Rio de Janeiro
Level of court	1st federal instance
Date instigated	July 8, 2011
Parties	National Treasury (plaintiff) and Vale (defendant)
Sums, assets or rights involved	R$33,903,846.09 (as of November 2013, the date when Vale joined REFIS), included in the total sum for Administrative Process 12897.000868/2009-98, plus legal fees.
Main facts	On July 8, 2011, the National Treasury filed a tax enforcement to demand IRPJ and CSLL sums allegedly owed, in line with the collection letter mentioned in item 4.1 above. On August 29, 2011, Vale presented a bank guarantee letter to guarantee the tax enforcement, which the National Treasury explicitly agreed to. On September 28, 2011, Vale presented its defense (appeal 2011.51.01.509917-5), requesting the suspension of the enforcement process until the definitive judgment of the main writ of security (item 1 above) and the annulment of the Outstanding Debt Certificate due to a material error made in it, given the inconsistency of the amounts specified in it. On September 13, 2012, the National Treasury presented its response to Vale's appeal. The demand for the tax credits in question was suspended by the injunction granted by the Supreme Federal Court (item 1.1 above), and this enabled the cancellation on July 4, 2013 of the guarantee letter presented as a guarantee. On December 18, 2013, Vale filed a petition, arguing that the subject of this tax enforcement had been lost due to Vale's participation in REFIS. On August 20, 2014, the suspension of the enforcement process until the end of the payment installments was ordered. Since April 10, 2017, the following information has been posted: "Process suspended due to payment installments since March 19, 2015."
Chance of loss	Not applicable, given that the debt was eliminated by joining REFIS.
Analysis of impact in event of loss / Reasons this case is significant to the Company	Not applicable, due to Vale's participation in REFIS.

4.3) Development of Administrative Process 12897.000868/2009-98: Tax Enforcement

0023958-26.2012.4.02.5101	
Court	7th Tax Enforcement Court of Rio de Janeiro
Level of court	1st federal instance
Date instigated	May 8, 2012
Parties	National Treasury (plaintiff) and Vale (defendant)
Sums, assets or rights involved	R$17,623,009,684.76 (as of November 2013, the date when Vale joined REFIS). Amount included in the total sum for Administrative Process 12897.000868/2009-98, plus legal fees.
Main facts	On May 8, 2012, even before the publication of the unfavorable sentence handed down by the Superior Court of Appeals in the provisional remedy mentioned in item 1 above, and therefore when the suspensive effect of the injunction granted in that provisional remedy was still in effect, the National Treasury, despite the demand for the credits having been suspended, filed a tax enforcement to demand IRPJ and CSLL sums allegedly owed, in light of the first-instance administrative decision within the scope of Administrative Process 12897.000868/2009-98. The demand for the tax credits in question was suspended by the injunction granted by the Supreme Federal Court (item 1.1 above). Vale filed a petition requesting the suspension of the enforcement process based on this decision. The request was accepted and the process was suspended. On December 18, 2013, Vale filed a petition, arguing that the subject of this tax enforcement had been lost due to Vale's participation in REFIS. On February 20, 2014, a sentence was issued, ordering: (a) the National Treasury to express its opinion on the payment in question; and (b) Vale to provide a power of attorney, which the Company did. The National Treasury failed to express its opinion by the deadline, and on March 26, 2014, a decision suspending the process was issued. On April 7, 2014, the National Treasury requested the suspension of this measure for 90 days, due to Vale's decision to pay the installments and receive legal benefits, using its tax losses and negative CSLL calculation base. The court's decision regarding the National Treasury's request is pending.
Chance of loss	Not applicable, given that the debt was eliminated by joining REFIS.
Analysis of impact in event of loss / Reasons this case is significant to the Company	Not applicable, due to Vale's participation in REFIS.

5.1) Development of Administrative Process 12897.000023/2010-36 of February 12, 2010: Tax Enforcement 0011487-75.2012.4.02.5101	
Court	1st Tax Enforcement Court of Rio de Janeiro
Level of court	1st federal instance
Date instigated	January 26, 2012
Parties	National Treasury (plaintiff) and Vale (defendant)
Sums, assets or rights involved	R$21,731,827.64 (as of November 2013, the date when Vale joined REFIS), for CSLL tax, included in the total sum for Administrative Process 12897.000023/2010-36, plus legal fees.

Main facts	On January 26, 2012, the National Treasury filed a tax enforcement to charge CSLL sums allegedly owed, in line with the collection letter mentioned in item 4.1 above. On February 2, 2012, Vale presented a tax enforcement guarantee and on February 6, 2012, a decision considering the enforcement to have been guaranteed was issued. The demand for the tax credits in question was suspended by the injunction granted by the Supreme Federal Court (item 1.1 above). On May 7, 2013, a decision suspending the process was published, based on the Supreme Federal Court's decision, removing the need for a guarantee for the demanded sums, and also authorizing the cancellation of the bank guarantee letter presented by Vale. On December 18, 2013, Vale filed a petition for cancellation in line with its decision to participate in REFIS. On January 28, 2014, the process was submitted to the National Treasury. On June 24, 2014, the National Treasury requested the suspension of this measure for 60 days to analyze the payment made. On September 3, 2014, a decision was issued, ordering the suspension of the enforcement process until the end of the payment installments, and the National Treasury expressed its acknowledgment on September 25, 2014.
Chance of loss	Not applicable, given that the debt was eliminated by joining REFIS.
Analysis of impact in event of loss / Reasons this case is significant to the Company	Not applicable, due to Vale's participation in REFIS.

5.2) Development of Administrative Process 12897.000023/2010-36 of February 12, /2010: Tax Enforcement 0011476-46.2012.4.02.5101	
Court	4th Tax Enforcement Court of Rio de Janeiro
Level of court	1st federal instance
Date instigated	January 26, 2012
Parties	National Treasury (plaintiff) and Vale (defendant)
Sums, assets or rights involved	R$60,325,116.23 (as of November 2013, the date when Vale joined REFIS), for IRPJ tax, included in the total sum for Administrative Process 12897.000023/2010-36, plus legal fees.
Main facts	On January 26, 2012, the National Treasury filed a tax enforcement to charge IRPJ sums allegedly owed, in line with the collection letter mentioned in item 4.1 above. It requested the seizure of Vale's credits in Process 20035101.024181-3, which was assigned to the 12th Federal Court of Rio de Janeiro. On February 2, 2012, Vale presented a bank guarantee letter to guarantee the enforcement. On May 8, 2012, even before the publication of the sentence handed down by the Superior Court of Appeals in the provisional remedy mentioned in item 1 above, and therefore when the suspensive effect of the injunction granted in that provisional remedy, suspending the demand for the credits, was still in effect, the judge, as the request of the National Treasury, executed the online seizure of R$55,654,046.21, in

	cash, via the BACENJUD system, through which judges have direct access to all bank accounts in Brazil. Vale filed an appeal against this decision. The demand for the tax credits in question was suspended by the injunction granted by the Supreme Federal Court (item 1.1 above). For this reason, on May 14, 2012, the court overseeing this enforcement process declared its suspension. On May 14, 2013, Vale filed a petition, requesting the release of the money seized online. On May 15, 2013, the bank guarantee letter was returned to the Company, and after this, a sentence was issued, ordering the National Treasury to express its opinion regarding the request to release the seized amount. On June 18, 2013, the National Treasury said it was opposed to the request to cancel the online seizure. On July 9, 2013, a decision was issued, cancelling the seizure of Vale's credits in Process 2003.5101.024181-3, but maintaining the online seizure. On December 18, 2013, Vale filed a petition, arguing that the subject of this tax enforcement had been lost due to Vale's participation in REFIS. On June 16, 2014, the National Treasury requested that Caixa Econômica Federal transfer R$62,698,188.94 of the deposit guaranteeing the enforcement process to the tax authorities, reducing the cash payment specified in Law 12,865 of 2013, besides requesting a subsequent examination of the case records to carry out administrative procedures needed to discharge the debt. After this, the National Treasury was granted authorization to indicate the amount to be transformed into a definitive payment, thereby reducing the installments. On October 31, 2014, the National Treasury requested a transfer of R$41,299,643.64 to tax authorities, and on November 5, 2014, a letter was issued to Caixa Econômica Federal, ordering it to do so. On January 29, 2015, the National Treasury filed a petition requesting suspension of this measure for five days, in order for the sector responsible for payment and cancellation of the record to complete the necessary procedures. On March 6, 2015, the National Treasury filed a petition stating that the payments had been made and the remaining balances had been cancelled, and requesting the extinction of the process. On March 19, 2015, Vale request an assessment of the remaining balance of the deposit in court, which according to a letter from Caixa Econômica was R$14,198,955.67 on November 25, 2014. On the same day, a sentence was published, declaring the extinction of the process and authorizing an assessment of the remaining balance of the deposit in court. On May 13, 2015, the National Treasury expressed its acknowledgment, and on May 15, 2015, the sentence was made final. On July 2, 2015, an order was issued, calling for an assessment of the remaining sum of the deposit. Finally, Vale received the sum of R$18.5 million.
Chance of loss	Not applicable, given that the debt was eliminated by joining REFIS.
Analysis of impact in event of loss / Reasons this case is significant to	Not applicable, given that the debt was eliminated by joining REFIS, and because of the subsequent transfer to the tax

the Company	authorities of deposits in court (arising from the seizure), minus amnesty discounts.

5.3) Development of Administrative Process 12897.000023/2010-36: Tax Enforcement 0023974-77.2012.4.02.5101	
Court	1st Tax Enforcement Court of Rio de Janeiro
Level of court	1st federal instance
Date instigated	May 8, 2012
Parties	National Treasury (plaintiff) and Vale (defendant)
Sums, assets or rights involved	R$4,609,749,384.28 (as of November 2013, the date when Vale joined REFIS), included in the total sum for Administrative Process 12897.000023/2010-36, plus legal fees.
Main facts	On May 8, 2012, even before the publication of the unfavorable sentence handed down by the Superior Court of Appeals in the provisional remedy mentioned in item 1 above, and therefore when the suspensive effect of the injunction granted in that provisional remedy was still in effect, the National Treasury, despite the demand for the credits having been suspended, filed a tax enforcement to demand IRPJ and CSLL sums allegedly owed, in light of the first-instance administrative decision within the scope of Administrative Process 12897.000023/2010-36. The National Treasury filed a request to freeze and seize the sums through the BACENJUD system, which was rejected. Vale noted in the case records that the ability to demand the tax credits in question had been suspended by the Supreme Federal Court's injunction (item 1.1 above). As a result, the court declared the suspension of the enforcement process. On May 11, 2012, Vale filed a petition, reporting the assignment of the suspensive effect to the extraordinary appeal incorporated into the case records of Writ of Security 0002937-09.2003.4.02.5101 due to the provisional remedy filed in the Supreme Federal Court (items 1 and 1.1 above), and requesting the suspension of the enforcement process, which was granted in a decision issued on May 17, 2012. On May 22, 2012, Vale filed an appeal (appeal requesting clarification), which was accepted, to clarify that the enforcement process would remain suspended until the announcement of the definitive judgment of the extraordinary appeal filed by Vale (item 1 above). On December 18, 2013, Vale filed a petition for cancellation in line with its decision to participate in REFIS. On July 22, 2014, the National Treasury requested the suspension of this measure for 60 days to analyze the regularity of the payment installments. On September 3, 2014, a decision was issued, ordering the suspension of the process until the end of the payment installments, and the National Treasury expressed its acknowledgment on September 25, 2014.
Chance of loss	Not applicable, given that the debt was eliminated by joining REFIS.
Analysis of impact in event of loss / Reasons this case is significant to	Not applicable, due to Vale's participation in REFIS.

the Company	

6) Motion to Set Aside Judgment nº 2006.020.1001869-2	
Court	Superior Court of Appeals and Supreme Federal Court
Level of court	3rd instance
Date instigated	February 20, 2006
Parties	Federal government (plaintiff) and Vale (defendant)
Sums, assets or rights involved	R$ 6.414 billion as of December 31, 2016.
Main facts	This is a motion to set aside a judgment to demand CSLL tax in line with the IRPJ calculation base. In 2004, the Superior Court of Appeals granted Vale the right to deduct the sums it pays in social contribution on net profits tax (CSLL) from its corporate income tax (IRPJ). In 2006, the National Treasury Attorney's Office filed a motion to set aside judgment to review the final decision of 2004. The motion to set aside judgment was rejected by the Federal Courts of Rio de Janeiro and the Regional Federal Court of the 2nd Region. On April 13th, 2009, the National Treasury Attorney's Office appealed to the Superior Court of Appeals and the Supreme Federal Court. After the National Treasury's special appeal was turned down, it filed an appeal on Novembre 23rd, 2012 regimental aggravation by the same, within the legal term This, in turn, was provided, which led to the filing of a grievance regimental by Vale on Septembewr 16th 2014. . This was upheld, leading Vale to file an appeal on [--]. Vale's appeal was rejected and published on June 16th, 2016 and the Superior Court of Appeals decided to hand the case back to the Regional Federal Court of the 2nd Region in order to once again judge the appeal requesting clarification filed by the National Treasury Attorney's Office in 2008. Vale presented its counterarguments to the appeal requesting clarification on April 10th, 2017 and it is waiting for the new judgment of the Regional Federal Court of the 2nd Region. [NEW: COMPANY, PLEASE SPECIFY THE DATES HIGHLIGHTED ABOVE.]
Chance of loss	Possible
Analysis of impact in event of loss / Reasons this case is significant to the Company	If the motion to set aside judgment should be upheld, the amount to collect will depend on the terms and the scope of the final decision.
Court	Superior Court of Appeals and Supreme Federal Court

(iii) Civil lawsuits

The tables below present an individual description of the civil lawsuits considered significant to the businesses of the Company and/or its subsidiaries instigated by December 31, 2016. For information on significant cases instigated since this date, see item 4.7 of this Reference Form.

1) Lawsuit 0063023-34.2008.8.19.0001

Court	41st Civil Court of the Rio de Janeiro Court of Appeals
Level of court	1st instance
Date instigated	March 17, 2008
Parties	Vale (plaintiff) and Landless People's Movement ("MST") (defendant)
Sums, assets or rights involved	Protection of the Company's assets and guarantee of its operational activities.
Main facts	Vale filed a lawsuit in order to put a halt to acts of aggression, violence and incitement by MST that were paralyzing the Company's operational activities. The request for temporary protection was accepted, ordering MST to abstain for such acts. MST violated this court order, and so Vale requested an increase in the value of the fine established in the event of non-compliance, and this request was accepted by the court. In 2012, the parties began efforts to find a possible solution to the case. On July 6, 2015, an order was published, instructing the parties to state whether they were genuinely interested in reaching an agreement, and the parties were not told they would no longer be able to request a suspension of the process. The evidence production phase began. Because of the recent violation of the court order that provided temporary protection in the case, Vale requested the reapplication of the fine and an increase in the amount it was previously set at. On September 30, 2016, the case left the sentencing group because the judge found that part of the order had not been complied with. The judge then instructed the Plaintiff to issue a demand for its costs by submitting letters of request aimed at obtaining statements from the witnesses specified by it. This decision was published on October 19, 2016.
Chance of loss	Remote
Analysis of impact in event of loss / Reasons this case is significant to the Company	The case was instigated in order to guarantee protection for the Company's assets and its operational activities. An unfavorable decision could heighten the Company's exposure to acts of aggression by MST.

2) Lawsuit 0015963-69.2006.4025101	
Court	7th Specialist Panel of Regional Federal Court of the 2nd Region (original court: 30th Federal Court of Rio de Janeiro)
Level of court	2nd instance
Date instigated	August 18, 2006
Parties	Rede Ferroviária Federal S.A., succeeded by the federal government (plaintiff) and Vale (defendant)
Sums, assets or rights involved	Approximately R$4.3 billion (as of December 2016)
Main facts	The plaintiff filed a lawsuit against the Company demanding compensation, alleging that it had suffered losses arising from contractual default by Vale, involving the non-execution of construction work related to a railroad diversion project in the city of Belo Horizonte. The parties entered into an agreement in which it was established that the costs of building the new railroad section would be deducted from a possible conviction that Vale might suffer, if the case were to be judged in favor of the federal government. This

	agreement was legally registered. On June 25, 2012, a sentence dismissing the lawsuit was issued. Hearing the case's appeal on February 24, 2016, the Regional Federal Court upheld the federal judge's decision of June 2012. Against the appeal judgment, both parties filed appeals requesting clarification (the Company on March 21, 2016 and the federal government on April 8, 2016). Both appeals were rejected. On September 19, 2016, the federal government filed a new appeal requesting clarification to rectify a significant error in the judgment that was the subject of the appeal. On February 23, 2017, the federal government's second appeal requesting clarification was upheld to rectify the aforementioned significant error, and the case records were submitted to the Federal Attorney General's Office on April 3, 2017.
Chance of loss	Remote
Analysis of impact in event of loss / Reasons this case is significant to the Company	An unfavorable decision could generate a significant financial loss for the Company, given the sums involved.

3) Lawsuit 0009362-71.1997.4.02.5001	
Court	5th Panel of the Regional Federal Court of the 2nd Region
Level of court	2nd instance
Date instigated	November 10, 1997
Parties	Public Prosecutors' Office of Espírito Santo (plaintiff), and federal government, Gerdau Açominas S.A., Companhia Siderúrgica de Tubarão, Usinas Siderúrgicas de Minas Gerais S.A., Vale, Odacir Klein, Luis Andre Rico Vicente, Jorge Eduardo Brada Donato, José Armando Figueiredo Campos, Rinaldo Campos Soares, João Jackson Amaral, Claudio José Anchieta de Carvalho Borges, Ivo Costa Serra, and Companhia Docas do Espírito Santo (CODESA) (defendants)
Sums, assets or rights involved	Incalculable – Request to annul the port concession contract for Tubarão Complex's terminals.
Main facts	This is a class action lawsuit that seeks to annul the authorization by which Vale and some of the other defendants operate Praia Mole Port Terminal in the state of Espírito Santo. In November 2007, 10 years after the case was filed, a sentence was issued, deeming the case to be completely groundless and recognizing the validity of the concession contracts that permit the use of the port terminals located at Praia Mole. On July 3, 2012, the sentence was upheld by the Regional Federal Court of the 2nd Region when judging an appeal filed by the Federal Public Prosecutors' Office. The latter, unhappy with the decision found against it taken by the Regional Federal Court of the 2nd Region, filed a special appeal with the Superior Court of Appeals and an extraordinary appeal with the Supreme Federal Court on October 23, 2012. Judgment of the special appeal by the Superior Court of Appeals is pending.
Chance of loss	Remote
Analysis of impact in event of loss / Reasons this case is significant to the Company	Incalculable value. It could also impact Vale's other operations in the state of Espírito Santo.

4) Lawsuit 0024892-89.2011.8.13.0570	
Court	1st Civil Court of Salinas, Minas Gerais

Level of court	1st instance
Date instigated	September 14, 2011
Parties	Minas Gerais State Public Prosecutors' Office (plaintiff), Vale S.A., Instituto de Terras de Minas Gerais ("ITER"), Manoel da Silva Costa Junior, Evandro Carvalho, Mauro Eurípedes Rocha Mendes, Ricardo de Carvalho Rocha, Luciana Rocha Mendes, Orozino Marques de Carvalho, Adelzuith Marques Santos, Altemar Alves Ferreira, and Breno Rodrigues Mendes (defendants).
Sums, assets or rights involved	Compensation for damage to the state government of Minas Gerais amounting to at least R$200 million, a civil fine of no less than R$600 million, and the ownership of lands acquired by Vale.
Main facts	This is a class action lawsuit filed by the State Public Prosecutors' Office against Vale and 10 other defendants. In short, the Public Prosecutors' Office argues for the existence of an *"organized group of people who to illegally appropriate lands belonging to the state government of Minas Gerais."* The Public Prosecutors' Office requested an injunction to seize the assets of the defendants, except Vale, up to the sum of R$200,000,000, to carry out a search and seizure of movable assets, and to remove their banking and tax confidentiality. The injunction was granted by the court and upheld by the Minas Gerais Court of Appeals. In the end, the Public Prosecutors' Office requested the following: *"the suspension of all effects – and consequent annulment – of all titles of legitimate agricultural use issued by ITER involving lands located in the municipalities of Salinas, Santa Cruz de Salinas, Padre Carvalho, Fruta de Leite and Rubelita, in the period between January 2007 and August 2011"*; an order for ITER *"to hire a specialized company, at its own expense, to carry out an audit of all the titles of legitimate agricultural use issued by the state government of Minas Gerais in the period between January 2007 and August 2011"; to condemn all the defendants "to the loss of illegally gained goods or sums"; to "provide full compensation for the harm imposed on the state government of Minas Gerais, whose minimum value must be R$200,000,000";* to levy a *"civil fine of no less than R$600,000,000";* to *"remove their public functions and positions";* to *"suspend their political rights";* and to *"prohibit them from entering into contracts with the public authorities or receiving benefits from them."* Vale presented its defense (challenge) on March 15, 2012, but the fact-checking stage has not yet begun. On April 28, 2016, the process was submitted to the Public Prosecutors' Office. On June 1, 2016, a decision was published, ordering the case records to be transferred to the jurisdiction of Belo Horizonte. Consequently, the Minas Gerais State Public Prosecutors' Office filed an appeal requesting clarification, which was upheld. On March 23, 2017, a conflict of jurisdiction was claimed. Since April 11, 2017, the case has been awaiting judgment.
Chance of loss	Possible
Analysis of impact in event of loss / Reasons this case is significant to the Company	Harm to the Company's image by having the Company's name associated with the practice of fraudulent appropriation of lands in the northern part of the state of Minas Gerais, the cancellation of land acquisitions, and the loss of sums paid by Vale (approximately R$35.0 million).

5) Special Appeal 1.262.401, Bahia	
Court	Superior Court of Appeals

Level of court	Superior
Date instigated	August 26, 2005
Parties	Interunion Capitalização S.A. (plaintiff) and Companhia Paulista de Ferro Ligas (CPFL) (defendant)
Sums, assets or rights involved	R$1,368,717,984.21 (December 2016)
Main facts	Interunion filed an enforcement procedure against Vale subsidiary CPFL to demand R$248,968,222.18, corresponding to 200 bonds that were the subject of a contract that despite being entitled "Purchase and Sale of Bonds," was in fact a bond lease contract. The defense (appeal) presented by CPFL was rejected, leading it to file an appeal with the Bahia Court of Appeals. In judging this appeal, the Bahia Court of Appeals upheld the decision to reject the appeal. CPFL then filed a special appeal with the Superior Court of Appeals. The Superior Court of Appeals accepted CPFL's special appeal and ordered the annulment of the enforcement process, deeming that Interunion had not adequately demonstrated the calculation of the enforced amount, which is indispensable when requesting such an enforcement process. Interunion then filed a series of appeals against the Superior Court of Appeals' decision (appeal requesting clarification, motion for reconsideration, internal appeal, and a new appeal requesting clarification), all of which were rejected in turn. Interunion then filed an extraordinary appeal with the Supreme Federal Court. When examining this appeal's admissibility, the Superior Court of Appeals deemed that the appeal was groundless and did not allow it to progress to the Supreme Federal Court for analysis of the case's merits, in line with the ruling published on March 10, 2014. Interunion filed an appeal against this decision of inadmissibility, and on April 22, 2014 it was submitted to the Supreme Federal Court, where it is pending judgment. The Office of the Prosecutor General issued an opinion, ruling that the extraordinary appeal should not be allowed to proceed. After this opinion was issued by the Office of the Prosecutor General, a first-instance decision was handed down, rejecting the extraordinary appeal, published on August 30, 2016. On September 5, 2016, Interunion filed an appeal against the first-instance decision. On September 13, 2016, permission was granted for the defendant to present its counterarguments. The appeal was judged on October 4, 2016. On the same date, in a subsequent act, the case records were submitted to the rapporteur judge and they are pending judgment.
Chance of loss	Remote
Analysis of impact in event of loss / Reasons this case is significant to the Company	An unfavorable decision in the case would generate financial losses for the Company.

6) Lawsuit 0069758-61.2015.4.01.3400	
Court	12th Federal Court of Minas Gerais
Level of court	1st instance
Date instigated	December 17, 2015
Parties	Federal government, Brazilian Environmental Protection Agency ("IBAMA"), Chico Mendes Institute, National Water Agency

	("ANA"), National Mineral Production Department ("DNPM"), state government of Minas Gerais, State Forest Institute ("IEF"), Minas Gerais Water Management Institute ("IGAM"), State Environmental Foundation ("FEAM"), state government of Espírito Santo, State Environment and Water Resources Institute ("IEMA"), and State Water Resources Agency ("AGERH") ("Plaintiffs"), and Samarco, Vale and BHPB ("Defendants")
Sums, assets or rights involved	R$20,204,968,949
Main facts	On December 17, 2015, the federal government filed a class action lawsuit aimed at forcing Vale, Samarco and BHPB to take a series of urgent measures, in order to repair alleged social and environmental damage arising from the failure of Samarco's tailings dam in the municipality of Mariana ("Fundão Dam") and to prevent potential future environmental damage. For information on this accident, see item 7.9 of this Reference Form. On December 18, 2015, a decision was handed down, granting an injunction to: (i) issue a provisional remedy to forbid Samarco from discharging the volume of tailings that were still retained behind the failed dam (or prove that these tailings had already been contained); (ii) order the Defendants to: (a) hire companies to immediately start evaluating the contamination of fish by inorganic substances and any potential risks caused by human consumption of these fish, and to control the proliferation of species benefiting from the manmade occurrence; and (b) carry out studies and take measures to prevent the volume of mud discharged into the Doce River from reaching the Doce River lagoon system and to protect the mineral water sources mapped by DNPM; (c) carry out studies to map the different levels of potential resilience of the impacted locations; (iii) order Samarco to make an initial deposit in court of R$2.0 billion; (iv) freeze the Defendants' existing mining concession licenses; (v) grant an injunction to force the Defendants to present an overall social and environmental recovery plan for the Doce River Basin and the entire degraded area; and (vi) order the provision of services to the people impacted by the disaster. Within the scope of the decision in question, a daily fine of R$150,000 was also established in the event of non-compliance with each of the measures imposed on the Defendants, and a daily fine of R$1.5 million was established in the event of a delay in making the aforementioned mandatory R$2.0 billion deposit in court. On January 7, 2016, Samarco filed a petition, requesting the following: (i) A partial reconsideration of the injunction, arguing against the need for the ordered measures, taking into account technical factors and processes needed to execute them, which would undermine the injunction's own objectives, as Samarco argued it was necessary to hire specialized companies and to carry out environmental and social impact assessments in order to implement the injunction's demand; (ii) Extensions to the deadlines, as follows: a) Submission of the studies related to the thickness of the mud layer, until January 18, 2016; b) Submission of the preliminary recovery plans, up to 45 days; c) Removal of all the volume of mud deposited along the banks of the Doce River, for an indeterminate period, due to the technical difficulties involved; (iii) Removal of the obligation to make the R$2.0 billion

	deposit; (iv) A reversal of the freezing of the Defendants' mining rights; and (v) Recognition of the impossibility of submitting the necessary plans within the deadline originally set. In addition, through this petition, Samarco reiterated its request for a justification and conciliation hearing and the suspension of the fine established by the decision that granted the injunction, until the final terms of the new deadlines were established, as requested in the petition. On the same date, Vale also filed a request to reconsider the injunction, in which it demonstrated that Samarco had already been taking measures needed to mitigate the accident's impacts. It also demonstrated that the measures ordered in the injunction were unreasonable, insofar as they did not take into consideration the studies needed to identify the measures to be taken to mitigate the damage. In addition, it claimed that these measures ought not to be ordered through an injunction. After this, on January 14, 2016, Vale, Samarco and BHP filed an appeal against the injunction, requesting the granting of suspensive effect and a comprehensive review of the injunction. On February 3, 2016, Samarco, Vale and BHPB filed a petition to request a further 30-day suspension of the process and the effects of the injunction granted, in view of the fact that negotiations had begun with the aim of reaching an agreement. On February 4, 2016, Samarco filed a petition, reiterating its request to reconsider the decision ordering the taking of certain measures aimed at preventing and mitigating damage arising from the accident, and reinforcing its request to not be obliged to provide a new deposit or make new deposits in court, at the risk of endangering the commitments already voluntarily assumed to repair the damage caused by the accident. On February 5, 2016, Samarco filed a challenge, arguing there was a lack of procedural assumptions and merit. Samarco also argued that it had been taking the measures envisaged in the case voluntarily, and it requested the dismissal of the initial requests. On February 10, 2016, Vale filed a challenge, through which it requested the dismissal of the case, without judgment of its merits, given the Plaintiffs' lack of interest in acting. Considering the hypothesis of the case not being dismissed without resolution of its merit, Vale also requested judgment of the rejection of the requests formulated initially, through the revocation of the injunction and provisional remedies, as well as condemnation of the Plaintiffs to pay the case's costs and legal fees. On March 2, 2016, the federal government, the state government of Minas Gerais, governamental authorities entered into a Transaction and Conduct Adjustment Agreement ("TTAC"), which was submitted to the court on March 7 with a request for its legal approval.

	On May 5, 2016, at a hearing attended by the parties to the case and the Federal Public Prosecutors' Office, the TTAC was registered within the Federal Court Conciliation System, an organization that is part of the structure of the Regional Federal Court of the 1st Region, and the lawsuit was suspended during the period of execution of the obligations assumed by the parties within the scope of the TTAC. The Federal Public Prosecutors' Office filed an appeal requesting clarification against the decision that approved the TTAC, questioning the jurisdiction of the Regional Federal Court of the 1st Region to approve the TTAC. In addition, the Federal Public Prosecutors' Office questioned the terms of the TTAC, regarding the appropriateness of the measures established in it, as well as the legitimacy of the agreement's parties to enter into the TTAC. Accordingly, it requested the granting of infringing effects to the appeal requesting clarification and the suspension of the decision's effectiveness. At the same time, the Federal Public Prosecutors' Office filed a complaint with the Superior Court of Appeals against the decision of the Regional Federal Court of the 1st Region that approved the TTAC. On June 30, 2016, the complaint's rapporteur judge granted an injunction to suspend, until the definitive judgment of the complaint, the decision of the Regional Federal Court of the 1st Region, of May 5, 2016, which approved the TTAC. On August 17, 2016, the Fifth Panel of the Regional Federal Court of the 1st Region declared null and void the decision that approved the TTAC and rejected the appeals made by Vale, BHP and Samarco, while upholding the injunction granted by the 12th Federal Court of Belo Horizonte on December 18, 2015, including the freezing of the Defendants' mining concessions, but without limiting their production and sale activities. On November 4, 2016, the Federal Courts ordered the Defendants to: (i) present evidence, within 90 days, that the leakage of waste from the Fundão Dam had been definitively contained; (ii) to submit conclusive studies within six months, endorsed by the relevant environmental agencies, regarding an action plan and the feasibility of removing the mud spread along the banks of the Doce River, along its tributaries and in areas near its estuary; and (iii) to make a deposit of R$1.2 billion, within 30 days, to guarantee future remedial measures. This cash deposit of R$1.2 billion was provisionally replaced by the guarantees provided for in the Term of preliminary conduct adjustment I ("Preliminary Adjustment Term I"). On November 16, 2016, Samarco filed an appeal requesting clarification, through which, for the purpose of making the ordered deposit in court, it requested recognition of the spending already incurred to execute the remedial measures, and the possibility of offering the court other assets or forms of guarantee.

	On December 6, 2016, Samarco filed a petition requesting the granting of an additional 30 days to make the deposit in court. On December 7, 2016, a decision was handed down, granting an additional 30 days to make the deposit in court. On January 11, 2017, a decision was issued, ordering the defendants, within three days, to submit their opinion on the petition filed by the municipal government of Ponte Nova, requesting its participation in the lawsuit, and to submit their opinion on the registration program within five days. On January 18, 2017, the Federal Public Prosecutors' Office, Vale, Samarco and BHPB filed a petition to: report the signing of a Preliminary Adjustment Agreement by the parties; (ii) accept the guarantees provided for in this agreement for the purpose of provisional compliance with the requirement to make the deposit specified in the injunction granted within the scope of Class Action Lawsuit 0069758-61.2015.4.01.3400; and (iii) request the suspension of the case. On January 26, 2017, a decision was handed down, suspending the procedural timeframe related to the deposit of R$1.2 billion and providing five days for the plaintiffs to express their opinion on the TAP entered into by the defendants and the Federal Public Prosecutors' Office. On March 6, 2017, the Federal Public Prosecutors' Office and the defendants filed a joint petition reiterating the request to approve the Preliminary Adjustment Term I, while mentioning that a firm called Integratio Mediação Social e Sustentabilidade Ltda. had been hired to serve as independent technical assistants. On February 5, 2017, the plaintiffs filed a joint petition agreeing to the Preliminary Adjustment Term I. On March 16, 2017, a decision was issued, which: (i) partially approved the Preliminary Adjustment Term I, ordering the suspension of the case until a further judicial decision; and (ii) accepted, for the time being, the guarantees provided for in the TAP, with the condition that they would not replace or modify the order for a cash deposit specified in the injunction. The TTAC remains valid and the parties will continue to meet their pre-established obligations. For additional information on the main terms and conditions of the aforementioned TTAC and Preliminary Adjustment Term, see "Terms Related to Failure of Samarco Dam" in item 4.7 of this Reference Form. In addition, was signed the Term of Preliminary Adjustment I. for more information see item 4.7. **In addition, the Term of Preliminary Adjustment I was signed in relation to the guarantees. For more information see item 4.7 of this Reference Form.**
Chance of loss	Possible
Analysis of impact in event of loss / Reasons this case	The parties entered into an TTAC through which it was agreed to carry out programs needed for the environmental and social

is significant to the Company	restoration of the areas impacted by the accident. For more information on this TTAC, see item 4.7 of this Reference Form. In addition, the Term of Preliminary Adjustment I was signed in relation to the guarantees. For more information see item 4.7 of this Reference Form.

7) Lawsuit 0197171-92.2015.8.13.0521 (0007284-81.2016.4.01.3800)	
Court	2nd Civil Court of Ponte Nova, Minas Gerais Court of Appeals (12th Federal Court of Belo Horizonte)
Level of court	1st instance
Date instigated	November 17, 2015
Parties	Núcleo Assessoria Comunidades Atingidas Por Barragens (NACAB) ("Plaintiff") and Samarco, Vale and BHPB (together "Defendants")
Sums, assets or rights involved	R$100,000,000
Main facts	On November 17, 2015, the Plaintiff filed a class action lawsuit requesting an injunction to force the Defendants to submit and execute, for the region of the municipalities of Santa Cruz do Escalvado, Rio Doce and Barra Longa, along the Carmo and Doce rivers: (i) recovery programs for the permanent preservation areas and springs affected by the mud that spilled from Samarco's failed dam; and (ii) a database of impacted people and the respective damage, including plans for immediate social assistance and compensation. In other specific areas, the demand was to carry out long-term monthly monitoring and genetic population studies of the rivers' aquatic fauna, and then submit an emergency recovery program. A request was also made to force the Defendants to pay compensation to all the people impacted by the accident, as well as environmental compensation, totaling R$100,000,000. On November 18, 2015, a sentence was issued, assigning the case to the Belo Horizonte sub-section of the Federal Courts. On November 23, 2015, the Plaintiff filed an appeal, requesting an injunction against the decision made, a review of the first-instance decision, and the maintenance of the case with the State Courts. In addition, NACAB requested an interim measure to oblige the Defendants to take several measures in order to remedy the damage caused by the accident. This included the submission, within 30 days, of a recovery program for the aquatic fauna of the Doce, Carmo and Piranga rivers in the municipalities of Santa Cruz do Escalvado, Rio Doce, Barra Longa and Ponte Nova, and the provision of social assistance to victims of the accident, among other things. On November 26, 2015, a decision was issued that postponed the analysis of the request for the injunction until after the analysis of the Defendants' challenge. On December 17, 2015, the rapporteur issued an order convening an extraordinary conciliation session at the Minas Gerais Court of Appeals.

	On January 7, 2016, the federal government filed a petition to express its agreement with the decision to transfer the case to the Federal Courts, given its interest in the case. On February 3, 2016, given the federal government's explicit interest, the case was transferred to the 12th Federal Court, in accordance with article 109, I of the 1988 Federal Constitution. On February 16, 2016, the case was received by the 12th Federal Court of the Judiciary Section of Belo Horizonte. On July 22, 2016, a decision was issued, calling for the case to be merged into Class Action Lawsuit 23863-07.2016.4.01.3800, and to suspend the process. On March 27, 2017, a decision was published that, considering the approval granted in cases 697586120154013400 and 238630720164013800, suspended the case until subsequent judgment.
Chance of loss	Possible
Analysis of impact in event of loss / Reasons this case is significant to the Company	The value of the case given by the Plaintiff is R$100,000,000. However, the lawsuit is still at a very early stage, which hinders accurate analysis of the losses if the case should be lost.

8) Lawsuit 0008423-17.2016.8.13.0400 (0146085-58.2015.4.02.5101)	
Court	1st Court of Mariana
Level of court	1st instance
Date instigated	November 30, 2015
Parties	Sohumana Sociedade Humanitária Nacional ("Plaintiff") and Samarco, Vale and BHPB (together "Defendants")
Sums, assets or rights involved	R$20,000,000,000
Main facts	On November 30, 2015, the Plaintiff filed a class action lawsuit aimed at forcing the Defendants to pay compensation to the victims of the accident or their families, and to municipal governments, to restore public property, in proportion to the impacts caused by the accident. For information on the accident, see item 7.9 of this Reference Form. On November 30, 2015, a decision was handed down that rejected the capability to process the lawsuit at one of the courts of the State Courts of Mariana, Minas Gerais. On December 11, 2015, Vale filed a petition requesting reconsideration of the decision made and, before the case were to be transferred to the Federal Courts of Minas Gerais, to instruct the federal government to express its opinion on its interest in the matter, because if the federal government's response were to be positive, the demand ought to proceed at the federal level, in accordance with article 109, I of the Federal Constitution. On December 15, 2015, Sohumana, in a petition, requested reconsideration of this decision and requested the transfer of the case to the Federal Courts of Minas Gerais, based on the interests

	and legitimacy of BDNESPAR, which as a Vale shareholder had an interest in the demand. On December 16, 2015, a decision was handed down that maintained the rejection of the State Courts' jurisdiction, reaffirming the complete inappropriateness of the Federal Courts and inconsistency involved in summoning any possible interested parties, including the federal government. On March 10, 2016, the case was received by the 1st Court of Mariana. On April 1, 2016, an order was published, requesting the regularization of the Plaintiff's procedural representation. On April 20, 2016, a sentence was published that rejected the initial petition, due to a lack of proper procedural representation, annulling the case without judgment of merit. On June 7, 2016, the sentence became final. On November 14, 2016, the Plaintiff filed a petition requesting formalization of the process. On February 6, 2017, a decision was made that failed to analyze the requests made, given that the sentence had already been made final. On March 6, 2017, the Plaintiff filed an appeal. On March 14, 2017, the appeal parties were summoned to present their counterarguments. On March 23, 2017, the Plaintiff filed an appeal requesting clarification, requesting rectification of an alleged omission regarding the timeframe for returning the case from the Order of Attorneys of Brazil. On March 29, 2017, a decision was issued that declined to accept the appeal requesting clarification filed by the Plaintiff.
Chance of loss	Possible
Analysis of impact in event of loss / Reasons this case is significant to the Company	Even though the case was terminated without judgment of merit because of the recent decision, the Company considers it to be significant because of the sums involved.

9) Lawsuit 0028358-94.2016.4.01.3800 (formerly 0426085-72.2015.8.13.0105)	
Court	12th Federal Court of the Judiciary Section of Belo Horizonte (formerly 7th Civil Court of Governador Valadares, Minas Gerais Court of Appeals)
Level of court	1st instance
Date instigated	December 14, 2015
Parties	Minas Gerais State Public Prosecutors' Office ("Plaintiff"), and Samarco and Vale (together "Defendants")
Sums, assets or rights	R$5,100,000,000

involved	
Main facts	On December 14, 2015, the Minas Gerais State Public Prosecutors' Office filed this class action lawsuit, through which it intends to condemn the Defendants to take numerous measures to mitigate the impacts arising from the failure of the Fundão Dam. The Plaintiff has requested an injunction to order the defendants, under penalty of a daily fine of R$2,000,000, to: (i) provide and maintain the measures approved in Provisional Class Action Lawsuit 0395595-67.2015.8.13.0105, which preceded this demand, and therefore possessing the same subject (as described below in "Notes"); (ii) produce and execute detailed designs for the construction of water collection, pumping and transportation plants on the Suaçuí Pequeno and Grande rivers, up to the plants of the Autonomous Water and Sewerage Service ("SAAE") within 12 months; (iii) regularly supply SAAE with the polymers needed for water treatment for the Doce River until the aforementioned water collection and transportation facilities are operating; (iv) install equipment for the temporary collection and transportation of water in the Suaçuí Pequeno or Grande river in order to reduce extraction in the Doce River, within 45 days; (v) install a modular water treatment plant, with the capacity to treat 120 liters per second, to extract from the Capim Stream, within 45 days; (vi) have a minimum sum of R$100,000,000 frozen in their bank accounts; and (vii) confirmation of the injunction and compensation for collective pain and suffering of at least R$5,000,000,000. On December 17, 2015, a decision was handed down that partially granted the injunction to invert the burden of proof and ordering the Defendants to pay for monitoring of the water quality of the Doce River and the drinking water supplied to the population, under penalty of a daily fine of R$2,000,000. In addition, the decision ordered compliance with the injunction granted in lawsuit 0395595-67.2015.8.13.0105, including the requirement to deliver water to homes within 48 hours, and to submit a logistics plan regarding the delivery of water to homes within 10 days. The Minas Gerais State Public Prosecutors' Office filed an appeal against the injunction, requesting an interim measure to order the adoption of preventive and emergency measures in the regions impacted by the accident. On February 17, 2016, a decision was issued that suspended the processing of the appeal in question. Thus, the appeal was suspended until the pronouncement of the final decision in the case records of the Positive Conflict of Jurisdiction filed by Samarco, which aimed to settle the dispute as to whether the federal or state courts ought to judge the issues related to the municipality of Governador Valadares. This conflict originated in the fact that there were two class action lawsuit dealing with water distribution and drinkability in Governador Valadares, one under way in the federal courts, and the other under way in the state courts. The Conflict of Jurisdiction has not yet been judged, but it has been decided that in the absence of a final decision, the urgent measures should be taken by the federal courts.

	On May 10, 2016, the following were joined together: (i) the second-instance decision handed down by a single judge, recorded in the case records of the appeal filed by the Minas Gerais State Public Prosecutors' Office, on January 28, 2016, which ordered the transfer of the case records, as well as the related appeals, to the 12th Federal Court of the Judiciary Section of Belo Horizonte; (iii) the petition filed by the municipal government of Governador Valadares, on February 16, 2016, expressing interest in joining the lawsuit as an interested party; (iii) the letter from the 12th Federal Court of Minas Gerais, requesting the joining of the case records of the petition of the Federal Public Prosecutors' Office and its decision, in light of the decision of the Conflict of Jurisdiction under way in the Superior Court of Appeals. On May 24, 2016, the lawsuit was assigned to the 12th Federal Court. On July 4, 2016, Vale's challenge was added, arguing for a lack of interest in acting on the part of the Minas Gerais State Public Prosecutors' Office, given the measures already implemented by the defendants, and the fact that the water quality of the rivers had already returned to the situation prior to the accident. Vale also noted in its defense that it was unable to feature as a defendant given the lack of a causal link between any action and omission by it and the accident that occurred. Vale also argued for the lack of collective pain and suffering and the impossibility of inverting the burden of proof. On July 4, 2016, Samarco's challenge was also added, due to the similarity between its arguments and those put forward by Vale. On March 21, 2017, the joint decision was added to the case records of lawsuits 0069758-61.2015.4.01.3400 and 0023863-07.2016.4.01.3800, which partially approved the Preliminary Adjustment Agreement, only with regard to the social and environmental diagnosis (to be carried out by the Institute of Technology for Development, LACTEC) and the diagnosis and monitoring of programs under way (to be carried out by Ramboll Brasil Engenharia e Consultoria Ambiental Ltda.) The other lawsuits connected to them were suspended to avoid conflicting decisions. On March 29, 2017, an order was published that, considering the approval granted within the scope of lawsuits 69758-61.2015.4.01.3400 and 23863-07.2016.4.01.3800, suspended the case until subsequent judicial deliberation.
Chance of loss	Possible
Analysis of impact in event of loss / Reasons this case is significant to the Company	The value of the case given by the Minas Gerais State Public Prosecutors' Office is R$5,100,000,000. However, the lawsuit is still at a very early stage, which hinders accurate analysis of the losses if the case should be lost.
Notes	Provisional Class Action Lawsuit 0395595-67.2015.8.13.0105 is a preparatory provisional remedy for lawsuit 0426085-72.2015.8.13.0105, described above. This lawsuit was filed on November 10, 2015 by the Minas Gerais State Public Prosecutors'

	Office against Samarco, with the 7th Civil Court of Governador Valadares, Minas Gerais Court of Appeals. The provisional remedy is suspended, in line with the decision issued by the Superior Court of Appeals.

10) Lawsuit 0043356-50.2015.8.13.0400 (10264-98.2016.4.01.3800)	
Court	2nd Civil Court of Mariana (returned to 12th Federal Court of Judiciary Section of Belo Horizonte)
Level of court	1st instance
Date instigated	December 10, 2015
Parties	Minas Gerais State Public Prosecutors' Office ("Plaintiff") and Samarco, Vale and BHPB (together "Defendants")
Sums, assets or rights involved	R$2,000,000,000
Main facts	On December 10, 2015, the Minas Gerais State Public Prosecutors' Office filed a class action lawsuit, aimed at condemning the Defendants, under penalty of a daily fine of R$200,000, to: (i) take various measures to mitigate the impacts arising from the failure of the Fundão Dam; (ii) carry out a social communication program about the activities executed; (iii) provide health and education services to the impacted people; and (iv) provide support in recovering goods, animals and other item, and to retrieve tombstones and mortal remains existing in the affected locations, among other measures. The main request was to convert the injunction into a definitive order, in order to permit full compensation for alleged individual material damages and pain and suffering incurred by the impacted people because of the accident, and to pay for a Restoration Plan, enabling social and environmental recovery, to rectify the alleged harm caused by the accident at the Fundão Dam. The Minas Gerais State Public Prosecutors' Office is also demanding the resettlement and socioeconomic restructuring of the impacted families, and maintenance of the effects of the injunction granted in Provisional Remedy 0039891-33.2015.8.13.0400, which came before this demand, and in which the freezing of R$300,000,000 was authorized. On December 16, 2015, an order was granted that postponed the examination of the injunctions until after the conciliation hearing. On the same date, the Minas Gerais State Public Prosecutors' Office requested an addition to the initial petition to incorporate new requests, including the following: (i) The granting of an urgent interim measure; (ii) The payment of R$10,000 as financial aid to the victims; (iii) Identification and reestablishment of sport groups in the affected communities and other leisure practices engaged in by the impacted people; (iv) Payment of assistance funds to the victims, and an increase in the amount; (v) Payment of financial aid to victims whose source of income has not been directly impacted; and (vi) The submission of a plan for immediate, concrete actions, among other measures. On December 23, 2015, a hearing for the parties was held, overseen by the judge, during which the following subjects were discussed: (i) The placing of families in rented houses, noting that regarding this point, Samarco stated that it had already spontaneously taken part of this measure; (ii) Emergency aid,

	noting that Samarco stated that it was already paying one minimum salary to each family member who had lost income because of the accident, plus 20% for every dependent family member, as well as a food allowance per family, and that it had undertaken to provide this monthly support for 12 months, in line with the conditions specified in the hearing's terms; (iii) Payment by Samarco of: (a) R$100,000 per family that had lost members in the event; and (b) R$10,000 as advance compensation per family to the families that had had their real estate property destroyed, whether or not they had lost income arising from that property; (iv) Disclosure to the court by Samarco of the amount spent on compensation and restoration in the area until January 31, 2016. For the purpose of paying the aforementioned sums, except the monthly aid, an order in the value of R$5,500,000 was issued. On January 20, 2016, the second hearing for the parties was held, overseen by the judge, during which the following subjects were discussed, as well as certain individual cases: (i) The early payment of R$10,000 to people impacted by the accident, noting that Samarco had undertaken to provide this early compensation at the previous hearing, to individuals who had lost buildings of their ownership that were used for purposes other than there usual residence, pursuant to the terms agreed at the hearing; (ii) Compensation for loss of vehicles, noting that Samarco undertook to compensate people who had lost vehicles; (iii) The release order, through which Samarco agreed to release R$1.0 million to execute the measures specified above. On February 17, 2016, given the federal government's explicit interests, the case was transferred to the 12th Federal Court, in accordance with article 109, I of the Federal Constitution. Awaiting judgment. On March 28, 2016, Vale filed a challenge, requesting the dismissal of the case, without judgment of its merits, given the Plaintiff's lack of interest in acting. Considering the hypothesis of the case not being dismissed without resolution of its merit, Vale also requested judgment of the rejection of the requests formulated initially, as well as condemnation of the Plaintiff to pay the case's costs and legal fees. On July 15, 2016, the Federal Public Prosecutors' Office filed a petition requesting the transfer of jurisdiction from the Federal Courts to the State Courts, given that: (a) in the appeal that ordered the transfer, the appeal court judge subsequently reconsidered his decision; (b) in line with the decision of the Superior Court of Appeals, of June 22, 2016, in Conflict of Jurisdiction 144.922/MG, related to the demands of the accident in Mariana, the Federal Courts would be best placed to handle demands concerning diffuse and trans-individual rights, such as socioeconomic and social-environmental ones, while the State Court would be responsible for homogenous individual demands, such as those of the present lawsuit, regarding the personal damages of the families affected by the failure of the Fundão Dam.

	On August 23, 2016, at the 12th Federal Court of the Judiciary Section of Belo Horizonte, Minas Gerais, a decision was handed down ordering the return of the case to the 2nd Civil and Criminal Court of Mariana, Minas Gerais. On September 5, 2016, the case was transferred to the 2nd Civil Court of Mariana, Minas Gerais. On September 12, 2016, the Minas Gerais State Public Prosecutors' Office filed a petition with the 2nd Court of Mariana, request the following measures, among others: (a) Reactivation of the lawsuit in the State Courts; (b) Incorporation of the technical assistance process into the main case and provisional remedy; (c) Release of R$3.5 million, through a court order, to the Minas Gerais branch of Cáritas Brasileira, a non-governmental organization tasked with beginning the technical assistance work to aid affected people; (d) The submission of various documents, including proof of a R$500,000 deposit made by Samarco; and (e) The convening of another conciliation hearing. On September 30, 2016, a judgment was issued, ordering the incorporation of the sentence's execution into the main case records and ordering the transfer of the case to the 12th Federal Court of the Judiciary Section of Minas Gerais, in order to judge the appeal requesting clarification filed by Samarco. On November 11, 2016, Samarco filed a petition stating that it had filed an appeal requesting clarification against the decision handed down by the 12th Federal Court of Belo Horizonte, which ordered the transfer of the case to the State Courts, and thereby requesting the return of the case to the Federal Courts to judge the appeal requesting clarification. On November 28, 2016, a conciliation hearing was held, during which an agreement between the parties was approved. On February 8, 2017, the case was transferred to the 12th Federal Court of Belo Horizonte. On February 9, 2017, the appeal requesting clarification filed by Samarco was rejected. On April 7, 2017, a conciliation hearing was held at the 2nd Civil Court of Mariana, Minas Gerais.
Chance of loss	Possible
Analysis of impact in event of loss / Reasons this case is significant to the Company	The value of the case given by the Minas Gerais State Public Prosecutors' Office is R$2,000,000,000. However, the lawsuit is still at a very early stage, which hinders accurate analysis of the losses if the case should be lost.

11) Lawsuit 0273073-38.2015.8.13.0105	
Court	5th Civil Court of Governador Valadares, Minas Gerais Court of Appeals
Level of court	1st instance
Date instigated	December 28, 2015
Parties	Minas Gerais State Public Prosecutors' Office ("Plaintiff") and

	Samarco, Vale, and Autonomous Water and Sewerage Service ("SAAE") ("Defendants")
Sums, assets or rights involved	R$1,000,000
Main facts	On December 23, 2015, the Minas Gerais State Public Prosecutors' Office filed a class action lawsuit aimed at forcing the Defendants to: (i) submit a plan for solid waste management at the water treatment plants in the municipality of Governador Valadares, providing for the proper final disposal of this waste; and (ii) abstain from discharging any kind of waste arising from water treatment into any water body or in nature, until the management plan has been implemented. On December 25, 2015, a decision was issued that granted the requested injunction, ordering the Defendants to submit a solid waste management plan at the water treatment plants in the municipality of Governador Valadares and abstain from discharging solid waste arising from water treatment into any water body or in the open air, until this plan has been implemented, setting a daily fine for non-compliance, and determining a reversal in the burden of proof. Samarco and Vale filed an appeal against this decision, to which partial suspensive effect was granted. On January 29, 2016, Vale filed a challenge, claiming it was unable to feature as a defendant in the case, given that SAAE is the only party responsible for public water supply in Governador Valadares. Consequently, it requested the annulment of the case, without judgment of merit, given the Plaintiff's lack of interest in acting. Considering the hypothesis of the case not being dismissed without resolution of its merit, Vale also requested judgment of the rejection of the requests formulated initially, as well as condemnation of the Plaintiff to pay the case's costs and legal fees. On February 22, 2016, SAAE filed a petition requesting that the case be deemed inadmissible and that the obligation to handle the final disposal of the mud extracted following the water treatment be assigned to Vale and Samarco. On May 5, 2016, the Minas Gerais State Public Prosecutors' Office filed a challenge to the statements made by the defendants. On May 17, 2016, an order was issued, summoning the defendants to specify the proofs they intend to produce. On July 5, 2016, Vale, Samarco and BHPB filed a petition in the case records, requesting the production of supplementary documentary proof and an expert opinion. On September 30, 2016, Samarco filed a petition in the case records, requesting that the case be transferred to the 12th Federal Court of Belo Horizonte.

	On November 1, 2016, a sentence accepting the challenge of the 5th Civil Court of Governador Valadares was added to the case records, ordering the case's transfer to the 12th Federal Court of Belo Horizonte. After this, the Minas Gerais State Public Prosecutors' Office was given access to the case records. On December 5, 2016, the Minas Gerais State Public Prosecutors' Office filed a petition requesting the continuation of the process, given that the sentence that accepted the challenge had not yet been made final.
Chance of loss	Possible
Analysis of impact in event of loss / Reasons this case is significant to the Company	The Minas Gerais State Public Prosecutors' Office claims that the accident involving the Fundão Dam directly impacted the distribution of water in the municipality of Governador Valadares and it intends to continually evaluate the quality of the drinking water distributed there. The lawsuit is still at a very early stage to evaluate the impacts. Notwithstanding the above, the Company also considers the case to be significant because of the subject in question.

12) Lawsuit 1:15-cv-09539	
Court	Federal Court of New York
Level of court	District Court of United States for Southern District of New York
Date instigated	December 7, 2015 ("First Complaint") and April 29, 2016 ("Amended Complaint")
Parties	Alameda County Employees' Retirement Association and Orange County Employees Retirement System ("Plaintiffs") and Vale S.A., Murilo Pinto de Oliveira Ferreira, Luciano Siani Pires and Gerd Peter Poppinga ("Defendants")
Sums, assets or rights involved	The plaintiffs have not specified the amount of alleged losses.
Main facts	Vale and some of its executives have been indicted as defendants in potential class action lawsuits related to securities filed with the Federal Court of New York, brought by investors holding American Depositary Receipts issued by Vale, based on US federal securities laws. In the lawsuits, it is alleged that Vale made false and misleading declarations or failed to disclose the risks and hazards of operations involving Samarco's Fundão tailings dam and the appropriateness of related programs and procedures. The plaintiffs did not specify a value for the alleged losses involving their shares, but only requested that the defendants be condemned to compensate the losses incurred, to be calculated in the expert opinion phase. On March 7, 2016, the judge overseeing the class action lawsuits related to the securities ordered the consolidation of these cases and designated lead plaintiffs and a lawyer. On April 29, 2016, the lead plaintiffs of the lawsuit filed an initial amended and consolidated request to serve as the case's initial petition. On July 25, 2016, Vale filed a motion to dismiss the initial amended and consolidated petition, in which it basically claimed: (i) that the

	cause of the plaintiffs' claims do not justify a Securities Fraud Claim; (ii) that the plaintiffs have not identified any omissions supposedly committed by the defendants; (iii) that the plaintiffs have not demonstrated the defendants' intention to defraud the market; and (iv) that the plaintiffs have not imputed any unlawful acts to the individual defendants. On March 23, 2017, the court issued a ruling, dismissing the case with regard to the majority of the requests filed against Vale and the individual defendants, as well as deeming null and void all the requests formulated against Vale's chief executive officer, Murilo Ferreira, and those related to the personal liability of the individual defendants. The small share of the case that remains is limited to certain declarations regarding risk mitigation in Vale's 2013 and 2014 Sustainability Reports, and isolated declarations regarding Vale's responsibility for the failure of the Fundão dam made during a single conference call in November 2015. On April 6, 2017, Vale filed a request for clarification/reconsideration through which it requested that other requests made by the plaintiffs be dismissed. On April 7, 2017, Vale submitted a proposed schedule for the next steps related to the case. The parties agreed to this schedule and, on April 14, 2017, they met with the judge to establish the future timeframes. Vale plans to continue to defend itself from these lawsuits.
Chance of loss	Because of the preliminary nature of these proceedings, it is not possible to determine the extent of their results or to make firm estimates of potential exposure at this stage, and so no provisions have been made.
Analysis of impact in event of loss / Reasons this case is significant to the Company	Loss of the case could generate financial, image and reputational losses for the Company.

13) Lawsuit 0073114-91.2016.4.01.3800 (formerly 0000640-06.2016.8.08.0014)	
Court	12th Federal Court of Belo Horizonte (original court: 2nd Civil Court of Colatina, Espírito Santo Court of Appeals)
Level of court	1st instance
Date instigated	January 15, 2016
Parties	Espírito Santo State Public Prosecutors' Office (Plaintiff) and Samarco Mineração S.A. ("Samarco"), Vale S.A. ("Company or "Vale") and BHP Billiton Brasil Ltda. ("BHPB") (together "Defendants")
Sums, assets or rights involved	R$2,000,000,000
Main facts	On January 15, 2016, the Espírito Santo State Public Prosecutors' Office filed a class action lawsuit aimed at forcing Samarco to pay damages for diffuse pain and suffering arising from alleged hardship experienced by the population of the municipality of Colatina because of the failure of the tailings dam in the

	municipality of Mariana. For information on this accident, see item 7.9 of this Reference Form. The plaintiff formulated a number of provisional requests, aiming to: (i) freeze R$2 billion in the bank accounts of the Defendants, in order to guarantee future enforcement; (ii) remove the tax confidentiality of the Defendants; (iii) supply documentation related to the accident; and (iv) report this demand to the Brazilian Securities and Exchange Commission (CVM). Accordingly, the Espírito Santo State Public Prosecutors' Office requested that the legal personality of Samarco's shareholders be disregarded, claiming that although there is no evidence that Samarco, the owner and operator of the Fundão Dam, is in a state of insolvency, there is the possibility that this could occur. On January 22, 2016, the Espírito Santo State Public Prosecutors' Office submitted an amendment to its initial petition, to include the Municipal Consumer Protection and Defense Fund as a beneficiary of a demand for R$2,000,000. On January 19, 2016, Samarco filed a challenge, arguing that it had already taken measures to support those impacted by the accident, and that the financial resources were wholly assigned to repairing the damage caused by the accident. In addition, within the scope of this matter, Samarco argued that the provisional requests were not useful in justifying their approval, and that they could also harm additional efforts aimed at mitigating the impacts caused by the accident. On February 11, 2016, a sentence was handed down, rejecting the interim measure requested by the Espírito Santo State Public Prosecutors' Office with regard to the freezing of the defendants' cash. On February 17, 2016, the Espírito Santo State Public Prosecutors' Office filed an appeal against the decision that rejected the interim measure to request the freezing of R$2.0 billion and to disregard the legal personality of the Defendants, among other measures. On March 10, 2016, a ruling was issued to postpone the examination of the measure requested by the Espírito Santo State Public Prosecutors' Office, in order to request the first-instance judge to provide information prior to the ruling, and to summon the Defendants to express their opinion. On March 23, 2016, a ruling was handed down in relation to the appeal filed by the Espírito Santo State Public Prosecutors' Office, upholding the decision that had been made. As this decision was taken by a single judge, however, it was necessary to await the appeal's judgment by all the judges. On April 19, 2016, Vale presented its counterarguments to the appeal, requesting its dismissal.

	On April 25, 2016, Vale filed a challenge, requesting the Plaintiff's requests to be deemed inadmissible and condemning the Plaintiff to pay the case's costs and legal fees, given the lack of collective pain and suffering to be compensated. On June 16, 2016, the Minas Gerais State Public Prosecutors' Office filed a challenge to the claims presented by the defendants, reiterating all the terms of the initial petition. On October 3, 2016, an order was issued, attesting to the existence of a positive conflict of jurisdiction regarding the cases in question, and for this reason the Minas Gerais State Public Prosecutors' Office was summoned to express its opinion on the sentence. On November 4, 2016, a decision was handed down that ordered the case to be transferred to the 12th Federal Court, in accordance with the sentence granted within the scope of Appeal 000320103.2016.8.08.0014, filed by the Minas Gerais State Public Prosecutors' Office, which upheld the challenge filed by the defendants, determining that the case be transferred to the 12th Federal Court. On November 23, 2016, the case was transferred to the 12th Federal Court of Belo Horizonte. On March 29, 2017, a ruling was published that, considering the approval granted within the scope of lawsuits 697586120154013400 and 238630720164013800, suspended the case. At the first instance, the Defendants presented a challenge, requesting that the demand be deemed inadmissible.
Chance of loss	Possible
Analysis of impact in event of loss / Reasons this case is significant to the Company	The financial impact may be as much as R$2,000,000,000, which is the value of the case given by the Espírito Santo State Public Prosecutors' Office. However, the lawsuit is still at a very early stage, which hinders accurate analysis of the losses if the case should be lost.

14) Process Nr. 0062888-27.2016.4.01.3800 (old number 0016395-63.2016.8.13.0521)	
Court	12th Federal Court of the Judiciary Section of Belo Horizonte (origin: 2nd Civil Court of the County of Ponte Nova - Court of Justice of the State of Minas Gerais ("TJMG")
Instance	1st instance
Date of institution	18/Feb/2016
Parties to the proceedings	Public Prosecutor's Office of the State of Minas Gerais (author) ("MP-MG") and Samarco, Vale and BHP (together "defendants")
Involved values, assets or rights	R$ 600,000,000.00.
Main facts	On February 17, 2016, the Public Prosecutor's Office of the State of Minas Gerais (MP-MG) filed a public civil action, whereby it intends to sentence the Defendants to the adoption of certain measures aimed at recovering the damages allegedly caused to the urban environmental patrimony of the Municipality of Barra

	Longa, District of Gesteira and the village of Barretos. The MP-MG intends that it be determined that the Defendants comply with generic obligations, as well as the preventive arrest of a sum of money to "guarantee" the future implementation of as yet unknown measures. On February 19, 2016, the decision of the Court of Justice of the State of Minas Gerais -TJMG was passed, granting the preliminary injunction, to the effect of (i) partially grant early tutelage by determining the fulfillment of the following obligations, under penalty of a daily fine of R$ 500,000.00: (a) implementation of basic, structural and executive projects for the full recovery of impacted public assets; and (b) completion of containment works on the necessary sections of the Rio do Carmo riverbed, (ii) determine the blocking of R$ 500,000,000.00 and, (iii) determine the presentation of an agreement proposal, if any. On February 18, 2016, Samarco filed a petition, whereby (i) it requested that (a) given the incompetence of the TJMG to adjudicate the action, the proceeding be referred to the Federal Court, (b) a conciliation hearing between the parties be designated prior the examination of a possible preliminary injunction, as well as (ii) stating that Samarco has already implemented a number of supportive measures, and has also entered into a preliminary agreement (TCP) with the Federal Public Prosecutor's Office - MPF and the MP-MG for the creation of a R$ 1.0 billion fund, to provide social and environmental support for the damages resulting from the disaster. In addition, in the context of the aforementioned petition, Samarco clarified that documents demonstrating the realization of deposits and guarantees to the amount of R$ 2.3 billion have already been provided, as well as the adoption of measures aimed at the reparation of supposed environmental social damages from the Fundão dam accident. Furthermore, it argued that the deferral of financial constraint could have negative effects on Samarco and the by it assumed obligations to mitigate the impacts arising from the rupture of the dam in Mariana. In view of this, it pleaded for the denial of the preliminary injunction formulated in the initial filing. On February 23, 2016, a decision was proffered that determined the maintenance of the case file at the State Court. On March 1, 2016, Samarco, in petition, informed of its interest to condescend to the terms of the claim. On March 4, 2016, Samarco filed a petition with the purpose of expressing itself on the decision that upheld the injunction, in which it informed that it had already begun reconstruction, recovery and repair works of the public assets affected by the accident, as well as having hired a specialized company, called 3T Construções, to act in this direction. On March 17, 2016, Samarco filed a petition in which it demonstrated full compliance with the preliminary decision, it

	being certain that all necessary emergency measures are already being executed. On March 18, 2016, Vale filed a petition to the purpose of evidencing compliance with the preliminary decision, stating that Samarco hired specialized companies to start the Barra Longa infrastructure reconstruction activities, with the projects being in their elaboration stage. Against the injunction, Vale, BHP and Samarco filed a bill of review, which was granted suspensive effect. On April 8, 2016, Vale filed a defense demonstrating that the measures pleaded by the Author are already being spontaneously complied with by Samarco. In view of this, it requested the dismissal of the proceedings, without appreciation of merit, given the lack of interest on the part of the Author to act. Considering the hypothesis of non-dismissal of the process without solving the merit, Vale also requested the ruling for dismissal of the requests formulated in the initial, by revocation of the injunction, in addition to sentencing the Author to payment of the attorneys' fees and costs. On May 11, 2016, the author filed an objection to the contestations presented by the defendants, reiterating the reasons stated in the initial petition. On March 30, 2016, a permit was issued for the assessment of the blocked amounts in Samarco's accounts. On Wednesday, June 8, 2016, a permit was issued for the assessment of the blocked amounts in Vale's and BHPB's accounts. On June 27, 2016, the parties were summoned to indicate the evidence they intended to produce. On July 5, 2016, Vale filed a petition stating that it intends to produce oral evidence, additional documentary evidence, expert evidence and judicial inspection. Samarco and BHPB have manifested themselves in the same vein. On October 11, 2016, decision was rendered determining the referral of the case to the 12th Federal Court of Belo Horizonte. On October 25, 2016, the case file was received at the 12th Federal Court of Belo Horizonte. On March 29, 2017, the decision was issued that, considering the homologation decision issued in the scope of processes Nr. 697586120154013400 and 238630720164013800, suspended the act until an ulterior decision.
Chance of losing	Possible

Impact analysis in case of loss / Reasons for the relevance of the process to the Company	The financial impact can reach up to R$ 600,000,000.00, which was the value of the cause given by the MP-MG. However, it should be noted that the lawsuit is still at a very early stage, which makes a more precise analysis of the losses in the event of losing the dispute difficult.

15) Public Civil Action Nr. 23863-07.2016.4.01.3800	
Court	12th Federal Court of Belo Horizonte
Instance	1st instance
Date of institution	03/May/2016
Parties to the proceedings	Federal Public Prosecutor's Office ("MPF" or "Author") and Samarco, BHPB, Vale, Federal Union, States of Minas Gerais and Espírito Santo, National Water Agency ("ANA"), Brazilian Institute of Environment and Natural Renewable Resources ("IBAMA"), National Department of Mineral Production ("DNPM"), Chico Mendes Institute for the Biodiversity Conservation ("ICMBio"), National Indian Foundation ("FUNAI"), National Health Surveillance Agency ("ANVISA"), National Institute of Historic and Artistic Heritage ("IFAN"), Brazilian Development Bank ("BNDES"), State Forestry Institute ("IEF"), Institute of Water Management of Minas Gerais ("IGAM"), the State Foundation for the Environment ("FEAM"), State Institute for the Artistic and Historic Heritage of Minas Gerais ("IEPHA"),State Environmental and Water Resources Institute ("IEMA"), Institute for the protection of agriculture and forests of Espírito Santo ("IDAF") and State Agency for Water Resources ("AGERH") (together "Defendants").
Involved values, assets or rights	R$155,052,000,000.00.
Main facts	On May 3, 2016, the MPF filed a public civil action, by which it requires (i) the adoption of measures aimed at mitigating the social, economic and environmental impacts resulting from the rupture of the Fundão dam, as well as other emergency measures; (ii) sentencing the Defendants to payment of compensation in favor of the collectivity to compensate for the time it would have been unable to benefit from a balanced environment; and (iii) sentencing the Defendants to collective moral damages compensation. Among the requests formulated, the following are the most prominent: that (i) the Defendants deposit, jointly and severally, within 30 days in a proper private fund, under own management and audited by an independent specialized auditing company, the initial amount of R$ 7,752,600,000.00, which will be allocated to the execution of the initial and emergency socio-environmental and socio-economic programs; (ii) the defendant companies jointly and severally, present within 30 days adequate guarantees to the amount of R$ 155,052,000,000.00; (iii) in the event of a blocking or constrictive measure on amounts in the fund, the defendant companies jointly and severally pay up within 5 working days, an amount equivalent to the amount blocked to maintain the minimum available net balance; (iv) it be determined that encumbrances on, or disposals of the Defendant companies'

	fixed assets be prohibited, to be included in this measure, among others, fixed assets, mining rights and equity interests held in the national territory; (v) the prohibition of profits distribution by the defendant companies be decreed, be it in the form of dividends, interest on own capital, or any other means; (vi) judicial block be decreed on amounts derived from the profits of the defendants that have not been distributed to the present date; (vii) the defendant companies jointly and severally and, in a subsidiary manner, the public entities: a) submit, within a maximum period of 90 days, a recovery, mitigation and social and environmental compensation plan for the totality of the environmental impact resulting from the rupture of the Fundão dam; b) submit, within a maximum period of 90 days, a recovery, mitigation, social and economic compensation and indemnification plan for the totality of the social and economic impact resulting from the rupture of the Fundão dam; (viii) the defendant companies and, in a subsidiary manner, the public entities, pay the expenses and fees of international organizations that may be involved in the processes of defining the most appropriate economic, social and environmental reparation measures, especially in the intermediation and interlocution with the impacted communities; (ix) the defendant companies start and implement, as soon as technically possible, the necessary actions to reestablish the environmental balance, restore the environment impacted by the rupture of the Fundão dam, and the recovery, compensation and indemnification of the social and economic damages by way of the programs, projects and actions contemplated by the environment recovery plan of the full environmental impact and by the socio-economic recovery plan previously provided for and duly approved by the Public Authority, being this obligation to be jointly and severally borne by the defendant companies and, in a subsidiary capacity, the public entities; (x) the Defendants adopt effective measures capable of permanently preventing the carriage of mining tailings still contained in the Germano Complex or accumulated on the banks of the Gualaxo do Norte, Carmo and Doce rivers to their water bodies; (xi) the Defendant companies take effective measures capable of guaranteeing the stability and safety of the remaining structures used by Samarco in the town of Mariana and submit within 30 days: a) proof of adoption of measures to ensure the stability of the Germano dam, the Santarém Dam and the other remaining structures at Fundão (dyke 2 and the Sela, Tulipa and Selinha dykes); b) an emergency actions plan to be adopted in the case of a disruption of the structures; c) systematic updating of the existing Emergency Action Plan based on a new "Dam Break" study of the Germano Dam, Santarém Dam and the other remaining structures of Fundão; d) improvement of the indicated routes for the displacement of the potentially impacted population in the event of a new rupture, including the paving of the expected escape route for the population of Barra Longa, which connects this municipality to that of Ponte Nova (MG); (xi) the companies submit within 10

	days a detailed short-term action plan, without prejudice to the subsequent submission of a final plan, for the management of the tailings from the Fundão dam; (xii) the Defendant companies provide for the environmentally adequate disposal of the mining waste to be removed from the area affected by the rupture of the Fundão dam, with its introduction into another production chain; (xiii) the Defendant companies submit within 10 days a detailed short-term action plan, without prejudice to the submittal of a further final plan for emergency revegetation, reforestation and restoration actions of permanent preservation areas; (xiv) the Defendant companies submit, within 60 days, a preliminary diagnosis of all degraded permanent preservation areas along the embankments of the Rio Doce Basin rivers, basis which the Defendant companies prepare an emergency actions plan for its full recovery; (xvi) the Defendant companies initiate within 30 days the execution of an aquatic fauna emergency recovery and conservation actions plan, which shall contain at least the following lines of action: a) schedule of actions for the temporary repopulation of impacted native species; b) support measures to the entities which have kept the specimens collected by the Noah's Ark Operation for the preservation of the genetic material and the development of researches; (xvii) that, within 30 days, the Defendant companies submit and initiate the execution of an emergency action plan for the recovery of cultural assets of material nature and preservation of the cultural heritage of the districts of Bento Rodrigues, Paracatu de Baixo and Gesteira, as well as the Municipality of Barra Longa, following at least the following parameters: a) development and implementation of an archaeological project of the impacted sites by qualified professionals; b) dissemination of the already produced scientific knowledge regarding the archaeological heritage of the impacted region, which access and further research was rendered unfeasible by the changes in relief caused by the rupture; c) execution of the impacted cultural heritage recovery works preferably by means of educational sites which favor the use and training of local labor resources; d) rescue and generational transmission actions of the cultural activities of the communities, such as popular parties and celebrations, traditional knowledge and techniques, crafts and culinary; (xviii) that the Defendant companies conclude within 30 days the registration process of all the impacted persons, considering for this purpose all physical or legal persons and collectivities that have suffered material or immaterial impacts as a result of the disruption of the Fundão dam, located in the municipalities bathed by the Doce, Gualaxo do Norte, Carmo rivers, the Santarém brook and estuarine, coastal and marine areas between the municipalities of São Mateus (ES) and Aracruz (ES), among others. Pursuant to the MPF's request, the amounts therein indicated bear no relation to the Samarco dam accident, but were

	determined through an unsubstantiated comparison of oil spills in the Gulf of Mexico On May 9, 2016, the case file was withdrawn by the Federal Attorney General's Office for manifestation purposes. Next, the Union requested the rejection of the preliminary injunctions. On June 3, 2016, a petition was filed by BHPB without prejudice to the filing of an appeal within the legal deadline, requesting the rejection of the MPF's injunction without first hearing the Defendants. Basically, the following was alleged: (i) the absence of *periculum in mora* (risk in Waiting); (ii) the absence of *fumus boni iuris* (likelihood of success on the merit of the case); and (iii) the existence of significant reverse risk. On June 21, 2016, the state of Minas Gerais filed a petition requesting the dismissal of the requests for urgency protection made by the author and requesting the extinction of the proceedings without judgment of merit in view of the lack of procedural interest by the MPF. In July 2016, the Court excluded all government authorities and the BNDES as defendants from this proceeding. In addition, the decision postponed the examination of the preliminary injunctions to after the preliminary conciliation hearing and summoned Samarco to clarify within 30 days the containment issue of the mud carried away by the rains, specifying the emergency measures to be adopted. On July 26, 2016, a decision was rendered approving the recourse by the MPF to levy a fine of R$ 150,000.00 on the defendants for failure to comply with the injunction. On August 10, 2016, Samarco filed a petition stating that it would comply with the injunction and take all necessary steps to strengthen the remaining structures, as well as to contain and manage the Fundão wastes. However, they informed that, given the complexity of the necessary measures, the definitive solutions required time, so that it would be unreasonable to accept the MPF's injunction requesting that the defendants be sentenced to the payment of a fine and the dredging and drying of the tailings existing in the region. In September 2016, a preliminary conciliation hearing was held. On October 5, 2016, a hearing was held between the parties and their lawyers to determine the form of hiring of the expert examination companies. In addition, the compensation program developed by the companies was presented and shall be evaluated by the MPF. A new meeting was held on October 28, 2016, in which the same topics were discussed. On November 11, 2016, decision was passed that reversed the burden of proof and called on the experts to submit their fee proposals. In addition, the decision summoned the defendants to present their defenses.

	In January 2017, Samarco, Vale and BHPB entered into two preliminary agreements with the Federal Public Prosecutor's Office - MPF regarding this public civil action and public civil action Nr.0023863-07.2016.4.01.3800 filed by the Brazilian government and others The first Preliminary Adjustment Instrument, partially homologated, has the purpose of defining the procedures and the negotiation schedule for the execution of a Final Adjustment of Conduct Agreement ("Final Agreement"), scheduled to occur until June 30, 2017 ("First Agreement"). This First Agreement establishes the bases for the conciliation around two public civil actions that seek to establish reparations and socioeconomic and socioenvironmental compensations for the impacts caused by the rupture of the Fundão dam: (i) the Public Civil Action Nr. 0023863-07.2016.4.01.3800, filed by the MPF (value of R$ 155 billion indicated by the author), and (ii) the Public Civil Action Nr. 0069758-61.2015.4.01.3400, filed by the federal government, by the states of Minas Gerais and Espírito Santo and other government authorities (value R$ 20.2 billion). Both suits are being processed at the 12th Federal Court of the Judicial Branch of Belo Horizonte. The First Agreement also provides for: (a) the hiring of "experts" chosen by the MPF and paid by the companies to diagnose and monitor the progress of the 41 programs of the Preliminary Adjustment Agreement signed on March 2, 2016 between the companies, the Federal, Minas Gerais and Espírito Santo governments and other governmental authorities; and (b) the holding of at least 11 public hearings until April 15, 2017, five in Minas Gerais, three in Espírito Santo, and the others in the indigenous lands of Krenak, Comboios and Caieiras Velhas, with the objective to allow the Communities to participate in the definition of the content of the Final Agreement. In addition, a second Preliminary Agreement ("Second Agreement") was entered into, which establishes the timetable for the provision of resources for programs to repair socioeconomic and socioenvironmental damages caused by the rupture of the Fundão dam in the municipalities of Barra Longa, Rio Doce, Santa Cruz do Escalvado and Ponte Nova to the amount of R $ 200 million. This Agreement was homologated by the Court of the 12th Federal Court on March 23, 2017. On January 24, 2017, Vale filed an interlocutory appeal against the decision that reversed the burden of proof, alleging, among other things, the inapplicability of the precautionary principle to the case, violation of the principle of legality, and the impertinence of the burden reversal to the Hypothesis. On January 26, 2017, a decision was rendered that suspended the procedural deadline regards the deposit of R$ 1.2 billion and gave five days for the plaintiffs to express their views on the Preliminary Adjustment Agreement ("TAP") entered into by the Defendants and the MPF.

	On March 16, 2017, a decision was rendered that (i) partially approved the TAP, determining the suspension of the proceedings until further judicial deliberation, (ii) accepted, for the time being, the guarantees provided for in the TAP, with the provision that these do not substitute nor change the preliminary order for the cash deposit. Currently, the parties are continuing the negotiations of the terms for the Final Adjustment of Conduct Agreement.
Chance of losing	Possible
Impact analysis in case of loss / Reasons for the relevance of the process to the Company	The value assigned to the cause by the MP-MG is of R$155.052.000.000,00. However, it should be noted that the lawsuit is still at a very early stage, which makes a more precise assessment of the losses in the event of losing the dispute difficult.

16) Process Nr. 16-CV-8800	
Court	Federal Court of New York
Instance	United States District Court for the Southern District of New York
Date of institution	06/Mar/2017
Parties to the proceedings	Holders of debt securities issued by Samarco Mineração S.A. ("Plaintiffs") and Samarco, Vale and BHPB (jointly "Defendants")
Involved values, assets or rights	Value still to be determined during the pre-trial phase.
Main facts	In March 2017, the Plaintiffs filed a collective action claiming compensation for alleged violations of securities laws and other credits related to the purchase and sale of debt securities issued by Samarco. The legal proceedings include the allegation that Vale had submitted false and misleading statements or would have omitted disclosures about the risks and hazards of Samarco's Fundão dam operations and the adequacy of related programs and procedures. With the breach of the Fundão dam in November 2015, they claim that the bonds had a sharp fall in their value, so that the investors who had acquired them in error should be compensated. On April 4, 2017, the plaintiffs filed a petition voluntarily waiving all lawsuits that had been directed at the defendants individually. Vale has already been summoned in this process but has not yet presented its defense.
Chance of losing	Possible
Impact analysis in case of loss / Reasons for the relevance of the process to the Company	An eventually unfavorable decision could generate financial losses to the Company and damage its image.

(iv) Environmental

The tables below give an individual description of the processes of environmental nature considered relevant to the Company's and / or its subsidiaries' business.

1) Process Nr. 0317.02.002974-8	
Court	2nd Civil Court of the County of Itabira - Minas Gerais
Instance	1st instance
Date of institution	26/Sep/1996
Parties to the proceedings	Municipality of Itabira (plaintiff) and Vale (defendant)
Involved values, assets or rights	R$5,420,633,947.99 (December 2016).
Main facts	The municipality of Itabira seeks compensation for the expenses it allegedly incurred with public services rendered as a result of Vale's mining activity. The proceeding was suspended, as it awaited the trial of a writ of mandamus filed by Vale so that a favorable evidence presented in another process would be used in this process (item 2 below). In January 2012, the writ was judged against Vale. However, this proceeding remains suspended because the court of first instance has not yet received from the Minas Gerais Court of Justice information on the trial of the writ of mandamus. After this communication, the proceedings may resume their normal course. But the parties filed a joint petition on March 12, 2013, with an appeal for forbearance of the proceeding to attempt settlement. On March 27, 2014, the proceeding was suspended by agreement of the parties, but it resumed its normal course of action as the parties did not reach an agreement. On November 19, 2015, an order was issued for the Municipality of Itabira to report on the trial of the writ of mandamus. On March 29, 2016, the Municipality of Itabira informed that the writ of Mandamus Nr. 1.0000.07.465984-8 / 000 was denied and strove for subpoenaing the already named Expert, to carry out the expert evidence. The case file has been concluded for dispatch since March 31, 2016. The case was handed back without an order and returned concluded on February 8, 2017, remaining thus to date.
Chance of losing	Total value split into possible loss (15%) and remote loss (85%).
Impact analysis in case of loss / Reasons for the relevance of the process to the Company	An eventual unfavorable decision in the proceeding would generate large financial losses to the Company, but there is no risk of a standstill to the company's activities.

2) Process Nr. 0317.02.007032-0	
Court	1st Civil Court of the County of Itabira - Minas Gerais
Instance	1st instance
Date of institution	22/Aug/1996
Parties to the proceedings	Municipality of Itabira (plaintiff) and Vale (defendant)
Involved values, assets or rights	R$4,681,193,546.96 (December 2016).
Main facts	A lawsuit filed by the municipality of Itabira in the state of Minas Gerais in which it alleges that the operations of the iron mines in Itabira caused environmental and social damages and requires the restoration of the site and the execution of environmental recovery programs in the region. In this action, an expert survey was carried out, and the report issued jointly by the Brazilian Institute of Environment and Renewable Natural Resources ("IBAMA") and the State Environmental Foundation ("FEAM") was favorable to Vale. However, the Municipality requested the production of new expert evidence, which was granted by the judge. For this, a

	multidisciplinary team from the Federal University of Lavras was appointed. On November 6, 2012, a conciliation hearing was held in which the plea for suspension of the process was granted until May 6, 2013 to try an amicable settlement of the parties. Considering the expiry of the suspension period, it was determined to summon the Municipality to manifest itself on the value of the expert's fees. In February 2014, the manifestation of the Municipality of Itabira in relation to the proposal of expert fees was presented, requesting the reevaluation of the amount of R$ 1,604,000.00, considering that the Municipality may provide some inputs, such as lodging, food, and drawings, maps or sketches. On May 7, 2015, an order was issued determining the summoning of the appointed expert to manifest himself within 10 (ten) days, as well as to inform on the possibility of a reduction of the expert fees. On January 19, 2016, a protest petition was filed by Vale, reiterating that the expert survey to be elaborated in this proceeding was requested by the Municipality of Itabira, reason why it is not for the requested company to bear the burden of its remuneration, in the exact terms of Art. 33 of the Procedural Code. On February 15, 2016, it was certified that the term of the Author, the Municipality of Itabira, had expired without any manifestation having been presented. On June 6, 2016, another expert was appointed in substitution, remaining pending the presentation of the expert fees. On January 30, 2017, the case was handed over to the Municipal Treasury Attorney's Office.
Chance of losing	Total value split into possible loss (7%) and remote loss (93%).
Impact analysis in case of loss / Reasons for the relevance of the process to the Company	An eventual unfavorable decision in the proceeding would generate large financial losses to the Company, but there is no risk of a standstill to the company's activities.

3) Process Nr. -63.2016.8.130024	
Court	1st Court of the State's Public Treasury and Authorities of the County of Belo Horizonte Minas Gerais
Instance	1st instance
Date of institution	17/Jun/2016
Parties to the proceedings	Vale and MBR (plaintiffs) and Minas Gerais State (defendant)
Involved values, assets or rights	R$89,514.12 (December 2016)
Main facts	This concerns an Annulment Action filed by Vale and MBR in detriment of the state of Minas Gerais aiming at the annulment of the Notice of Infringement Nr. 88525/2016, which determined the embargo of all activities carried out within 250 meters of the natural underground cavities existing in the Jangada and Feijão Mines. In June 2016, provisional protection was granted to suspend the effects of the Notice of Infringement referred to in the initial action, allowing the companies to resume their activities in the embargoed areas, provided there is no environmental impact that may configure a violation provided for by law. A Bill of Review appeal was filed by the State. On April 25, 2017, judgment was held of the Bill of Review Appeal filed by the State of Minas Gerais in view of the decision that

	suspended the effects of the embargo imposed on the Jangada and Feijão Mines. The court decided to partially uphold the aforementioned Bill of Review Appeal, only to keep in judicial deposit the amount related to the fine of approximately R$ 83.0 thousand, already deposited by Vale. Therefore, the preliminary decision, regarding the suspension of the effects of the embargo imposed by the Infraction Notice, remains unchanged. After the presentation of the challenge and objection, the main proceedings are in the stage of specification of the evidences.
Chance of losing	Possible
Impact analysis in case of loss / Reasons for the relevance of the process to the Company	Should the injunction be revoked, Vale may be required to suspend approximately 50% of its operations in the affected mines, with potential consequences to the production volumes, costs or the reserves in its iron ore business.

4) Process Nr. 26,295.47.20124.3700	
Court	8th Federal Court of São Luiz - Maranhão
Instance	1st instance
Date of institution	22/Jul/2012
Parties to the proceedings	Human Rights Society of Maranhão, Indigenous Missionary Council (CIMI), Center for Black Culture - CCN of Maranhão (plaintiffs) and IBAMA and VALE (defendants).
Involved values, assets or rights	Inestimable.
Main facts	The public civil action aims at the suspension of the licensing process of the Carajás Railroad Expansion. In order to achieve this, the plaintiffs allege that the environmental licenses granted by IBAMA were based on an insufficient environmental study to - globally - characterize the impacts generated by the work, in addition to fragmenting the environmental licenses in order to distort the company's obligation for environmental compensation by reason of the installation of the project. In the end, after criticisms to the required licensing model, the plaintiffs plead for the declaration of annulment of the licensing process. In July 2012, the court granted the required injunction, determining the suspension of all works and activities related to the expansion of the Carajás Railroad. Vale and IBAMA filed appeals (Bill of Review Appeals), with the purpose of reversing the decision, as well as submitting to the Presidency of the Federal Regional Court -TRF of the 1st Region (DF) an injunction suspension request, sustaining (i) the risk of serious losses (ii) the fact that the environmental study prepared by Vale fully adhered to the terms of CONAMA RESOLUTION 237, and there exists no basis for the plaintiffs plea regarding the risk of serious socioenvironmental imbalance. The request for suspension was accepted by the Presidency of the TRF of the 1st Region, and against that decision the authors appealed (reviews), but were not successful, being the favorable decision to Vale maintained. In the first instance, Vale and IBAMA presented their defenses, sustaining (a) the regularity of the licensing process, (b) the clear

	definition in the study of all the diagnostics regarding the impacts on the areas and communities (including traditional communities) under direct and indirect influence of the work; and (c) the need to respect IBAMA's competence and technical discretion to conduct and complete the environmental study. In a recent decision, the federal judge accepted the request of the Public Defenders of the Union Office to join the dispute as plaintiff. Vale, in line with the opinion of the Federal Public Prosecutor's Office ("MPF"), in the sense of the illegitimacy for the Public Defender's Office to be part of the dispute, filed an appeal (Bill of Review) against this decision. The aggravated decision was maintained, being the successive term for the Public Defender's Office, IBAMA and VALE reestablished. The Public Defender manifested itself reiterating the cancellation of the Licensing and IBAMA was required to submit new information on the operation of the Railroad and on the removal of families. After IBAMA's manifestation on August 12, 2014, the case records were submitted for analysis of the judgment. The injunction was rejected on September 15, 2014, having the State of Pará manifested absence of interest in the proceedings. On February 27, 2015, a dispatch was published for the acknowledgement of the beginning of the counting of the term for Vale to manifest itself on the licensing process attached by IBAMA. On March 17, 2016, the production of expert evidence requested by Vale was deferred, which presented concerns and technical assistants on April 5, 2016.
Chance of losing	Possible.
Impact analysis in case of loss / Reasons for the relevance of the process to the Company	An eventually unfavorable decision to Vale could compromise the licensing process for the expansion of the EFC, impacting VALE's logistics operations to implement the production's transport flow plan for the S11D Project.

5) Process Nr. 0021337-5220114.01.3700	
Court	8th Federal Court of São Luiz - Maranhão
Instance	1st instance
Date of institution	04/Nov/2011
Parties to the proceedings	Federal Public Prosecutor's Office (MPF) (plaintiff) and IBAMA and VALE (defendants)
Involved values, assets or rights	Inestimable.
Main facts	Civil Action that seeks to impose on Vale and IBAMA the obligation to redo the part of the environmental study that substantiated the environmental licensing process for the Carajás Railroad ("EFC") expansion, for alleged lack of indication of the impacts caused by the EFC expansion on the quilombola communities located next to segment 20 of the EFC in Maranhão (the Monge Belo and Santa Rosa dos Pretos communities). On March 8, 2012, the court approved the agreement entered into by the parties, according to which Vale undertook to: (i) pass on the amount of R$ 700,000.00, which will be managed by the Palmares Cultural Foundation and applied in the structural and cultural development of communities whose protection is the subject of the lawsuit; (ii) to carry out environmental studies and environmental recovery actions of water bodies located inside the quilombola territories of Monge Belo and Santa Rosa dos Pretos;

	(iii) to construct, in sequence, four viaducts in segment 20 of the EFC, the first being within 18 months from the date of IBAMA's licensing, and the others within 12 months each, as of the end of the term for the first; (iv) reform all level rail crossings linked to each viaduct to be built, taking care to signal and illuminate the crossings to be used by the communities; (v) fence-in both sides of the EFC next to segment 20, preserving the people's and fauna's crossing spaces. In July 2013, Vale filed a petition stating that all obligations, independent of actions by IBAMA and / or the Palmares Cultural Foundation, are being complied with. In December 2013, the MPF filed a petition in the case notifying the non-compliance with the obligations assumed in the agreement. In face of the manifestation by the MPF, the court requested the National Institute of Colonization and Agrarian Reform ("INCRA"), IBAMA, the Palmares Cultural Foundation and Vale to present proof of evidence of compliance with the obligations, and setting a 60-day deadline for Vale to comply with such obligations. Vale was requested to submit, within a period of 30 days, a change justification to the planned building schedule of viaducts for the passage of vehicles and people). Thus, in October 2014 Vale filed a petition informing its compliance with items (i), (ii), (iv) and (v) and informing the new schedule for the construction of the viaduct, object of such agreement. After manifestation by the MPF, as described above, the proceedings proceeded to conclusion. Vale provided the justifications and evidence of compliance with the agreement reached in court. The proceeding is now closed for consideration of whether the breach of the agreement is upheld or not.
Chance of losing	Likely (at 31 December, 2016). Although, at December 31, 2016, due to the delay to the viaducts' building schedule, the loss having been classified as "likely", there were no amounts provisioned on such date, since any fine to be levied in connection with said delay, would still be subject to the discretion of the court, there being no pre-determined amount in the agreement.
Impact analysis in case of loss / Reasons for the relevance of the process to the Company	Despite the agreement in this case, which led the Company to assume several obligations related to the socioeconomic environment of the region, any delay in fulfilling Vale's obligations may motivate judicial decisions to convert the obligations to do into a fine. It should be noted that the lawsuit at December 31, 2016 is of neutral financial nature, so there will be no amount to be provisioned. In this case, an agreement was entered into (obligations to do), reason why the financial nature was changed to neutral, only maintaining the probable loss but without financial allocation.
Remarks	However, considering that the delay foreseen to the delivery schedule of the second viaduct is caused by third parties other than Vale, the prognosis for the case was changed to "possible" on May 31, 2016.

6) Process Nr. 0002505-76.2015.4.02.5001	
Court	1st Federal Criminal Court of Justice of Espírito Santo
Instance	1st instance
Date of institution	04/Dec/2015
Parties to the proceedings	Brazilian Federal Police (plaintiff) and Vale (defendant)
Involved values, assets or rights	Suspension of Vale's activities at Pier II and the Coal Pier of the Port of Tubarão due to potential environmental damage caused by the falling off of iron ore and the emission of particulates into the atmosphere and into the maritime area around Pier II and the Coal Pier.
Main facts	On January 21, 2016, the Federal Court of Espírito Santo ordered the suspension of the Company's activities at Pier II and at the Coal Pier in the Port of Tubarão, due to potential environmental damages resulting from the falling off of iron ore and the emission of particulates into the atmosphere and the maritime area around Pier II and the Coal Pier. Vale's operations at Pier II and at the Tubarão Port Coal Pier were stopped for four days until the Regional Federal Court of the Second Region ("TRF") suspended the effects of the injunction. The TRF granted Vale 60 days to implement certain measures to monitor, control and mitigate the falling of iron ore and the emission of particulate matter into the sea and into the atmosphere. This 60-day period ended on March 25, 2016, and the Company understands that it complies with the requirements imposed by the TRF. In the first instance, an expert was appointed by the judge, and Vale and the Federal Public Ministry presented their concerns. The expert's investigation determined by the writ of mandamus judgement has not yet begun. On July 4, 2016, the TRF confirmed the suspension of the effects of the injunction and ordered an expert survey to confirm that Vale properly implemented the measures to monitor, control and mitigate the release of iron ore at the terminal. Vale appealed part of the TRF"s decision. However, this will not impact the performance of the expert survey, which has not yet begun. As part of this process, the Company may be required to meet certain additional requirements to prevent or mitigate the falling of iron ore and the emission of particulate matter into the sea and into the atmosphere. The environmental investigation is still in progress. According to the outcome of this investigation, the Federal Police or the Federal Public Prosecutor may file other actions against Vale in the future and request injunctions to suspend the activities of the Tubarão Port.
Chance of losing	Remote.
Impact analysis in case of loss / Reasons for the relevance of the process to the Company	In the event of loss, the Company will suffer losses of significant amounts and invaluable damage to its image.

7) Process Nr. 0002383-85.2012.4.01.3905	
Court	Federal Court of the Judicial Subsection of Redenção
Instance	1st instance

Date of institution	28/May/2012
Parties to the proceedings	Federal Public Prosecutors Office ("MPF") (plaintiff); Kakarekre Indigenous Association for the Defense of the Xikrin do Djudjeko population, Indigenous Tuto Pombo Association, Porekro Indigenous People's Defense Association of the Xikrin do Cateté population, Pore Kayapo Indigenous Association, Baypra Indigenous People's Defense Association of the Xikrin do Oodja people ("co assistant plaintiffs"); Vale, National Indian Foundation ("FUNAI") and the State of Pará ("Defendants").
Involved values, assets or rights	The value is undefined, considering that it is a demand involving (i) indemnity that will depend on expert survey for its determination as well as (ii) the request to halt the Company's nickel operations in Onça Puma, in the State of Pará.
Main facts	In 2012, the MPF filed a Public Civil Action ("ACP") against Vale, against the State of Pará and FUNAI, seeking the suspension of the Company's nickel operations at the Onça Puma mine in the State of Pará, due to the alleged impact on the Xikrin indigenous communities of Cateté and Kayapo located near the mining site. The MPF argues (i) that the Company's operations would be contaminating the water of the Cateté River that crosses the Xikrin indigenous land ("TI"), (ii) that the Company no longer meets certain conditions arising from the environmental licensing of the mine of Onça Puma, and (iii) that the State of Pará should not have granted an environmental license for this undertaking. In addition, the MPF filed claims for indemnification in favor of the indigenous people and the monthly deposit of R$ 1.0 million until the final res judicata of the lawsuit in benefit of the Xikrin and Kayapo indigenous villages. On October 18, 2012, the court did not recognize the urgency of the preliminary injunction filed in the scope of the ACP, having rejected such injunction filed by the MPF. On May 25, 2015, three years after the denial of the injunction, the MPF filed a request to the Redenção court for reconsideration, alleging that the operations of the Onça Puma mine would be contaminating the Cateté River, causing damage to the health of the indigenous tribes, and, therefore, reiterated the request to stop the project and payment of monthly compensation in the amount of R$ 1.0 million for the benefit of the Xikrin and Kayapo indigenous villages. On June 2, 2015, the court of Redenção partially accepted the request of the MPF, ordering that Vale deposit a monthly amount of approximately R$ 400 thousand, to be received and split proportionally among the villages in the Xikrin indigenous lands (TI). In June 2015, Vale and the indigenous associations appealed against the preliminary decision. Vale opposed against the obligation of monthly allowance payments and the indigenous associations, in turn, rose against the amount of the monthly allowance determined by the court (R$400 thousand). On June 25, 2015, the Chief Judge of the appeals denied an injunction filed by Vale and granted an injunction to the request made by the indigenous associations, increasing the amount of the

	monthly allowance to R$ 1.7 million, to be received and split proportionally between the Villages belonging to the Xikrin indigenous lands. On July 9, 2015, Vale filed a writ of mandamus ("MS") addressed to the Presidency of the TRF of the 1st Region ("TRF 1"), requesting the suspension of the effects of the injunction that increased the amount of the monthly deposits. Due to the delay in the analysis of the proposed MS and the possibility of expiration of the deadline for complying with the injunction granted by the Federal Judge, Vale deposited in court, the amount of R$ 1.7 million, which had been determined by means of an injunction, and this value has already been released to the Indians. On July 20, 2015, the judge inspector of the TRF 1 accepted the writ of mandamus formulated by Vale and granted an injunction suspending the effects of the decision that increased the value of the deposit and of the very obligation to make the deposits. On July 14, 2015, the MPF filed another appeal requesting the increase of the monthly deposit obligation initially determined by the judge of Redenção, requesting that Vale be required to deposit the monthly amount of R$ 1.0 million for each village affected by the enterprise, as well as the immediate stoppage of the Onça Puma mine operations. In a new decision, the same Judge who granted the first increase fully accepted the request made by the MPF. On August 21, 2015 Vale submitted a new writ of mandamus (MS) addressed to the President of the TRF 1, against this new preliminary injunction increasing the compensation and ordering the stopping of the enterprise's activities. Due to the delay in the analysis of the proposed MS and the possibility of expiration of the deadline to comply with the injunction granted by the Federal Judge, Vale deposited in court, the amount of R$ 7 million, of which R$ 3.0 million would be destined to villages of the Xikrin indigenous lands and R$ 4.0 million would be destined to the villages of the Kayapo Indigenous lands. On August 28, 2015, the Judge Inspector once again accepted the writ of mandamus (MS) formulated by Vale, and granted an injunction in favor of the Company, determining the suspension of the effects of the order that determined the stoppage of the Onça Puma mine project and the (second) increase of the monthly allowance to be deposited. In view of this last development regards the writ of mandamus (MS) , the MPF filed On September 16, 2015,a request for a safety suspension to the Minister President of the STJ, alleging the risk of public order and public health. After collecting the manifestations from all interested parties (Vale, State of Pará and Indigenous Associations), the President of the STJ recognized the risks alleged by the MPF and granted a preliminary injunction to suspend the

	effects of the preliminary decision obtained by Vale, determining another stoppage of the Onça Puma mine operations and the resumption of the monthly deposits (R$ 7 million). Due to the delay in the analysis of the proposed recourse and the possibility of expiration of the deadline to comply with the preliminary injunction, Vale deposited in court, the amount of R$ 7.3 million. On October 29, 2015, the State of Pará filed an injunction suspension appeal to the Minister President of the STF, claiming that the shutdown of the enterprise would result in a series of losses to the State. The Minister President of the STF ordered all interested parties to express their views on the appeal made by the State of Pará. On this occasion, Vale supplemented the information presented by the State. On November 11, 2015, Vale presented a statement addressed to the Minister President of the STF , explaining that (i) as determined by FUNAI, the implementation of mitigation and impact compensation actions began to be carried out through Basic Environmental Plans (" PBAs ") and no longer through management plans; (ii) the Kayapó PBA was implemented and in full execution of the actions therein defined; and (iii) the Xikrin PBA was partially implemented, since Vale had not yet been authorized to enter the indigenous lands to carry out the PBA's actions. On November 12, 2015, Vale and the State of Pará filed an appeal against this decision to the STJ Plenary and, in parallel, filed a request to the Minister President of the STJ for non-release of the amounts until the final judgment of the submitted appeals. On December 16, 2015, the STF suspended the effects of the injunction granted by the STJ, thus releasing the operation of the Onça Puma mine project, as well as determined the implementation of the Management Plan and other mitigating measures and compensatory measures for the impacts of the Onça Pumas project on indigenous lands within 120 days. During the 120-day period, Vale held a series of meetings with the MPF and indigenous peoples, in order to enable access to the indigenous land for PBA's actions, as well as formulated and then increased, a proposal for economic compensation. Nevertheless, the indigenous people maintained the denial of access to the indigenous land, and did not accept the proposal. Given the expiration of the deadline without carrying out the actions ordered by the preliminary decision granted by the Minister President of the STF, the Plaintiffs filed a petition for the release of the funds deposited in court (R$ 14.3 million) on the grounds that Vale was not interested in complying with the decision. In a decision issued in April 2016, the Minister President of the STF understood that the decision to release or not the deposits would fall to the Court of Redenção. The parties have expressed their views on this decision.

	On May 5, 2016, Vale filed a statement opposing the allegations, requiring that the deposited amounts remain in the court's account. On May 18, 2016, the Federal Court of Redenção partially upheld the request made by Vale and denied the requests made by the Associations and the MPF, and kept the amounts deposited in court blocked. In September 2016, the Federal Court issued an injunction ordering the payment of R$ 17 million to the indigenous peoples and demanding that Vale pay the amount of R$ 1 million per month for each Xikrin land involved. Vale appealed against that decision and the Supreme Court issued a preliminary decision suspending these payments to the indigenous peoples. The associations that represent a part of the indigenous people of the Kayapó indigenous lands, filed a special appeal to the case file of the Claim on October 10, 2016 against the decision handed down by Min. President of the STF, alleging, in summary, the non-existence of competence usurpation to justify the proposition of the act and requested the reconsideration of the decision or suspension of its effects, which has not yet been analyzed by the Presidency of the STF.
Chance of losing	Possible loss, since the process is still in its pre-trial phase, and the technical expert analysis required by the parties has not yet been carried out.
Impact analysis in case of loss / Reasons for the relevance of the process to the Company	Possibility of a significant financial impact should Vale be condemned, as well as stoppage of the Onça Puma Mine operations.

8) Process Nr. 0001254-18.2016.4.01.3901	
Court	2nd Federal Court of the Judicial Subsection of Marabá
Instance	1st instance
Date of institution	12/May/2016
Parties to the proceedings	Bayparã Indigenous Association for the Defense of the Xikrin do O-Odja People and Porekro Indigenous Association for the Defense of the Xikrin do Catetê People ("Plaintiffs Associations") and Company, FUNAI, IBAMA and BNDES (together "Defendants")
Involved values, assets or rights	Value of the claim attributed by the Plaintiffs Associations is R$ 72,385,600,000.00, based on the values of the S11D enterprise reported to the market.
Main facts	The Plaintiffs Associations filed a public civil action requesting (i) suspension of the environmental licensing process of the S11D project, (ii) settlement of material and moral damages to be ascertained, and (iii) settlement of a monthly allowance of R$ 2,000. 000,00 / per village, by failure of performing the Indigenous Component Study (ECI) and the prior consultation of the indigenous Xikrin community. A preliminary manifestation on the injunction was submitted on May 13, 2016. On May 16, 2016, FUNAI presented its manifestation stating that (i) it has nothing to oppose regarding the preliminary request for the suspension of the implementation works of the S11D

	enterprise; (ii) that it is against the granting of the preliminary request regards fixing a monthly allowance in the benefit of the indigenous, since the associations cannot claim such request on behalf of the indigenous population; (iii) that it claims the ineptitude of the initial because of the non-participation of the Kakarekré Association in the active pole of the claim. On July 5, 2016, the Associations filed a petition challenging the statements made by the defendants, reiterating the arguments recorded in their initial petition. On the same date, Vale filed a petition stating that the S11D enterprise is in fact only a Vale establishment and does not constitute a different legal entity, so it would not be case for a manifestation of this enterprise, and reiterates that Vale has already presented its manifestation. On September 8, 2016, the Associations filed a petition contesting the manifestation of the MPF and FUNAI regarding the defect in the representation, reiterating the arguments described in the initial petition. On September 22, 2016, an order was filed in the records (i) designating November 7, 2016 for judicial inspection to superficially verify the alleged impacts; (ii) that Vale should provide the means necessary to transport the representatives of the plaintiffs, the defendants and their respective attorneys and the Federal Attorney to the indicated site; (iii) certify the exclusion of lawyers. On November 7, 2016, the judicial inspection of the S11D enterprise was carried out. On January 24, 2017, the decision of the judge who accompanies the case was published denying the preliminary injunction, arguing, in a very brief summary, that at least in this preliminary phase it is not proven that the S11D enterprise has an impact on the Xikrin indigenous lands.
Chance of losing	Remote
Impact analysis in case of loss / Reasons for the relevance of the process to the Company	In the case of loss or preliminary decision, there is a risk of suspension of the S11D project's installation process, in addition to financial impact.

(v) Criminal

1) Process Nr. 0002725-15.2016.4.01.3822	
Court	Sole Court of the Federal Justice of Ponte Nova
Instance	1st instance
Date of institution	20/Oct/2016
Parties to the proceedings	Federal Public Prosecutor's Office ("Plaintiff") and Samarco, Vale, BHPB, VogBr Recursos Hídricos e Geotecnia Ltda., and certain individuals who were former Samarco employees or members of Samarco's administrative bodies or advisory councils"] (together "Defendants")
Involved values, assets or rights	Not applicable

Main facts	In October 2016, the MPF filed a criminal action against the defendants, accusing them of homicide, personal injuries and several environmental crimes due to the rupture of the Samarco dam. Along with the indictment, the MPF is seeking a precautionary arrest warrant to seize assets of the three companies and guarantee the payment of R$ 20 billion as compensation for damages caused by the rupture of the Fundão dam and is also seeking the sentencing to a 10-year external monitoring of the ethical and socioenvironmental practices of the companies. The decision is still pending in the securing measures proceedings. In November 2016, the complaint was received by the judge, initiating the criminal process. In March 2017, Vale submitted its response to the indictment.
Chance of losing	Possible
Impact analysis in case of loss / Reasons for the relevance of the process to the Company	In the event of loss or preliminary decision, there is a risk of condemnation of the individuals and legal entities to the penalties provided for under Law Nr. 9.605/98 with the consequent financial and image impact

2) Process Nr 0004766-45.2016.8.19.0030	
Court	Sole Court of the Federal Justice of Ponte Nova
Instance	1st instance
Date of institution	Order to receive the complaint dated December 6, 2016. Pending service of process.
Parties to the proceedings	Plaintiff: Prosecution Office Defendant: Former directors of MBR
Involved values, assets or rights	This is Criminal Action. The crimes defined in items II and V, of art. 1 combined with art. 12, I, both of Law 8,137/90 are imputed, 7 (seven) times, in the form of art. 71 of the Penal Code.
Main facts	The complaint refers to the tax assessment notice issued by the state of Rio de Janeiro demanding alleged tax debts related to the Circulation of Goods and Services (ICMS) due over ore re-processing activity in the mines. The amount involved in the referred to process is approximately R$ 7 million (December 2016). Service of process on MBR's former directors cited in the complaint has not yet been made. The demand for the debt refers to the generating facts related to the months of February to August of 2007. The argument used by the State Treasury is that the ore is improved in the re-processing activity, and, therefore, ICMS is due. In its defense, MBR states that (i) there is no value added by this activity; on the contrary, the value of the ore when sold is lower than that which it has when allocated to the MG locomotives, and (ii) re-processing does not equate with the concept of industrialization.

	The debate over the debt, which is the subject of the claim, is already in the judicial phase with a motion to ensure stay of execution, reason for which the executive tax action is suspended.
Chance of losing	Cannot be estimated.
Impact analysis in case of loss / Reasons for the relevance of the process to the Company	Cannot be estimated.

4.3.1. – Indicate the total provisioned value, if any, of the processes described in item 4.3

As of December 31st, 2016, the total provisioned value, considering the individually relevant processes described in subitems (i), (ii), (iii), (iv) and (v) of item 4.3 above, was approximately of R$ 685,0 thousand.

(i) Labor

As of December 31st, 2016, the total provisioned value, considering the labor processes described in subitem (i) of item 4.3 above was approximately of R$ 685,0 thousand.

(ii) Taxes

As of December 31st, 2016, there were no provisioned values for the processes listed in subitem (ii) of item 4.3 above.

(iii) Civil

As of December 31st, 2016, there were no provisioned values for the civil processes described in subitem (iii) of item 4.3 above.

(iv) Environmental

As of December 31st, 2016, there were no provisioned values for the environmental processes described in subitem (iv) of item 4.3 above.

(v) Criminal

As of December 31st, 2016, there were no provisioned values for the criminal process described in subitem (v) of item 4.3 above.

4.4 – Judicial, administrative or arbitral non-confidential processes whose opposing parties are administrators, ex-administrators, controllers, ex-controllers or investors

The tables below present an individual description of the non-confidential administrative or arbitral processes whose opposing parties are administrators, ex-administrators, controllers, ex-controllers or investors of the Company:

1) Process nº 0079940-46.2010.4.01.3800	
Court	18th Federal Court of Belo Horizonte – Minas Gerais
Instance	1st instance
Install date	2004/02/18
Parties in the process	Transger S/A (author) and Ferrovia Centro Atlântica S/A, Mineração Tacumã Ltd., KRJ Participações S/A, CPP Participações S/A, Carmo Administração e Participações Ltd., Fundação Vale do Rio Doce de Seguridade Social - Valia and Companhia Siderúrgica Nacional - CSN (defendants)
Involved values, assets or rights	Invaluable – Annulment request of meeting.
Main facts	The author filed action requiring, in addition to indemnity, the annulment of the meeting that authorized the capital increase of Ferrovia Centro-Atlântica S.A. - FCA ("FCA") in 2003, on account of the supposed practice of abusive acts by the FCA controlling group. The verdict, that had upheld the action, was annulled by the Minas Gerais Court of Justice that determined the production of new expert evidence. During the new investigation, the Agência Nacional de Transportes Terrestres ("ANTT") expressed its interest in participating in the claim and, for this reason, the competence for judgment of this process was moved to the Minas Gerais Federal Justice. The judge of the 18th Federal Court of Belo Horizonte gave the judgment recognizing the competence of the Federal Justice to judge the process, in view of the ANTT interest in keeping the concession and the healthiness of the administrative act. ANTT has manifested in the process, ratifying its understanding about the validity of the act that authorized the FCA's increase of capital stock. The judge gave the judgment closing the procedural instruction of the deed and opened deadline for final allegations. All parties presented its final allegations, including the ANTT, without prejudice of the lodging of appeals (amendments of judgment and appeals held) according to the decision that declared completed the procedural instruction of the deed. New decisions were uttered keeping this position, as well as that the discussion about the necessary active joinder of two shareholders that do not compose the deal (Sérgio Feijão and Associação da Preservação da Memória Ferroviária) is already impeded. This last understanding was the object of the interposing of instrument appeals and appeal held – considering that the decision was uttered before the validity of CPC/15 – by the involved societies. On November 10th, 2016, it was held a conciliation hearing, when it was deliberated granting time for Transger to bring agreement proposals. Two were presented and both were refuted, in

	petitions protocoled, on January 23rd, 2017, by the sued societies, in view of the lack of reasonableness and for being guided by the expert report placed on file. Only VLI (Mineração Tacumã) formulated counterproposal. Files concluded, since April 4th, 2017, for new deliberations.
Chance of loss	Possible
Impact analysis in case of loss/Reasons of process relevance for the Company	Invaluable value. The process is relevant in view of the annulment request in the Extraordinary General Meeting that authorized the increase of FCA's capital stock in 2003.

3) Special Instrument Appeal nº 271.951 (Originating Process nº 0529364272010.8.13.0145) The Originating process was re-assigned to the 2nd Business Court of Rio de Janeiro, receiving the nº 0203958-80.2015.8.19.0001.	
Court	4th Class of the Superior Tribunal de Justiça – STJ Originating court – 7th Civil Court of Juiz de Fora – Minas Gerais
Instance	Superior
Install date	2012/12/10 (original date 2010/08/20)
Parties in the process	SUDFER (author) and MRS Logística S.A., Companhia Siderúrgica Nacional S.A., Minerações Brasileiras Reunidas S.A. - MBR, Usiminas – Usinas Siderúrgicas de Minas Gerais, Gerdau S.A. and Vale S.A. (defendants)
Involved values, assets or rights	Invaluable.
Main facts	Suit of repair of damage filed by Clube Sudfer, on the grounds that the controlling shareholders of MRS Logística S.A. ("MRS"), among them Vale, come acting with power abuse, causing direct damage to MRS and, indirectly, to the minority shareholder. It is alleged that since the privatization of the old Rede Ferroviária Federal S.A. ("RFFSA"), when the concession for exploitation of the Southeast Network (Malha Sudeste) was granted to MRS, whose controlling shareholders were at the time (and still are) captive customers of the railroad, they would have started adopting a tariff policy for self-favoring and in a non-fair form, since captive customers, would be charged, in average, half (50%) of the maximum rate authorized by the Agência Nacional de Transportes Terrestres (ANTT), while the non-captive customers were charged the maximum rate. It is sustained that the adoption of the referred tariff policy would have caused damage to MRS, inasmuch as the company would not have earned a bigger profit – by charging the captive customers a reduced rate -, in addition to supposedly causing indirect prejudice to the minority shareholders, since they would not have received dividends. Based on such claims, were pleaded: (i) to condemn the controlling shareholders to pay, until the undue practice is ceased, all and any direct material damage imposed to MRS (i) by undue reduction of the company profit; (ii) by the non-distribution of dividends; and (iii) by the distribution of lower dividends, in view of the charging of reduced rates to the controlling shareholders; (ii) be the controlling shareholders compelled to contract with MRS in "fair conditions", taking into account the maximum tariff ceiling authorized by the Granting Power; and (iii) condemn the offenders to pay the 5% premium provided in article 246, § 2nd of the Law nº 6.404, dd. December 15th, 1976, in addition to the sums of surrender. In January 2011, Vale and MBR presented its defenses. Along with the plea, were presented procedural issues of lack of

	jurisdiction and challenge to the amount of the claim. The lack of jurisdiction handled by Vale was rejected. Against this decision, Vale interposed instrument appeal received in the suspensive effect until its judgment. In January 2012, it was accepted the appeal to determine the declination of jurisdiction for the judicial district of Rio de Janeiro. Against the referred judgment, the Clube Sudfer interposed Special Instrument, not admitted by the Court of origin. Not satisfied, the investment club interposed Special Instrument Appeal addressed to STJ, unacknowledged by untimeliness. Against the referred decision, the Clube Sudfer opposed a specific appeal, to which Vale and remaining appealed presented an impugnation. Presently, the specific appeal is in the STJ pending of judgment since May 2014. The main process was already assigned to the Rio de Janeiro Court and is currently proceeding in the 2nd Business Court of Rio de Janeiro having received the number 0203958-80.2015.8.19.0001. After the presentation of the reply and speak up by either party about the evidence, the court determined that CVM were called up to manifest. On the CVM manifestation, Vale petitioned, on February 04th, 2016, reaffirming the defense, which was ratified in CVM's answer. On March 07th 2016, the conclusive opening order was published that *(i)* fixed as a controversial point the existence of power abuse by the controllers, in view of the consideration difference charged by the service provided to non-captive customers and captive customers which compose the controller group of the company; *(ii)* denied the preliminaries raised by the defendants; *(iii)* denied the production of oral evidence required by another party; *(iv)* approved the production of additional supplementary documentary evidence required by Vale and remaining parties. Against this decision, were opposed amendments of judgment, still pending approval. In the embargoes, it was aroused the court omission in not appreciating challenge incidents to the amount of the claim. In August 2016 the files were forwarded to the Legal Expert and were returned on March 31st, 2017, with a fees proposal.
Chance of loss	Possible
Impact analysis in case of loss/Reasons of process relevance for the Company	The eventual unfavorable decision in the process would generate financial and image losses for the Company.

4) Special Appeal nº 1363585 (Originating Process nº 0497166-34.2010.8.13.0145) The Originating process was re-assigned to the 7th Business Court of Rio de Janeiro, receiving the nº 0354058-47.2015.8.19.0001	
Court	4th Class of the Superior Tribunal de Justiça – STJ Originating Court- 8th Civil Court of the Judicial District of Juiz de Fora – Minas Gerais
Instance	Superior
Install date	2013/01/24
Parties in the process	SUDFER (author) and Júlio Fontana Neto, Henrique Aché Pillar, José Paulo de Oliveira Alves, Pablo Javier de La Quintana Bruggemann, Lauro Henrique Campos Rezende, Wanderlei Viçoso Fagundes, Hugo Serrado Stoffel, Guilherme Frederico Escalhão, Delson de Miranda Tolentino, Marcus Jurandir de Araújo Tambasco, Chequer Hanna Bou-Habib, Roberto Gottschalk, Joaquim de Souza Gomes, Luiz Antônio Bonaguara, Companhia Siderúrgica Nacional S.A., Minerações Brasileiras

	Reunidas S.A. - MBR, Usiminas – Usinas Siderúrgicas de Minas Gerais, Gerdau S.A. and Vale S.A. (defendants).
Involved values, assets or rights	Invaluable.
Main facts	Ther Clube Sudfer, as a minority shareholder of MRS Logística S.A. ("MRS"), filed suit against the members of the Board Of Directors and the controlling shareholders of MRS (among them, Vale). It alleges that the directors and counselors would have incurred in the practice of acts of bad management on approving a tariff model detrimental to MRS, which was in force in the period of 1998 to 2002. They claim that there was a conflict of interests among the controlling shareholders and MRS, since, as captive customers of the railroad network, it was for their profit setting tariffs on values below that practiced in the market. As a consequence of the adoption of the tariff model, MRS would have had losses, without distribution of dividends to the shareholders. As no dividends were distributed, it is claimed that they would not have been able to fulfill their financial commitments with third parties and, in addition, would not have succeeded in obtaining a financing of BNDES to participate in the second offer of MRS stocks, within the privatization process. Based on such allegations, pleads: (i) defendants to be condemned to pay indemnification for moral damages, in the value of R$150.0 thousand; (ii) to condemn the controlling shareholders to fulfill the obligation of making, consisting in the sale, in proportion to the participation of each one, of 3,744,440 MRS stocks, by the same price and in the same conditions established in the Public Notice for privatization; and (iii) considering the shareholding interest, require the defendants to pay all the differences relative to the non-paid dividends. On March 15th, 2012, Vale, MBR, and the ex-administrators of MRS, Mrs. Chequer Hanna Bou-Habib, Guilherme Frederico Escalhão, Hugo Serrado Stoffel and Roberto Gottschalk presented its defenses. Vale has also aroused procedural issues, aiming to make the suit to be sent to the Judicial District of Rio de Janeiro. It was rendered decision accepting this allegation and determining the forwarding of the files to the justice of Rio de Janeiro. Against the referred decision, the Clube Sudfer interposed instrument appeal, which was not accepted on July 2012. Facing the denial, the Clube Sudfer interposed Special Appeal, which is in the STJ pending of judgment since February 2013. On August 2015 the process was sent to Rio de Janeiro after the sentence that accepted the procedural issue presented by Gerdau transited in res judicatum. The demand was assigned to the 7th Business Court of the Justice Court (Tribunal de Justiça) of Rio de Janeiro State /RJ, having the registry certified the existence of negative summons of some of the defendants. SUDFER was called up on November 16th, 2015, to manifest about the pending summons, and the summoning is not concluded so far.
Chance of loss	Possible.
Impact analysis in case of loss/Reasons of process relevance for the Company	The eventual unfavorable decision in the process would generate financial and image losses for the Company.

5) Process nº 0393909-98.2012.8.19.0001	
Court	3rd Business Court of the Judicial District of Rio de Janeiro
Instance	1st Instance
Install date	2012/10/05
Parties in the process	Carteira Administradora Coletiva Dynamo, Ruth Cazal, Fernanda Cazal, Roberto Amaral de Almeida Rocha, Alexandra Lima Alves Derenzi, Breno Wajchenberg, Roka Fundo de Investimento Multimercado and Investor Clube de Investimentos (authors) and Vale (defendant)
Involved values, assets or rights	R$110 million.
Main facts	The author claim that Vale would have issued debentures based on deed foreseeing expiration conditions of the titles different of what was decided in general meeting, for which reason intend Vale to be condemned to the payment of the debentures in accordance with the remuneration prediction stated in the memo of the general meeting. Vale was summoned on May 27th, 2013 and presented its defense on June 17th, 2013. The judgment of the 13th Civil Court considered that given the subject therein discussed, the process should be handled in one of the business courts. The process was sent to the 3rd business court. Being this an action whose subject refers only to rights, there was no production of evidence and on February 5th, 2015 judgment was given which considered justified the author's claim. On February 20th, 2015 Vale interposed an appeal. On April 7th, 2016, it was published a judgment that, by the majority, kept the sentence to which Vale opposed amendments of judgment, rejected by the 17th Civil Court. Due to the emergence of new omissions in the judgment that judged the first amendments of judgment, Vale opposed new embargoes, still pending of judgment. In the date of this Reference Form, the files are concluded with the appeal rapporteur.
Chance of loss	Possible.
Impact analysis in case of loss/Reasons of process relevance for the Company	The eventual unfavorable decision in the process would generate financial losses for the Company.

6) Process nº 1:15-cv-09539	
Observations	The referred process is already described in item 4.3 above. For information, refer to process information in Field 12 of subitem "(iii) Civil" of item 4.3 of this Reference Form.

4.4.1. – Indicate the total provisioned value, if any, of the processes described in item 4.4

As of December 31st, 2016, the provisioned value relative to the processes referred in item 4.4 above was of R$18.4 million.

4.5 – Confidential relevant processes

As of December 31st, 2016, the Company was not a party in confidential relevant processes.

4.6 – Judicial, administrative or arbitral processes repetitive or connected, not confidential and relevant as a whole.

The items below present a description of the judicial, administrative or arbitral processes repetitive or connected, not confidential and relevant as a whole installed until December 31st, 2016. For information on relevant processes installed after this date, refer to item 4.7 of this Reference Form.

(i) Labor

In this section 4.6 of the Reference Form, are highlighted the values of the provisions of the processes of repetitive nature or connected. Considering the size of the Company, the quantity of employees and service providers and the number of labor claims, were considered repetitive processes those that represent more than 5% (five percent) of the total of requests claimed against the Company in December 31st 2016, which are described in the table below, that are: joint/subsidiary liability (13%); overtime (9%); additional costs of insalubrity and hazard (8%); hours *in itinere* (8%); moral damage (6%); obligation to do (6%) and fines (6%).

Fact and/or judicial cause	The more recurrent objects are joint/subsidiary liability, overtime, additional costs of insalubrity and hazard, hours *in itinere* and fines.
Values involved	R$9.5 billion.
Practice of the Company or of is controlled that caused such contingency	Interpretation divergences between Company, employees and labor unions concerning various facts, legal provisions and regulatory instruments relative to the objects pointed above.

(ii) Tributary

Fact and/or judicial cause	Discussion on the calculation basis of the Compensação Financeira pela Exploração dos Recursos Minerais – CFEM
Values involved	R$6.3 billion (including interest and fines until December 31st, 2016).
Practice of the Company or of is controlled that caused such contingency	Vale is a party in several administrative and judicial processes that deal on charging of CFEM credits. The processes have origin in assessments issued by the Departamento Nacional de Produção Mineral – DNPM, autarchy linked to the Ministério das Minas e Energia and involve discussions on supposed difference of values originated from deductions of taxes and expenses with transportation, arbitration, decadential time for charging, CFEM incidence on pellets, on the revenue on sales to end customer abroad and irretroactivity IN 6/00. DNPM charges comprised the charging period of until 20 years before its emissions, interpreting that the decadential time applicable to CFEM would be that established in the old Civil Code. The Company contests all charges, arguing that the applicable decadential time would be of 5 years. In the year of 2012 were withdraw values analyzed by the Working Group (composed of members of Vale and DNPM), and in the year of 2013, the Company paid values relative to the external transportation not highlighted in notes and not decayed, being considered, at that time, the decadential time of 5 years. In 2014, the Company withdraw from the provision the

	remaining discussed thesis (pellets, taxes, etc), keeping only the external transportation not highlighted in notes and considered not decayed, this time considering the term of 10 (ten) years. On December 2015, the Federal Attorney General's Office (AGU) issued legal advice accepting the recent decisions of the Superior Tribunal de Justiça (STJ), establishing that the CEFEM charges are subject to the decadential time of 10 years. The Company expects that DNPM revises all the ongoing charges, to exclude the decayed values, in accordance with this legal advice. Starting from 2016, Vale provided the payment of the difference of values relative to external transportation not highlighted in notes and not decayed, in view of the AGU advice regarding the decadential time of 10 years.

Fact and/or judicial cause	Debate about the taking of PIS and COFINS credits, in the years 2008, 2009, 2010 and 2011.
Values involved	R$ 3.2 billion (December 31, 2016).
Practice of the Company or of is controlled that caused such contingency	Between 2011 and 2016, the Company received a tax assessment notification from the Brazilian Federal Tax Authority contending that PIS and COFINS tax credits were incorrectly claimed referring to the period between 2004 and 2011. PIS and COFINS are social contributions of a tax nature due over the gross revenues of companies in general, which may be partially offset by credits resulting from PIS and COFINS payments made by the suppliers. The tax authorities claim that (i) some credits that the Company has deducted from its payments of PIS and COFINS were not deductible and that (ii) the Company has not submitted adequate evidence of certain other tax credits. The Company is contesting these assessments at the administrative level. The total amount of these tax assessments is R$ 3.2 billion.

Fact and/or judicial cause	ICMS charging in interstate ore transportation.
Values involved	Pará: R$2.1 billion
Practice of the Company or of is controlled that caused such contingency	Fiscal authorities of Pará state draw up six infraction notices n the years of 2010 and 2013, for charging of Imposto sobre Circulação de Mercadorias e Serviços ("ICMS") (tax on circulation of merchandises and services) incurring on the transfer of ore from our mines in Pará State to our port installations in Maranhão State. The notices are based in divergences of understanding regarding the ICMS calculation basis in interstate iron ore transportation operations between premises of the same holder. In all the cases, Vale defends that the ICMS, interstate transportation shall apply on the cost price in accordance with the Complementary Law (LC) nº 87/96, as the ore is a produced merchandise and not a "non-industrialized product". The three first infraction notices, that include the years of 2007 to 2009, in the total value of R$1.08 billion (as of December 2016), were kept in the administrative phase in 2013 and are the object of a lawsuit and guaranteed by means of a letter of guarantee. The remaining infraction notices – referring to the years of 2010 to 2012 were definitely judged in the

	administrative phase on November 2014 unfavorably to the Company and comprise approximately R$1.07 billion (as of December 2016). Such files began to be discussed judicially on March 2015 and are warranted by means of insurance guarantee. As the attorney of Pará State has already issued an advice favoring Vale, the verdict is awaited.

Fact and/or judicial cause	ICMS charging on transportation.
Values involved	Minas Gerais: R$855 million.
Practice of the Company or of is controlled that caused such contingency	Vale contests the charging of the Imposto sobre Circulação de Mercadorias e Serviços (ICMS), supposedly due to Minas Gerais State, as applicable on the transportation of iron ore by Vale itself. Vale had a favorable judicial decision, transited in res judicatum, relative to the charging of triggering events of 2009 and 2010, in the total value of R$566 million. The discussion continues regarding the fiscal years of 2011 to 2013, in the total amount of R$855 million. In all cases, Vale defends that ICMS is not due because there is no provision of services to itself.

(iii) Civil

Fact and/or judicial cause	Eleven actions were proposed by pension funds postulate receiving the inflationary purges resulting from the economic plans named Plano Verão and Plano Collor over the values paid in the gold purchase and sale fixed term contracts signed with Vale starting from 1988.
Values involved	R$210,039,764.41, corresponding to the total amount involved in the 11 cases.
Practice of the Company or of is controlled that caused such contingency	The contingency was generated in reason of the edition of the economical plans named Plano Verão and Plano Collor, both edited by Federal Government, between 1989 and 1991. The contracts under discussion in these deals were all paid by Vale and recognized paid by the authors at the time. Nevertheless, the authors went to court aiming to extend the application of the thesis consolidated in the STJ for the saving accounts to the contracts signed with Vale. The Company sustains that the inflationary purges are not due.

Fact and/or judicial cause	Demands on moral and/or material damages arisen from consequences caused by the rupture of the Barragem de Fundão located in the County of Mariana
Values involved	Until December 31st, 2016, Vale had been summoned in 6,282 demands fit in this category, which involved the total amount of R$167,339,390,531.33. For information on processes installed after December 31st, 2016, see item 4.7.

Practice of the Company or of is controlled that caused such contingency	The demands plead moral and/or material damages originated from the rupture of the Barragem de Fundão located in the County of Mariana, Minas Gerais State, property of Samarco Mineração S.A., society in which Vale holds 50% of social capital share, being the remaining 50% held by BHP Billiton Brasil Ltd. ("BHPB").

4.6.1. – Indicate the total provisioned value, if any, of the processes described in item 4.6

As of December 31st, 2016, the total provisioned value, considering the processes described in subitems (i), (ii) and (iii) of item 4.6 above, was of R$911,8 million

(i) Labor

As of December 31st, 2016, the total provisioned value, considered the labor processes that are relevant together, described in subitem (i) of item 4.6 above was of R$853.8 million.

(ii) Taxes

As of December 31st, 2016, there were no provisioned value to the taxes processes that are relevant together, described in subitem (ii) of item 4.6 above.

(iii) Civil

The total provisioned value, considered the civil processes that are relevant together, described in subitem (iii) of item 4.6 above, was approximately of R$58,0 million.

4.7 – Other relevant contingencies

Additional Information to Item 4.6

Relevant contingencies installed after December 31st, 2016

Below is the description of the relevant contingencies in which Vale was named after December 31st, 2016.

Regarding the rupture of the Barragem de Fundão, it is likely that Vale still comes to be summoned in other processes related the referred accident, in addition to these described below, which may talk about values significantly relevant.

Fact and/or Judicial cause	The demands refer to moral and/or material damages originated of effects caused by the rupture of the Barragem de Fundão located in the County of Mariana.
Values involved	Until December 31st, 2016, Vale had been summoned in 6,282 demands fit in this category, which involved the total amount of R$167,339,390,531.33. It is important to highlight that until March 31st, 2017, the values above referred increased to 6.949 demands, totalizing until the referred date R$167,387,455,982.11.
Practice of the Company or of is controlled that caused such contingency	The demands plead moral and/or material damages originated from Barragem de Fundão located in the County of Mariana, Minas Gerais State, property of Samarco Mineração S.A., society in which Vale holds 50% of social capital share, and the remaining 50% are held by BHP Billiton Brasil Ltd. ("BHPB").

Terms Relative to the Rupture of the Samarco Dam

Conduct Adjustment and Transaction Agreement Within the Scope of the Public Civil Action nº 0069758-61.2015.4.01.3400 ("TTAC")	
(a) Signatories	Samarco Mineração S.A., Vale S.A., BHP Billiton Brasil Ltd. ("BHPB"), União Federal, States of Espírito Santo and Minas Gerais, Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis ("IBAMA"), Instituto Chico Mendes, Agência Nacional de Águas ("ANA"), Departamento Nacional de Produção Mineral ("DNPM"), Fundação Nacional do Índio ("FUNAI"), Instituto Estadual das Florestas ("IEF"), Instituto Mineiro de Gestão das Águas ("IGAM"), Fundação Estadual do Meio Ambiente ("FEAM"), and Instituto Estadual do Meio Ambiente e Recursos Hídricos, Instituto da Defesa Agropecuária e Florestal do Espírito Santo and Agência Estadual de Recursos Hídricos.
(b) Conclusion Date	2016/03/02
(c) Description of the facts that lead to the signature of the term	The signatory authorities filed a Public Civil Action (Process nº 0069758-61.2015.4.01.3400) against Samarco and its shareholders pleading the refund of alleged socioeconomic and socio-environmental damages arisen from the rupture Samarco's tailings dam, as well as the adoption by Samarco and its shareholders of several measures aiming to

	mitigate, repair and compensate the damages supposedly arisen of the referred accident. For information on the referred Public Civil Action nº 0069758-61.2015.4.01.3400, please refer to item 4.3 of this Reference Form and for additional information on the accident, refer to items 4, 7.9 and 10.1 of this Reference Form. The value of the Public Civil Action was set by its authors in R$20,204,968,949.00. After several negotiations between the authorities, Samarco, Vale and BHPB, the parties signed the TTAC, which foresees a long-term repair and compensation plan as a response to the occurred event.
(d) Assumed obligations	In the terms of TTAC, Samarco, Vale, and BHPB instituted on June 24th, 2016, a Foundation, named "Fundação Renova", which will develop and execute the environmental and socioeconomic programs aiming to repair and compensate the damages caused by the rupture of Samarco's dam. ("Foundation"). The TTAC includes two ample types of programs: • Reparation Programs to restore the environment, the local communities and the social conditions of the affected regions; • Compensation Programs to compensate the damages in the cases in which the reparation is not possible and provision of resources for some special projects, always acting in good faith. In addition, the activities of the Foundation are followed by an independent external auditor. Samarco will provide resources for the Foundation with contributions such as (calendar year): o R$2 billion in 2016, less the amount already spent in, or allocated to, the repair and compensation actions; o R$1.2 billion in 2017; o R$1.2 billion in 2018. Samarco has agreed to make annual approved contributions necessary to execute the repair and compensation projects for each accounting year, being that for the years of 2019 to 2021 these contributions will be of R$800 million to R$1.6 billion. Starting from the signing of the TTAC, the Foundation will allocate a yearly amount of R$240 million, during a period of 15 years, for the

	execution of repair and compensation projects. These yearly amounts are already included in the values contained in the contributions informed for the first six years. In addition, a contribution of R$500 million will be made for basic sanitation of the affected regions.
(e) Deadline, if any	The deadline for the TTAC is of 15 years, renewable for periods of one year, successively, until all the obligations provided for in the referred term are accomplished.
(f) Information on the actions adopted for observance of the obligations assumed in the term	Data and studies are already being evaluated and developed for compliance with the TTAC.
(g) Consequences in case of noncompliance	In case Samarco does not fulfill its obligation of providing resources in the Foundation, Vale, and BHPB are obliged to provide resources for the Foundation in the proportion of its share of 50% in Samarco.
(h) Other observations	*Status of Progress of Process relative to TTAC* The TTAC was homologated by the Tribunal Regional Federal of 1st Region on May 05th 2016, having suspended the Public Civil Action (Process nº 0069758-61.2015.4.01.34) highlighted above. Nevertheless, against the decision that homologated the TTAC, the Public Federal Ministry opposed amendments of judgment, questioning the competence of the Tribunal Regional Federal of 1st Region to homologate the TTAC. Moreover, the Public Federal Ministry questioned the terms of the signed TTAC, on what concerns the adequacy of the measures therein established, as well as to the legitimacy of the agreeing parties for signing the TTAC. In view of this, required the concession of Infringing effects to the embargoes and the suspension of the effectiveness of the decision. The Public Federal Ministry also presented a claim towards the Superior Tribunal de Justiça (STJ) against the decision of the Tribunal Regional Federal of 1st Region that homologated the TTAC. On June 30th, 2016, the Minister-rapporteur of the claim gave an injunction to suspend, until the definitive judgment of the claim, the decision of the Tribunal Regional Federal of the 1st region (TRF), of May 5th, 2016, which homologated the TTAC. On August 17th 2016, the Fifth Class of the Tribunal Regional Federal of 1st Region declared null the decision that homologated the TTAC and dismissed the review appeal interposed by Vale, BHP and Samarco, being kept the preliminary decision given by the Judge of the 12th Federal Court of Belo Horizonte, on December 18th 2015, which includes

	the unavailability of the mining concessions of the Defendants for the ore mining, without, however, limit its activities of production and commercialization. The TTAC continues valid and the parties will keep complying with it's already predict obligations. For information on the Public Civil Action nº 0069758-61.2015.4.01.3400, refer to item 4.3 of this Reference Form. The TTAC does not automatically include private civil actions, other public civil actions or criminal charges.

Origin: Public Civil Action n° 0023863-07.2016.4.01.3800 Preliminary Conduct Adjustment Term I ("Preliminary Term of Adjustment I")	
(a) Signatories	Public Federal Ministry, Samarco, Vale and BHPB
(b) Sign date	January 18th, 2017
(c) Description of the facts that lead to the signature of the term	The Public Federal Ministry filed the Public Civil Action n° 0023863-07.2016.4.01.3800, in course in the 12th Federal Court of Belo Horizonte against Samarco and its shareholders pleading the refund of alleged socioeconomic and socio-environmental damages arisen of the rupture of the Samarco's tailings dam, as well as the adoption of a series of measures by Samarco and its shareholders aiming to mitigate, repair and compensate the damages supposedly arisen of the referred accident. The value of the Public Civil Action fixed by its authors was of R$155,052,000,000.00. After a series of negotiations between the authorities, Samarco, Vale and BHPB, the parties signed the Preliminary Term of Adjustment I, whose object is to establish conditions and parameters for hiring a team of technical assistants that will assist the Public Federal Ministry in performing a socio-environmental and socioeconomic diagnosis, in addition to define an specific schedule for the public hearings and previous queries to the traditional populations. Financial warranties were also offered for the accomplishment of the court order uttered in the scope of the process n° 0069758-61.2015.4.01.3400
(d) Assumed obligations	It was assumed by the contracting companies the obligation of integrally funding the activities to be executed by the experts, advisors/technical assistants, as well as finance the socio-environmental and socioeconomic repair programs of the impacts resulting from the rupture of the Fundão dam. It was also assumed the obligation of promoting, at least, 11 public hearings, being 5 in Minas Gerais

	state and 3 in Espírito Santo state and one for each Indigenous Territory involved in the TTAC (Krenak, Comboios, Caieiras Velhas). The societies have committed giving to the 12th Federal Court of Belo Horizonte warranties for the accomplishment of the funding and financing obligations of the Programs for Socio-Environmental and Socioeconomic Repairing of the impacts resulting from the rupture of the Fundão dam, in the value of R$2.2 billion. The societies have committed to creating a reserve in the value of R$200 million with the purpose of repairing the socioeconomic and socio-environmental damages in Barra Longa and Adjacencies, in compliance with the rules established in the Preliminary Term of Adjustment I, signed on the same date.
(e) Deadline, if any	Below are informed the main deadlines: ▪ January 30th, 2017 – The societies will make available to the experts all the studies and researches made until now for an evaluation of the impacts. ▪ Until February 10th 2017: Petition requests of suspension in Court ▪ Until February 17th, 2017: Conclude hiring of experts. ▪ Until March 15th, 2017: Definition of time schedule, technical support, and methodology of public hearings and previous consultations. ▪ Until April 15th, 2017: Conclusion of hearings and previous consultations. ▪ Until May 31st, 2017: Meetings and diligences for the definition of the final Conduct Adjustment Term - including the Public Power and, when possible or applicable, the remaining branches of Public Ministry. ▪ Until June 30th, 2017: Deadline for signing the final Conduct Adjustment Term. In the terms of the Preliminary Term of Adjustment I, the time schedule is subject to modifications, by reason of the negotiations with the Public Federal Ministry.
(f) Information on the actions adopted for observance of the obligations assumed in the	This Preliminary Term of Adjustment I is being duly accomplished in the agreed form. The negotiations

term	have been signed towards the signing of a final agreement.
(g) Consequences in case of noncompliance	The non-compliance of the conclusion schedule for hiring the experts, for exclusive fault of the companies, will imply in a daily fine of R$100,000.00, to be reverted to the hiring of the referred experts,
(h) Other observations	The Preliminary Term of Adjustment I was homologated by the Judge of the 12th Federal Court of the Judicial Section of Belo Horizonte on March 16th, 2017.

Origin: Public Civil Action n° 0010263-16.2016.4.01.3800 Preliminary Term of Commitment for Creation of the Reserve and Implementation of Socioeconomic and Socio-Environmental Repairing Measures in the Barra Longa Area ("Preliminary Term of Adjustment II")	
(a) Signatories	Public Federal Ministry, Samarco, Vale and BHPB
(b) Sign date	January 18th, 2017
(c) Description of the facts that lead to the signature of the term	The Public Ministry of Minas Gerais State filed the Public Civil Action n° 0010263-16.2016.4.01.3800, in the 2nd Civil Court of the Judicial District of Ponte Nova, later sent to the 12th Federal Court of the Judicial Section of Belo Horizonte, pleading the adoption and paying by Samarco, Vale and BHPB of a series of measures for repairing the damages caused by the rupture of the Fundão dam in the counties of Barra Longa, Rio Doce, Santa Cruz do Escalvado and Ponte Nova. Considering that Samarco, Vale, and BHPB have agreed with the Public Ministry of Minas Gerais, the adoption of some mitigating measures for the impact of the rupture of Fundão in the county of Mariana, the Public Federal Ministry understands that the same measures shall be implemented, as applicable, in Barra Longa and adjacencies. In view of this, the signatory societies have agreed in adopting in Barra Longa and adjacencies the measures described below.
(d) Assumed obligations	▪ Payment of emergency financial aid to the affected families, to be deducted of a possible future indemnity. In the hypothesis of a family nucleus having more than one economically active member, who is unable to continue his work as consequence of the rupture of the Fundão dam, the value will be paid to each one of them; ▪ Payment of expenses of residential rental for the dislodged families, as well as the providing of furniture, bedding, household appliances and necessary utensils for maintaining a decent life. This obligation must persist until the definitive relocation;

	▪ Establishing a communication way that allows the access to information in an assertive and agile form; ▪ Provide health assistance to the affected families, providing, immediately, a team of health professionals, including doctors, nurses, psychologists and social assistants, to provide attendance on all days of the week, in articulation with the County Health Secretaries of the elected counties, as well as, provide medicines and supplies necessary to the medical attendance, in accordance with medical prescription of the above referred health team, in a form supplementary to the Sistema Único de Saúde – SUS; ▪ Promote the rescue of assets, animals and other, including those belonging to the affected persons, that could be given back; ▪ Hiring independent multidisciplinary advisors, with recognized experience and reputation in the area, chosen by the community and with participation of the Public Ministry, aiming the monitoring of the programs and providing technical and judicial support to the affected families; ▪ Reconstruction of the rural infrastructure; and ▪ Registration of the affected, subject to be revised, in the case of failures or gaps identified by the technical advisors and agreed by the parties. The societies have committed to creating a reserve in the value of R$200 million in the name and under the administration of the societies or of third parties by them freely identified, with the purpose of funding and financing the Socioeconomic and Socio-Environmental Repairing Programs in Barra Longa and adjacencies.
(e) Deadline, if any	The societies agreed in, within the maximum period of 15 days, counted from the signature of the Preliminary Term of Adjustment II, start the necessary providences for execution of the measures. The values of R$200 million will be disposed of as an anticipation, with information to the Public Federal Ministry, by the societies within until 90 days after acceptance of the warranties foreseen in the Preliminary Adjustment Term I signed with Public Federal Ministry, on the same date.

	The values of R$200 million will be disposed of in accordance with the following schedule: (i) R$50 million until February 28th, 2017; (ii) R$100 million until March 31st, 2017; and (iii) R$50 million until April 30th, 2017. The noncompliance with the schedule here defined will imply in a daily fine of R$100,000, to be reverted to the accomplishment of the object of this Term of Commitment. The societies will present to the Public Federal Ministry, within 30 days, a detailed report of the measures, foreseen or under implementation in Barra Longa and adjacencies.
(f) Information on the actions adopted for observance of the obligations assumed in the term	This Preliminary Adjustment Term II is being duly accomplished in the agreed form.
(g) Consequences in case of noncompliance	The non-compliance with the defined time schedules will imply in a daily fine of R$100,000.00 to be reverted to the accomplishment of this Preliminary Adjustment Term II, itself.
(h) Other observations	This Preliminary Adjustment Term II was homologated by the Judge of the 12th Federal Court of the Judicial Section of Belo Horizonte. The homologation decision was published on March 23rd, 2017.

Conduct Adjustment Terms and Relevant Terms of Commitment

1) Cooperation Term not resulting of Judicial/Administrative Process	
Origin: Terms of Commitment signed with the Indigenous Territory Community (TI) Mãe Maria	
(a) Signatories	Indigenous Association Mpakwyri Mpawor, Indigenous Association Gaviao Je Amjip, Association Parkrekapare, Association Je Jokrityiti, Indigenous Association Te Mempapytarka, Indigenous Association Parkateje Amjip and Vale
(b) Sign date	2015/05/19; 2015/05/29; 2015/05/26; 2015/05/07; 2015/04/01; 2015/05/01.
(c) Description of the facts that lead to the signature of the term	Based on its social responsibility policy, Vale already had Terms of Commitment signed with the indigenous that dwell in the TI Mãe Maria, due to expire in 2012. So, due to the influence of the Carajás Railroad ("EFC") on this community, Vale decided to keep the transference of financial resources destined to fulfill the emergency needs of the members of the community, ensuring the execution of the study of the Indigenous Component and of the Basic Environmental Plan ("PBA"), documents required for the licensing process of the Carajás Railroad expansion, counting, now, with the participation of FUNAI, that

	is assisting the communities in the administration of the resources.
(d) Assumed obligations	Make financial transfers for support to the actions of health, education, productive activities, territory surveillance and administration. As compensation, the indigenous communities have committed not to block any productive activity or invade the Vale installations, in particular, the EFC, as well as, authorized the execution of the study of the Indigenous Component and of PBA, documents required for the acceptance of the licensing process of the EFC expansion project.
(e) Deadline, if any	Several schedules, expiring in 2020, a period in which would be concluded the Study of Indigenous Component and of PBA.
(f) Information on the actions adopted for observance of the obligations assumed in the term	The Board of Directors of Relationship with Communities has focal points that monitor the accomplishment of the obligations established in the Terms of Commitments, in special the transference of financial resources.
(g) Consequences in case of noncompliance	The non-compliance by the indigenous has as consequence the suspension of resources transference and health care. If the non-compliance is assigned to Vale, it creates the risk of the indigenous to promote actions that paralyze or interfere in the Company activities or of its subsidiaries, such as manifestations that imply in paralyzing the EFC, impairing the railroad operations of EFC. The referred manifestations also tend to reflect the non-liberation by the indigenous, of access of teams of Vale or of its hired companies who carry out studies inherent to the environmental licensing process and execution of actions relative to the accomplishment of conditioners, and may characterize the non-accomplishment of the environmental licenses granted by the environmental agency and weakening Vale's position or of its subsidiaries at institutional level, without prejudice of executive measures to be taken by MPF, IBAMA, FUNAI and remaining autarchies involved in the guardianship of the rights of the indigenous.

[NOTA PEDRO CAMPANY: FLAVIO NOTNI, PLEASE CONFIRM/UPDATE THE ITEM BELOW.]

2) 2nd Addendum to the Sustainable Development Foster Term, formalized with FUNAI and the Povo Krenak, in force from 2011 to 2019, being this term an additive to the Agreement that finalized the Public Civil Action of nº 2006.38.13.009676-0
Origin: Agreement homologated that extinguished the Public Civil Action filed by MPF and FUNAI against CEMIG – Companhia Energética de Minas Gerais, CVRD – Companhia Vale do Rio Doce and CHA – Consórcio Hidrelétrico Aimorés ("Public Civil Action" and "Agreement", respectively). After the end of the Agreement on 2011/11/30, by the sole discretion of the Company, were formalized: (i) Sustainable Development Foster Term of the Indigenous Territory Krenak ("Foster Term"), (ii) First Additive to the Foster Term and (ii) Second Additive to the Foster Term.

(a) Signatories	**a) Agreement** - MPF, FUNAI, CEMIG – Companhia Energética de Minas Gerais, CVRD – Companhia Vale do Rio Doce and CHA – Consórcio Hidrelétrico Aimorés; **b) Foster Term** – Vale, Indigenous People Krenak, FUNAI and MPF; **c) First Additive to the Foster Term** – Vale, Indigenous People Krenak, FUNAI and MPF; **d) Second Additive to the Foster Term** - Vale, Indigenous People Krenak and FUNAI
(b) Sign date	**(a) Agreement –** signed in 2008/07/18 – in force from 2008/07/18 to 2011/11/30 **(b) Foster Term –** signed in 2011/10/24 – in force from 2011/12/01 to 2012/06/01 **(c) First Additive to the Foster Term –** signed in 2012/05/03 – in force from 2011/12/01 to 2013/12/01* **(d) Second Additive to the Foster Term –** signed in 2015/03/27 – in force from 2011/12/01 – 2019/12/01* *The additive terms above modify clauses of the original Foster Term, producing retroactive effects. For this reason, its respective validities shall be considered from 2011/12/01, validity start date of the Foster Term.
(c) Description of the facts that lead to the signature of the term	The homologation of the Agreement extinguished the Public Civil Action, sued by MPF and FUNAI, which aimed the implementation of mitigating and compensatory measures due to the installation of the Aimorés Hydroelectric Plant. The Agreement signed had the purpose of providing environmental, social and economic assistance, by means of the recovery of 54 hectares of green area, construction of 5 cultural centers and implantation of a project of dairy farming. After the termination of the Agreement, by the sole discretion of the Company and aiming to keep Vale's support and relationship with the Krenak People, new terms were signed, keeping the assistance of the Company to the ethnic development of the Indigenous. The document presently in force is the Second Additive Term to the Foster Term.
(d) Assumed obligations	Provide financial and technical support to the dairy farming project.
(e) Deadline, if any	**(a) Agreement –**2008/07/18 to 2011/11/30 - signed in 2008/07/18 **(b) Foster Term –**2011/12/01 to 2012/06/01 - signed in 2011/10/24 **(c) First Additive to the Foster Term –** 2011/12/01 to 2013/12/01* - signed in 2012/05/03 **(d) Second Additive to the Foster Term –** 2011/12/01 –2019/12/01* - signed in 2015/03/27

	*The additive terms above modify clauses of the original Foster Term, producing retroactive effects. For this reason, its respective validities shall be considered from 2011/12/01, validity start date of the Foster Term.
(f) Information on the actions adopted for observance of the obligations assumed in the term	The Board of Directors of Relationship with Communities has focal point that that monitors the accomplishment of the obligations established in the Second Additive to the Foster Term.
(g) Consequences in case of noncompliance	The noncompliance by the indigenous of the Second Additive to the Foster Term has as consequence the suspension of resources transference. If the noncompliance is assigned to Vale, there is the risk of the indigenous to promote actions that paralyze or interfere in the Company activities or of its subsidiaries, such as manifestations that imply in paralyzing the Vitória-Minas Railroad ("EFVM"), impairing the railroad operations of EFVM. The referred manifestations also tend to reflect in the non-liberation, by the indigenous, of access of teams of Vale or of its hired companies who carry out studies inherent to the environmental licensing process and execution of actions related to the accomplishment of conditioners, and may characterize the non-accomplishment of the environmental licenses granted by the environmental agency and weakening Vale's position or of its subsidiaries at institutional level, without prejudice of executive measures to be taken by MPF, IBAMA, FUNAI and remaining autarchies involved in the guardianship of the rights of the indigenous.

3) Term of Socio-Environmental Commitment FUNAI, Vale, MPF, and Povo Tupiniquim of the Indigenous Territory Comboios ("TI Comboios"), signed in August 2014, relative to the Socio-environmental Passive Subprogram of the Basic Environmental Plan (PBA) of the Corrective Operation License ("LOC") of the Vitória-Minas Railroad	
Origin: - Term of Socio-Environmental Commitment relative to the Socio-Environmental Passive Subprogram of the Basic Environmental Plan (PBA) of the Vitória-Minas Railroad LOC	
(a) Signatories	Vale, MPF, FUNAI and Povo Tupiniquim of the TI Comboios.
(b) Sign date	2014/08/13
(c) Description of the facts that lead to the signature of the term	Based on the Study of Indigenous Component, responsible for the identification of the possible impacts of the EFVM on the TI Comboios, in the Corrective Environmental Licensing process of EFVM, were proposed actions in the Basic Environmental Plan, among them the Socio-Environmental Passive Subprogram, with the purpose of providing financial resources to the indigenous for actions in the following thematic axis: education, health, housing, productive activity and social projects.

(d) Assumed obligations	Supply financial resources, through the judicial account, with intermediation of MPF and FUNAI, to support the indigenous in the following thematic axis: education, health, housing, productive activity and social projects.
(e) Deadline, if any	All the obligations within the scope of this Term of Commitment were accomplished by the Company and the term was duly closed.
(f) Information on the actions adopted for observance of the obligations assumed in the term	The Board of Directors of Relationship with Communities has focal point that monitors the accomplishment of the obligations established in the Term of Socio-Environmental Commitment
(g) Consequences in case of noncompliance	The noncompliance by the indigenous to the Second Additive to the Foster Term has as consequence the suspension of transference of resources. If the noncompliance is assigned to Vale, there is the risk of the indigenous to promote actions that paralyze or interfere with the activities of the Company or of its subsidiaries, such as manifestations that imply in paralyzing the EFVM, impairing the railroad operations of EFVM. The referred manifestations also tend to reflect the non-liberation, by the indigenous, of access of the teams of Vale of or of its hired companies who carry out studies inherent to the environmental licensing process and execution of actions related to the accomplishment of conditioners, and may characterize the non-accomplishment of the environmental licenses granted by the environmental agency and weakening Vale's position or of its subsidiaries at institutional level, without prejudice of executive measures to be taken by MPF, IBAMA, FUNAI and remaining autarchies involved in the guardianship of the rights of the indigenous.

4) Judicial Agreement	
Origin: Process nº 21337.52.2011	
(a) Signatories	Vale, MPF, Fundação Cultural Palmares, Instituto Nacional de Colonização e Reforma Agrária and IBAMA.
(b) Sign date	2012/03/08
(c) Description of the facts that lead to the signature of the term	Denounce of MPF as for the insufficiency of Vale's environmental study that subsidized the licensing process of the expansion project of the Carajás Railroad, on the grounds of lack of effective diagnostic of the impacts on the two quilombo communities located in the Maranhão State.
(d) Assumed obligations	(i) Transfer the sum of R$700,000.00, in favor of the Fundação Palmares, to allow the construction of health centers and educational center; and (ii) Perform study relative to local environmental impacts, recovery of watercourses and installation of viaducts in the next four years, in accordance with time schedule defined in the judicial agreement.

(e) Deadline, if any	Sparse deadlines, with obligations to be met until the conclusion of the project of installation of the Carajás Railroad expansion. Among them, it is highlighted (i) transfer is already done, in favor of the communities, in the total of R$700,000.00 necessary to fund the acquisition and construction of social appliances by the community and Fundação Palmares; (ii) execute environmental study – already made – and adoption of mitigation measures for the impacts created by the works and operations of the Company in the region; (iii) construction of four viaducts in favor of the communities involved in the agreement, which construction schedules will unfold for four years and (iv) improvement of the existing railroad crossings, until consolidation of all the viaducts scheduled for construction in the region. These commitments are under execution.
(f) Information on the actions adopted for observance of the obligations assumed in the term	The General Management of Project Relations, subordinate to the Board of Directors of Logistics North - DIPL, has focal points in the areas of engineering and relations with communities which monitor the accomplishment of the activities developed by Vale. The obligations and time schedules involved are duly listed in the item above.
(g) Consequences in case of noncompliance	The MPF may request that the Company is compelled to meet the assumed obligations, under penalty of a fine to be defined by the competent federal judge.
(h) Other observations	Vale has already deposited the sum established in the agreement, as well as concluded the works of two viaducts, which have been handled to the Municipalities. The remaining two viaducts are under execution with deliveries programmed for 2017 and 2018.

5) Term of Cooperation not resulting of Judicial/Administrative Process	
Origin: Terms of Commitment signed with Indigenous Communities in Maranhão.	
(a) Signatories	Vale, Indigenous Community Guajajara of the Indigenous Territory Caru, Indigenous Community Guajajara of the Indigenous Territory Rio Pindaré, Indigenous Community Ka'apor of the Indigenous Territory Alto Turiaçu, Indigenous Community Awá of the Indigenous Territory Caru, Awá and Alto Turiaçu and Fundação Nacional Do Índio – FUNAI**.**
(b) Sign date	2017/02/20
(c) Description of the facts that lead to the signature of the term	Based on its social responsibility policy, Vale already had Terms of Commitment signed with the indigenous whose territories are located near the Carajás Railroad (EFC). Due to the influence of the railroad on these communities, Vale decided to keep the transference of financial resources destined for application in strategic actions for territorial protection, preservation and conservation

	of natural resources, economic sustainability and income generation, cultural strengthening, institutional strengthening, health, education, citizenship, basic sanitation and infrastructure, observing what was approved by the Fiscal Supervisory Board constituted to follow up the application of resources, having the participation of FUNAI, that is assisting the communities in the administration of the values received.
(d) Assumed obligations	Transference of financial resources destined for application in strategic actions for territorial protection, preservation, and conservation of natural resources, economic sustainability and income generation, cultural strengthening, institutional strengthening, health, education, citizenship, basic sanitation and infrastructure, observing what was approved by Fiscal Supervisory Board constituted to follow up the application of the resources.
(e) Deadline, if any	Schedule of 10 years.
(f) Information on the actions adopted for observance of the obligations assumed in the term	The Board of Directors of Relationship with Communities has focal points that monitor the accomplishment of the obligations established in the Term of Commitments, in special the transference of financial resources.
(g) Consequences in case of noncompliance	The non-compliance by the indigenous has as consequence the suspension of resources transference. If the non-compliance is assigned to Vale, it creates the risk of the indigenous to promote actions that paralyze or interfere with the activities of the Company or of its subsidiaries, such as manifestations that imply in paralyzing the EFC, impairing its railroad operations.

6) Conduct Adjustment Term nº 283/2004		
Origin: Preparing Procedure nº 0203/01 – Attorney General for Labor of the First Region – Rio de Janeiro		
(a)	**Signatories**	Public Ministry of Labor and Vale S.A.
(b)	**Sign date**	2004/12/15
(c)	**Description of the facts that lead to the signature of the term**	The legal obligation of training and hiring disabled persons, for compliance with the legal provisions, including that related to the quota established in the article 93 of the Law nº 8.212/91.
(d)	**Assumed obligations**	Professionally qualify, in a first moment, 34 to 40 disabled persons. Develop the program in national extent. Sign covenants with institutions like SENAI for the training. During the training period, provide transportation, feeding and medical assistance. After the training, hire the disabled persons.
(e)	**Deadline, if any**	The TAC is renewed every year with an indication of the annual goal for training and hiring, which for 2016, corresponded to the hiring of approximately 120 persons, having Vale hired at the end of the year, 168 persons. For 2017, it was kept the annual target of approximately 120 persons.
(f)	**Information on the actions**	Creation of the Program for Inclusion of Disabled

	adopted for observance of the obligations assumed in the term	Persons.
(g)	**Consequences in case of noncompliance**	R$1,000.00 per worker not trained and hired, within the quota established for that year.
(h)	**Other observations**	The TAC allows Vale not to fully comply with the quota established by the Law nº 8.212/91, while she is defaulter with the obligations therein determined. If the TAC is not met Vale must obligatorily and immediately fill the quota established in the Law, missing the suspension of this requirement allowed by the Term.

7) Term of Environmental Commitment: TCA of Pico do Itabirito	
Origin: Civil Public Inquiry nº 319.02.0001-8 MPMG	
(a) Signatories	Minerações Brasileiras Reunidas S.A. - MBR, Vale S.A., State Public Ministry - MG, Instituto Estadual de Florestas, Secretaria de Estado do Meio Ambiente e Desenvolvimento Sustentável de Minas Gerais and AngloGold Ashanti Brasil Mineração Ltd.
(b) Sign date	2010/07/09
(c) Description of the facts that lead to the signature of the term	Term signed for execution of the environmental and landscape rehabilitation of the heritage protected area of the Pico do Itabirito and of the area included in the tailings piles named "Trincheira and Mina Velha". Adoption of measures for the preservation of the Historical and Archeological Site of Cata Branca.
(d) Assumed obligations	i) Execute Rehabilitation Project in accordance with the considerations of the environmental agencies; ii) Perform the continuous follow-up and monitoring of the implantation of the Project; iii) Develop Patrimonial Education Project; iv) Execute the enclosure of the Mina de Cata Branca Archeological Site and the indicative and interpretative signaling of the area; v) Present the project of enclosing and signaling to the IEF and IPHAN for approval; vi) Execute the georeferencing of the area; vii) Grant to IEF free unrestricted access and without any costs to the area referred to in the item (iv) above, as well as authorize the interventions and constructions destined to the implantation, construction and maintenance of the Conservation Unit, in a free-form, without any cost, since such interventions do not imply in some way in the restriction of its mining rights, observed the amount established in the agreement.
(e) Deadline, if any	The maximum deadline for total execution of the rehabilitation project, extendable through the presentation of technical justifications accepted by the Public Ministry or, in the case of force majeure or fortuitous case, was of 5 years starting on September 1st, 2010, which was met by the Company.
(f) Information on the actions adopted for observance of the obligations assumed in the term	Procedures for recovery of the areas are ongoing, with the execution of enclosing and signaling of the archeological site, environmental and patrimonial education programs and execution of the environmental rehabilitation project of the Pico do Itabirito area. The TAC was integrally accomplished.
(g) Consequences in case of noncompliance	A comminatory fine of R$2,500.00/day of delay and execution of the agreed and non-accomplished part.
(a) Signatories	Minerações Brasileiras Reunidas S.A. - MBR, Vale S.A., State Public Ministry-MG, Instituto Estadual de Florestas, Secretaria de Estado do Meio Ambiente e Desenvolvimento Sustentável de Minas Gerais and AngloGold Ashanti Brasil Mineração Ltda.

8) **Conduct Adjustment Term nº 118/2015**	
Origin: Civil Public Inquiry nº 3212.2014.03.000/9-12 – Attorney General for Labor of the 3rd Region/MG - Minas Gerais	
(a) Signatories	Public Ministry of Labor and Vale S.A.
(b) Sign date	2015/07/31
(c) Description of the facts that lead to the signature of the term	The supposed practice of slave-like work practiced by a company contracted by Vale, the company Ouro Verde Locação e Serviços S/A. For additional information, refer to subitem (i)(5) of item 4.3 of this Reference Form.
(d) Assumed obligations	Preventive and corrective measures were agreed for warranty of the labor rights of the employees of the service providing companies, especially concerning the sanitary conditions of its installations, and for the promotion of the decent labor and elimination of any forms of forced labor or slave-like work. The agreed commitments are being duly implemented.
(e) Deadline, if any	Indefinite period if there is no contrary provision.
(f) Information on the actions adopted for observance of the obligations assumed in the term	Vale promoted, as of the 2nd semester of 2015, several pieces of training with the managers of the company, in that same State, so as to inform them of the obligations assumed by Vale. There was guidance for inclusion of a specific standard clause in the contracts signed by the company predicting its resolution in the case of use of child labor or slave work by the hired company or of any situation that could characterize attack to human dignity.
(g) Consequences in case of noncompliance	R$20,000.00 per failed item up to the limit of R$500,000.00
(h) Other observations	The Conduct Adjustment Term, in addition to avoid a possible action of the Public Ministry of Labor, allows Vale to demonstrate in an objective way the adoption of preventive and impeditive measures of exploitation of labor degrading or slave-like in its production chain, proving the accomplishment of the National Pact of Combat to Slave Work signed by the company.

4.8 – Rules of the country of origin and of the country in which the transferable securities are under custody

Not applicable to the Company, considering that she is not a foreign issuer.

5.1 - The policy to manage risks and internal controls in relation to the risks indicated in item 4.1

a. If the Company has a formal market risk management policy, highlight the body that approved it and the date it was approved, and, if not, state why the company has not adopted such a policy

The Company understands that effective risk management is fundamental to support the achievement of its objectives and to guarantee the Company's soundness and financial flexibility and the business continues as a going concern. As such, it has developed its risk management strategy in order to provide an integrated view of the risks to which it is exposed.

The guidelines for the corporate risk management strategy are set out in the Company's Corporate Risk Management Policy, originally approved by the Board of Directors on December 22, 2005 and amended on August 25, 2011.

b. Objectives and strategies of the risk management policy, if any, including:

The Company's Corporate Risk Management Policy is based on the following principles: (i) support the growth plan, strategic planning and business continuing as a going concern; (ii) strengthen the capital structure and asset management; (iii) allow an adequate degree of flexibility in financial management; and (iv) strengthen Vale's corporate governance practices.

i. Risks for which protection is sought

The Company seeks to protect the main risks that may adversely and relevantly impact the objectives set by the Company's senior management, its reputation as well as its financial and operating profit, which are described in item 4.1 of this Reference Form, the following are highlighted, among others:

(i) risks that may impact the Company's operations, in particular relating to events, whether due to force majeure or arising from the ordinary processes of the Company and its subsidiaries that may impact its production process and the use of installed capacity;

(ii) risks associated with the Company's strategic decisions to achieve its objectives and/or arising from the Company's ability to protect or adapt to changes in the mining sector, in particular regarding the demand for its products, the Company's capital structure and performance in different markets;

(iii) risks of legal or regulatory sanctions, legal proceedings against the Company and its subsidiaries, where a loss or the application of penalties, may impact the Company in a relevant manner, from a financial or operational point of view or damage its image;

(iv) risks of stoppages to project activities of the Company and its subsidiaries due to the non-acquisition or non-renewal of regulatory licenses, including but not limited to environmental licenses;

(v) risk of increases in the costs of the Company's operations, not only due to market conditions but also due to legal and regulatory changes in the locations where the Company operates;

(vi) risks associated with the lack of consistency and adequacy of the systems and control of Company operations and projects, including, but not limited to, information systems, as well as to failures in the management of the Company's internal controls.

ii. Instruments used for protection

Operational risk management is the structured approach that Vale uses to manage the uncertainty

related to the possible inadequacy or deficiency of internal processes, as well as to people, systems and external events, in accordance with the principles and guidelines of ISO 31000. Internal events consist of flawed or inadequate internal systems, people and processes, while external events include natural or operational disasters caused by third parties, regulatory, political, economic, or social measures taken by governments or other important stakeholders.

The Company minimizes operational risks through new controls and improving existing ones, new plans to mitigate risk and transfer the risk through insurance.

Key risks are monitored periodically, as well as the effectiveness of their key prevention/mitigation controls and the implementation of their treatment strategies. As such, Vale seeks to have a clear view of its main risks, acting on them in a systematic manner through the adoption of protection or mitigation measures, among which are, for example:

(i) definition of indicators and parameters for risk monitoring purposes;

(ii) development of technological solutions to optimize the Company's processes;

(iii) investments in training Company employees engaged in the planning and execution of their projects;

(iv) adoption of measures to improve efficiency in the licensing processes of their projects, in order to avoid delays and stoppages, for example, (a) promote greater integration between environmental teams and project development, (b) develop a Guide for Best Practices for Environmental Licensing and the Environment, (c) set up teams of highly qualified specialists, (d) encourage greater interaction with environmental agencies;

(v) Continuous improvement of the Company's health and safety management systems as well as the ongoing dissemination of information and prevention campaigns in the Company to improve employees' health and safety standards;

(vi) Control and manage environmental liabilities in its units, as well as the application of corrective measures aimed at establishing levels of quality compatible with a certain future use;

(vii) prepare environmental studies aimed at limiting the extent of environmental degradation and the potential risks to health and the environment;

(viii) choose highly-rated partners and maintain a long-term and fair relationship with its main suppliers, customers and partners in the Company's joint ventures. For information on counterparty credit risk control, see item 5.5 of this Reference Form;

(ix) manage an energy portfolio, composed of self-producing hydroelectric plants and long-term supply contracts, based on the current and anticipated energy needs of its mining operations, in order to mitigate the risk of increased costs and/or lack of energy;

(x) emphasis on cost reduction, capital discipline, liability management, working capital management and divestitures. For information on Capital Management and Liquidity Risk, see item 5.5 of this Reference Form;

(xi) in order to mitigate risks related to extraction, (a) the detention of (a base of extensive assets and high quality business in which it operates, without solely and exclusively relying on certain mines (b) substantial investment in mineral exploration, since, by carrying out more sampling, it reduces the risk with reserve estimates , (c) continuous replenishment of its reserve base by means of new projects to avoid depletion of mines; (d) diversification of its operations in different geographical locations and by extracting various types of minerals;

(xii) adoption of controls and mechanisms to detect control failures and obtain information on cases of breach of conduct, especially through the Whistleblower Channel;

(xiii) systematic monitoring of changes in government and regulatory policies in the sector to react quickly and timely to these changes, as well as, where applicable, participate in discussions regarding such changes through entities representing the mining sector, in which it participates;

(xiv) promote its activities in a responsible manner in all the locations in which it is present, aiming to respect the communities and the environment;

(xv) continuous monitoring of the Company's contingencies and lawsuits, making every effort to defend the lawsuits in which the Company and its subsidiaries are a party;

(xvi) adoption, in situations of crisis and disaster, measures that include (a) plans for the business to continue as a going concern that include immediate response to protect people, assets and the Company's image, (b) alternative solutions to guarantee the business continues as a going concern and quickly return to normal production flow and (c) weather monitoring and forecasting systems;

(xvii) contracting insurance. For information on taking out insurance, see item 5.5 of this Reference Form.

iii. Organizational structure of risk management

The Board of Directors is the body responsible for approving Vale's risk policies, having approved the Corporate Risk Management Policy on December 22, 2005 and its subsequent amendment on August 25, 2011. 187/5000 The Finance Committee, in its capacity as the advisory body to the Board of Directors, is responsible for issuing an opinion on Vale's corporate risk policies.

The Executive Committee for Risk Management, created by the Board of Directors, is the main body for the risk management structure. It is responsible for supporting the Board of Executive Officers in decisions regarding risk management, issuing relevant opinions and recommendations. It is also responsible for supervising and reviewing corporate risk management principles and instruments, as well as periodically reporting to Vale's Executive Board on the main risks and their exposures.

The Board of Executive Officers is responsible for assessing and approving long-term risk mitigation strategies recommended by the Risk Management Executive Committee, (b) for approving the developments of the Corporate Risk Management Policy in standards, rules and responsibilities, as well as reporting to the Board of Directors regarding these procedures. Risk management standards and procedures supplement the Corporate Risk Management Policy and define practices, processes, controls, roles and responsibilities in the Company with regard to risk management. Within the scope of such rules and procedures and the determination of responsibilities by the Company's Executive Board, it is incumbent upon:

(I) *Executive Management of Operational Improvements*, as the department responsible for managing operational risk: (a) to consolidate Vale's risk profile, with periodic reporting to the senior management and the Risk Management Executive Committee; (b) to provide information on Vale's main risks to its internal and external stakeholders, which includes carrying out an annual report for Internal Audit, with the purpose of preparing the Annual Audit Plan;

(II) *Executive Board for Finance and Investor Relations*, to monitor the activities of the Board of Directors that it comprises, whose duties are described below:

(a) *Global Financial Controls Board*, who monitors the risks of preparing the financial statements through one of its management team. The Internal Controls

Management, subordinated to the Global Financial Controls Board, is the department responsible for dealing with the risks related to the preparation of financial statements. Here called reporting risk;

(b) *Treasury and Finance Board*, which is responsible for managing financial risk at Vale, and is responsible for defining and proposing, to the Executive Committee, Risk Management operations or measures to mitigate market and credit risks consistent with Vale's strategy, as well as contracting insurance. To that end, this board has an Insurance Manager and Market and Credit Risk Manager. There is also a back-office area, which (i) monitors the contracted financial instruments, (ii) is responsible for confirming the financial characteristics of the transactions, of the counterparties with which the transactions were performed, (iii) reports the fair value of the positions, and (iv) assess whether the transactions were carried out in accordance with internal approvals.

(III) *Business Areas and Support Areas of the Company*: (a) identify, analyze, assess and address its principal risks with periodic reviews and each significant change in the circumstances of the risks: (b) monitor changes in the level of risk, the efficiency status of the key risk prevention/mitigation controls and the progress of the implementation of risk reduction action plans, and (c) reporting information at least on a quarterly basis to the support areas responsible for the specific management processes and to the Executive Management for Operational Improvements.

In addition to the aforementioned structures, Vale also has (a) an Internal Audit, which is the department responsible for assessing processes independently, verifying their compliance with the policies and standards adopted by the Company and possible cases of fraud, misuse of funds or damage to property; and (b) an Ombudsman, which is the department responsible for receiving and handling complaints of deviations from the Code of Ethics and Conduct and also the principles of good corporate governance and legislation such as the Sarbanes-Oxley Act.

Lastly, it should be pointed out that it is the responsibility of Vale's Fiscal Council to supervise the internal control assessment process carried out by Management to prepare the financial statements and for the independent auditors (KPMG Auditores Independentes), through regular meetings to present the results of the work of the Internal Controls Management and respective remediation plans established by the process.

c. Adequacy of the operational structure of internal controls to verify the effectiveness of the adopted policy

In line with the Company's Corporate Risk Management Policy, Vale has an Internal Controls Management that assesses the level of controls at the entity level in order to ensure the Company's risk management governance. The focus of this evaluation is to provide assurance regarding the reliability of the financial statements. In addition, the Internal Audit also participates in the compliance process with the established standards.

Information about employee training on the Code of Ethics and Conduct

After 2013, when Vale's Code of Ethics and Conduct was reviewed, Vale began to train employees each year on the content of the Code of Ethics and Conduct.

In 2014, the training was done by management, beginning with the Executive Board, who presented the Code of Ethics and Conduct to its direct subordinates, and continued through each level of the hierarchy until it reached the operational level. After the training, the employees received the Printed Code of Ethics and Conduct and signed the terms of commitment. This action reached 90% of employees globally.

In 2015, Vale, in turn:

(i) carried out the "Movement for Integrity" - an event that aims to convey the message to all employees of the importance of acting "Correctly", focused on the Code of Ethics and Conduct and the Global Anti-Corruption Program. The movement opening was attended by Vale's Chief Executive Officer, the general consultant and the general ombudsman, who passed the message to the leaders, who were in charge of passing on the information to all employees. With the support of the Movement for Integrity, more than 70% of employees worldwide have affirmed their agreement to the terms of the Code of Ethics and Conduct and the commitment to comply with them;

(ii) launched other initiatives that led employees to become aware of Vale's rules of ethical conduct, such as: "Ethics on the Agenda", which published controversial ethical topics every two months to be discussed at team meetings; and the video that presents the Code of Ethics and Conduct for new employees and new third parties;

(iii) promoted specific face-to-face training on the Global Anti-Corruption Program to members of priority areas for mitigating the risk of corruption (e.g. those responsible for relations with government officials, hiring third parties and intermediaries, donations, sponsorships, community investments, business acquisitions, legal, internal audit and corporate safety), which involved more than 2,700 participants in several countries where Vale operates (Australia, Brazil, Canada, China, Singapore, South Korea, the United Arab Emirates, India, Indonesia, Japan, Malawi, Malaysia, Mozambique, New Caledonia, Oman and Taiwan);

(iv) developed online training on the Global Anti-Corruption Program and the Code of Ethics and Conduct, which are mandatory for all employees;

(v) reinforced the importance of compliance with the Global Anti-Corruption Program through a global message on World Corruption Day (December 9).

In 2016, the communication actions on Ethics and Integrity continued, with a new edition of the Movement for Integrity, a new global message on the World Day to Combat Corruption. Face-to-face trainings continued on the Global Anti-Corruption Program, new editions of Ethics on the Agenda and the implementation of the Ethics and Global Anti-Corruption training programs by employees. Each of these training programs reached more than 40,000 trained employees in Brazil.

In 2017, in addition to the ongoing actions, the Company will further strengthen the use of (and participate in) Ethics training and the Global Anti-Corruption Program in Brazil, as well as expand this training program for all Vale operations outside Brazil .

Information about internal complaints on the Code of Conduct and the improvements made based on the complaints

In 2016, Vale's Ombudsman received 2,411 complaints, of which 18% could not be ascertained because they did not provide sufficient information to investigate the facts reported or because they were not ethical issues, outside the Ombudsman's scope.

The valid complaints were checked and 48% confirmed, generating 1,685 corrective actions, including feedback to the employee, process change, coaching, warnings, layoffs and termination of business relationship with companies involved.

In addition to corrective actions, the refining of the assessment process has led to improvements in Vale's Ombudsman activities, including the creation of a manual of recommendations for consequence management, for example, to help the manager in defining administrative measures (e.g.: advice, letter of warning, employment termination, etc.) arising from items confirmed by the Ombudsman.

5.2 - Description of the market risk management policy stated in item 4.2

a. If the Company has a formal market risk management policy, highlight the body that approved it and the date it was approved, and, if not, state why the company has not adopted such a policy

Risk management is carried out in an integrated manner so as to ensure that the Company's overall level of risk remains in line with its strategic guidelines.

Accordingly, the Corporate Risk Management Policy, approved by the Board of Directors on December 22, 2005 and amended on August 25, 2011, establishes guidelines that apply to the management of the corporate risks to which the Company is exposed, and not only specifically to market risks. Among these guidelines, we highlight the following:

- Measure and monitor the Group's corporate risk on a consolidated basis, considering the diversification effect, when applicable, in business group.

- Evaluate the impact of new investments, acquisitions and divestments on the Group's corporate risk profile.

- Adapt the Group's corporate risk profile to the needs of its growth plan, its strategic planning and its business to continue as a going concern.

b. Objectives and strategies of the risk management policy

The Company's Corporate Risk Management Policy is based on the following principles: (i) support the growth plan, strategic planning and business continuing as a going concern; (ii) strengthen the capital structure and asset management; (iii) allow an adequate degree of flexibility in financial management; and (iv) strengthen Vale's corporate governance practices.

i. Market risks for which protection is sought

The Company manages the main market risk to which it is exposed: (i) exchange rates and interest rates and (ii) prices of products and raw materials, which are described in item 4.2 of this Reference Form.

ii. Hedging

Periodically, an assessment is made of the potential impact on the Company's cash flow on the exposure to market risk factors mentioned above. This supports the decision-making process regarding the appropriate hedging strategy. This assessment is made considering together the main market risk factors and their correlations, in order to take advantage of potential natural hedges.

When its necessary to adjust the Group’s risk profile of the Company and reduce the volatility of its future cash flows, market risk mitigation strategies are assessed and implemented in line with these objectives.

Several forms of mitigation can be used: financial transactions by using hedge derivatives, committed lines of credit guaranteeing liquidity, or possible strategic decisions aimed at reducing cash flow risk.

Derivative portfolios are monitored monthly on a consolidated basis, allowing finance results to be monitored along with their impact on cash flow.

For more information, see item (iii) below.

iii. Instruments used for hedging

The financial instruments used for hedging predominantly include forward transactions, swaps, futures and zero cost-collars (hedge involving the simultaneous purchase and sale of options, so that the total premium of the transaction is zero).

The hedging programs contracted by Vale and its objectives are as follows:

- Program to hedge loans and financing in reais pegged to CDI: in order to reduce cash flow volatility, swaps were used to convert the cash flow for debt pegged to CDI into US dollars for loan agreements and financing. In these transactions, Vale pays fixed rates in US dollars and receives remuneration in reais pegged to the CDI.

- Program to hedge loans and financing in reais pegged to TJLP: in order to reduce cash flow volatility, swaps were used to convert the cash flow for debt pegged to TJLP into US dollars for BNDES loan agreements. In these transactions, Vale pays fixed or floating rates (Libor) in US dollars and receives remuneration in reais pegged to the CDI.

- Program to hedge loans and financing in reais at fixed rates: in order to reduce cash flow volatility, swaps were used to convert the cash flow for debt denominated in reais at a fixed rate into US dollars for BNDES loan agreements. In these transactions, Vale pays fixed rates in US dollars and receives a fixed rate in reais.

- Program to hedge loans and financing in reais pegged to IPCA: in order to reduce cash flow volatility, swaps were used to convert the cash flow for debt pegged to IPCA into US dollars for debentures.In these transactions, Vale pays fixed rates in US dollars and receives remuneration in reais pegged to the IPCA.

- Program to hedge loans and financing in euros: in order to reduce cash flow volatility, forward swaps were used to convert the cash flow debt in euro into US dollars. In these transactions, Vale receives fixed rates in Euros and pays remuneration pegged to fixed rates in US dollars.

- Program of hedging used to purchase nickel products: to reduce the risk of a price mismatch between the period to purchase nickel products (concentrate, cathode, sinter and other types) and the period to sell the final product, hedging was used. The items purchased are the raw materials used in the refined nickel production process. The transactions usually carried out in this case are sales of nickel for future settlement, either on the stock market (LME) or in the over-the-counter market.

- Fixed-price nickel sales program: in order to maintain the exposure of revenues to nickel price fluctuations, derivatives were used to convert floating price nickel contracts with customers requesting fixed prices. The transactions are intended to ensure that prices relating to these sales are equivalent to the London Metal Exchange (LME) average price when the product is physically delivered to the customer. The transactions usually carried out in this program are purchases of nickel for future settlement, either on the stock market (LME) or in the over-the-counter market.

- Program of hedging used to purchases of copper products: to reduce the risk of a price mismatch between the period to purchase copper products (scrap and others) and the period to sell the final product, hedging was used. Scrap purchased is mixed with other raw materials to produce copper for final customers. In this case, normally the transaction carried out is the sale of copper with future settlement in the stock exchange (LME) or over-the-counter.

- Bunker Oil hedge program: to reduce the impact of fluctuations in fuel oil prices (Bunker Oil) on the contracting/provision of sea freight and, consequently, to reduce the volatility of the

Company's cash flow, Hedges were used for this raw material. The transactions are usually done by contracting forward purchases and zero cost-collars.

Hedge Accounting

In accordance with CPC 38 "Financial Instruments: Recognition and Measurement", all derivatives, designated in hedge or non-hedge relationships, are recorded in the balance sheet at fair value and the gains or losses from the fair value are recorded in the profit or loss, if it does not qualify as hedge accounting. A derivative must be designated in a hedge relationship to qualify for hedge accounting. This standard includes the determination of which hedge tranches are considered effective or ineffective. In general, a hedge relationship is effective when a change in the fair value of the derivative is offset by an equal and opposite change in the fair value of the hedged item. According to this standard, effectiveness tests are carried out in order to assess the effectiveness and quantify the ineffectiveness of the designated hedges.

iv. The parameters used to manage these risks

The parameters used to check the Company's classification or non-classification of exposure are:

(i) verification that the programs mentioned in item 5.2 (iii), above have been executed;

(ii) Analysis and constant monitoring of contracted volumes; and

(iii) observing adequacy of the maturity dates, considering their respective hedging strategies, ensuring that there is no mismatch of our exposures. The mismatch between exposure and hedging strategies can occur if:

a. The contracted volumes/values of the hedge become greater than the volumes/values of the respective exposure;
b. The exposure for which hedging was sought ceases to exist; or
c. There is a maturity mismatch between the hedging strategies and their respective exposures.

In order to avoid potential mismatches due to the provisions of item "(iii).a" above, the procedure adopted is the periodic monitoring of the volumes/ values to be used as basis for the hedge proposals. For raw material price hedging, for example, if updated consumption estimates point to a decrease in volumes relative to the initial estimates used for the proposed hedging strategies, the volumes used in the hedging strategy will be adjusted accordingly.

To avoid potential non-classification due to the provisions of item "(iii) .b", during the periodic monitoring, if the initially estimated exposure does not materialize, the hedging strategy is terminated immediately (by unwinding the contracted positions) .

Also, for potential non-classification under item "(iii) .c", the alignment between the expiry date of the contracted hedging strategies and the expiry of the initially estimated exposure is constantly checked.

V. If the Company uses financial instruments with different hedge objectives and what are these objectives

The Company may, when necessary, allocate specific risk limits to management activities when needed, including, but not limited to, market risk, corporate and sovereign credit limits, within the acceptable limit of corporate risk.

- *Warrants received on the sale of part of Vale's future gold (by-product) production:* These warrants constitute an American call option and were received as part of the payment for the sale of flows of payable gold produced as a by-product of the Salobo copper mine and specific Sudbury nickel mines.

- *Debenture purchase options*: The Company has debenture agreements in which the creditors have options to convert debentures into a certain number of shares of Vale Logística Integrada (VLI) held by the Company.

- Options linked to shares in *Minerações Brasileiras Reunidas S.A. ("MBR")*: The Company entered into an agreement that has options linked to MBR shares. If certain contingent contractual conditions are observed, outside the control of the buyer, such as the case of illegality due to changes in the law, there is a clause in the agreement that gives the buyer the right to resell their stake to the Company. In this case, the Company could choose to settle using cash or shares. On the other hand, the Company has the right to repurchase this minority interest in the subsidiary.

Embedded derivative positions: Vale's cash flow is also exposed to market risks associated with contracts that contain embedded derivatives or work as derivatives. From Vale's perspective, these may include, but are not limited to, trading contracts, purchase agreements, lease agreements, securities, insurance policies, and loans. The embedded derivatives as of December 31, 2016 are as follows: 1) purchase contracts for raw materials and nickel concentrate which contain price provisions based on the future price of copper and nickel; 2) the purchase of gas by Companhia de Pelotização Vale Omã (LLC), with a premium clause in the gas price if the Company's iron ore pellets are traded above a predefined level and 3) in certain cases, the sale of stake held by the Company with a clause that establishes, under certain conditions, the guarantee of a minimum return on the investment of the acquiring company.

VI. Organizational structure to control market risk management

Market risks are managed by the same organizational structure described in item 5.1 (b) (iii) above.

c. adequacy of the operational structure and internal controls to verify the effectiveness of the adopted policy

Monitoring and a periodic assessment of the consolidated position of financial instruments used to mitigate Vale's market risks allows for financial results and the impact on the cash flow to be monitored, as well as ensuring that the objectives initially set are achieved. The calculation for the fair value of the positions is made available monthly for management to follow.

For this reason, the back-office department, which is part of the Treasury and Finance Global Board, monitors these financial instruments, and is responsible for confirming the financial characteristics of the transactions, as well as the counterparties with whom the operations were carried out and to report the fair value of the positions. This department also assesses whether transactions were carried out in accordance with internal approval. In addition to this department, the Internal Controls Management checks the integrity of controls that mitigate risks in transactions contracted within the governance criteria set forth above. In addition, the Internal Audit department also participates in the compliance process with the established standards.

5.3 - Regarding the controls adopted by the issuer to ensure the financial statements are prepared reliably, state:

a. The main internal control practices and the level of efficiency of these controls, indicating possible imperfections and measures taken to correct them.

Vale's management has assessed the effectiveness of the Company's internal controls in financial reporting through processes designed to provide reasonable assurance regarding the reliability of the financial statements, in accordance with the criteria established in the Internal Control - 2013 - issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO").

The internal control evaluation process foresees joint work with the business areas to assess reporting risks, process mapping, assessment of their compliance with other policies and standards, as well as the evaluation of applicable controls aimed at mitigating Risks that may affect the Company's ability to initiate, authorize, record, process and disclose material information in the financial statements.

In addition, the Internal Controls Management interacts with the Internal Audit and Ombudsman departments in order to capture any occurrences that may impact the financial statements.

At the end of the year, based on tests carried out by management throughout the period, no relevant deficiencies were identified in the execution of controls. Also, during the year, any deficiencies identified in the execution of controls are corrected by applying action plans with the objective of ensuring its correct execution at year-end.

b. The organizational structures involved

Vale SA has an organizational structure of internal controls to ensure that reliable financial statements are prepared. It is comprised of the Management of Internal Controls, below the office of Global Controls, which in turn is below to the Executive Board of Finance and Investor Relations with the respective monitoring of the Fiscal Council. The process also counts on the participation of Internal Audit and the Ombudsman, both below the Board of Directors. The roles and responsibilities of these are described in item 5.1 (b) (iii).

c. If and how efficiently are the internal controls being supervised by the issuer's management, stating the position of the persons responsible for monitoring them

As part of the annual certification process of the internal controls environment, Management promotes a review of all controls with the effective participation of all the Board of Directors involved in the processes, aiming to get the effectiveness of the controls.

At the end of the cycle, the executives responsible for the processes of all the Company's business areas and support areas, mapped on Sarbanes-Oxley compliance controls and tests, sign sub-certification terms that support the internal control environment assessment as well as the publication of the financial statements.

In addition, the Fiscal Council supervises the internal control assessment process carried out by Management and independent auditors (KPMG Auditores Independentes), through regular meetings to present the results of the work of the Internal Controls Management and respective remediation plans established by the process.

d. Deficiencies and recommendations on internal controls contained in the detailed report prepared and sent to the Company by the independent auditor

The information requested in item 5.3 "d", regarding deficiencies and recommendations stated by the independent auditor, shall be provided in line with the auditor's report as provided for in item II of article 25 of CVM Instruction No. 308/99.

The managers must work with the independent auditors to ensure that the communication regarding the previous financial year is made available in a timely manner, and in addition to the provisions of item II of article 25 of CVM Instruction No. 308/99, the professional auditing standard which deals with the matter, including, with regard to, the appropriate time limit for getting the final audit file together in a timely manner. In any case, this area must comply with the last written communication of internal control deficiencies sent by the independent auditors to the Company's management.

As a rule, at least comments on significant deficiencies and the auditor's recommendations on them should be included in item 5.3 "d" of the Reference Form. However, it is important to emphasize that it is the responsibility of the directors, making their own judgment as to the probability and possible magnitude of misstatements that may arise in the financial statements as a result of the deficiencies pointed out by the auditor, to assess the relevance and need to disclose the comments related to the other deficiencies identified by the auditors.

Incidentally, in their report on deficiencies in internal controls, the independent auditor should separate the deficiencies considered significant. In the event that the independent auditor does not separate the significant deficiencies, notwithstanding the eventual determination of responsibility of such professionals, the executive officers should ask for a supplementary statement from the independent auditors, in order to support the judgment on the disclosure to be promoted in item 5.3 'd' of the Reference Form mentioned in the paragraph above. Note that, in any event, if the significant deficiencies are not separated by independent auditors: a) they should not be interpreted as indicating that the identified deficiencies are not significant; and b) does not exclude the directors' responsibility for judgment regarding the relevance and need for disclosure of comments regarding identified deficiencies.

With regard to the financial year ended December 31, 2016, as an integral part of the study and assessment of the internal control structure, our auditors reviewed its quality and adequacy, including electronic data processing systems and the inherent risks.

In this assessment, in the opinion of the independent auditors, no significant deficiencies were identified regarding internal controls, accounting, tax and information technology procedures.

The information requested in item 5.3 "d", regarding deficiencies and recommendations stated by the independent auditor, shall be provided in line with the auditor's report as provided for in item II of article 25 of CVM Instruction No. 308/99.

The managers must work with the independent auditors to ensure that the communication regarding the previous financial year is made available in a timely manner, and in addition to the provisions of item II of article 25 of CVM Instruction No. 308/99, the professional auditing standard which deals with the matter, including, with regard to, the appropriate time limit for getting the final audit file together in a timely manner. In any case, this area must comply with the last written communication of internal control deficiencies sent by the independent auditors to the Company's management.

As a rule, at least comments on significant deficiencies and the auditor's recommendations on them should be included in item 5.3 "d" of the Reference Form. However, it is important to emphasize that it is the responsibility of the directors, making their own judgment as to the probability and possible magnitude of misstatements that may arise in the financial statements as a result of the deficiencies pointed out by the auditor, to assess the relevance and need to disclose the comments related to the other deficiencies identified by the auditors.

Incidentally, in their report on deficiencies in internal controls, the independent auditor should separate the deficiencies considered significant. In the event that the independent auditor does not separate the significant deficiencies, notwithstanding the eventual determination of responsibility of such professionals, the executive officers should ask for a supplementary

statement from the independent auditors, in order to support the judgment on the disclosure to be promoted in item 5.3 'd' of the Reference Form mentioned in the paragraph above. Note that, in any event, if the significant deficiencies are not separated by independent auditors: a) they should not be interpreted as indicating that the identified deficiencies are not significant; and b) does not exclude the directors' responsibility for judgment regarding the relevance and need for disclosure of comments regarding identified deficiencies.

e. Comments of the officers on the shortcomings identified in the independent auditor's report and on the corrective actions taken

The Company's Officers made an evaluation based on the relevance, likelihood and possible magnitude of distortions reported by the independent auditors, and reached the conclusion that the action plans defined for such shortcomings are adequate for proper implementation of the recommendations made by the auditors, pointing out that as described in item (d) above, no significant shortcoming was reported by the independent auditors.

5.4 - Significant changes in the main risks to which the Company is exposed or in the risk management policy implemented, commenting on possible expectations of reduction or increase in the Company's exposure to such risks

In relation to the last fiscal year, we have included in the list of the main risks to which the Company is exposed risks arising from the rupture of the Samarco tailings dam and market risks related to the political and economic instability in Brazil, as described In items 4.1 and 4.2 of this Reference Form. There were no significant changes to the risk management policy implemented.

Moreover, the Company does not identify a scenario of significant increase or reduction of risks already mentioned in items 4.1 and 4.2 of this Reference Form.

5.5 – Other relevant information

In line with the integrated view of the risks to which it is exposed, Vale considers in its risk management, in addition to market risks, liquidity risk, a risk arising from obligations assumed by third parties towards the Company (credit risk), those inherent to inadequate or poor internal processes, people, systems or external events (operational risk) and risks associated with policies and regulatory conditions in the countries where Vale operates (political risk), among others.

Counterparty Credit Risk

Vale's exposure to credit risk derives from receivables, derivative transactions, guarantees, advances to suppliers and financial investments. The credit risk management process provides a framework to assess and manage counterparty credit risk and to maintain the Company's risk at an acceptable level.

With regard to credit risk, the Company adopts the following management parameters:

Credit Risk Assessment for commercial operations (sales to customers)

For commercial credit exposure, resulting from the sale to final customers, the risk management area, according to the level of delegation in force, approves or requests the approval of credit risk limits for each counterparty.

Vale assigns an internal credit risk rating and a credit limit for each counterparty using its own quantitative methodology for credit risk analysis based on market prices, external credit ratings and counterparty financial information, as well as qualitative information on the strategic position of the counterparty and the history of commercial relationship.

Based on the credit risk of the counterparty, risk mitigation strategies may be used to minimize the Company's credit risk, in order to achieve the acceptable risk profile approved by the Executive Board. Among the main credit risk mitigation strategies, the most notable ones are deduction of receivables, insurance, letters of credit, and corporate and bank guarantees, mortgages, among others.

Vale has a geographically diversified portfolio of receivables, with Asia , Europe and Brazil, being the regions with the most significant exposures. According to each region, different guarantees can be used to improve the credit quality of receivables. Periodically, the Company monitors the exposure of the counterparties in the portfolio and blocks additional sales to customers in default.

Credit Risk Assessment for treasury operations (cash investments and derivative operations)

To manage the credit exposure originated by financial investments and derivative instruments, credit facilities are approved for each counterparty with which the Company has credit exposure.

Furthermore, Vale controls the diversification of portfolio and monitors different solvency and liquidity metrics of the different counterparties that were approved for negotiation.

Liquidity Risk

Liquidity risk refers to the possibility of Vale not complying with its contractual obligations on the due dates, as well as finding it difficult to meet cash flow needs due to market liquidity constraints.

To mitigate this risk, Vale has revolving credit facilities to assist in the management of short-term liquidity and enable greater cash management efficiency, in line with the strategic focus on reducing the capital cost. The available revolving credit facilities were obtained with a union consisting of several global commercial banks.

Capital Management

The Company's capital management policy aims at establishing a capital structure that ensures the continuity of its business in the long run. Within this perspective, the Company has been able to add value to its shareholders, through the payment of dividends and capital gain, while maintaining a debt profile suitable to its activities, with an average term of amortization of 7.9 years in December 31, 2016, thus avoiding concentration in a single specific period.

Insurance

Vale takes out various types of insurance policies, such as: operational risk insurance, engineering risk insurance (projects), credit risk insurance, civil liability, life insurance for its employees, among others. The coverage of these policies, similar to those generally used in the mining industry, is taken out in accordance with the objectives set by the Company, the corporate risk management practice, and the limitations imposed by the global insurance and reinsurance markets.

Insurance management is carried out with the support of the existing insurance management committees in the various operational areas of the Company. Among its management instruments, Vale uses captive reinsurers that allow the retention of part of the risk, taking out of insurance on a competitive basis, and direct access to the main international insurance and reinsurance markets, and diversification of counterparties.

6.1 / 6.2 / 6.4 - Incorporation of issuer, term and date of registry with CVM

Date of Incorporation of Issuer	01/11/1943
Form of Incorporation of Issuer	Governed-controlled company
Country of Incorporation	Brazil
Term of Duration	Non-determined Term of Duration
Date of Registry with CVM	1/2/1970

6.3 - Brief history

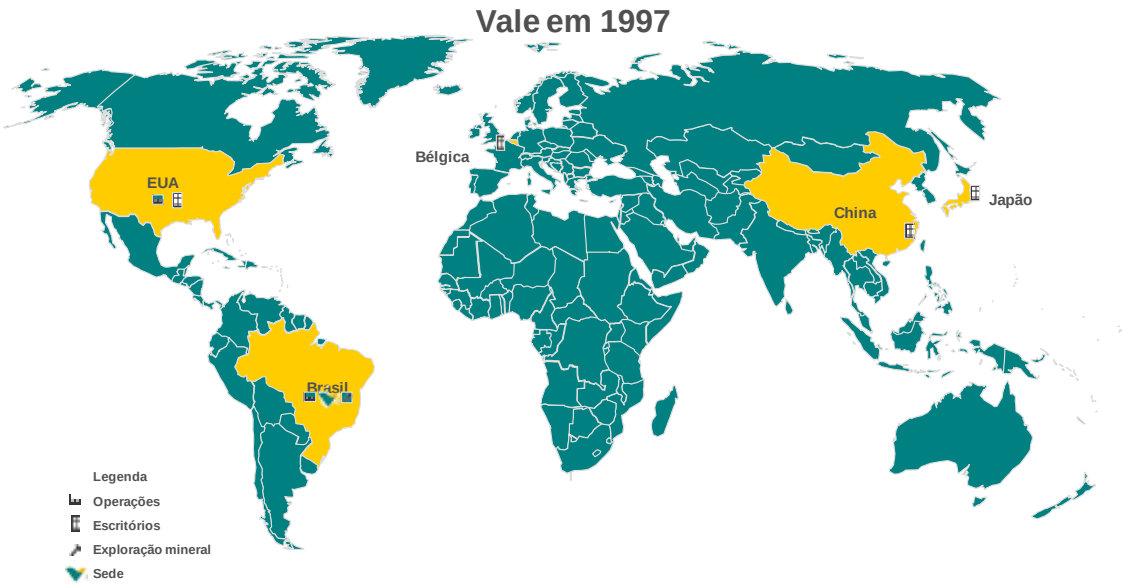
Vale was founded by the Brazilian Federal Government (Brazilian Government) on June 1, 1942, through Decree-Law n. 4,352, and definitively on January 11, 1943, by the Assembly of Definite Constitution of the Corporation of Companhia Vale do Rio Doce S.A., in the form of government-owned company, with the purpose of exploring, marketing, transporting and exporting iron ore from Itabira mines, and exploring the Vitória-Minas Railroad (EFVM), which carried iron ore and agricultural products through the Vale do Rio Doce, in the Southeast region of Brazil, to the port of Vitoria, located in the State of Espirito Santo.

The Company's privatization process began in 1997. Pursuant to the Public Notice of Privatization of PND-A-01/97/CVRD (Notice) and the Resolution of the National Privatization Council - CND No. 2 of March 5, 1997, the Extraordinary General Meeting approved, on April 18, 1997, the issuance of 388,559,056 participating bonds, non-convertible into shares (Participating Bonds), with a view to guaranteeing pre-privatization shareholders, including the Federal Government itself, the right to participate in Vale's mining revenues as well as in its subsidiaries, with no value for purposes of establishment of the minimum price of the privatization auction of Vale. The Participation Bonds were attributed to Vale's shareholders in consideration for the redemption value of class "B" preferred shares issued in bonus, at the rate of one share held by the holders of common and preferred class "A" shares, at the time, through partial capitalization of Vale's reserved appropriated earnings. The Participating Bonds could only be negotiated after prior authorization from the Securities and Exchange Commission ("CVM"), as of 3 months after the completion of the Secondary Public Offering of Shares set forth in the privatization process.

On May 6, 1997, the privatization auction was carried out, when the Brazilian Government sold 104,318,070 common shares issued by Vale, equivalent to 41.73% of the voting capital, to Valepar SA. (Valepar), amounting to approximately R$3.3 billion.

Subsequently, under the terms of the Notice, the Brazilian Government also sold 11,120,919 common shares representing approximately 4.5% of the outstanding common shares, and 8,744,308 class "A" preferred shares, representing 6.3% of Class "A" preferred shares, through a restricted offer to Vale employees.

On March 20, 2002, there was a Secondary Public Offering of Shares issued by Vale, in which the Banco Nacional do Desenvolvimento Econômico de Social, the Brazilian Government and National Economic and Social Development Bank ("BNDES") sold 34,255,582 common shares issued by Vale. The demand by Brazilian and foreign investors was substantial, surpassing the offer by approximately three times, leading to the sale of the entire lot of 68,511,164 shares. A portion of about 50.2% was placed on the Brazilian market and the remainder was sold to foreign investors. Subsequently, on October 4, 2002, there was the pertinent registry of the Participating Bonds with CVM, allowing its trading at the secondary market.



Vale in 2017

Below, there is the description of the most significant historical events in the history of the Company since its incorporation:

1942

- President Getúlio Vargas, through Decree-Law No. 4,352, dated June 1, 1942, defines the basis of the organization of Vale do Rio Doce S.A. Under the Decree-Law, the Companhia Brasileira de Mineração e Siderurgia (Brazilian Mining and Steel Company) and the Companhia Itabira de Mineração (Itabira Mining Company) should be expropriated.

1943

- Vale was incorporated on January 11, 1943, as a corporation, under the terms of Decree-Law N. 4,352/42.
- Listing of Vale shares at the Rio de Janeiro Stock Exchange ("BVRJ") in October 1943.

1944

- First deals with Vale shares at BVRJ in March 1944.

1952
- The Brazilian Government takes definite control of Vale's operating system.

1953
- First shipment of iron ore to Japan.

1954
- Vale reviews its commercial practices abroad, and begins contact directly with iron and steel industries, without the intermediation of the traders.

1962
Long term contracts executed with Japanese iron and steel industries, and German steel plants.

1964
- Establishment of Vale's first foreign office in Dusseldorf, Germany.

1966
- Inauguration of the Tubarão Port, in Vitória, Espírito Santo, connected to the iron ore mines through the Vitória-Minas Railroad.

1967
- Geologists from the Cia. Meridional de Mineração (Meridional Mining Co.) a subsidiary of the United Steel Corp. (US Steel) verify the occurrence of iron ore in Carajas, in the State of Pará.

1968
Vale´s shares become part of the IBOVEPA index.

1969
- Inauguration of Vale's first Pellet Plant in Tubarão, in the State of Espírito Santo, with a production capacity of 2 million tons/year.

1970
An agreement makes Vale majority partner in the Carajás enterprise in the State of Para, jointly with US Steel.

1972
- Vale signs an agreement with Alcan Aluminium Ltd. of Canada for a bauxite exploration project in the Rio Trombetas region, where there was the incorporation of Mineração Rio do Norte ("MRN").

1974
- Vale becomes the biggest exporter of iron ore in the world, holding 16% of the transoceanic market of the ore.

1975
- For the first time, Vale issued bonds internationally, amounting to 70 million of German marks, intermediated by Dresdner Bank.

1976
- Decree 77,608/76 grants to Vale the concession for the construction, use and exploitation of the railroad between Carajás and São Luís, in the states of Pará and Maranhão, respectively.

1977
- Vale announces assigning priority to the Carajás Project, as of 1982, to start exporting iron ore through the Itaqui Port (MA).

1979

- Effective start of the implementation of the Ferro Carajás Project, adopted as the main goal of Vale's business strategy.

1980
- The Federal Government approves the Carajás Iron Project and grants its financial guarantee to it.

1982
- With the implementation of operations of Valesul Alumínio S.A., in Rio de Janeiro, Vale enters the aluminum segment and contributes to reducing Brazilian metal imports.

1984
Inauguration of Vale´s office in Japan.

1985
- On February 28, the Carajás Railroad ("EFC") is inaugurated and delivered to Vale.
- Inauguration of the Carajás Iron Project, which increases the company's productive capacity, now structured in two different logistics systems (North and South).

1986
- The Port Terminal of Ponta da Madeira starts to operate in São Luís, in the State of Maranhão.

1987
- EFC begins to operate on a commercial scale.

1989
- Implementation of the Profit Sharing Program (PR) for Vale employees.

1994
- In March, Vale launches its level 1 American Depositary Receipts ("ADR") program, negotiable in the US over-the-counter market.

1995
- Vale is included in the National Privatization Program by Decree No. 1,510, dated June 1, signed by the President of the Republic.

1996
- On October 10, the National Privatization Council (CND) approves Vale's privatization model.

1997
- BNDES announces, on March 6, the notice of privatization of Vale.
- On April 18, Vale issues 388,559,056 Participation Bonds, which could only be negotiated after prior authorization by CVM, as of the end of the Secondary Public Offering of Shares set forth in the privatization process.
- On May 6, Vale is privatized in an auction held at the Rio de Janeiro Stock Exchange. The Valecom Consortium, articulated by the Votorantim Group, and the Brazil Consortium, led by Companhia Siderúrgica Nacional ("CSN"), participated in the auction. The Consórcio Brasil bought 41.73% of Vale's common shares for R $ 3,338 million in currency.

1998
- During the first year after the privatization, Vale obtains a growth of 46% in profits compared to 1997.

1999
Vale shows the highest profits of its history up to then: R$1.251 billion.

2000
- On February 2, the Container Terminal of the Port of Sepetiba was inaugurated.

- In May, Vale acquires Mineração Socoimex S.A. and S.A. Mineração do Trindade (Samitri), iron ore producing companies, beginning the consolidation of the Brazilian iron ore market.
- On June 20, Vale divulges the listing of its ADRs, representing the preferred shares issued by the Company, at the New York Stock Exchange ("NYSE"), in a level II "DR" program approved by CVM.
- On August 31, the Extraordinary General Meeting approved the merger of the wholly-owned subsidiary Mineração Socoimex SA, without the issuance of new shares, aiming at adding to the Company's assets the Gongo Soco mine, a high-grade hematite reserve in the iron quadrilateral in Minas Gerais.

2001
- In February, Vale's Board of Directors authorizes the beginning of the divestment process of its interest in the paper and cellulose sector.
- On February 19, there is the merger by Vale of the shares issued by S.A. Mineração Trindade (Samitri), with no share capital increase and no issuance of new shares, due to the use of shares held in treasury, under the terms authorized by CVM.
- In March, the reversal of crossed ownership interest involving Vale and CSN became effective.
- In April, Vale acquires 100% of the capital of Ferteco Mineração S.A., the third largest iron ore producer in Brazil at the time.
- On October 1, the Shareholders' Meeting approved the merger of the wholly-owned subsidiary S.A. Mineração Trindade (Samitri) in line with administrative and financial rationalization guidelines.

2002
- In March, the Pelletizing Plant of São Luís, in the State of Maranhão, is officially inaugurated.
- On March 21, there is the conclusion of the global sale offer of 68,511,164 common shares issued by Vale held by the Brazilian Government and BNDES, of which approximately 50.2% were placed on the Brazilian market and the remainder sold to foreign investors. The sale price in Brazil was R$ 57.28 per share and abroad of US$ 24.50 per ADR.
- The common shares issued by Vale became traded at the NYSE, in the form of ADRs, in a level III program.
The trading of the Company's common shares also starts at the Madrid Stock Exchange - Latibex.
- The cornerstone of the Cobre do Sossego Project is launched in the State of Pará.
- On October 4, Vale obtained from the CVM the registration of the Public Trading of the Participation
Bonds.
- On December 16, the General Shareholders' Meeting approved Vale's Shareholder Remuneration Policy, in order to simultaneously increase transparency and financial flexibility, taking into account the expected trajectory of the Company's cash flow.
- On December 27, the Extraordinary General Meeting approved the Amendment of Vale's Articles of Incorporation in order to (i) expand the Company's activities in the energy and logistics sector; (Ii) to adapt the Statute to the new rules introduced by Law 10303, of October 31, 2001; and (iii) introduce principles of best corporate governance principles.

2003
- On February 14, Vale concludes the acquisition of 100% of the capital of Elkem Rana AS (Rana), a Norwegian iron-alloy producer, for a price of US$ 17.6 million.
On March 31, Vale acquires 50% of shares of Caemi Mineração e Metalurgia S.A. (Caemi) for US$ 426.4 million.
- In August 29, Vale incorporates whole-owned subsidiaries Celmar S.A. – Indústria de Celulose e Papel e da Ferteco Mineração S.A.
On November 7, Vale concluded the restructuring of corporate interests in logistics companies, which aimed to eliminate relations between Vale and CSN in the shareholding structure of Ferrovia Centro-Atlântica S.A. (FCA), Companhia Ferroviária do Nordeste (CFN) e CSN Aceros S.A. (CSN Aceros).
- On December 12, Vale adheres to Level 1 of the Differentiated Corporate Governance Practices Program established by BM & FBOVESPA.

- Continuing the process of simplifying its operating structure, on December 30, Vale incorporates the following wholly-owned subsidiaries: Rio Doce Geologia e Mineração S.A. – Docegeo (Docegeo), Mineração Serra do Sossego S.A. (MSS), Vale do Rio Doce Alumínio S.A. – Aluvale (Aluvale) e Mineração Vera Cruz S.A. (MVC).

2004

- On July 2, the Sossego mine, the first copper mine in Brazil, is inaugurated in the State of Pará. The project is made in record time.
- In November, Vale wins the international bid for coal mining in the Moatize region of northern Mozambique.
- In December, Vale signs a memorandum of understanding with ThyssenKrupp Stahl A.G. (ThyssenKrupp) for the construction of an integrated steel plate plant with a capacity of 5 million tons in the State of Rio de Janeiro.

2005

Vale is the first Brazilian company to be awarded with a higher risk rating than the host country and the only one to have this recognition by three different rating agencies: thus achieving the "Investment Grade" granted by Moody's and confirmed by Moody's. Standard & Poor's and Dominion Bond.

In July, Vale Belvedere Pty Ltd. signs an agreement with two Australian mining companies to conduct an exploration study of the Belvedere Project of the Underground Coal Project (Belvedere Project), located in Queensland, Australia.

- On September 22, "Vale Investir" (It is Worth to Invest) was launched, a program that allows Brazilian investors to automatically reinvest the funds received from dividends and/or interests on shareholders' equity on the purchase of shares issued by the Company.
- In November, Vale agrees to acquire a minority stake in Ceará Steel, an export-oriented steel plate project in the state of Ceará, with a nominal capacity of 1.5 million tons of plates per year.
- The Company consolidates its entry into the copper concentrate industry, with the first full year of operation of Mina do Sossego with sales to 13 customers in 11 different countries.
- In the last quarter of 2005, Vale acquired 99.2% of Canico Resources Corp. (Canico), owner of the Onça Puma laterite nickel project, located in the State of Pará, for approximately US$ 800 million.

2006

- In January, Vale acquires mineral resources, land and exploration equipment from Rio Verde Mineração (Rio Verde) for US$ 47 million.
- In February, the acquisition of all of Canico's shares was completed, which negotiation was withdrawn from the Toronto Stock Exchange.
- In March, the expansion of production capacity of the alumina refinery of Alunorte - Alumina do Norte do Brasil S.A. ("Alunorte"), located in Barcarena, in the State of Pará.
- On May 3, Vale executes the merger of Caemi shares, becoming the holder of 100% of the company's capital.
- On July 03, Vale acquired 45.5% of the capital of Valesul Alumínio S.A., and becomes the holder of 100% of the company's capital.
- On August 11, the Company announces that it intends to offer to acquire all common shares of Inco Limited (Toronto Stock Exchange - TSX and NYSE under the symbol N) (Inco). The offer is consistent with Vale's long-term corporate strategy and Vale's strategy regarding non-ferrous metals business.
- In the third quarter, Vale separates the administration of the former Southern System for the production and distribution of iron ore in two departments: the Southeastern System and the Southern System, and started to report the production separately for each system.
- In September, Minerals BR Holdings GmbH purchases 25% interest in a joint venture, Zhuhai YPM, to build a new pelletizing plant in Zhuhai, Guandong, China.
- On October 5, Vale inaugurates the Brucutu Project, the world's largest mine/plant complex in initial iron ore production capacity, located in the municipality of São Gonçalo do Rio Abaixo, in Minas Gerais.
- On October 26, Vale performs the financial liquidation of a large part of the acquisition of the Canadian mining company Inco Ltd., the second largest nickel producer in the world, making a

payment in the amount of US$ 13.3 billion, corresponding to the acquisition of 174,623.019 shares issued by Inco.
- On November 6, Vale becomes part of the control group of Usinas Siderúrgicas de Minas Gerais S.A - Usiminas.

2007
- In January, Vale concluded the expansion of its iron ore production capacity in Carajás, reaching 100 million tons per year.
- On January 30, the acquisition of Inco (currently Vale Canada Limited) is ratified at Vale's Extraordinary General Meeting. The nickel business becomes managed from Toronto as well as those activities related to marketing and metal sales. After Inco's acquisition, Vale becomes the second largest mining and metals company in the world in terms of market value.
- On February 16, Vale announces a public offering of shares of Log-In Logística Intermodal S.A. ("Log-In").
On February 26, Vale enters into a purchase agreement for the acquisition of Australia's AMCI Holdings Australia Pty Ltd. ("AMCI"), which operates and controls coal assets through interests in joint ventures.
- In March, Vale acquires 18% of interest in Ferro-Gusa Carajás S.A. ("FGC"), which belonged to Nucor do Brasil S.A., for US $ 20 million, and now holds 100% of the capital of FGC.
- In May, Vale enters into a usufruct agreement, acquiring the control of the entire capital of MBR for the next 30 years.
- On May 2, Vale signs a 25-year freight contract with Bergesen Worldwide (B.W. Bulk), which foresees the construction of the world's four largest bulk carriers, each with a capacity of 388,000 tonnes.
- On June 28, the Mozambican Government approves the Mining Contract for Vale's exploitation of the Moatize coal project, in Tete province in the country's northeast.
- On August 30, the shareholders,at the Extraordinary General Meeting, ratify the acquisition of the Company's controlling interest of AMCI.
- On November 29, Vale starts to use the "Vale" brand in all countries where it holds activities and, at the same time, takes on a new worldwide visual identity.
- On December 21, Vale signs a contract for commercial exploitation of 720 kilometers of the North South Railway (FNS), for a period of 30 years.

2008
- During the first half of 2008, Samarco, a joint venture (50% -50%) with BHP Billiton, located in the State of Espírito Santo, starts to increase its capacity in the production of pellets.
- Vale leases three pelletizing plants at the Tubarão complex in Vitória, Espírito Santo State, owned by the joint ventures (Itabrasco, Kobrasco and Nibrasco) in which the Company holds interests.
- On May 5, Vale signs a sales agreement for acquisition of mining and surface rights in the municipalities of Rio Acima and Caeté, State of Minas Gerais.
- In July, Vale makes a global offering of shares of 256,926,766 common shares and 189,063,218 preferred shares, including ADSs, aiming at promoting investments and strategic acquisitions, as well as maximizing the Company's financial flexibility. The aggregate value of the global offer to Vale was of approximately US$ 12.2 billion, after subscription discounts and fees, including the amounts of the exercise of the supplementary stock option. In August, due to the full exercise of the complementary lot option, Vale made an additional issuance of 24,660,419 class A preferred shares.
Jointly with the above offer, Vale makes the listing and trade of its common and preferred ADSs at Euronext Paris.
- On August 3, Vale orders the construction of 12 large ships for iron ore transportation, buys used ships, and signs long-term freight contracts. The total investment was $ 1.6 billion for the construction of new ships and $ 74 million for the purchase of used ships.
- On August 14, Vale announces its intention in investing in the construction of a new steel plant in Marabá in the State of Pará, with an annual production capacity of 2.5 million metric tons of semi-finished steel.

- On October 31, Vale announced a reduction in its production of iron ore, pellets, nickel, manganese, iron alloys, aluminum, and kaolin, due to the impact of the global economic crisis on the demand for minerals and metals.
- On December 16, Vale entered into an agreement with African Rainbow Minerals Limited ("ARM") and its subsidiary TEAL Exploration & Mining Incorporated ("TEAL") to acquire 50% of the capital of a joint venture, thus becoming the owner of subsidiaries of TEAL, for CAD $ 81 million, increasing Vale's strategic options for growth in copper business in Africa.
- On December 23, Vale signs a sales agreement to acquire 100% of the coal export assets from Cementos Argos S.A. (Argos) in Colombia for US$ 306 million.

2009
- On January 30, Vale entered into a sales agreement with Rio Tinto Plc ("Rio Tinto") for the acquisition, with payment in cash for iron ore and potassium assets located in Brazil, Argentina, and Canada.
- On March 24, Vale completes its previously announced transaction of 2008, and creates a joint venture (50% - 50%) with ARM for future development and operation of TEAL assets, thus expanding, in December 2008, the strategic options for growth of the copper business segment in Africa.
On March 27, Vale begins the erection of the Moatize project, in the province of Tete, Mozambique.
- On April 1, the Company concludes the acquisition of Argos' thermal coal export assets, in Colombia.
- On April 16, Vale concludes the sale of all of its 14,869,368 common shares issued by Usiminas, and linked to the shareholder agreement in force by the steel plant.
- On May 21, Vale's Board of Directors approved the review of the 2009 investment budget to US$ 9.035 billion, compared to US$ 14.235 billion announced on October 16, 2008.
- On May 22, the Extraordinary General Meeting of Vale approves the proposal to change its name from Companhia Vale do Rio Doce to Vale S.A.
- On June 23, Vale starts a biodiesel production project to supply its operations and projects in the northern region of Brazil, starting in 2014, using palm oil as raw material, produced by the consortium between Vale and Biopalma da Amazonia S.A. ("Biopalma").
- On July 13, the Company reports that its unionized employees from Sudbury and Port Colborne, in the province of Ontario, Canada, went on strike. The same occurs on August 1, with the unionized employees of its operation in Voisey's Bay, in the province of Newfoundland and Labrador, Canada.
- On July 22, Vale signs a memorandum of understanding ("MOU") with ThyssenKrupp to increase interest in ThyssenKrupp CSA Siderúrgica do Atlântico Ltda. (TKCSA) from 10% to 26.87% through a capital investment of EUR 965 million.
- On September 18, Vale completes the acquisition of Corumbá's iron ore operations, located in Mato Grosso do Sul, owned by Rio Tinto, and other controlled companies.
- On October 19, Vale's Board of Directors approves the 2010 investment budget, with expenditures of US $ 12.9 billion dedicated to supporting existing operations and promoting growth through research and development (P&D), and projects execution.

2010
- On January 22, the wholly-owned subsidiary Valesul Alumínio S.A. (Valesul) has entered into an agreement for the sale of its aluminum assets, located in Rio de Janeiro, to Alumínio Nordeste S.A., a company of the Metalis group, for US $ 31.2 million.
- On the same date, Vale's Extraordinary General Meeting approved the merger of the wholly-owned subsidiaries Sociedade de Mineração Estrela de Apolo S.A. (Estrela de Apolo) and Mineração Vale Corumbá S.A. (Vale Corumbá).
- During the first half of the year, Vale entered into agreements with its customers in the iron ore sector to move from annual contracts to quarterly indexed contracts. The new contracts offer more efficiency and transparency to iron ore prices and allow the recognition of quality differences, which helps stimulate long-term investment. In addition, customers can know, in advance, the price to be paid in the subsequent quarter.
- In the second quarter, Vale acquired a 51% interest in VBG - Vale BSGR Limited ("VBG") (formerly BSG Resources (Guinea) Limited), which had iron ore concession rights in Simandou

South ("Zogota"), and licenses to exploit mine iron ore at Simandou North (Blocks 1 & 2) in Guinea.
- In a series of transactions in 2010, Vale acquired the phosphate operations of Vale Fertilizantes S.A. ("Vale Fertilizantes", previously Fertilizantes Fosfatados S.A. – Fosfertil), and Vale Fosfatados S.A. (formerly Bunge Participações e Investimentos S.A.). The total cost of these acquisitions was of US$ 5,829 billion. Among the sellers, there were: Bunge Ltd., The Mosaic Company (Mosaic), Yara Brasil Fertilizantes S.A., and other Brazilian companies.
- In May, Vale Internacional S.A. entered into an agreement with Oman Oil Company S.A.O.C. (OOC), a wholly-owned subsidiary of the government of the Sultanate of Oman, to sell a 30% interest in Vale Oman Pelletizing Company LLC (VOPC) for US$ 125 million.
- In July, Vale sold to Imerys S.A. 86.2% of its interest in Pará Pigmentos S.A. (PPSA), a producer of kaolin and other kaolin mining rights, for US$ 71.3 million (equivalent to R$ 126.1 million).
- In July, Vale concluded the transaction announced on March 31, 2010, in which it sold 35% of the total capital of MVM Resources International B.V. (MVM) for Mosaic, for US$ 385 million, and 25% of the total capital of MVM for Mitsui, for US $ 275 million. MVM controls and operates the Bayóvar project of phosphate rock located in Peru.
- In August, Vale Emirates Ltd. acquired a 51% of the interest in the Sociedade de Desenvolvimento do Corredor Nacala S.A. ("SDCN") of the Mozambican company Insitec SGPS SA (Insitec) for US$ 21 million (equivalent to R$ 36.6 million on the date of disbursement).
- In November, Vale acquired interest in the blocks of the São Francisco Basin (SF-T-80, 82, 83, and 93).
- In the fourth quarter, Vale listed Depositary Receipts representing its Class A common and preferred shares (HDRs) on the Hong Kong Stock Exchange Limited (HKEx). The HDRs started to be traded on December 8, 2010.

2011
- On February 28, Vale announced the conclusion of the operation with Norsk Hydro ASA ("Hydro"), previously announced on May 2, 2010, to transfer all of its interests in Albras - Alumínio Brasileiro S.A. (Albras), Alunorte and Companhia de Alumina do Pará (CAP), receiving, in exchange, through the subsidiary Vale Austria Holdings GmbH, currently called Vale International Holdings GmbH ("Vale Austria"), 22% of its circulating common shares and US$ 503 million in cash. Besides, Vale Austria sold 60% of Mineração Paragominas S.A. (Paragominas) to Hydro for US$ 578 million in cash.
- In February 2011, Vale paid US$ 173.5 million to acquire control of Biopalma, in the state of Pará, which will produce palm oil (palm oil), the raw material used to make biodiesel.
- On April 28, the Board of Directors approved the acquisition of up to 9% of the capital of Norte Energia S.A. ("NESA"), a portion previously held by Gaia Energia e Participações S.A. (Gaia). NESA is a partnership which aims exclusively at the implementation, operation, and exploitation of the Belo Monte Hydroelectric power plant, in Pará. In June 2011, Vale completed the acquisition of 9% of the capital of NESA.
- In June 2011, Vale Emirates Ltd. acquired an additional 16% interest in SDCN for US$ 8 million, equivalent to R$ 12.8 million. The acquisition was in line with the Company's strategy to develop the Nacala logistics corridor and continued the acquisition of the 51% stake in SDCN in September 2010. SDCN has a concession to create the necessary logistics structure for the flow resulting from the expansion of coal production at Moatize.
- In July 2011, Vale Logística Integrada S.A. (now VLI SA) has signed an agreement to form a joint venture with Vale Fertilizantes aiming at exploring the concession of the Terminal Portuário Ultrafértil ("TUF"), in the municipality of Santos, State of São Paulo, with imported cargo shipping of sulfur, ammonia, and fertilizers in general, being strategically interconnected to Vale's railwoad net, with a payment of R$ 150 million to Vale Fertilizantes, and contributing with capital to the joint venture amounting to R$ 432 million, in order to finance the investment plan of TUF.
- In December 2011, Vale concluded, through its wholly-owned subsidiary Mineração Naque S.A., a public offer for the acquisition ("OPA") of the shares issued by Vale Fertilizantes in circulation in the market. As a result of the OPA, Vale acquired 211,014 common shares and 82,919,456 preferred shares issued by Vale Fertilizantes, representing 83.8% of the common shares and 94.0% of the preferred shares of Vale Fertilizantes in circulation in the market. The shares, both common and preferred, were purchased at the unit price of R$, totaling a value of R$ 2.078 billion.

2012

- On February 9, the Board of Directors approved the signing of a lease of assets and mineral rights for potassium before Petróleo Brasileiro S.A. - Petrobras, for a period of 30 years, allowing the continuation of potassium mining in Taquari-Vassouras, and the development of the Carnalita project, in the State of Sergipe.
- In April, Vale sold its 61.5% interest in Cadam S.A. to Kamin LLC, concluding the divestment operation, for the alienation of the kaolin business, which had began in 2010, with the sale of the interest in Pará Pigmentos S.A.
- In June, Vale, together with Vale Internacional Holding GmbH and Vale Internacional S.A., concluded the sale of its thermal coal operations in Colombia to CPC S.A.S, an affiliate of Colombian Natural Resources S.A.S. (CNR) to Hydro for US$ 407 million in cash.
- In May, Vale entered into a lease agreement with its affiliate Hispanobrás, aiming at the lease of the pelletizing plant owned by Hispanobras, for an automatically renewable three year period. This operation was concluded in July 2012.
- On June 7, Vale Emirates Ltd. acquired an additional 18% interest in SDCN, which holds concessions to create Vale's logistics corridor in Nacala, Mozambique, for US$ 18.5 million. As a result, Vale became the owner of 85% of the total capital of SDCN, at the time.
- On June 27, Vale obtained the preliminary license (LP) for the Carajás S11D iron ore project, the largest project in Vale's history, and also the largest in the iron ore industry with a nominal capacity of 90 million of metric tons (Mtpa) of iron ore made yearly. The LP is part of the first licensing stage of the enterprise. This license signals the approval of its location, design, and environmental feasibility, thus establishing the basic requirements to be met in the subsequent implementation stage.
- In August, Vale International informed that it had entered a sales agreement for US$ 600 million for 10 large ore carriers, with Polaris Shipping Co. Ltd. (Polaris).
- In October, Vale and Vale International concluded the sale of their manganese iron alloy operations in Europe to subsidiaries of Glencore International Plc ("Glencore") for US$ 160 million in cash. Vale has also contracted Glencore as its non-Brazilian marketing agent for metallurgical manganese ore for a period of five years.
- On October 4, the first copper concentrate was produced after the completion of the commissioning of the Lubambe Copper Mine processing plant, of the Konkola North project, which comprises an underground mine, a power plant, and related infrastructure, located in the copper belt of Zambia, with an estimated nominal capacity of 45,000 metric tons per year of copper concentrate. This operation is part of a joint venture with ARM, which holds an 80% interest in the operation, and the remaining 20% being owned by Zambia Consolidated Copper Mines Ltd.
- On December 20, Vale completed the annual assessment of Onça Puma, and of the aluminum assets, which implied the recognition of the impairment previous to taxes amounting to R$ 8.2 billion, thus impacting the accounting result of the fourth quarter of 2012.

2013

- On January 31, Vale concluded the option, exercised in June 2010, by purchasing an additional 24.5% interest in the Belvedere coal project (Belvedere) from Aquila Resources limited (Aquila), for A$ 150 million (equivalent to US$ 156 million, with the AUD/USD rate of 1.04). Altogether, Vale paid US$ 338 million for 100% of Belvedere. Belvedere consists of an underground coal mine project located in the southern region of Bowen Basin, near the town of Moura in Queensland, Australia.
- On February 28, Vale concluded the definitive agreements with Silver Wheaton Corp. ("SLW"), a Canadian company with shares traded at the Toronto Stock Exchange and NYSE, to sell 70% of the gold payable flows produced as a by-product of certain Sudbury nickel mines for 20 years, and Silver Wheaton (Caymans) Ltd. to sell 25% of the flows of gold payable produced as a by-product of the Salobo copper mine, during the life of the mine, for the initial payment of U$ 1.9 billion in cash, 10 million warrants from SLW, with a strike price of US$ 65 and for a term of 10 years. In addition, in the future, Vale will receive cash payments for each ounce (oz) of gold delivered to SLW according to the agreement, at the lower price of US$ 400 per ounce (plus an annual indexation of 1% as of 2016, in the Salobo case), and the market price.
- On March 11, Vale informed the Government of the Argentine Republic on the suspension of the implementation of the Rio Colorado project in Argentina.

- On March 14, Vale exercised its preemptive rights, provided for in the incorporation agreement of Capim Branco Consortium, acquiring 12.47% interest of Suzano Papel e Celulose S.A., for R$ 223,030,47.52, in the capital of the Capim hydroelectric power plants White I and II. As a result, Vale becomes the owner of 60.89% of Capim Branco I and II, becoming able to generate 1,524 giga watts of energy per hour per year until the end of the grant, in 2036.
- On April 29, Vale was granted the environmental license for the operation (LO) of the Ponta da Madeira railway terminal ("PDM"), in the State of Maranhão, issued by the Secretaria Estadual de Meio Ambiente e Recursos Naturais (State Department of Environment and Natural Resources) of Maranhão. The PDM rail terminal is part of the North logistics capacity building project (CLN 150), which allows the expansion of Carajás capacity to 150 million metric tons per year.
- On May 6, Vale was granted the environmental license for installation (LI) and the authorization to suppress vegetation for the railway extension connecting Serra Sul de Carajás to EFC, in the State of Pará, issued by the Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (Brazilian Institute of the Environment And Renewable Natural Resources) ("IBAMA"), allowing the construction of the 101 km railway branch, linking the S11D storage yard to EFC. The railroad branch is an integral part of the S11D logistics capacity building project, which will allow Carajás to expand its logistics capacity to 230 million metric tons of iron ore, per year.
- On June 28, 2013, Vale and participants of the SF-T-80 Consortium received the authorization by the ANP for the return of the blocks of the São Francisco Basin (SF-T-80, 82, 83 and 93).
- In July 2013, Vale concluded the contracting of a unionized revolving credit facility with a five-year term, and amounting to US$ 2 billion.
- On September 18, Vale entered into agreements to sell 20% of the total capital of VLI S.A. ("VLI") to Mitsui & Co. Ltd. ("Mitsui") for R $ 1.5 billion and 15.9% of VLI's capital for R $ 1.2 billion for the Fund of the Fund for the Guarantee of Time of Service - FGTS (FI-FGTS), whose equity is Administered by Caixa Econômica Federal.
- On November 7, 2013, Vale entered into an agreement with GDF (Gaz de France), through which it assigned to GDF its interest in the blocks of the Parnaíba Basin (BT-PN-2 and BT-PN3) amounting to R$ 24 million.
- On November14, Vale announce the sale of the total of its 22% interest in Hydro for the price of NOK 25.00 per share, thus resulting in the amount .of NOK 11.196 billion, equivalent to US$ 1.822 billion (equivalent to R$ 4.218 billion). Vale Austria has held these shares since 2011, when it restructured the portfolio of aluminum assets. After conclusion of this transaction, Vale Austria did not own interest in Hydro anymore.
- On November 27, Vale announced its adherence to the federal fax refinancing agreement ("REFIS") referring to the payment of income tax and social contribution taxes on the net income of subsidiaries and affiliates on the income generated abroad in the years of 2003 to 2012, in accordance with the conditions established by Law 12,865/2013 and Provisional Measure No 627/2013. The adhesion to REFIS implied a payment of R$ 5.965 billion to the Federal Revenue Office at the end of November, and of R$ 16.360 billion in installments in 179 months, with monthly installment values indexed by the SELIC interest rate.
- On December 12, Vale concluded the sale of Sociedad Contrabica Minera Tres Valles, a copper cathode manufacturing company in the Coquimbo region of Chile, for US$ 25 million (equivalent to R$ 54 million) to Inversiones Porto San Giorgio S.A. (ISG), a company controlled by the Chilean group Vecchiola S.A.
- On December 19, Vale entered into agreements with CEMIG Geração e Transmissão S.A. ("CEMIG GT") to form two joint ventures: (i) the Aliança Geração de Energia S.A., consisting of assets and energy generation projects of the two companies; and (ii) Aliança Norte Energia Participações SA, formed through the sale to CEMIG GT of 49% of Vale's 9% interest in NESA, the company responsible for the construction, operation and exploitation of the Belo Monte hydroelectric power plant, for approximately R$ 310 million.
- On December 20, Vale signed with Israel Chemicals Ltd. (ICL), an agreement for the sale of the entirety of its 44.25% interest in Fosbrasil, a purified phosphoric acid producer located in Cajati, State of São Paulo, for US$ 52 million.
- On December 23, Vale entered into an agreement with a fund managed by the Brookfield Asset Management ("Brookfield") to sell 26.5% of its interest in VLI, for R$ 2 billion.
- On December 23, Vale gave a notice to the market that it had filed a request with the Superior Court of Justice (STJ) for partial waiver of the lawsuit in which it discusses the legitimacy of the

taxation of the profits obtained by its subsidiaries outside Brazil. The waiver involves the years from 2003 to 2012.
- On December 26, Vale conducted an auction, according to CVM Instruction N. 168/1991, as amended, for the sale of 28,737,367 common shares owned by Log-in, a company listed on the BM&FBOVESPA (ticker symbol: LOGN3), corresponding to the totality of the common shares issued by Log-in then held by Vale, at a price of R$ 8.11 per share, totaling R$ 233 million. The concretion of this transaction was on January 2, 2014.

2014

- In January, Vale updated its Code of Ethics and Conduct aiming at achieving greater alignment with its mission, vision and values, reinforcing ethical standards and updating aspects of anti corruption and antitrust laws.
- On February 18, Vale closed the offer of infrastructure debentures in the amount of R$ 1 billion, which net proceeds are allocated to investments related to the infrastructure projects of the Company and considered priority, according to article 2 of Law no. 12,431 / 2011, as amended.
- In May, BNDES approved a financing agreement of R$ 6.2 billion for the implementation of the Carajás Serra Sul S11D and S11D logistical capacity building projects. The financing term is of ten years and the disbursement of resources in up to three years, according to the project schedule.
- On April 14, there was the conclusion of th transaction announced on September 18, 2013, transferring 20% of the total capital of VLI to Mitsui for R$ 1.5 billion and 15.9% to the Fundo de Garantia do Tempo de Serviço - FGTS (FI-FGTS) (Guarantee Fund for Length of Service), whose assets are managed by Caixa Econômica Federal, for the amount of R $ 1.2 billion.
- In April, the Republic of Guinea revoked the mining rights for the concession areas of Simandou and Zogota, owned by the VBG.
- On June 4, Vale announced that it entered into an agreement with the subsidiary of Suzano Papel e Celulose ("Suzano Subsidiary"), a company that produces eucalyptus pulp, an agreement for the sale of its entire interest in Vale Florestar Fundo de Investimento em Participações, a fund for investment in reforestation, for R$ 205 million. All the usual precedent conditions and approvals, including, by the Conselho Administrativo de Defesa Econômica (Administrative Council of Economic Defense) ("CADE") were fulfilled, and, thus, the transaction was executed on August 8, 2014. Simultaneously, BNDESPar, Petros, and FUNCEF, other members of Fundo de Investimento Vale Florestar, also alienated their respective interests to the Subsidiária Suzano so that, upon completion of the transaction, the Fundo de Investimento Vale Florestar became exclusively owned by Subsidiária Suzano.
- On August 19, there was the conclusion of transaction announced on December 23, 2013, transferring 26.5% of VLI's total capital to Brookfield for R$ 2 billion. Consequently, Vale became the owner of 37.6% of the total capital of VLI.
On August 20, Vale informed that it was awarded with the previous environmental license for EIA Global, issued by IBAMA. The licensing for Global EIA comprises the expansion of the quarries N4WS, N5S, Morro I and Morro II, which contain 1.8 billion tons of resources, and the permit for sterile piles in the Northern System in Carajás, Brazil. In addition, on November 5, Vale obtained the operating license for the expansion of the N4WS quarry.
- On September 12, Vale International S.A and the China Ocean Shipping Company ('Cosco') entered into a strategic cooperation agreement between the two companies for the shipping of iron ore. According to the agreement, four VLOC vessels with 400 thousand tons capacity, which on that date belonged and were operated by Vale, would be transferred to Cosco.
- On September 26, Vale International S.A and the China Merchants Group ('Cosco') entered into a strategic cooperation agreement between the two companies for the shipping of iron ore. According to this agreement, the two companies agreed to execute a 25-year charter agreement to transport iron ore from Vale Brasil to China using the 10 VLOCs to be built by China Merchants Group.
- On October 17, Vale announced that PTVI has entered into an agreement with the Indonesian government as an additive to its work contract to act in the country (Contract of Work), which will only expire in 2025, with the option to extend its operations until

2045, for two consecutive periods of 10 years, subject to the approval by the local government, if PTVI meets the requirements of the additive.
- On November 9, 2014, Vale Austria alienated to Hydro shares issued by Mineração Paragominas S.A., representing 20% of its total capital, as a result of the exercise of a put option. The remaining portion of the interest held by Vale Austria in the share capital of Mineração Paragominas S.A. was also subject to a put option by Vale, which was exercised on December 15, 2016. Presently, Vale does not hold any interest in Mineração Paragominas S.A.
- On December 9, Vale announced that it had entered into an investment agreement with Mitsui, under which Mitsui, subject to previous conditions, would hold 15% of Vale's 95% interest in Vale Mozambique (concessionaire of the Moatize mine) and 50% of Vale's interest in the Nacala Logistics Corridor. The transaction was concluded in 2017.
On December 18, after fulfillment of the preceding conditions and approval by CADE, there was the conclusion of the sale of the entirety of Vale's interest, of 44.25%, in Fosbrasil, a purified phosphoric acid producer located in Cajati, State of São Paulo, for US$ 52 million.
- On December 23, Vale merged its wholly-owned subsidiaries Sociedade de Mineração Constelação de Apolo S.A. and Vale Mina do Azul S.A.

2015
- On February 27, 2015, Vale concluded the transaction initiated in December 2013 with CEMIG GT for the formation of the joint venture Aliança Geração de Energia SA, through the contribution of its interests in some projects (Central Eólica Garrote Ltda., Central Eólica São Raimundo Ltda., Central Eólica Santo Inácio III Ltda., and Central Eólica Santo Inácio IV Ltda.) and assets in operation (Consórcio da Usina Hidrelétrica de Igarapava, Consórcio AHE Porto Estrela, Consórcio AHE Funil, Consórcio UHE Candonga, Consórcio da Usina Hidrelétrica de Aimorés, and Consórcio Capim Branco Energia for Aliança Geração).
- On March 2, 2015, there was the execution of an additive to the agreement with Silver Wheaton (Caymans) Ltd. on February 28, aiming at the fact that the agreement also encompassed the purchase of additional 25% in gold, payable, produced as a by-product of copper mining at the Salobo mine, during the life cycle of the mine.
- On March 13, 2015, Vale transferred its equity interest in VBG back to BSGR, due to the revocation, in April 2014, by the Government of Guinea of the mining rights of the joint venture.
-On March 31, 2015, Vale concluded the transaction started off in December 2013 with CEMIG GT for the sale of 49% of its 9% interest in the project of the hydroelectric power plant of e Belo Monte for approximately R$310 million.
- On April 27, 2015, Companhia Siderúrgica do Pecém - CSP ("CSP") concluded a long-term financing agreement of approximately US$ 3 billion, which contributed to fulfill the main financing needs of the project. This loan was taken directly by CSP.
- On May 15, 2015, Vale concluded the contracting of a unionized revolving credit facility with a five-year term, and amounting to US$ 3 billion. Vale also has another credit line worth US$ 2 billion, totaling US$ 5 billion in revolving credit lines.
- On May 19, 2015, Vale International SA and China Merchants Energy Shipping Co., Ltd. ("CMES"), a subsidiary of China Merchants Group, executed an expansion of the agreement that includes the long-term strategic cooperation between the two companies in the iron ore shipping industry. The first agreement was entered into with China Merchants Group on September 26, 2014. Under the terms of the mentioned expansion, Vale would alienate 4 VLOCs (very large ore carriers) to CMES.
- On May 19, 2015, Vale concluded the transaction announced on September 12, 2014, with the sale of four VLOC vessels, with a capacity of 400 thousand tons, to Cosco. The total of the transaction was US$ 445 million.
- On May 29, 2015, Vale obtained plant removal and operating licenses to plough in the N5S area.
- On May 29, 2015, Vale began operations in Conceição Itabiritos II and starts operations in Cauê Itabiritos during the second half of 2015.
- On July 30, 2015, Vale and the Fundo de Investimento em Participações Multisetorial Plus II ("FIP Plus II"), which quotas are held by Banco Bradesco BBI SA, entered into an Agreement for the Sale of Shares and Other Covenants through which Vale promised to alienate Class A preferred shares, representing 36.4% of the capital stock of Minerações Brasileiras Reunidas S.A. - MBR

("MBR"), for a price of R$ 4 billion, subject to the usually applicable precedent conditions, including prior approval of the transaction by CADE.
- On July 30, 2015, Vale concluded the sale of four VLOC vessels, with a capacity of 400 thousand tons, to CMES. The transaction is related to the agreements entered into with CMES on September 26, 2014 and May 19, 2015, which were previously disclosed. The total of the transaction was US$ 448 million. The amount was received by Vale by means of the delivery of the vessels to CMES, on September 25, 2015.
- On September 1, 2015, Vale and FIP Plus II concluded the sale of 36.4% of the capital stock of MBR by fulfilling the preconditions necessary for the settlement of the transaction. The transaction is related to the disclosure made on July 30, 2015 and the amount received by Vale through the sale of class A preferred shares was R$ 4 billion or US$ 1.089 billion. After the sale, Vale holds 61.9% of the total capital, and 98.3% of its voting capital. Vale has the option to repurchase the shares issued by MBR currently held by BBI, successor to FIP Plus II.
- On September 18, 2015, Vale closed the offer of infrastructure bonds.
- In November 2015, Vale concluded the sale of its 50% interest in the Isaac Plains joint venture and all related assets to Stanmore Coal Limited ("Stanmore"). Under this agreement, Vale will pay A$ 21.6 million in 12 monthly installments to Stanmore, which will assume Vale's liabilities under the joint venture agreement. Stanmore agreed to pay Vale royalties amounting to A$ 2.0 per tonne for coal produced and sold at the Isaac Plains coal mine for a period of 10 years, subject to certain minimum price limits, up to an aggregate value of A$ 21.6 million.
- On November 5, 2015, there was the disruption of one of the Samarco (Fundão) iron ore refuses dams located in the Germano mining complex, in Mariana, in the State of Minas Gerais, causing social and environmental impacts. As a consequence of the rupture of the dam, Samarco's operations in Germano/Alegria (Mariana Complex) were temporarily suspended by determinations from government agencies. For further information on the dam rupture and its impacts, see items 4, 7.9, 10.1 of this Reference Form.
- In December 2015, Vale concluded the sale of its 68.4% interest in the Isaac Plains joint venture of coal from Integra ("ICJV") and all assets related to Stanmore Coal Limited ("Stanmore"). In compensation, Glencore agreed to pay Vale royalties in the amount of A$ 1.50 per ton for the coal produced and sold by ICJV, based on the mineral rights currently held by ICJV, proportional to Vale's interest in the ICJV prior to sale, and limited to an annual volume of 2 million metric tons per 10 years. As part of the transaction, Glencore has assumed some, but not all, ICJV liabilities, including certain "compulsory purchase" logistics contracts.
- On December 8, 2015, Vale concluded the purchase and sale transaction of four 400,000 ton VLOCS vessels for a consortium led by ICBC Financial Leasing, a wholly owned subsidiary of the Industrial and Commercial Bank of China. The transaction was for a total of US$ 423 million and the amount was received by Vale, concomitantly with the delivery of the vessels to the new owners.

2016
- On January 12, 2016, Vale disbursed US $ 3 billion of the US $ 5 billion available in revolving credit lines to increase its liquidity and cover potential cash flow requirements until the completion of its divestment program, particularly the completion of the Moatize coal transaction and the Nacala Logistics Corridor.
- On February 16, 2016, Vale changed the address of its headquarters to Avenida das Américas, No. 700, Block 8 - Loja 318, 3rd floor, Barra da Tijuca, Rio de Janeiro, RJ.
- On February 26, 2016, the risk-rating agency Moody's withdrew Vale's "Investment Grade".
- On March 7, 2016, Vale entered into a non-binding MOU with the Australian Fortescue Metals Group Ltd. ("Fortescue"), which sets forth the principles by which Vale and Fortescue agreed to pursue long-term opportunities to develop new businesses, including the formation of one or more joint ventures for the blending and distribution of Vale's and Fortescue´s products, and the possibility of Vale, on an optional basis, to carry out mining projects jointly with Fortescue in Australia, and acquire a minority interest in the holding company of Fortescue.
- On April 4, 2016, Vale announced the sale of its 26.87% total interest in Companhia Siderúrgica do Atlântico (CSA) to Thyssenkrupp as part of its initiative to simplify its portfolio of assets, which was concluded on May 31, 2016.

- On April 28, 2016, Vale announced that its Board of Directors approved the proposal to close the HDR listing program on the Hong Kong Stock Exchange (HKEx). - On June 30, 2016, the HDR certificates expired and were automatically canceled in accordance with HKEx procedures, and the process of delisting the Company's HDR Program from HKEs became effective on July 28, 2016.
- On May 10, 2016, Vale announced the end of negotiations with Hydro regarding the potential sale of its 40% interest in MRN. Vale and Hydro had drafted a letter of intent in October 2015 regarding a possible transaction, but were unable to agree on its business terms.
- On June 20, 2016, the integrated steel plate mill of Companhia Siderúrgica do Pecém ("CSP"), in the State of Ceará, entered the ramp-up stage.
- On June 30, 2016, Vale and a consortium led by ICBC International (ICBC), a wholly-owned subsidiary of the Industrial and Commercial Bank of China, completed the purchase and sale transaction of three 400,000-ton VLOCs, previously operated by Vale. The transaction was for approximately US$ 269 million and the amount was received by Vale, through the delivery of the vessels.
- On August 2, 2016 Vale announced that it has signed an agreement with Silver Wheaton (Caymans) Ltd. (Silver Wheaton), an integral subsidiary of Silver Wheaton Corp. (SLW), a Canadian company with shares traded on the Toronto Stock Exchange and the New York Stock Exchange, to sell an additional 25% of the premium for gold flows payable, contained in the copper concentrate produced at the Salobo copper mine during the life cycle of the mine.
- On September 29, 2016, Vale announced that it has approved new terms relating to the investment agreement with Mitsui (which were formalized in November 2016), whereby Mitsui shall hold 15% of the Vale in Vale Moçambique (concessionaire of the Moatize mine), and 50% of Vale's interest in the Nacala Logistics Corridor. The conclusion of the transaction is subject to some previous conditions and is foreseen to be implemented in the year of 2017.
- On November 30, 2016, Vale sold to its subsidiary AMCI Euro-Holdings BV ("AMCI") its interests in certain coal assets in Australia, including operations in Carborough Downs, the operation in Broadlea, and the coal beds to be developed in Ellensfield and Red Hill.
- On December 5, 2016, Vale and Polaris Shipping Co. Ltd. (Polaris) concluded the transaction of purchase and sale of four capesize vessels, previously operated by Vale. The transaction amounted to US$ 140 million, equivalent to US$ 35 million per vessel, received by Vale upon delivery of each vessel.
- On December 9, 2016, Vale received the operating license (LO) for the mine and plant from S11D, issued by the Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (Brazilian Institute of Environment and Renewable Natural Resources) (IBAMA).
- On December 15, 2016, there was the conclusion of the sale of the remaining 13.63% interest in Mineração Paragominas S.A. to Norsk Hydro ASA. The transaction amounted to US$ 113 million and is related to the sale of Vale's aluminum assets, announced on February 28, 2011.
- On December 17, 2016, Vale began the production at the mine and the mining plant located in the Serra Sul de Carajás, in the State of Pará. The nominal capacity of the Projeto Ferro Carajás S11D is 90 Mtpy.
- On December 19, 2016, Vale announced that it had entered into an sales agreement of shares with The Mosaic Company (Mosaic) to sell its fertilizer business, excluding its nitrogen and phosphate assets located in Cubatão, Brazil. The value of the transaction is US$ 2.5 billion, of which US$ 1.25 billion will be paid in cash and US$ 1.25 billion in approximately 42.3 million common shares to be issued by Mosaic. The consummation of the transaction is expected for the end of 2017 and is subject to (i) separation of Cubatão assets from Vale Fertilizantes S.A.; (ii) compliance with usual precedent conditions, including the approval of the Conselho Administrativo de Defesa Econômica (Administrative Council for Economic Defense) (CADE) and other antitrust authorities; and (iii) other operational and regulatory subjects.

2017

- On February 19, 2017, the shareholders of Valepar S.A., which are: Litel Participações S.A., Litela Participações S.A., Bradespar S.A., Mitsui & Co, Ltd., and BNDES Participações S.A. - BNDESPAR entered into a new Valepar Shareholders' Agreement, effective as of May 10, 2017. Besides to the common rules regarding voting and preemptive rights in the acquisition of shares of the signatory shareholders, the new Shareholders' Agreement provides for the presentation by mentioned shareholders of a proposal to the Company, with the purpose of enabling Vale's listing

in the special segment of the new market of BM&FBOVESPA, and to transform it into a company without definite control.
- On March 27, 2017, the equity transaction was concluded with Mitsui & Co., Ltd. (Mitsui) related to the divestment of part of its interest in the Moatize coal mine and the Nacala Logistic Corridor (CLN). Vale received, on that date, US$ 733 million of a total of approximately US$ 770 million related to this equity transaction. The remaining amount will be paid by Mitsui at the conclusion of project finance.
- On May 9, 2017, Valepar's Shareholders' Agreement expired, which had been entered into force on May 24, 1997.
- On May 11, 2017, Vale's Board of Directors approved the submission to the Company's General Meeting of the proposal submitted by Valepar, the controlling shareholder of Vale, at the request of its shareholders, Litel Participações SA, Litela Participações SA, Bradespar SA, Mitsui & Co., Ltd., and BNDES Participações S.A. - BNDESPAR, which involves the Company's corporate restructuring, as well as changes in corporate governance, with the objective of transforming Vale into a company with no defined control, and to enable its listing in the special segment of the new market BM&FBOVESPA. For more information on the proposal, see item 6.6 of this Reference Form.

It is worth to mention that there were no sectoral or macroeconomic policy decisions that have materially impacted the Company within the last fiscal year ended December 31, 2016 and up to the date of the annual filing of this Reference Form.

6.5 - Information concerning bankruptcy requests based on relevant value or on judicial or extrajudicial recovery

Not applicable. There are no bankruptcy requests founded on relevant values, or on judicial or extrajudicial recovery of the Company.

6.6 - Other relevant information

Sale of part of the gold flows produced as a byproduct

On February 28, 2013, Vale Switzerland S.A. settled, after approval by the Board of Directors, the definitive agreement with Silver Wheaton Corp. ("SLW"), Canadian company listed on the Toronto Stock Exchange and New York Stock Exchange, to sell 70% of the payable gold flows produced as a byproduct of certain nickel mines in Sudbury for 20 years, and with Silver Wheaton (Caymans) Ltd., it was agreed to sell 25% of the payable gold flows produced as a byproduct of the Salobo copper mine during the mine life. For the operation Sudbury, in addition to the initial payment of US$ 1.9 billion in cash, Vale SA Switzerland received 10 million warrants from SLW with an exercise price of US$ 65 and within the time period of 10 years. Additionally, Vale will receive cash payments for each ounce (oz.) of gold delivered to SLW as per the agreement, at the lowest value between US$ 400 per ounce (plus an annual 1% adjustment from 2017 on, in the case of Salobo) and the market price.

The transaction releases considerable value contained in Vale's assets of world class base metals, considering that it gives the payable gold produced as a byproduct of Salobo the value of US$ 5.32 billion, plus the US$ 400 payment per ounce of gold delivered since there are no additional costs for the extraction of gold contained in the copper concentrate produced by Solobo. The implementation of Vale's strategic plan reinforces the Company's confidence in the high potential of its world class base metal assets to create significant shareholder value through the cycles.

Additionally, Vale will also receive a cash payment depending on their decision to expand the copper ore processing capacity of Salobo to more than 28 MTPA before 2036, note that such additional fees may range from US$ 113 million to US$ 953 million depending on the ore content, and the time and size of the expansion.

On March 2, 2015, an addendum of the contract signed with Silver Wheaton (Caymans) Ltd. on February 28, 2013, was settled for the purpose of the contract including the purchase of an additional flow of 25% payable gold produced as a byproduct of copper mining in the Salobo mine, during the life of this mine. For this transaction, Vale received an initial payment of US$ 900 million, and will receive future payments in cash for each ounce (oz.) of gold delivered to Silver Wheaton at the lowest value between US$ 400 per ounce and the market price. This value will have a 1% annual adjustment from 2017 on.

On August 2, 2016, an agreement was reached with Silver Wheaton (Caymans) Ltd. (Silver Wheaton) to sell an additional 25% of the premium payable gold flows contained in the copper concentrate produced in the Salobo copper mine during the mine life. On the second additive, the Company received (i) an initial cash payment of R$ 2.568 billion (US$ 800 million) and (ii) a value of options, resultant from the reduction of the exercise price from R$ 211.00 (US$ 65.00) to R$ 142.00 (US$ 43.75) on the 10 million warrants of SLW held by the Company since 2013 and maturing in 2023.

As a result, SLW holds, on December 31, 2016, 75% of the payable gold flows contained in the copper concentrate of the Solobo mine and 70% of the gold extracted as a byproduct of the nickel Sudbury mines.

Royalties of the Alemão Project

On June 19, 2015, Vale signed a contract with BNDES to regulate the participation of BNDES' economic rights in the event of Vale developing the Alemão Project, envisaged in the "Advance Agreement for Future Equity Participation" signed on March 5, 1985, upon payment of royalties by Vale to BNDES, corresponding to one third (1/3) of the economic rights from the Alemão Project, which was determined through the use of an economic model with market assumptions. The royalty shall be paid annually by Vale when the sales of copper concentrate from the German Project begin. The royalty corresponds to 2.5% of the annual net revenues of the Alemão Project,

and in the years in which the average of the copper prices, as disclosed by the LME, reach USD 8,000.00/ton ("Trigger Price"), the royalty relating to these certain years will be increased by 2.25%. The trigger price shall be adjusted annually by the Consumer Price Index (CPI).

Proposal of Corporate Restructuring

On May 11, 2017, in line with the information disclosed to the market on February 20, 2017, the Company received the final proposal submitted by Valepar S.A. ("Valepar"), controlling shareholder of Vale, on request of its shareholders Litel Participações S.A., Litela Participações S.A., Bradespar S.A., Mitsui & Co., Ltd. and BNDES Participações SA - BNDESPAR (jointly "shareholders"), which involves the Company's corporate restructuring, as well as changes in corporate governance, in order to transform the Company into one without defined control and thus enable its listing in the special segment of the New Market of BM&FBOVESPA S.A. - Stock Market, Commodity ("Proposal" and "BM&FBOVESPA", respectively).

The proposal is binding for the Shareholders and is subject to approval by the corporate bodies of Vale.

The proposal consists of a series of interlinked and interdependent phases, the effectiveness of each phase is conditioned by the successful completion of the others. In addition to the practice of all the acts and procedures required by all relevant laws and regulations, the proposal consists of:

a) voluntary conversion of the Class A preferred shares issued by the Company into common shares, at the ratio of 0.9342 common share for each class A preferred share issued by the Company, which was defined based on the closing price of the common and preferred shares issued by the Company, calculated based on the average of the last 30 trading sessions of the BM&FBOVESPA up to February 17, 2017, weighted by the volume of shares traded in these sessions ("Voluntary Conversion");

b) amendment of the Company's bylaws, to adapt them, as much as possible, to the rules of the New Market until the Company can effectively be listed on the referred special trading segment ("Statutory Amendment"); and

c) Incorporation of Valepar by the Company with an exchange ratio that includes a 10% increase of the number of shares held by Valepar shareholders compared to the current stock position of Valepar in the Company, and present a dilution of about 3% of participation of other shareholders in its capital ("Incorporation" and, together with the Voluntary Conversion and Statutory Amendment "Transaction").

In line with item "c" above, the Valepar shareholders will receive 1.2065 common shares of the Company for each share they own issued by Valepar. As a result, the Company will issue an additional amount of 173,543,667 new common shares, all without par value in favor of the Valepar shareholders, so the Valepar shareholders will own a total of 1,908,980,340 common shares issued by the Company after the Incorporation becomes effective.

The implementation of the proposal is subject to (a) approval of the proposal, including the Incorporation of Valepar by the Company, and (b) transition of at least 54.09% of the class A preferred shares to the Voluntary Conversion mentioned above, within up to 45 days after the deliberation in Assembly on the matter, which should result in a participation of the ordinary share capital inferior to 50% by Valepar shareholders. Valepar and the Shareholders shall not exercise their right to vote in the General Assembly of Vale during the deliberations on the Voluntary Conversion and the Incorporation of Valepar as proposed.

On the date the Transaction becomes effective, should it be approved, the Shareholders, with exception of Litela Participações S.A., enter into the new Vale Shareholders Agreement ("Vale Agreement") with term of validity until November 9, 2020, which will bind 20% of the total

common shares issued by the Company. The aim is to bring stability to the Company and adapt its corporate governance structure during the transition to its new corporate structure with no defined control. Shareholders bound by the Vale Agreement will still be obliged to, during the period of 6 months from the starting date of said agreement, to not alienate, in any form, directly or indirectly, any of the Company's shares that they may have as result of the implementation of the Proposal (*"Lock-Up"),* subject to (a) transfer of the Company shares by the shareholders to its affiliates and its current shareholders, which nevertheless remain subject to the *Lock-Up* and (b) disposal of unbound shares that the Shareholders had before the Transaction.

On May 11, 2017, the Board of Directors approved the submission to the Company's General Assembly the following matters included in the Proposal, without prejudice to others that are necessary to the faithful compliance with the legislation in force: a) Voluntary Conversion; b) Statutory Amendment; c) Incorporation.

The submission of the proposal was approved by the Board of Directors based on the following expected benefits for both Vale and its shareholders:

a) Implementation of better corporate governance practices, as the Transaction stimulates the alignment of interests between various groups of shareholders, and between shareholders and managers of the Company, and strengthens the role of the Board of Directors;

b) Possible increased liquidity of the shares held by the Company's shareholders, who may have the same rights and benefits with shares of a single type and class (except for the *Golden Shares* held by the Union to continue with certain veto rights), in the case that all class A preferred shares are converted into common shares;

c) Possible increased access to capital markets, due to compliance with better corporate governance practices and the unification of species and classes of shares, if implemented, will allow the Company to meet the prerequisites for special listing segments with the highest level of corporate governance in the Brazilian capital market, such as the New Market;

d) Existence of a minimum number of independent advisors (20% of members), as required by the regulation of the New Market.

The Statutory Amendment, by adapting the Company's Bylaws to the requirements of the New Market, the highest standard of corporate governance in the Brazilian capital markets, will ensure important rights to shareholders, such as compliance with the New Market requirements for the Board of Directors to contain independent members, the equal treatment guaranteed to common shareholders in any public offer for acquisition of shares ("OPA") for transfer of control, the mandatory performance of OPA if any shareholder or investor consolidates interest equal to or greater than 25% of the total common shares or share capital of the Company and the settlement of disputes through arbitration proceedings to be brought before the Market Arbitration Chamber (CAM).

The fact that the proposal establishes the commitment of the shareholders to preclude Valepar from exercising the right to vote in discussions on the Voluntary Conversion and the Incorporation allows the remaining Vale shareholders to freely decide, based on their own assessments and without any interference from the controlling shareholders on the acceptance or rejection of the terms of the Proposal and, consequently, on the equitable nature of the proposed exchange ratios for the Incorporation of Valepar and the Voluntary Conversion. The proposal will undergo deliberation by Vale's shareholders at a General Assembly already convened.

Moreover, it is noted that:

a) The implementation of the Transaction is not subject to the approval of Brazilian or foreign authorities;

b) For informational purposes, as envisaged in Article 264 of Law No. 6.404 of December 15, 1976, as amended ("Corporations Law") c/c Article 8, item II, of CVM Instruction No. 565/2015, the net assets of the Company and of Valepar were evaluated by their economic-financial value based on the discounted cash flow method, according to valuation reports prepared by the specialized company PricewaterhouseCoopers Corporate Finance & Recovery Ltda. (PWC), and, if the Incorporation was implemented based on these assessment reports, the Valepar shareholders would receive 1,773,631,664 new Company shares, in exchange for common and preferred class A shares issued by Vale currently held by Valepar;

c) In accordance with Articles 137 and 230 of the Corporations Law, the implementation of the Transaction does not give rise to the exercise of any right of withdrawal by shareholders of Vale.

7.1 - Description of the main activities of the issuer and its subsidiaries

Vale is one of the largest mining and metals companies in the world, based on market capitalization. Vale is the world's largest producer of iron ore and iron ore pellets and the largest global nickel producer. It also produces manganese ore, iron alloys, copper, thermal and metallurgical coal, cobalt, platinum group metals (PGMs), gold and silver. Vale participates in mineral exploration in six countries worldwide. Vale operates large logistics systems in Brazil and in other regions of the world, including railroads, maritime terminals and ports, integrated with its mining operations. In addition, Vale has a portfolio of ocean freight assets, floating transfer stations and distribution centers to support the iron ore distribution worldwide. Vale also has investments in the sectors of energy and steel, directly and through affiliates and joint ventures.

The Company's purpose is to (i) carry out the exploitation of mineral deposits in the country and abroad through research, exploration, extraction, processing, industrialization, transportation, shipment and commerce of mineral goods; (ii) build railways, operate and exploit its own, or third parties', rail traffic, (iii) construction and operation of its own, or third parties', maritime terminals, and the exploitation of nautical activities and port support; (iv) provide integrated charge transport logistics, comprising the collection, storage, transshipment, distribution and delivery in the context of an intermodal transport system; (v) produce, process, transport, industrialize and market all sources and forms of energy, and may also act in the production, generation, transmission, distribution and marketing of its products, derivatives and by-products; and (vi) exercise in the country or abroad, other activities that may be of interest, directly or indirectly, to the achievement of the corporate purpose, including research, manufacture, sale, import and export, as well as exploit, process and market forest resources and the provision of services of any kind; and (vii) constitute or participate, under any modality, in other corporations, consortiums or entities whose corporate purposes are directly or indirectly linked, accessory or instrumental to its corporate purpose.

For information on the Company's constitution, see section 6.3 of this Reference Form.

For information on the activities of the Company and its subsidiaries and markets, see items 7.2 and 7.3 below.

7.2 - Information on operating segments.

a. Products and services commercialized in each operating segment

(i) *Ferrous Minerals* - comprises the iron ore mining and pellet production, as well as the north, south and southeast transport systems, including railways, ports, terminals and vessels linked to mining operations. The exploitation of manganese ore and ferroalloys production are also included in this segment.

- *Iron ore and iron ore pellets.* Vale operates four systems in Brazil for the production and distribution of iron ore, which are known as North, Southeast, South and Midwest systems. The North and South systems are fully integrated and consist of mines, railroads, maritime terminals and a port. The Southern System consists of three mining complexes and two maritime terminals. Vale also operates with iron ore pellets in various locations, some of which are conducted through joint ventures. Vale operates 11 pelletizing plants in Brazil and two in Oman. The operations of three of its pelletizing plants in Brazil have been suspended since 2012, in response to market conditions, and its capacity was partially replaced by Tubarão VIII, a more efficient plant. In response to market conditions, Vale plans to restart operations of the São Luis pelletizing plant in 2018. Vale also has a 50% stake in Samarco Mineração S.A. ("Samarco") and 25% in two pelletizing companies in China. For information concerning the breakdown of Samarco dam, see items 4, 7.9 and 10.1 of this Reference Form.

- *Logistics Infrastructure*: Vale is a leading provider of logistics services in Brazil and other regions of the world with railroads, maritime terminals, distribution centers and ports. Two of the four Vale iron ore systems include an integrated rail network and port terminals. Vale also has a stake in MRS Logistica S.A. ("MRS"), which transports the iron ore Vale products from the South System mines to its maritime terminals, and VLI S.A. ("VLI"), which provides integrated logistics solutions for general cargo by rail and land and maritime terminals in Brazil. Vale is performing the *ramp-up* of the logistics infrastructure to support its coal operations in South-Africa. Vale owns and charters vessels for bulk goods transport, which sells to customers based on cost and freight ("CFR").

- *Ferroalloys and Manganese*. Vale conducts its manganese mining operations through the holding (Vale S.A.) and subsidiaries in Brazil and produces various types of manganese ferroalloys through a wholly owned subsidiary in Brazil.

(ii) *Coal* - Comprises coal mining and related logistics services. Vale performs its coal operations in Mozambique mainly through Mozambique Vale S.A., where metallurgical and thermal coal operations are *ramping up*. Vale also has minority stakes in a Chinese coal and coke producer.

(iii) *Base metals* - comprises the production of non-ferrous minerals, including nickel (co-products and by-products) and copper operations, and investments in aluminum affiliates.

- *Nickel.* The main nickel mines and processing operations are conducted by a wholly owned Vale subsidiary, Vale Canada Limited ("Vale Canada"), with operations in Canada, Indonesia and New Caledonia. Vale also has nickel operations in Onca Puma, in the state of Pará, Brazil. It also owns and operates, or has interests in nickel refineries in the United Kingdom, Japan, Taiwan, China and South Korea.

- *Copper.* In Brazil, Vale produces copper concentrates in Sossego and Salobo in Carajás, in the state of Pará. In Canada, Vale produces copper concentrates,

copper anodes and copper cathodes associated with its nickel mining operations in *Sudbury* and *Voisey's Bay*. Copper anode production will be discontinued in 2017 as a result of changes in Vale's production process in *Sudbury,* which is part of its efforts to reduce atmospheric emissions. In Zambia, Vale's joint venture produces copper concentrates in Lubambe, located in Zambia's copper belt.

- *Cobalt, PGMs and other precious metals.* Vale produces cobalt as a byproduct of its mining operations and nickel processing in Canada, and refines it at its facilities in *Port Colborne*, in the Province of Ontario, Canada. Vale started producing refined cobalt in its *Long Harbor* facilities in *Newfoundland* and *Labrador,* in 2017. It also produces cobalt as a by-product of its nickel operations in New Caledonia. Vale produces platinum group metals (PGMs) as byproducts of their nickel mining operations and processing in Canada. PGMs are concentrated in the facilities of *Port Colborne* and are refined in a precious metals refinery in Acton, England. Vale produces gold and silver as by-products of its mining operations and nickel processing in Canada, as well as producing gold as a byproduct of its copper mining in Sossego and Salobo, in Brazil.

(iv) *Other* - Comprises investments in joint ventures and affiliates engaged in other businesses.

In December 2016, Vale agreed to sell a substantial part of its fertilizers business to The Mosaic Company ("Mosaic"), subject to certain conditions precedent. As a result, this business segment is reported as "discontinued operations". Until the closing of the transaction, which is scheduled for the end of 2017, Vale continues to conduct potassium and phosphate operations in Brazil and holds a 51% stake with voting rights in a joint venture that operates a phosphate rock mine in Peru.

The information presented to senior management with respect to performance of each segment is generally derived from the accounting records maintained in accordance with the accounting practices approved in Brazil, with certain minor reallocations between segments.

b. Revenue from the segment and its share in the Company's net revenue

In thousands of R$	2016		2015		2014	
Segment	**Net revenues**	**% of the total**	**Net revenues**	**% of the total**	**Net revenues**	**% of the total**
Ferrous Minerals	69,929,000.00	73.89	55,413,000.00	70.99	60,395,000.00	73.10
Coal	2.882.000,00	3.05	1.739.000,00	2.23	1.740.000,00	2.11
Base Metals	21,274,000.00	22.48	20,491,000, 00	26.25	18,137,000.00	21.95
Other	548,000.00	0.58	414,000.00	0.53	2,347,000.00	2.84
Total Revenue	**94,633,000.00**	**100.00**	**78,057,000.00**	**100, 00**	**82,619,000.00**	**100.00**

c. Profit or loss from the segment and its share in the net revenue

From the fiscal year of 2016 on, the Company discontinued the presentation of net income (loss) per segment.

In thousands of R$	2016		2015		2014	
	Profit	**% of the total**	**Loss**	**% of the total**	**Profit**	**% of the total**
Net Profit (Loss) Total	13,311,000.00	100.00	(44,213,000.0)	100.00	954,000.00	100.00

7.3 - Information on products and services related to the operating segments

a. Characteristics of the production process
b. Characteristics of the distribution process
c. Characteristics of the markets, in particular:
    i. competitive conditions of the markets
    ii. participation in each of the markets
d. Eventual Seasonality
e. Key inputs and raw materials, including:
    i. description of the relationship with suppliers, including whether they are subject to control or regulation, identifying the agencies and the applicable legislation
    ii. eventual dependence on few suppliers
    iii. eventual volatility in prices

1. Ferrous minerals

Vale's ferrous minerals businesses include iron ore mining, pellet production, manganese ore exploration and production of ferroalloys. Each of these activities are described below.

1.1 Iron ore and pellets

1.1.1 *Iron ore operations*

Vale conducts iron ore operations in Brazil, mainly through (a) Vale S.A., parent company, (b) its wholly owned subsidiary, Mineração Corumbaense Reunida S.A. ("MCR") and (c) Vale's subsidiary, Minerações Brasileiras Reunidas S.A. ("MBR"). The Vale mines, which are all in open-pit mines, and its operations are mainly concentrated in three systems: The Southeast System, the South System and the North System, each with its own transport capacity. Vale also conducts mining operations in the Midwest System and holds a 50% stake in Samarco. Samarco operations were suspended after the break in one of its *Fundão* tailings dams in the state of Minas Gerais in November 2015. For information regarding the breakdown of the Samarco dam, see items 4, 7.9 and 10.1 of this Reference Form. Vale holds all iron ore operations in Brazil by concessions of the Brazilian Federal Government, which were granted for an indefinite period, subject to the life of the mines.

Company / Mining System	Location	Description / History	Mineralization	Operations	Power Source	Access / Transportation
Vale *North System*	Carajás, in the State of Pará	Divided between Serra Norte, Serra Sul and Serra Leste (North, South and East Areas). Since 1984, Vale carries out mining activities in the Serra Norte, which is divided into three main areas (N4W, N4E and N5) and two major facilities for processing. In 2014, Vale opened a new mine and processing plant in the Serra Leste. Vale's operations in Serra Sul, where the S11D project is located, started in 2016.	High grade Hematite ore (iron content of over 65% on average).	Open-pit mining operations. Serra Norte, one of the main plants, applies the natural moisture beneficiation process, consisting of crushing and screening, and the other applies the beneficiation process of natural and humid moisture in distinct lines. The wet beneficiation process consists simply of sizing operations, including screening, hydrocycloning, crushing and filtering. The production in this location consists of sinter feed, pellet feed and lump ore. The natural moisture beneficiation process in Serra Leste and Serra Sul consists of crushing and screening. The Serra Sul produces only sinter feed, while the Serra Leste produces sinter feed and lump.	Provided by the national power grid. Produced directly by Vale or acquired through power purchase agreements.	The iron ore is transported by the Carajas railway ("EFC") to the maritime terminal of Ponta Madeira, in the state of Maranhão. The iron ore from Serra Leste is transported by trucks from the mine site to the EFC railroad. The ore from Serra Sul is transported by the railway Carajás (EFC) via the new rail extension which is 101 kilometers long.
Southeast System	Iron Quadrangle in the state of Minas Gerais	Three mining complexes: Itabira (two mines, with three major beneficiation plants), Minas Centrais (two mines, with two major beneficiation plants and a secondary plant) and Mariana (three mines with two major beneficiation plants).	The ore reserves have high Itabirite ore ratios in relation to the Hematite ore. The Itabirite ore has an iron content between 35% and 60%. Part of the ore is concentrated to attain the level for loading and part is sent to Asia to be mixed with the rich ore from the North System.	Open-pit mining operations. Generally, the process *run of mine* ("ROM") consists of standard crushing, followed by classification and concentration steps, producing sinter feed, lump ore and pellet feed in beneficiation plants located at the mining complexes.	Provided by the national power grid. Produced directly by Vale or acquired through power purchase agreements.	The railway Estrada de Ferro Vitoria a Minas ("EFVM") connects these mines to the port of Tubarão.

South System	Iron Quadrangle in the state of Minas Gerais	Three mining complexes: Minas Itabirito (four mines and three major beneficiation plants) Vargem Grande (three mines and two major beneficiation plants) and Paraopeba (five mines and two beneficiation plants).	The ore reserves have high Itabirite ore ratios in relation to the Hematite ore. The Itabirite ore has an iron content between 35% and 60%. Part of the ore is concentrated to attain the level for loading and part is sent to Asia to be mixed with the rich ore from the North System.	Open-pit mining operations. Generally, the ROM process consists of standard crushing, followed by classification and concentration steps, producing sinter feed, pellet feed and lump ore in beneficiation plants located at the mining complexes.	Provided by the national power grid. Produced directly by Vale or acquired through power purchase agreements.	MRS transports iron ore Vale products from the mines to the maritime terminals of Ilha Guaíba and Itaguaí, in the Brazilian state of Rio de Janeiro. The EFVM railway connects certain mines to the port of Tubarão.
Midwest system (1)	State of Mato Grosso do Sul	Two mines and two plants located in the city of Corumbá.	Hematite ore, which generates predominantly lump ore. Iron content of 62% on average.	Open-pit mining operations. The beneficiation process for the operation of the mine consists of standard crushing and classification stages, producing pellets and sinter feed.	Provided by the national power grid. Acquired from regional utility companies.	Part of the sales are transported by barges that travel the Paraguay River to ports in Argentina, going on to the European and Asian markets from there. Another part of the sales are made to customers in the ports of Corumbá.
Samarco	Iron Quadrangle in the state of Minas Gerais	Integrated system consisted of two mines, three beneficiation plants, three pipelines, four pellet plants and a port. The mines and beneficiation plants are located in the state of Minas Gerais, and the port and pellet plants are located in the state of Espirito Santo. From the state of Minas Gerais to Espírito Santo, the production is transported through the three pipelines that extend for about 400 km.	Itabirite ore	Open-pit mining operations. The three beneficiation plants, located in the system process the ROM through crushing, grinding and concentration standards, producing pellet feed and sinter feed. Samarco mining operations were suspended after the rupture of one of its tailings dams in the state of Minas Gerais in November 2015. For information regarding the rupture of the Samarco dam, see items 4, 7.9 and 10.1 of this Reference Form.	Provided by the national power grid. Acquired from regional utility companies or produced by Samarco.	Samarco mines supply Samarco pellet plants using three pipelines of approximately 400 km. These pipelines transport the iron ore from the beneficiation plants to the pellet plants. From the pellet plants to the port of Ubu in Espirito Santo state, the pellets are transported by conveyor belts of approximately 1 km.

(1) Part of Vale operations in the Midwest System are conducted by MCR.

1.1.2 Iron Ore Production

The following table provides information on Vale's iron ore production.

		Production in the year ended on December 31			**Process Recovery Rate in 2016 (4)**
		2014	**2015**	**2016**	
Mine / Plant	**Type**	**(million metric tons) (%)**			
Southeast System					
Itabira	Open-pit	35.8	35.6	33.4	49 6
Minas Centrais	Open-pit	33.7	41.3	40.9	67.6

Mariana	Open-pit	39.4	36.1	28.4	89.4
Total of the Southeast System		108.9	113.0	102.7	
South System					
Minas Itabirito	Open-pit	41.0	41.4	40.1	71.7
Vargem Grande	Open-pit	25.0	29.3	29.2	64.9
Paraopeba	Open-pit	31.2	28.1	26.4	95.9
Total of the South System		97.2	98.8	95.7	
Midwest System					
Corumbá	Open-pit	3.8	2.8	1.9	73.9
Annatto	Open-pit	2.1	1.7	0.4	65.8
Total of the Midwest System		5.8	4.5	2.3	
North System					
Serra Norte	Open-pit	117.5	127.6	143.6	95.5
Serra Leste	Open-pit	2.2	2.0	4.2	98.9
Serra Sul	Open-pit	-	-	0.4	100.0
Total of the North System		119.7	129.6	148.1	
Total of Vale (2)		331.6	345.9	348.8	
Samarco (3)	Open-pit	13, 1	12.7	0.0	
Total		344.7	358.6	348.8	

(1) The mine and the plants of Água Limpa are part of the operations of the Minas Centrais and they belong to Baovale Mineração S.A. ("Baovale"). Vale has 100% of the common shares and 50% of the total shares of Baovale. Production data for Água Limpa have not been adjusted to reflect Vale's shareholding control.

(2) The production data represents the mass obtained after the beneficiation process, with a small contribution of ROM production and ore purchases from third-parties.

(3) Production figures for Samarco, in which Vale holds a 50% stake, have been adjusted to reflect Vale's shareholding control.

(4) Process recovery data does not include ore purchases from third-parties.

1.1.3 Iron ore pellets operations

Vale produces iron ore pellets in Brazil and Oman, directly and through joint ventures, as shown in the table below. Vale also has a 25% stake in two iron ore pelletizing plants in China, Zhuhai YPM Pellet Co., Ltd. ("Zhuhai YPM") and Anyang Yu Vale Yongtong Pellet Co., Ltd. ("Anyang"). The total capacity of the estimated worth is 64.7 million tonnes per year ("Mtpa"), including the full capacity of its pelletizing plants in Oman, but not including its joint ventures: Samarco, Zhuhai YPM and Anyang. Vale supplied all the iron ore needs of its wholly owned pelletizing plants and part of the iron ore needs for Samarco and Zhuhai YPM. In 2016, Vale sold 1.08 million metric tons of pellet production *(pellet feed)* to Zhuhai YPM and 0.33 million metric tons to Anyang. Vale suspended its sales of *Run of Mine* ("ROM") to Samarco due to the suspension of Samarco's mining operations cause by the rupture of the Fundão tailings dam in November 2015.

Company / Plant	Description / History	Nominal capacity (Mtpa)	Power source	Other information	Vale interest (%)	Partners
Brazil:						
Vale						
Tubarão (state of Espírito Santo)	Three wholly owned pellet plants (*Tubarão* I, II and VIII) and five leased plants (Itabrasco, Hispanobras, Kobrasco and two plants of Nibrasco). These plants receive iron ore mainly from the South System	36.7 (1)	Delivered through the national power grid. Produced directly by Vale or acquired through power purchase agreements.	The operations carried out in pelletizing plants Tubarão I and II were suspended in November 13, 2012, due to changes in demand from the steel industry for raw material, and	100.0	-

	Vale mines and the distribution is done through Vale's logistics infrastructure.			were replaced by operations in the Tubarão VIII plant, a newer and more efficient plant.		
Fábrica (state of Minas Gerais)	Part of the South System. Receives iron ore from the mining complex of Minas Itabirito, specifically from the mines of João Pereira and Segredo. The production is mostly transported by MRS and EFVM.	4.5	Provided through the national power grid. Produced directly by Vale or acquired through power purchase agreements.	-	100.0	-
Vargem Grande (state of Minas Gerais)	Part of the South System Receives iron ore from the mining complex of Minas Itabirito and Vargem Grande, specifically from the mines of Sapecado, Galinheiro, Capitão do Mato and Tamanduá, and production is mostly transported by MRS.	7.0	Provided through the national power grid. Produced directly by Vale or acquired through power purchase agreements.	-	100.0	-
São Luís (Maranhão State)	Part of the North System. Receives iron ore from the mines of Carajás and the production is sent to customers through the Ponta da Madeira maritime terminal.	7.5	-	On October 8, 2012, Vale suspended operations at the São Luís pelletizing plant in response to changes in demand of the steel industry for raw materials. Vale plans to resume operation of the São Luís pelletizing plant in early 2018, following the renewal of its operating license, the reform of the plant and the modernization of its automation system.	100.0	-
Samarco	Four pellet plants with total nominal capacity of 30.5 Mtpa. The pellet plants are located in the Ponta Ubu unit, in Anchieta, State of Espirito Santo.	30.5 (2)	Provided by the national power grid. Acquired from regional electricity companies or produced directly by Samarco.	In January 2016, Samarco's pelletizing operations were suspended when the production of pellets *(pellet feed)* became unavailable as a result of the suspension of its mining operations in November 2015.	50.0	BHP Billiton Brazil Ltda.
Oman: Vale Oman Pelletizing Company LLC	Industrial complex of Vale. Two pelletizing plants with a total nominal capacity of 9.0 Mtpa. The pelletizing plants are integrated with the Vale distribution center, with nominal capacity of 40.0 Mtpa.	9.0	Provided through the national power grid.	The Oman plants are supplied by iron ore from the Iron Quadrangle in the state of Minas Gerais through the Tubarão port (80%), and by the Carajas iron ore through the Ponta de Madeira port (20%).	70.0	Oman Oil Company SAOC

(1) *Environmental operating licenses for the Tubarão Vale pelletizing plants predict a capacity of 36.2 Mtpa.*

(2) *The capacity will be reviewed based on the conditions under which Samarco will resume operation.*

1.1.4 Pellet production

The following table presents information on Vale's main production of iron ore pellets.

	Year ended on December 31		
	2014	**2015**	**2016**
Company	**(million metric tons)**		
Vale (1)	43.0	46.2	46.2
Samarco	12.1	12.3	0.0
Total Production	**55.1**	**58.5**	**46.2**

(1) The number indicates the actual production, including full production of the Vale pelletizing plants in Oman and the five pelletizing plants leased in Brazil. The operating lease of the Itabrasco, Kobrasco and Hispanobras pellet plants expires in 2018, while the operational leasing of the two Nibrasco pellet plants expires in 2019.

1.1.5 Customers, sales and commercializing

Vale provides all its iron ore and pellets (including Vale's participation in joint venture pellet production) to the steel industry. Prevailing and expected levels of demand for steel products affect the demand for its iron ore and pellets. Demand for steel products is influenced by several factors, such as global industrial production, construction and infrastructure spending.

In 2016, China accounted for 58% of iron ore and pellets from Vale and Asia as a whole accounted for 71%, while Europe, in turn, accounted for 14%, followed by Brazil, with 8%. Ten of Vale's largest customers acquired, a total of 130 million metric tons of iron ore and pellet production, representing 38% of Vale's iron ore and pellets sales volume in 2016, and 36% of Vale's total ore and iron pellet revenues. In 2016, no customer accounted individually for more than 10% of iron ore and pellets from Vale.

Of the total pellet production in 2016, including the production of Vale's joint ventures, 62.9% were pellets for blast furnace and 37.1% were pellets for direct reduction. Blast furnace and direct reduction are different technologies used by steel mills to produce steel, each using different types of pellets. In 2016, the Asian markets (mainly Japan, South Korea and Taiwan), Europe and Brazil were the main pellet markets for blast furnace, while the Middle East, North America and North Africa were the main markets for direct reduction pellets.

Vale invests in customer service, in order to improve their competitiveness. Vale works closely with clients to understand their main objectives and provide the iron ore solutions that meet their specific needs. Through its experience in mining processes, sintering and manufacturing of iron, Vale seeks technical solutions that allow a balance between the best use of its world class mining assets and the satisfaction of its customers. Vale believes that its ability to offer customers a complete iron ore solution and the quality of its products are extremely important advantages that help improve competitiveness in relation to competitors who may be in a more convenient geographical location. In addition to providing technical assistance to its customers, Vale has sales support offices in St. Prex (Switzerland), Tokyo (Japan), Seoul (South Korea), Singapore, Dubai (UAE) and Shanghai (China), which assist in sales made by Vale International, and an office in Brazil which assists in the South American sales. These offices also enable closer contact with Vale's customers, thus being able to better monitor their needs and the performance of their contract, ensuring that customers receive Vale's products in a timely manner.

Vale sells iron ore and pellets through different agreements, including long-term contracts with customers, and spot sales, through auctions and trading platforms. Vale's pricing is often linked to market price indices and uses a variety of mechanisms including spot prices and current average prices during certain periods. In cases where the products are delivered before the end price can be determined, Vale recognizes the sale on basis of an interim price with subsequent adjustment reflecting the final price.

In 2015 and 2016, Vale protected part of its overall exposure to *bunker oil* prices regarding their own fleet and long-term charter contracts related to its CFR sales - *Cost and Freight ("CFR"),* to its FOB sales - *Free on Board* ("FOB") and domestic sales. The *hedge* program of 2015 was settled in 2015 and 2016. Vale expects the *hedge* program of 2016 to be paid in 2017.

1.1.6 Competition

The global iron ore and pellets markets are extremely competitive. The main factors affecting competition are price, quality and variety of products offered, reliability, operating costs and transportation costs.

- *Asia* - The main competitors of Vale in the Asian market are located in Australia and include subsidiaries and affiliates of BHP Billiton PLC ("BHP Billiton"), Rio Tinto Ltd. ("Rio Tinto") and Fortescue Metals Group Ltd. ("FMG"). Vale is competitive in the Asian market for two reasons. First, steel companies usually seek to obtain types (or mixtures) of iron ore and pellets that enable them to produce the desired end product in the most economical and efficient manner. Vale's iron ore has low impurity levels and other properties that generally lead to lower processing costs. For example, in addition to its high content, its iron ore alumina content is very low compared to Australian ore, reducing the coke consumption and increasing productivity in blast furnaces, which is especially important during periods of high demand. When the market demand is very intense, Vale's quality differential usually stands out with customers. Second, steel companies often develop sales relationships based on reliable supply of a specific mixture of iron ore and pellets.

  The property and operation of the logistics facilities of the North and South Systems help the Company to ensure that products are delivered on time and at a relatively low cost. The Company has long-term charter contracts in order to improve product offering capacity on the Asian market at competitive prices, based on CFR, despite higher transport costs, compared to Australian producers. To support the commercial strategy for the iron ore branch of the company, Vale operates two distribution centers, one in Malaysia and one in Oman, and has long-term contracts with five ports in China, which also act as distribution centers.

  Vale launched in 2015, *Brazilian Blend Fines* ("BRBF"), a product resulting from the mixture of ore fines from Carajas containing a higher iron concentration and a low concentration of silica, with ore fines from the South and Southeast Systems containing a lower concentration of iron. The BRBF is offered solid in any sintering operation. It is mixed and sold in Vale's maritime terminal Teluk Rubiah in Malaysia and five distribution centers in China, which reduces the time for it to reach the Asian markets and increases its capillary distribution by the use of smaller vessels.

- *Europe* - The main competitors in the European market are Luossavaara Kiirunavaara AB ("LKAB"), ArcelorMittal Mines Canada Inc., Iron Ore Company of Canada ("IOC"), a subsidiary of Rio Tinto, Kumba Iron Ore Limited and Société Nationale Industrielle et Miniere ("SNIM"). Vale is competitive in the European market for the same reasons that it is competitive in Asia, but also because of the proximity between its port facilities and the European customers.

- *Brazil* - The Brazilian market for iron ore is also competitive and includes many small producers of iron ore. Some steelmakers such as Gerdau S.A. ("Gerdau"), Companhia Siderúrgica Nacional ("CSN"), Vallourec Tubos do Brasil S.A., Usiminas and ArcelorMittal also have iron ore operations. Although the price factor is important, quality and reliability are also important competitive factors. Vale believes its integrated transport systems; its high-quality ore and technical services make it a strong competitor in the Brazilian market.

In the pellets segment, Vale's main competitors are LKAB, Iron Ore Company of Canada (IOC), Ferrexpo, ArcelorMittal Mines Canada (formerly Quebec Cartier Mining Co.), and Bahrain Stell (formerly Gulf Industrial Investment Co.).

1.2 Manganese and ferroalloys

1.2.1 Operations and production of manganese ore

Vale conducts its manganese operations in Brazil through Vale S.A. and its wholly owned subsidiaries Vale Manganese S.A. ("Vale Manganese") and MCR. Operations are carried out in Brazil under permit consented indefinitely by the Brazilian Federal Government. Its mines produce: metallurgical ore used primarily in the production of manganese ferroalloys; raw material to produce carbon steel and stainless steel;

Mining complex	Company	Location	Description/ History	Mineralization	Operations	Power Source	Access/ Transport
Azul	Vale S.A.	Pará	Open-pit mining operations and local beneficiation plants.	Ores of high and average content (content 22-53% manganese).	Crushing and classification stages, and production of granules and fines.	Provided by the national power grid. Produced directly by Vale or acquired through power purchase agreements.	Manganese ore is transported by truck and by the EFC to the maritime terminal of Ponta da Madeira.
Morro da Mina	Vale Manganês	Minas Gerais	Open-pit mining operations and a large beneficiation plant. In January 2015, Vale suspended operations due to market conditions. In October 2016, Vale resumed operations looking to supply manganese ore for the Barbacena ferroalloy plant.	Ore of medium and low content (average content of 31% manganese).	DMS/HMS process of separation in dense-heavy medium, crushing and screening, producing pellets for the Barbacena ferroalloy plant.	Provided by the national power grid. Acquired from regional utility companies.	Manganese ore is transported by truck to the Barbacena ferroalloy plant.
Urucum	MCR	Mato Grosso do Sul	Underground mining operations and local beneficiation plants.	High grade ores (average content of 46% manganese)	Crushing and classification stages, and producing granules and fines.	Provided by the national power grid. Acquired from regional utility companies.	Manganese ore is transported by barges that travel the Paraguay and Parana rivers to the transfer.

The following table presents information about the production of manganese ore, obtained after the process of beneficiation and mass recovery of the year 2016.

		Production of the year ended on December 31			Process Recovery in 2016
		2014	2015	2016	
Mine	**Type**	**(million metric tons) (%)**			
Azul	Open-pit	1.7	1.7	1.7	51.2
Morro da Mina[(1)]	Open-pit	0.1	-	-0.0	-70.0
Urucum	Underground	0.6	0.7	0.7	82.0
Total		**2.4**	**2.4**	**2.4**	

(1) Vale suspended operations of the Morro da Mina mine in 2015 due to market conditions. In October 2016, Vale resumed operations looking to supply manganese ore for the Barbacena ferroalloy plant.

1.2.2 Operations and production of ferroalloys

Vale conducts its manganese ferroalloys business through its wholly owned subsidiary Vale Manganês. Production of manganese ferroalloys consumes significant amounts of electricity, which is supplied through power purchase agreements. For information about the risks associated with potential problems in the power supply, see section 4.1 of this Reference Form.

Vale produces various kinds of manganese alloys, such as manganese alloys of high and medium carbon and ferrosilicon-manganese.

Plant	Location	Description / History	Rated Capacity	Power Source
Minas Gerais Plants	Cities Barbacena and Ouro Preto	Barbacena has six furnaces, two refining furnaces and a briquetting plant. Ouro Preto has three furnaces, which are not currently in operation.	Barbacena: 66,000 tons per year (54,000 tons of ferrosilicon manganese and 12,000 tons per year of medium carbon ferromanganese). Ouro Preto: 64,000 tons per year of ferrosilicon manganese.	Provided by the national power grid. Acquired through power purchase agreements.
Bahia Plant	City Simões Filho	Four furnaces, two converters and a sintering plant.	135,000 tons per year (42,000 tons of ferrosilicon manganese and 93,000 tons per year of high carbon ferromanganese). The plant has capacity to refine up to 40,000 tons per year of high carbon ferromanganese, to produce medium carbon ferromanganese alloy, according to market demand.	Provided by the national power grid. Energy also acquired by CHESF or through power purchase agreements.

The following table presents information on Vale's production of manganese ferroalloys.

	Production of the Year ended 31 December (1)		
Plant	**2014**	**2015**	**2016**
	(thousand metric tons)		
Barbacena	50	6	48
Ouro Preto	8	1	-
Simões Filho	113	92	77
Total	171	99	124

(1) Production figures reflect the unfinished material, which is processed by a crushing and screening plant. The average mass recovery in this process is 85%.

Vale suspended operations in the Ouro Preto plant in February 2014 due to market conditions. In January 2015, the power purchase agreement through which Vale acquired energy for the Barbacena and Ouro Preto plants expired, and Vale also suspended operations at the Barbacena plant. The Barbacena plant resumed operations in February 2016. Vale is considering alternatives for the energy supply of these plants, taking into account energy prices and current market conditions for manganese ferroalloys.

1.2.3 Manganese ore and ferroalloys: sales and competition

The manganese ore and ferroalloys markets are highly competitive. Competition in the manganese ore market takes place in two segments. The average and high content manganese ore compete in a global seaborne basis, while the low-grade ore competes regionally. For some manganese ferroalloys, medium and high content ore is required, while for others, the ores are complementary. The main high-grade ore suppliers are located in South Africa, Gabon, Australia and Brazil. The main producers of low grade ores are located in Ukraine, China, Ghana, Kazakhstan, India and Mexico.

Vale competes in oversea market with high and average content ore originating from the Azul and Urucum mines, where it benefits from extensive synergies with its iron ore operations, from the mines to the rail, port and naval operations. Its main competitors in this segment are the South32 (Australia and South Africa) and Eramet (Gabon). The low-grade ores of the Company are consumed internally in the ferroalloy foundries.

The manganese ferroalloy market is characterized by a large number of participants who compete primarily on price. The Company's competitors are primarily located in countries that produce manganese ore or carbon steel. Potential market entrants can provide the following substitutes for manganese ferroalloys: (i) silicon or chromium alloys (which may occasionally change to manganese), and (ii) electrolytic manganese. Competitors can be integrated foundries like Vale, which supply manganese ore from their own mines, or nonintegrated foundries. The greatest competitive factors in this market are the costs of manganese ore, electricity, logistics and reducing agents, such as copper, coal and charcoal. Vale competes with independent and integrated producers that also supply their own ore.

Focusing mainly on the Brazilian and South American steel customers, the Company's ferroalloy operations also benefit from synergies with its iron ore operations such as sales activities, marketing, acquisition and logistics. Vale purchases its energy and coke supplies at reasonable market prices, albeit through medium and long-term contracts. Competitors in the Brazilian market are about a dozen foundries with a capacity of 5.0 to 90 tons per year, most of them nonintegrated and some of them being customers of the Company's manganese ore. Vale has a differential compared with them in the production of higher content manganese ferroalloys.

2. Basic metals

2.1 Nickel

2.1.1 Operations

Vale conducts its nickel operations primarily through its wholly owned subsidiary Vale Canada, which operates two nickel production systems, one in the North Atlantic region and another in the Asian Pacific region. Vale also produces copper as a byproduct of its nickel operations in Canada and, through Vale S.A. operates a third nickel production system, Onça Puma, in the South Atlantic region. Its nickel operations are presented in the table below.

Mining system / Company	Location	Description / History	Operations	Mining Title	Power Source	Access / Transportation
North Atlantic						
Vale Canada	Canada - Sudbury, Ontario	Integrated mining operations, milling, smelting and refining to process ore into finished nickel, with a nominal capacity of 66,000 metric tons of refined nickel per year and an additional *feed* of nickel oxide for the	*Nickel.* Mainly underground mining operations with nickel sulfide ore that also contain some amounts of copper, cobalt, PGMs, gold and silver. *Feeds* from third-parties and from Vale operations	Mining rights patented with no expiration date; mineral *leases* expiring between 2017 and 2037;	Provided by the Ontario power grid and produced directly by Vale.	Located on the borders of the Trans-Canada highway and between two major railroads that cross the area of Sudbury. The finished

		refinery in Wales and nickel plants in Asia. Mining operations in *Sudbury* began in 1885. Vale acquired the Sudbury operations in 2006.	in Voisey's Bay are also processed. Vale plans to stop the *feed* processing of Voisey's Bay in Sudbury during the year 2017. In addition to producing finished nickel in Sudbury, Vale sends an intermediate oxide nickel product to its nickel refinery in Wales for processing into finished products. Vale also has the ability to send nickel oxide to its Asian refineries. As part of Vale's efforts to reduce sulfur dioxide emissions and other particulates into the atmosphere to meet the regulatory changes in Ontario and Manitoba, and rationalize its smelting assets and refining in Canada, Vale will modify its processes, including migrating to a single furnace in Sudbury in 2017. *Copper.* Vale produces two intermediate copper products: copper concentrate and copper anodes, and also produces a finished copper product, electrolytic copper cathodes. Vale will migrate to a single furnace in Sudbury in 2017, and therefore will cease its production of copper anode, resulting in the growth of copper concentrate and copper matte production.	occupation and mining licenses with indefinite expiration date [(1).]		products are delivered to the US market by truck. For overseas customers, products are loaded into containers and are transported by intermodal travel (truck/ train/ freighter) to the ports of the east and west coasts of Canada.
Vale Canada	Canada - Thompson, Manitoba	Integrated mining operations, milling, *smelting* and refining to process ore into finished nickel, with a nominal capacity of 38,000 metric tons of refined nickel per year. Vale plans to suspend the smelting and refining activities in Thompson in 2018. The mineralization in Thompson was discovered in 1956 and operations were acquired in 2006.	*Nickel.* Mainly underground mining operations with nickel sulfide ore that also contain some amounts of copper and cobalt. The concentrate is combined with the nickel concentrate from Vale's operations in Voisey's Bay for *smelting* and refining until a high-quality nickel plate product is reached. Vale expects to disable one of the two furnaces at Thompson in 2017 and the other in 2018. The Company also expects to terminate the *feed* processing at Voisey's Bay in Thompson during the year of 2017. It plans to send most of the *feed* from Thompson to be	Mining *leases* required by the Council maturing between 2020 and 2025; Mining *leases* maturing in 2034.	Provided by the Manitoba province service companies.	The finished products are delivered to the US market by truck. For overseas customers, products are loaded into containers and transported by intermodal travel (truck/ train/ freighter) to the final destinations through the ports of the east and west coasts of Canada.

			refined in Long Harbor and Sudbury. Vale plans to eliminate the activities of *smelting* and refining in Thompson by 2018 mainly due to the capital costs associated with federal limits for sulfur dioxide emissions set in the pollution prevention plan in the Canadian Environmental Protection Act (CEPA), as well as because of declining *feed* availability. Vale obtained a time extension for the implementation of its current plan to reduce sulfur dioxide emissions, which allows the *smelting* and refining until 2018, subject to negotiated emission limits.			
Vale Newfoundland & Labrador Limited	Canada - Voisey's Bay and Long Harbor Newfoundland and Labrador	Integrated open pit mining and milling operations at Voisey's Bay produces nickel concentrates and copper, with nickel concentrate refining into finished metal products in Long Harbor, with a nominal capacity of approximately 50,000 metric tons of refined nickel per year after ramp-up. The Voisey's Bay operations began in 2005 and were acquired by Vale in 2006.	It includes the Ovoid open pit mine, and mineral deposits for underground operations at a later stage. Vale mines nickel sulfide, which also contain copper and cobalt. The Long Harbor plant continued to ramp-up in 2016. In 2016, the Long Harbor facilities processed only high content nickel concentrates from Voisey's Bay and not the nickel matte from PTVI. In 2017, as a result of the continuous ramp-up of the Long Harbor nickel refinery, copper cathodes and cobalt metal will be produced for the first time. The part of the medium and high content concentrate that is not sent to Long Harbor in 2017 will be sent to the Sudbury and Thompson operations, for final processing (smelting and refining), while the copper concentrate is sold to the market. Vale expects to cease nickel concentrate shipments to Sudbury and Thompson by the end of 2017. Vale expects the ramp-up in Long Harbor	The mineral *lease* expires in 2027 with the right to subsequent renewals, always for periods of ten years.	The energy in Voisey's Bay is 100% supplied by diesel generators owned by Vale. The energy at the refinery in Long Harbour is provided by the utility company of Newfoundland and Labrador.	Concentrates of nickel and copper from Voisey's Bay are transported to the port by trucks and then by dry bulk vessels to foreign markets or for Vale operations in Long Harbor and other Canadian operations for further refining.

			to continue till the end of 2018.			
Vale Europe Limited	UK - Clydach, Wales	Stand-alone nickel refinery (produces refined nickel), with nominal capacity of 40,000 metric tons per year. Clydach refinery operations started in 1902 and was acquired by Vale in 2006.	Processes an intermediate nickel product, nickel oxide, supplied by Matsuzaka and Sudbury operations to produce finished nickel in the form of powders and pellets.	-	Provided by the national power grid.	Transported to the end customers in the United Kingdom and continental Europe by truck. Products shipped to customers abroad are transported by truck to the ports of Southampton and Liverpool and shipped by ocean containers.
Asia Pacific						
PT Vale Indonesia Tbk ("PTVI")	Indonesia - Sorowako, Sulawesi	Open-pit mining area and it's processing facility (nickel matte producer, an intermediate product), with nominal capacity of approximately 80,000 metric tons of nickel in *matte* annually. The PTVI's shares are traded on the Indonesia Stock Exchange. Vale indirectly holds a stake of 59.3% in the capital of PTVI and Sumitomo Metal Mining Co., Ltd. ("Sumitomo") holds 20.2%, Sumitomo Corporation holds 0.1% and the public holds 20.5%. PTVI was incorporated in 1968, began operations in 1978 and was acquired by Vale in 2006.	PTVI extracts nickel laterite ore and produces nickel matte, which is mainly sent to the Vale nickel refinery in Japan. According to sales contracts secured for the lifetime of the mine, the PTVI sells 80% of its production to the wholly owned subsidiary Vale Canada and 20% to Sumitomo.	The grant *(contract of* work) expires in 2025, entitled to two consecutive extensions of ten years, subject to approval of the Indonesian government.	Produced mainly by PTVI low cost hydroelectric plants in Rio Larona (currently there are three units). PTVI has thermal generators to supplement its hydroelectric power supply with a power source that is not subject to hydrological factors.	Transported by truck for about 55 km to the river port in Malili, and transported on barges to then be loaded into general cargo ships.
It Nouvelle-Calédonie S.A.S. ("VNC")	New Caledonia - South Province	Mining and processing operations (production of nickel oxide, nickel hydroxide and cobalt carbonate). The VNC's shares are held by Vale (95%) and Société de Participation Minière du Sud SAS Caledonien ("SPMSC") (5%). The SPMSC has an obligation to increase its stake in VNC by 10% within two years after the commencement of commercial production. (2)	Vale's nickel operations of New Caledonia are *ramping up*. At the moment, the VNC uses a high-pressure acid leaching process ("HPAL") for treating laterite, limonite and saprolite laterite ores. Vale expects to continue the *up ramp* of VNC over the next four years to reach a nominal production capacity of 57,000 metric tons per year of nickel contained in nickel oxide, which will be further processed in Vale refineries in Asia, in the form of hydroxide mass (IPNM), and 4,500	Mining leases expires between 2017 and 2051. (3)	Provided by the national power grid and independent producers.	Products are loaded into containers and transported by truck for about 4 km to the port of Prony and embarked on ocean container.

			metric tons of cobalt in the form of carbonate.			
Vale Japan Limited	Japan - Matsuzaka	Stand-alone nickel refinery (producer of intermediate and finished nickel) with nominal capacity of 60,000 metric tons per year. Vale holds an 87.2% stake and Sumitomo holds the remaining shares. The refinery was built in 1965 and acquired by Vale in 2006.	Produces intermediate products for further processing in Vale refineries in Asia and the United Kingdom, and finished nickel products using nickel matte supplied by PTVI.	-	Provided by the national power grid. Acquired from regional public utility companies.	Products are transported by truck on public roads to customers in Japan. For overseas customers, products are loaded into containers at the plant and sent to the Yokkaichi and Nagoya ports.
Valley Taiwan Limited	Taiwan Kaoshiung	Stand-alone nickel refinery (refined nickel producer), with nominal capacity of 18,000 metric tons per year. The refinery started production in 1983 and was acquired by Vale in 2006.	Produces finished nickel for the stainless-steel industry, primarily using intermediate products from Vale's operations in Matsuzaka and New Caledonia.	-	Provided by the national power grid. Acquired from regional public utility companies.	Transported by truck on public roads to customers in Taiwan. For overseas customers, products are loaded into containers at the plant and sent by the Kaoshiung Harbor.
Vale Nickel (Dalian) Co. Ltd	China - Dalian, Liaoning	Stand-alone nickel refinery (finished nickel producer), with nominal capacity of 32,000 metric tons per year. Vale holds 98.3% of the shares and Ningbo Sunhu Chemical Products Co., Ltd. owns the remaining 1.7%. The refinery started production in 2008.	Produces finished nickel for the stainless-steel industry, primarily using intermediate products from Vale's operations in Matsuzaka and New Caledonia.	-	Provided by the national power grid. Acquired from regional public utility companies.	Product transported by truck on public roads and by rail to customers in China. It is also sent in containers to some overseas and domestic customers.
<u>Atlantic South</u>						
Vale/ Onça Puma	Brazil - Ourilândia do Norte, Pará	Mining and *smelting* operations, producing high quality iron-nickel for use in the stainless-steel industry.	The Onça Puma mine is on a mineral deposit of laterite nickel ore and saprolite laterite. The operation produces nickel-iron through the rotating electric furnace process. Vale is currently operating with a single line, with estimated nominal capacity of 27,000 metric tons per year. Vale will evaluate opportunities to restart the operations of the second line, given the market conditions and associated businesses.	Mining permit for an indefinite period.	Provided by the national power grid. Produced directly by Vale or acquired through power purchase agreements.	The iron-nickel is transported by truck to the maritime terminal of Vila do Conde, in the Brazilian state of Pará, and exported in ocean containers.

(1) In Sudbury, ten leases are scheduled to expire in 2017. It submitted applications for renewal of these concessions and the approval process is ongoing. Vale can continue operations while the approval process is underway.
(2) In March 2016, Vale Canada acquired full equity participation in VNC owned by Sumic, a joint venture between Sumitomo and Mitsui. In April 2017, Vale Canada will pay Sumic the purchase price of the participation, US$ 135 million, to settle a total value of US$ 225 million of the debt financing granted by Sumic to VNC.
(3) The VNC requested a renewal of concessions predicted to expire in 2015 and 2016. Vale may continue operations while the approval process is underway.

2.1.2 Production

The following table presents Vale's annual output by mine in operation (or grouped in case of operating areas in Sulawesi, operated by PTVI in Indonesia) and the average ore grade contained of nickel and copper. The production of the mines in Sulawesi is the product obtained from the PTVI sieving station for the PTVI processing unit and does not include nickel losses due to drying and *smelting.* For Vale's operations in Sudbury, Thompson and Voisey's Bay, the production and the average content represents the product sent to their processing plants and do not include adjustments associated with processing, smelting or refining. For the Onça Puma operation in Brazil and the VNC operation, in New Caledonia, the production and the average grade level represent the local production of ore and do not include losses associated with the processing.

	2014 (1)			**2015 (1)**			**2016 (1)**		
		Content			**Content**			**Content**	
	Production	**Copper**	**Nickel**	**Production**	**Copper**	**Nickel**	**Production**	**Copper**	**Nickel**
Mines in operation in Ontario									
Copper Cliff North	1.053	1.45	1.34	1.138	1.42	1.38	979	1.44	1.26
Creighton	903	1.81	2.47	774	2.00	2.33	832	2.17	2.76
Stobie	2,089	0.58	0.66	1,471	0.63	0.73	1,373	0.57	0.64
Garson	678	1,39	1.75	778	1.39	1.94	711	1.34	1.91
Coleman	1,385	3.10	1.52	1,309	2.95	1.56	1,209	3.76	1.47
Ellen	181	0.62	1.07	165	0.70	0.95	75	0.42	0.88
Totten	303	1.98	1.50	528	1.88	1.62	671	1.86	1.43
Total Ontario operations	6,591	1.57%	1.36%	6164	1.64%	1.46%	5,850	1.84%	1.47%
Mining operations in Manitoba									
Thompson	1,184	-	1.95	1,163	-	1.82	1,140		1.97
Birchtree	545	-	1.39	564	-	1.47	503	–	1.36
Total Manitoba operations	1,729	-	1.78%	1727	-	1.71%	1,643	-	1.78%
Mines in operation in Voisey's Bay									
Ovoid	2,243	1.54%	2.58%	2.328	1.51%	2,57%	2,392	1.44	2.62%
Mining areas in Sulawesi									
Sorowako	4,391	-	1.99%	4,694	-	1.99%	4,708	-	1.93%
Mines in operation in New Caledonia									
VNC	2,134	-	1.44%	2,561	-	1.41%	2,919	-	1.53%
Mines in operation in Brazil									
Onça Puma	1,358	-	2.19%	1,024	–	2.13%	1,710	-	2.04%

(1) Production is expressed in thousands of metric tons. The percentage content is copper or nickel, respectively.

The following table presents information on the nickel production of the Company, including: nickel refined in its own facilities and intermediate products for sale. The figures presented below are based on nickel content.

		Finished production by source of ore of the year ended December 31,		
Mine	**Type**	**2014**	**2015**	**2016**
		(thousand metric tons with contained nickel)		
Sudbury	Underground	64.3	54.4	80.4
Thompson	Underground	26.1	24.8	26.5
Voisey's Bay (1)	Open-pit	48.3	53.0	49.0
Sorowako (2)	Open-pit	78.7	79.5	81.1
Onça Puma	Open-pit	21.4	24.4	24.1
New Caledonia (3)	Open-pit	18.7	26.9	34.3
External (4)	–	17.5	27.6	15.6
Total (5)		274.9	290.6	311.0

(1) Includes the finished nickel produced in Long Harbor, Sudbury and Thompson.
(2) These figures have not been adjusted to reflect the participation of the Company. The Company holds 59.2% in PTVI, which owns the Sorowako mine.
(3) These figures have not been adjusted to reflect the participation of the Company. The Company holds 95.0% in VNC.
(4) Finished Nickel processed in the Company's facilities using feed purchased from third parties.
(5) These figures do not include *tolling of feeds* for third parties.

2.1.3 Customers and sales

The Vale nickel customers are distributed worldwide. In 2016, 47% of the total refined nickel sales were shipped to customers in Asia, 27% in Europe, 27% in North America, and 1% to other markets. Vale has short-term fixed volume contracts with customers for most the predicted annual nickel sales. These contracts generally provide a stable demand for a significant portion of annual production.

Nickel is an exchange traded metal, listed on the London Metal Exchange ("LME") and the Shanghai Futures Exchange ("SHFE"), and most nickel products are priced according to a discount or premium on the LME price, depending mainly on the physical and technical characteristics of the nickel product. Vale's finished nickel product represents what is known in the industry as "primary" nickel, that is the nickel produced mainly from nickel ores (as opposed to "secondary" nickel, which is recovered from recycled material containing nickel). Finished primary nickel products are distinguished according to the following characteristics, which determine the price level of the product and their suitability for various end use applications:

- nickel content and purity level: (i) intermediate products have various nickel content levels, (ii) nickel pig iron is 1.5% to 15% nickel, (iii) ferronickel is 15% to 40% nickel, (iv) refined nickel is less than 99.8% nickel, including products such as Tonimet ™ and Utility nickel ™ (v) standard LME nickel content is at least 99.8% nickel and (vi) high purity nickel is at least 99.9% nickel and has no specific impurity elements;
- form (pellets, discs, squares and strips); and
- size (submicron powder particles to large cathodes).

In 2016, the major end use applications for nickel were:

- stainless steel (69% of global nickel consumption);
- non-ferrous alloys, steel alloys and *smelting* (18% of global nickel consumption);
- nickel plating (7% of global nickel consumption); and
- special applications such as batteries, chemical products and metallurgical powder (6% of the global nickel consumption).

In 2016, 58% of Vale's refined nickel sales were made out for applications other than stainless steel, compared to the industry average for primary nickel producers, which is 30%. This provides greater diversification and stability to the sales volume of Vale nickel revenues. As a result of the focus on such high-value segments, the average refined nickel prices have typically exceeded nickel prices on the LME.

Vale offers sales and technical support to its customers worldwide. Vale has a well-established global *marketing* network for refined nickel, based in Toronto (Canada). Vale also has sales and technical support offices distributed around the world with primary administrative offices in Singapore and Toronto (Canada) and sales managers located in St. Prex (Switzerland), Saddle Brook, New Jersey (United States), and various locations in Asia.

2.1.4 Competition

The global nickel market is highly competitive. The main competitive advantages of Vale are its long-life mines, its low production costs relative to other nickel producers, its sophisticated exploration and processing technologies and its diversified portfolio of products. It's global reach *marketing*, diverse mix of products and technical support, orient their products to the applications and geographic regions that offer the highest margins for its products.

Vale's Nickel supply accounted for 16% of world consumption of primary nickel in 2016. In addition to Vale, the largest integrated providers of "mine to market" of the nickel industry (each with its own integrated facilities, including mining operations, processing, refining and marketing of nickel) are Nornickel, Glencore, Jinchuan Nonferrous Metals Corporation and Sumitomo Metal

Mining Co. Ltd. Together with Vale, these companies accounted for approximately 38% of world production of primary nickel in 2016.

Although stainless steel production is a major factor in global nickel demand, stainless steel producers can use nickel products with a wide range of nickel content, including secondary nickel (scrap). The choice between the primary and secondary nickel is mainly based on their relative prices and availability.

Competition in the nickel market is based primarily on quality, delivery reliability and price. Vale believes its operations are competitive in the nickel market due to the high quality of its nickel products, and their comparatively low production costs.

2.2 Copper

2.2.1 Operations

Vale conducts its copper operations in Brazil through the parent company (Vale S.A.) and in Canada through its subsidiaries.

Mining complex Location	Location	Description / History	Mineralization / Operations	Mining Title	Power Source	Access / Transport
Brazil						
Vale/ Sossego	Carajás, Pará	Two main mining operations of copper, Sossego and Sequeirinho and a processing plant to concentrate the ore. Sossego was developed by Vale. Production began in 2004 and has a nominal capacity of 100,000 tons per year (tpy) of copper in concentrate.	The copper ore is mined by the open pit method and the *run-of-mine* is processed by primary crushing, SAG mill (one semi autogenous mill that uses a large rotating drum filled with ore, water and steel grinding balls which transform ore into a fine paste), ball milling, copper flotation concentrate, waste disposal, concentrate thickening, filtering and discharging.	Mining concession for an indefinite period.	Provided by the national power grid. Produced directly by Vale or acquired through power purchase agreements.	The concentrate is transported by truck to a storage terminal in Parauapebas and then transported by the EFC to the port of Itaqui in St. Louis, State of Maranhão. Vale built a road of 85 km to connect Sossego to Parauapebas.
Vale/ Salobo	Carajás, Pará	The Salobo I processing plant started production in 2012 and has a total capacity of 100,000 metric tons of copper concentrates. The open pit mine and the plant are completing elevation in the fourth quarter of 2016 to a capacity of 200,000 tpy of copper in concentrate with full implementation of expansion of Salobo II.	Vale's Solobo copper mine is mined by the open-pit method and the ore is handled by standard primary and secondary crushing, grinding by roller pressure, ball milling, copper concentrate flotation, waste disposal, concentrate thickening, filtering and discharging.	Mining concession for an indefinite period.	Provided by the national power grid. Acquired through power purchase agreements.	The concentrate is transported by truck to a storage terminal in Parauapebas and then carried by EFC to the port of Itaqui in St. Louis, State of Maranhão. Vale built a road of 90 km to connect Salobo to Parauapebas.
Canada						
Vale Canada	Canada - Sudbury, Ontario	See - 2. Basic metals - 2.1. Nickel - 2.1.1. Operations of this Reference Form.				
Vale Canada / Voisey's Bay	Canada - Voisey's Bay, Newfoundland and Labrador	Check - 2. Basic metals - 2.1. Nickel - 2.1.1. Operations of this Reference Form.				

Zambia						
Lubambe	Zambian Copperbelt	Lubambe Copper Mine which includes an underground mine, mill and related infrastructure. Teal Minerals ("TEAL") joint venture (50/50 between Vale and the African Rainbow Minerals ("ARM")), has an indirect 80% stake in Lubambe. ZCCM Investments Holdings PLC holds the remaining stake (20%).	Nominal production capacity of 45,000 metric tons per year of copper in concentrates. Production began in October 2012.	Mining concessions ending in 2033.	Long-term energy supply contract with Zesco (Zambian government energy supplier).	Copper concentrate is transported by truck to local *smelters.*

2.2.2 Production

The following table presents information about Vale's copper production. The production and average grade represent local production and do not include losses during processing. For the annual production of copper as a byproduct of nickel operations, refer to 2. Basic metals - 2.1. Nickel - 2.1.1. Operations of this Reference Form.

	2014 (1) 2015		(1)		2016 (1)	
	Production	Content	Production	Content	Production	Content
Brazil						
Sossego	15,105	0.86	12,857	0.93	12,687	0.82
Solobo	18,644	0.84	44,296	0.62	57 279	0.62
Total	33,749	0.85	57,153	0.69	69,966	0.66

(1) production is expressed in thousands of metric tons. The content is in copper percentage.

The following table presents information about our copper production.

		Finished production by source of ore for the year ended December 31,		
Mine	**Type**	**2014**	**2015**	**2016**
		(thousand metric tons)		
Brazil:				
Salobo	Open-pit	98	155	176
Sossego	Open-pit	110	104	93
Canada: (as a co-product of nickel operations)				
Sudbury	Underground	98	98	122
Voisey's Bay	Open-pit	33	32	32
Thompson	Underground	2	1	3
External (1)	-	29	23	21
Zambia:				
Lubambe (2)	Underground	10	10	8
Total		380	424	453

(1) Vale processes copper at its facilities using *feeds* purchased from third parties.
(2) The production capacity attributable to Vale is 40%, which represents 80% of indirect engagement through its 50% participation.

2.2.3 Customers and sales

Copper concentrates from Sossego and Solobo are sold under medium and long-term contracts signed with copper *smelters* in Europe, India and Asia. Vale maintains medium-term contracts of copper supply with Glencore Canada, for part of the copper concentrates produced in Sudbury, which are also sold by long-term contracts in Europe and Asia. Copper concentrates from Voisey's Bay are sold through long-term contracts to customers in Europe. The electrolytic copper from Sudbury is sold in North America through short-term sales contracts.

2.2.4 Competition

The global refined copper market is highly competitive. Producers are integrated mining and nonintegrated *smelters* covering all regions of the world; consumers are mainly producers of copper wire and alloys. The competition takes place mainly at a regional level and is mainly based on production costs, quality, reliability of supply and logistics costs. The largest world producers of copper cathodes are the Corporacion Nacional del Cobre de Chile ("Codelco"), Aurubis AG, Freeport-McMoRan Copper & Gold Inc. ("Freeport-McMoRan"), Jiangxi Copper Corporation Ltd and Glencore, operating by the parent company or through subsidiaries. Vale's participation in the global refined copper cathode market is marginal, since Vale takes a more competitive position in the copper concentrate market.

The copper concentrate and copper anode are intermediates in the production chain. The concentrate and anode markets are competitive, with several producers, but with fewer participants and smaller volumes than in the copper cathode market due to high levels of integration of the major copper producers.

In the copper concentrate market, mining occurs worldwide, with a predominant share of it in South America, while consumers are *smelters* located mainly in Europe and Asia. Competition in the copper concentrate market is mainly worldwide and is based on production costs, quality, logistics costs and supply reliability. The largest competitors in the copper concentrate market are Glencore, BHP Billiton, Freeport McMoRan, Codelco, Anglo American and Antofagasta plc, operating by the parent company or through subsidiaries. The market share of Vale in 2016 accounted for about 4% of the total nonintegrated copper concentrate market.

The anode copper / blistered copper (blister) market is quite limited. In general, the anodes are produced to supply the integrated refinery of each company. Trade in copper anodes / blistered copper (blister) is limited to facilities that have more melting capacity *(smelting)* than refining or situations where the savings in logistics costs is an incentive to purchase anodes from other *smelters*. The largest competitors in the copper anode market in 2016 were Glencore, First Quantum Minerals Ltd, Codelco and China Nonferrous Metals, operating by the parent company or through subsidiaries.

2.3 PGMs and other precious metals

As byproducts of Vale's nickel operations in Sudbury, Canada, significant quantities of platinum group metals ("PGMs") are extracted, as well as small amounts of gold and silver. Vale operates a processing facility in Port Colborne, Ontario, which produces intermediates of PGMs, gold and silver, using production from operations in Sudbury. Vale has a refinery in Acton, England, where its intermediate products and toll-refined products, as well as materials from third parties are processed. In the fiscal year ended December 31, 2016, the PGM concentrates from the Canadian Vale operations accounted for about 88% of Vale's PGM production, which also includes metals purchased from third parties. Vale's base metals marketing department sells its PGMs and other precious metals, as well as toll-refined and third-party products. Vale's copper concentrates from the Salobo and Sossego mines in Carajás, Pará, Brazil, also contain gold, the value of which is considered in the sale of these products.

In February 2013, the Company sold to Silver Wheaton 25% of the gold produced as a byproduct during the life of the Salobo copper mine in Brazil, and 70% of gold produced as a byproduct of its nickel mines in Sudbury in Canada, during 20 years. In March 2015 and August 2016, the Company sold to Silver Wheaton over 25% of the gold produced as a byproduct of the Salobo copper mine. In consideration for the sale, Vale received in August 2016 an initial cash payment of US$ 800 million, an option value of approximately US$ 23 million from a reduction in the exercise price of the warrants of Silver Wheaton owned by Vale since 2013, and subsequent payments will be received, whichever is less of US$ 400 per ounce (subject to an annual inflation adjustment of 1% from January 1, 2019) or the prevailing market price, for every ounce of gold delivered under the contract. The Company may receive an additional payment in cash if it expands its processing capacity of copper ores in Salobo to over 28 Mtpa before 2036. The additional cash payments can range from $ 113 million to $ 953 million, depending on the ore content, and the term and size of the expansion. According to the *gold stream* agreement, Silver Wheaton received 247,287 ounces of gold in 2016. For additional information about the contracts with Silver Wheaton Corp. and Silver Wheaton (Caymans) Ltd., see items 6.6 and 10.3 (b) of this Reference Form.

The table below presents the information on the volume of precious metals contained as by-products of the copper and nickel concentrates production.

		Year ended December 31		
		2014	**2015**	**2016**
Mine	**Type**	**(thousands troy ounces of metal contained)**		
Sudbury(1):				
Platinum	Underground	182	154	166
Palladium	Underground	398	341	322
Gold	Underground	83	89	99
Solobo:				
Gold	Open-pit	160	251	317
Sossego:				
Gold	Open-pit	78	80	67

(1) Includes metal produced from the purchase of third-party resources. It includes the production of Ontario (Canada) and Acton (England). Does not include third party fee charges.

(2) The numbers represent 100% of gold production of Solobo Sudbury as a byproduct of nickel and copper concentrates production and do not deduct the portion of gold sold to Silver Wheaton.

2.4 Cobalt

Vale recovered significant amounts of cobalt as a byproduct of its nickel operations. In the fiscal year ended December 31, 2016, Vale produced 1,851 metric tons of refined cobalt metal at its Port Colborne refinery, and 3,188 metric tons of cobalt as an intermediate product based on cobalt in its nickel operations in New Caledonia, and its remaining cobalt production, formed by 761 metric tons of cobalt, is contained in other intermediate products (such as nickel concentrates). As a result of the *ramp-up* of the VNC operations in New Caledonia, the intermediate cobalt production as a byproduct of the nickel production is increasing. Vale sells cobalt on a global basis. Its metallic cobalt, refined by electrical process in the Port Colborne refinery, has very high levels of purity (99.8%), higher than the LME contract specification. Cobalt metal is used in the production of various alloys, especially in aerospace applications, as well as in cobalt-based chemical manufacturing. In 2016, the Long Harbor mine produced an intermediate cobalt and is expected to start producing high quality cobalt metal in 2017.

The following table presents information about the cobalt production.

Mine	Type	Finished production by source of ore for the year ended December 31, 2014	2015	2016
		(metric tons contained)		
Sudbury	Underground	833	751	882
Thompson	Underground	489	365	700
Voisey's Bay	Open-pit	952	849	887
New Caledonia	Open-pit	1,384	2,391	3188
Other (1)	–	84	177	143
Total		3,743	4,533	5,799

(1) These figures do not include tolling of feeds for third parties. It includes cobalt processed at Vale's facilities using feeds purchased from third parties and, in 2016, also includes 24 tons of ore supplied by PTVI.

3. Coal

3. 1 Operations

Vale produces metallurgical and thermal coal through its subsidiary Vale Mozambique, which operates the Moatize mine. Vale also holds a minority stake in the Chinese company, Henan Longyu Energy Resources Co., Ltd. ("Longyu"). In November 2016, Vale sold its coal operation in Carborough Downs, Australia.

In September 2016, the Company negotiated with Mitsui new terms and conditions for a partnership for coal assets in Mozambique, which were approved by the Board of Directors. According to the new terms and conditions, formalized in November 2016, Mitsui agreed to pay a sum of up to US$ 450 million, consisting of: (i) a fixed payment of US$ 255 million for 15% of the Vale's 95% stake in the Moatize coal mine and (ii) an additional amount of up to US$ 195 million, subject to certain conditions, including the performance of the mine. Mitsui will also make the contribution of an amount of approximately US$ 348 million for 50% of the 70% stake Vale has in the Nacala Logistics Corridor and extend a long-term funding of US$ 165 million for the Nacala Logistics Corridor. Vale completed the equity transaction with Mitsui on March 27, 2017. The total value of the transaction will be approximately US$ 770 million, including all values mentioned above, except the additional amount of up to US $ 195 million, which is subject to certain conditions, yet to be fulfilled, such as mining performance. Of the US$ 770 million, the Company received US$733 million in the completion of the equity transaction on March 27, 2017, and expects to receive the remaining amount at the conclusion of the project financing, which should take place during the year of 2017. If the *project financing* is not signed before the end of 2017, Mitsui has certain rights to transfer to Vale some of its stake in the Moatize coal mine and the Nacala Logistics Corridor.

Company/ Mining Complex	Location	Description / History	Mineralization / Operations	Mining Title	Power Source	Access / Transport
Mozambique						
Vale Mozambique Moatize	Tete, Mozambique	Open-pit mine, which was developed directly by Vale. Operations began in August 2011 and are expected to reach a nominal production capacity of 22 Mtpa considering the expansion of Moatize, consisting of metallurgical and thermal coal, and the expansion of the of the Nacala Logistics Corridor. Vale has a 95.0% stake, with the remainder belonging to the company	Produces metallurgical and thermal coal. The main product brand of Moatize is the Chipanga, premium hard coking coal but there is operational flexibility for various products. The ideal portfolio of products will come as a result of market testing.	The mining concession ends in 2032, and is renewable thereafter.	Provided by local utility companies. *Back-up* supply on site.	Coal is transported from the mine to the Port of Beira by the Sena railway line, and from January 2016 on, Coal is transported to the port of Nacala-a-Velha by the Nacala Logistic Corridor.

Empresa Moçambicana de Exploração Mineira, S.A. At the conclusion of the partnership agreement, Mitsui will acquire 15% of Vale's stake in Vale Mozambique.	The coal from the mine is processed in a coal washing unit ("CHPP") with a capacity of 4,000 metric tons per hour. An additional CHPP started production in August 2016, which will increase capacity by another 4,000 metric tons per hour.

3.2 Production

The following table presents information on the marketable coal production from Vale.

		Production of the year ended December 31		
Operation	**Mine Type**	**2014**	**2015**	**2016**
		(thousand metric tons)		
Metallurgical Coal:				
Moatize (1)	Open-pit	3,124	3,401	3,480
Thermal Coal:				
Moatize (1)	Open-pit	1,784	1,559	2,012

(1) These figures correspond to 100% of the Moatize production, not being adjusted to reflect Vale's share.

3.3 Customers and sales

Coal sales from Vale's operations in Moatize, Mozambique, aim for the global steel and energy markets, including Asia, India, Africa, Europe and the Americas. Vale's Chinese coal Joint ventures will direct sales to the domestic Chinese market.

3.4 Competition

The global coal industry, mainly composed of markets coal (coking coal and thermal) and brown / lignite coal, is highly competitive.

The demand for steel, especially in Asia, holds the strong demand for metallurgical coal, while demand for electricity holds the demand for thermal coal. Vale expects to increase its supply of coal to the United States, Canada and Australia, driven by price increases in the second half of 2016, which would return balance to the market after the price increases caused by China's intervention policies in domestic coal production.

Competition in the coal industry is based mainly on the economy of production costs, coal quality, transportation costs and proximity to the market. Vale's main competitive advantages are the completion of a new and competitive transportation corridor, the proximity to the Atlantic and Indian markets (compared to its main competitors) and the size and quality of Vale's reserves.

The key players in the seaborne coal market are subsidiaries and affiliates and joint ventures of BHP Billiton, Glencore, Anglo American, Rio Tinto, Teck, Peabody, PT Adaro Energy and Shenhua Group, among others.

4. Infrastructure

4.1 Logistics

Vale developed the logistics segment based on the transportation needs of the mining operations, as well as providing transportation services for other customers.

Vale operates its logistics business through the parent company (Vale S.A.), via subsidiaries, affiliates and joint ventures, as shown in the following table.

			Our participation		
			Voting	Total	
Company	Business	Location	(%)		Partner
Vale	Railway operations (EFVM and EFC), ports and maritime terminals.	Brazil	-	-	-
VLI [1]	Railway, port, on land terminal and sea terminal operations. Control of certain general cargo logistics assets.	Brazil	37.6	37.6	FI-FGTS, Mitsui and Brookfield
MRS	Railway operations.	Brazil	46.75	48.12	CSN, Congonhas Minérios, Usiminas Participações e Logistics, Gerdau, Railvest Investments and public investors
CPBS	Maritime and port terminal operations	Brazil	100.0	100.0	-
PTVI PTV	Maritime and port terminal operations	Indonesia	59, 2	59.2	Sumitomo, public investors
Vale Logística Argentina	Port operations	Argentina	100.0	100.0	-
CEAR[2] [4]	Railroad	Malawi	43.4	43.4	Ports and Mozambique Railways, PE
CDN [3] [4]	Railroad and port operations.	Mozambique	43.4	43.4	Ports and Mozambique Railways, EP
CLN [4]	Railroad and port operations	Mozambique	80.0	80.0	Ports and Mozambique Railway, EP
Vale Logistics Limited ("VLL") [4]	Rail Transport Operations	Malawi	100.0	100.0	-
Transbarge Navegación	River System in Paraguay and Paraná (Convoys)	Paraguay	100	100	-
VNC[5]	Maritime and port terminals operations	New Caledonia	95.0	95.0	SPMSC
VMM	Maritime and port terminals operations	Malaysia	100.0	100.0	-
Vale Newfoundland & Labrador Limited	Port operations	Voisey's Bay and Long Harbor in Newfoundland and Labrador	100	100	-
Vale Oman Distribution Center LLC	Maritime and port terminals operations	Oman	100	100	-

(1) BNDES owns debentures issued by Vale, which are interchangeable in part of Vale's share in VLI. If BNDES exercises its right over these debentures, Vale's participation in VLI would be reduced by 8%.

(2) Vale retains control of its stake in CEAR through an 85% stake in the Nacala Corridor Development Company ("SDCN"), which owns 51% of the CEAR.

(3) Vale retains control of its participation in CDN through an 85% stake in SDCN, which has 51% of CDN.

(4) Upon completion of the transaction with Mitsui, Vale will own 42.5% of CEAR's total capital with voting rights, 42.5% of CDN's total capital with voting rights, 50% of CLN's total capital with voting rights and 50% of VLL's total capital with voting rights.

4.1.1 Railways

Brazil

- *Estrada de Ferro Vitoria a Minas ("EFVM").* The EFVM railroad connects the mines of Vale's South System in the Iron Quadrangle region in the state of Minas Gerais to the Tubarão port in Vitória, Espírito Santo. Vale operates this railroad of 905 km under a renewable 30-year concession, which expires in 2027. The EFVM consists of two railway lines over a distance of 601 km, allowing a continuous railroad operation in opposite directions, and an extension single line of 304 km. There are manufacturing industries located in this area and important agricultural regions are also accessible through it. VLI has rights to use the railway transport capacity of the EFVM line. In 2016, the EFVM railroad transported a daily average of 329,300 metric tons of iron ore and 61,100 metric tons of other cargo. The EFVM also carried one million passengers in 2016. In 2016, EFVM had a fleet of 325 locomotives and 19,135 wagons, which were operated by Vale and outsourced.

- *Carajás Railroad ("EFC").* The EFC railroad links the North System Vale mines in the Carajas region of Pará, to the maritime terminal of Ponta da Madeira in São Luís, Maranhão. Vale operates the EFC on a renewable 30-year concession, expiring in 2027. The EFC extends for 997 km from the mines of Carajás to the maritime terminal of Ponta da Madeira, located near the Port of Itaqui. The main cargo is iron ore, transported mainly for the Company. VLI has rights to use of Vale's EFC railway capacity. In 2016, the EFC railroad transported a daily average of 419,000 metric tons of iron ore and 22,800 metric tons of other cargo. The EFC also carried 293,000 passengers in 2016. The EFC operates the largest capacity train in Latin America, which measures 3.5 km, has a gross weight of 42,010 metric tons when loaded and has 330 cars. In 2016, the EFC had a fleet of 289 locomotives and 18,135 wagons, which were operated by Vale and outsourced.

The main cargoes of the EFVM and EFC railroads are:

- iron ore, manganese pellets and ore, transported for the Company and the customers of the Company;
- steel, coal, pig iron, limestone and other raw materials carried for customers with steel mills located along the railroad;
- agricultural products such as grain and soybean meal and fertilizers; and
- other general cargo, such as pulp, fuel and chemicals.

Vale charges market rates for customer freights, including iron ore pellets originating from joint ventures and other companies in which Vale doesn't have a 100% shareholding. Rates vary according to the distance traveled, the type of product transported and the weight of the freight in question, and are regulated by the National Land Transportation Agency ("ANTT").

VLI provides integrated logistics solutions along the 7935 km of railways in Brazil (Ferrovia Centro-Atlântica and Ferrovia Norte-Sul), eight inland terminals with total capacity of 795,000 tons' storage and three maritime terminals and port operations. Vale has a 37.6% stake in VLI and takes part of a shareholders' agreement with FI-FGTS, Mitsui and Brookfield, who hold the remaining stake in VLI.

The main VLI assets are:

- *Ferrovia Centro-Atlantica*. Regional rail network of the east-central Brazilian railway system under a renewable 30-year concession, which will end in 2026. The central east network has 7,215 km of rails, which extend through the states of Sergipe, Bahia, Espírito Santo, Minas Gerais, Rio de Janeiro, Goiás and the Federal District.

- *Ferrovia Norte-Sul*. A renewable 30-year concession for the commercial operation of a stretch of 720 km of the North-South railroad in Brazil between the cities of Açailandia in the state of Maranhão, and the Porto Nacional, in Tocantins State. This railway is connected to the EFC, creating a new corridor for the transportation of general cargo, mainly for the export of grains such as soybeans, rice and corn produced in the north central region of Brazil.

- The right to use the transport capacity of the Vale railways, EFVM and EFC for general cargo; and

- The right to use the transport capacity of the Vale terminals, and the Praia Mole and Tubarão terminals for general cargo.

In 2016, the VLI carried a total of 31.98 billion ntk of general cargo, including 19.53 billion ntk by the Central Atlantic Railroad and the North-South Railway and 12.45 billion ntk through operational agreements with Vale.

In addition, Vale holds direct and indirect stake in MRS Logistica S.A. ("MRS"), the company that holds the concession to operate the railway that connects the states of Rio de Janeiro, São Paulo and Minas Gerais, which is 1643 km long. In 2016, MRS transported a daily average of 338,800 metric tons of iron ore and 122.0000 metric tons of other cargo.

- Africa

Vale is completing the ramp-up of the Nacala Corridor linking the Moatize mine to the maritime terminal of Nacala-a-Velha, located in Nacala, Mozambique, crossing the Republic of Malawi. The Nacala corridor consists of a rail and port infrastructure, including *greenfield* sections and rehabilitation of existing railways in Mozambique and Malawi, and a new coal port terminal in Mozambique. The Nacala Corridor will enable the expansion of the Moatize mine and offer support to Vale operations in southeastern Africa. In Mozambique, Vale is working under two concession contracts, one related to the new Mozambique railway, and the other related to the newly built coal port, both held by its subsidiary, Integrated Nacala Logistics Corridor S.A. ("CLN"), which expires in 2042, and is subject to renewal. In addition, Vale is renovating the existing railways under the concession held by its subsidiary Northern Corridor Development S.A. ("CDN"), which expires in 2035. In Malawi, Vale is operating under a concession held by its subsidiary Vale Logistics Limited ("VLL"), which expires in 2046, subject to renewal, and is also upgrading existing railways under the concession held by its subsidiary Central East African Railway Company Limited ("CEAR"), which was extended in 2013, with an automatic renewal for a period of 30 years starting from the beginning of rail services under the VLL *greenfield* railway concession.

In September, 2016, Vale and Mitsui agreed to new terms of partnership in coal assets in Mozambique. With these new terms, Mitsui will contribute an amount of approximately US$ 348 million for a 50% stake in the Nacala Logistics Corridor and extend a long-term funding of US$ 165 million for the Nacala Logistics Corridor. The completion of the share transaction is subject to certain conditions precedent, including some conditions related to the completion of the project financing in the estimated amount of US$ 2.7 billion.

4.1.2 Ports and maritime terminals

- Brazil

Vale operates ports and maritime terminals, especially as a means of completing the delivery of its iron ore and pellets to bulk carriers serving the seaborne market. For more information, see section 1.1 "Iron Ore and Pellets" in this section of the Reference Form. Vale also uses its ports and its terminals to move customer loads.

Tubarão Terminal. The Tubarão Terminal, which occupies an area of about 18 square kilometers, is located in Vitória, in the state of Espirito Santo and contains the marine terminal for iron ore and the general cargo terminals (the Liquid Bulk terminal, and Miscellaneous Products terminal). The Praia Mole port is also located near the port of Vitória.

- The marine terminal for iron ore has two piers. From this terminal in the port of Tubarão, Vale exports mainly iron ore produced in the South System. Pier I can keep two ships moored at the same time, one of up to 170,000 DWT, on the southern side, and one of up to 210,000 DWT, on the northern side. the Pier II can accommodate one vessel of up to 405,000 DWT at a time, with a limited depth of 23 meters below the waterline. In Pier I there are two ship loaders which can each carry up to 13,500 metric tons per hour. In Pier II there are two ship loaders, capable of operating alternately, and each load up to 16,000 metric tons per hour continuously. In 2016, Vale embarked 100,7 million metric tons of iron ore and pellets in this terminal. The maritime terminal of iron ore has a storage yard with a capacity of 3,42 million metric tons.

- The Miscellaneous Products Terminal handled 7.0 million metric tons of grains and fertilizers in 2016. The VLI has the right to use the handling capacity of the Miscellaneous Products Terminal.

- The Liquid Bulk Terminal handled 531,000 metric tons of fuel in 2016. The VLI has the right to use the handling capacity of the Liquid Bulk Terminal.

- *Praia Mole Terminal.* Praia Mole terminal is mainly a coal terminal which handled in 2016, 10.8 million metric tons of coal and other associated loads. The VLI has the right to use the handling capacity of the Praia Mole Terminal.

Terminal Marítimo Ponta da Madeira. The Ponta da Madeira Maritime Terminal is located in São Luís, State of Maranhão. Pier I can accommodate vessels up to 420,000 DWT and has a maximum loading rate of 16,000 tons per hour. Pier III, with two berths and three carriers, and can accommodate vessels of up to 210,000 DWT in its south berth and vessels up to 180,000 DWT in its north berth (or two 180,000 DWT ships simultaneously), depending on the tide, each carrier has a maximum loading rate of 8,000 metric tons per hour. Pier IV (south berth) is able to accommodate vessels of up to 420,000 DWT and has two ship loaders that work alternately with a maximum rate of 16,000 tons per hour. Pier IV (north berth) is able to accommodate vessels of up to 420,000 DWT and has two ship loaders that work alternately with a maximum rate of 16,000 tons per hour. In 2016, Pier IV (north berth) conducted pre-tests for a subsequent request for final authorization to operate. The cargo shipped through the Ponta da Madeira Maritime Terminal consist of Vale's own production of iron ore and manganese from the North System. In 2016, 149 million metric tons of iron ore were handled by the terminal. The Ponta da Madeira maritime terminal has a storage yard with a capacity of 7,7 million tons, which will be expanded to 10,7 million tons. The VLI currently stores and moves fertilizers, grain, pig iron and manganese ore, which are shipped through the Port of Itaqui.

Itaguai maritime terminal - Cia. Portuária Baía de Sepetiba ("CPBS"). From this terminal, Vale exports mainly iron ore from the South System. CPBS is a wholly owned subsidiary that operates the Itaguaí terminal at the Port of Itaguai in Sepetiba in the state of Rio de Janeiro, leased from the Dock Company of Rio de Janeiro - CDRJ. The marine terminal Itaguaí has a dock which allows

loading ships of up to 17,8 meters and a capacity of up to 200,000 DWT. In 2016, the terminal uploaded approximately 21.4 million metric tons of iron ore.

Guaiba Island Maritime Terminal. From this terminal, Vale also exports mainly iron ore from the South System. Vale operates a maritime terminal on Guaíba Island in the Sepetiba Bay in the state of Rio de Janeiro. The iron ore terminal has a pier (with two berths) which allows the loading of ships up to 350,000 DWT. In 2016, the terminal loaded approximately 46.1 million metric tons of iron ore.

VLI also operates the maritime terminal Inácio Barbosa (TMIB) belonging to Petrobras in the state of Sergipe; the maritime terminal in Santos (TIPLAM), in São Paulo, jointly owned between VLI and Vale Fertilizantes, and Pier II at Itaqui port that can accommodate vessels up to 155,000 DWT and has a maximum loading rate of 4,500 tons per hour for pig iron and 3,000 tons per hour for grain.

- Argentina

Vale Logística Argentina S.A. ("Vale Logística Argentina") hires third-party services to operate two terminals and a transshipment in Argentina. The terminals are located in the Port of Rosario, Santa Fe Province, and Port of San Nicolas, located in the province of Buenos Aires. Transshipment is also located in the Santa Fe Province. Vale handled 1.76 million metric tons of iron ore and manganese through this port in 2016, coming from Corumbá, Brazil, and transported by the Paraná and Paraguay rivers to shipments for the Brazilian, Asian and European markets.

- Canada

The Vale Newfoundland and Labrador Limited operates a port as part of its mining operation in Voisey's Bay, Labrador, and a port as part of its processing operation in Long Harbor, Newfoundland. The port of Voisey's Bay is used for shipments of nickel and copper and refueling. The Port of Long Harbor is used to receive nickel concentrate from Voisey's Bay with goods and materials required for the operation of Long Harbor.

- Oman

Vale Oman Distribution Center LLC operates a distribution center in Liwa, Sultanate of Oman. The marine terminal has a large deep water dock, a deck 600 meters in length connected to the beach via a bridge 700 meters long and is integrated with a storage yard with a movement processing capacity of 40 million metric tons of iron ore and iron ore pellets per year. The nominal loading rate for this port is 10,000 tons/hour and nominal unloading rate is 9,000 tons/hour.

- Indonesia

PTVI owns and operates two ports in Indonesia to support its nickel mining activities.

- The special port of Balantang is located in the Balantang village, in southern Sulawesi, with two types of piers with a total capacity of 10,000 DWT: two resources for barges with a capacity of up to 4,000 DWT each for dry bulk and a pier for loading general cargo for vessels of up to 2,000 DWT.

- The special port of Tanjung Mangkasa is located in the Lampia village, in southern Sulawesi with buoys mooring that can accommodate ships of up to 20,000 DWT, and a terminal that can accommodate tankers with a capacity of up to 5,000 DWT, with a total capacity of 25,000 DWT.

- New Caledonia

Vale owns and operates a port in the Bay of Prony, South Province, New Caledonia. This port has three terminals, including a ferry terminal for passengers able to moor two vessels up to 50

meters long, a pier for dry bulk where ships of up to 55,000 DWT can discharge at a rate of 8,000 tons per day and a pier for general cargo where vessels up to 200 meters long can dock. The dock for general cargo is capable of handling containers at a rate of 7 units per hour and liquid fuels (LPG, diesel and HFO) at a rate of 350 cubic meters per hour, and fractionated load. The port's container yard with an area of approximately 13,000 square meters, can accommodate up to 1,000 units. A bulk storage yard is connected to the port by a treadmill and has a storage capacity for 94,000 tons of limestone, 95,000 tons of sulfur and 60,000 tons of coal.

- Malaysia

Teluk Rubiah Maritime Terminal ("TRMT") is located in the State of Perak, Malaysia, and has a pier with two berths that allow the unloading of ships with a capacity of approximately 400,000 DWT and cargo ships with a capacity of up to 220,000 DWT. In 2016, the terminal unloaded 21.4 million metric tons of iron ore and loaded 21.7 million metric tons of iron ore. Vale produces and sells in this terminal the *Brazilian blend fines,* by mixing iron ore produced in Carajás with the iron ore produced in the South and Southeast Systems.

4.1.3 Transport

Maritime iron ore transport

In 2016, Vale shipped approximately 202 million metric tons of iron ore and pellets, transactions in which Vale was responsible for the freight (CFR or CIF basis), corresponding to 59% of its total sales of iron ore. Vale carried a lot of its iron ore products from Brazil to Asia through long-term contracts with bulk ore charterers with a capacity of 400,000 deadweight tons ("DWT"). These vessels reduce energy consumption and emissions of greenhouse gases, and carry a larger amount of cargo at a time, providing lower transportation costs. In 2016, approximately 48 million tons of iron ore products were transported by these vessels with long-term charter contracts.

Vale has 8 ships in service, consisting of four huge bulk ore carriers with a capacity of 400,000 DWT each, and four *capesize* vessels with capacities ranging from 150,000 to 250,000 DWT.

Vale changed its strategy for maritime transport. In the past, Vale owned and operated a fleet of low cost vessels to transport cargo from Brazil to other markets, especially in Asia. The company is now focused on ensuring a long-term transportation capacity and protecting against volatility in the shipping prices through long-term charter contracts, without incurring the costs related to the construction and ownership of ships. Since 2014, Vale sold 15 of its immense bulk ore carriers with capacities of 400,000 DWT, for a total value of US$ 1,584 billion. Three of these immense bulk ore carriers were sold in 2016. In addition, in September 2016, Vale agreed to sell four of its *Capesize* ships to Polaris Shipping Co. Ltd., for US$ 35 million per ship. Two of these vessels were delivered in December 2016 and two in January 2017.

Vale also owns and operates two floating transfer stations ("STFS"), located in Subic Bay in the Philippines, which transfer iron ore from the huge bulk ships to smaller vessels, which deliver the cargo to their destinations. Vale suspended operations at one of its STFS in February 2016, and can sell both STFS in 2017.

Waterways System Paraná - Paraguay

In the Paraná and Paraguay waterway, Vale carried iron ore and manganese through its subsidiary Transbarge Navigación, which carried 2.98 million tons by river in 2016, and other chartered convoys. The barges are unloaded at terminals belonging to Vale's local customers, at contracted terminals in Argentina or on the premises of Vale's subsidiary, Vale Logística Argentina, which carries ore in oceangoing vessels. In 2016, Vale Logística Argentina carried in two ports in Argentina, San Nicolas and Rosario, and in a transshipment point, 1.76 million tons of ore in oceangoing vessels.

Tugboats

Vale manages a fleet of 16 tugs. Vale directly operates nine tugboats in the ports of Vitória and Mangaratiba, in the states of Espirito Santo and Rio de Janeiro, respectively. Four tugboats at the port of St. Louis in the Brazilian state of Maranhão are operated by consortium of companies, in which Vale has a 50% stake. Three other tugs are chartered to third parties and operated by them under their responsibility, in other ports of Brazil.

4.1.4 Energy

Vale manages its power generation portfolio based on current and projected energy needs for its operations, aiming to reduce costs and minimize the risk of power supply shortage.

- Brazil

Efficient management and energy supply in Brazil are priorities for Vale, given the uncertainties associated with changes in the regulatory environment and the risk of increase in tariffs. In 2016, the capacity installed in Brazil was 1.4 GW, from power plants controlled directly and indirectly. Vale used the electricity produced by these plants to meet its domestic consumption needs. Currently, Vale has a direct stake in three hydropower plants and four small hydroelectric power plants in operation. The hydroelectric plant of Candonga, of which operations remain suspended since November 2015 as a result of the Samarco dam break, is located in the Southeast, and the hydroelectric plant of Machadinho is located in the South, and the hydroelectric plant of Estreito is located in the North. The small hydroelectric power plants of Ituerê, Melo, Glória and Nova Maurício are located in the Southeast. Vale also has indirect shares in hydroelectric plants Igarapava, Porto Estrela, Funil, Candoga, Aimorés, Capim Branco I and Capim Branco II, through its 55% stake in Aliança Geração. These hydroelectric plants are located in the Southeast and part of the electricity generated is directed to Vale's operations through a power purchase agreement with Aliança Geração.

Through its subsidiary Alliance Norte Energia Participações S.A., Vale also has an indirect interest of 4.59% in the capital of Norte Energia S.A. ("NESA"), company formed to develop and operate the Belo Monte hydroelectric plant in the state of Pará which started operations in April 2016. Vale's participation in the Belo Monte project confers the right to purchase 9% of the electricity generated by the plant, according to a long-term power purchase agreement signed in 2012.

Vale also produces, through its subsidiary Biopalma da Amazônia S.A. ("Biopalma"), palm oil in the state of Pará, in order to produce biodiesel in the future by means of an industrial plant that will be installed by Biopalma. This biodiesel mixed with regular diesel to produce diesel B20 (20% biodiesel), can be used to fuel our fleet of mining trucks, heavy machinery and locomotives of the North System operations.

- Canada

In 2016, Vale's hydroelectric plants in Sudbury supplied 17% of the electricity demand of Vale's operations in Sudbury. These plants consist of five separate stations with a generation capacity of 56 MW. The generation of plants is limited by the availability of water and also by restrictions of a water management plan imposed by the Ontario provincial government. In 2016, the average electricity demand was 199 MW for all surface mines and plants in the Sudbury area.

In 2016, the diesel power generation supplied 100% of the electrical needs of Vale's operations in Voisey's Bay. There are six diesel generators on site, with capacity between 12 MW and 14 MW in order to meet seasonal demands.

- Indonesia

Energy costs are a significant component of nickel production costs for the processing of lateritic ores in the operations of PTVI, Indonesia. A large part of the energy needs of the PTVI electric

furnaces is provided at a low cost through its three hydroelectric power plants located in Rio Larona: (i) the Larona plant has an average capacity generation of 165 MW (ii) the Balambano plant has an average capacity of 110 MW, and (iii) the Karebbe plant has an average capacity of 90 MW. These plants help reduce costs by replacing diesel generated power for hydroelectric power generation, reducing CO2 emissions, replacing the generation of nonrenewable energy, and enabling Vale to increase current nickel production capacity in Indonesia.

5. Other investments

List of Vale's main investments:

- *Pelletizing plants.* Vale holds a 25% stake in two power plants of iron ore pelletizing in China: Zhuhai YPM and Anyang. The rest of the stake in Zhuhai YPM belongs to Zhuhai Yueyufeng Iron and Steel Co. Ltd. and Halswell Enterprises Limited, while the remaining stake in Anyang belongs to Anyang Iron & Steel Co., Ltd.

- *Coal operations.* Vale holds a 25% stake in the coal operations in Longyu, China (Henan Province). Longyu produces metallurgical and thermal coal and other related products and the remainder of the shares belong to Yongmei Group Co., Ltd. (formerly Yongcheng Coal & Electricity (Group) Co.Ltd.), Shanghai Baosteel International Economic & Trading Co. Ltd. and other minority shareholders.

- *Nickel refinery*. Vale has an indirect 25% stake in Korea Nickel Corporation, which operates a nickel refinery in South Korea. The remaining stake belongs to Korea Zinc Co. Ltd., Posteel Co. Ltd., Young Poong Co. Ltd., Pohang Technology College and several individual investors. The Korea Nickel Corporation produces finished nickel for the stainless-steel industry using intermediate products from Vale's operations in Matsuzaka and New Caledonia.

- *Steel producers*. Vale holds 50% of the capital of California Steel Industries, Inc. ("CSI"), a producer of flat rolled steel and pipelines, located in California, United States. The rest belongs to JFE Steel. The annual production capacity of CSI is approximately 2.8 million metric tons of flat products and tubes. Vale also has a 50% stake in Companhia Siderúrgica do Pecém ("CSP"), an integrated steel slab plant in the state of Ceará, in partnership with Dongkuk Steel Mill Co. ("Dongkuk") and Posco, two of the largest steel producers in South Korea. CSP's annual production capacity is 3.0 million metric tons. Vale is currently negotiating the sale of the steel project of Aços Laminados do Pará ("ALPA") with the Cevital Group. In April 2016, Vale sold the total of its 26.9% stake in ThyssenKrupp Companhia Siderúrgica do Atlântico ("CSA"), an integrated plant of steel plates located in the state of Rio de Janeiro.

- *Bauxite.* Vale has a 40% stake in Mineração Rio do Norte S.A. ("MRN"), a bauxite mining company located in Brazil.

Hydrocarbon exploration licenses

In February 2016, Vale sold its *onshore* hydrocarbon exploration licenses in Peru and during the year sold or otherwise disposed of licenses for *offshore* exploration in Brazil. Vale is currently in the process of selling its stakes in the joint ventures in both countries.

e. Key inputs and raw materials:

i. Description of the relationship with suppliers, including whether they are subject to government control or regulation, identifying the agencies and the applicable legislation

Vale is committed to building a sustainable business model and contributing to a more just, environmentally balanced and economically prosperous society. In relation to its suppliers, Vale adopts the strategy to maintain a long-term relationship in order to promote partnerships aimed at gains for both parties, through continuous development and innovation and providing quality goods and services with compatible costs.

In order to achieve continuous improvement and contribute to advances in the production chain, relationship management with suppliers includes the following steps:

(i) Certification and Registration of suppliers based on their values and considering, in addition, the identification and analysis of supply risks (environmental, institutional, labor, social security, financial, health and safety and ethics);

(ii) *Due diligence* of others in order to mitigate reputational risks resulting from a possible involvement of trading partners in events that violate human rights or anti-corruption laws applicable to Vale, such as the *Foreign Corrupt Practices Act* - FCPA, *UK Bribery Act* and the Brazilian law against corruption (Federal Law No. 12,846, August 1, 2013);

(iii) Monitoring the financial health of its main suppliers of materials, equipment and services;

(iv) Periodic performance assessment to ensure compliance with the requirements applicable and defined in the hiring stage, as well as adherence to the contract expectations;

(v) Development and support in training suppliers; and

(vi) Promotion and prospecting for new suppliers.

In accordance with the Universal Declaration of Human Rights of the UN, Vale respects and promotes human rights in its activities throughout the production chain and in the regions where it operates.

In this sense, Vale seeks to establish business relationships with suppliers who share its principles and values and respect human rights.

Vale's principles and values are disclosed to its suppliers through the Code of Supplier Conduct and Ethics, document that is signed by all the companies that have contracts with Vale. It is noteworthy that the Code is available for consultation on the Company's website (www.vale.com).

Certification of suppliers in Vale considers the query of the list published by the website of the Ministry of Labor and Employment (MTE) that relates individuals or entities implicated in the submission of workers to conditions analogous to slavery, and the CEIS list (National Register of Ill Repute and Suspended Companies) relating disreputable companies and suspended by the Federal Government. Other consultations of public sanction lists can be applied in specific cases.

The guidelines and criteria adopted by Vale to assess their suppliers include, besides those already mentioned, legal environmental requirements for suppliers whose operational processes involve the use of natural resources or are considered potentially polluting or capable of causing environmental degradation. In addition to these legal aspects, the criteria for Vale's Environmental Management and the principles of its Sustainable Development Policy are considered.

Regarding the recipients of waste generated in Vale's production processes, all are subject to audit by the Department of Environment and Sustainable Development with a view to their initial approval and periodic revalidation.

The main environmental laws observed in the supplier contracting process are:

a) Environmental Licensing

- Federal Law 6938/81 - National Environmental Policy
- Resolution of the CONAMA (National Environment Council) 237/97
- Complementary Law 140/11
- Resolution of the CONAMA (National Environment Council) 01/86
- Federal Law 10165/00
- Federal Law 12651/12
  - Normative Ruling IBAMA (Brazilian Institute of Renewable Natural Resources) 96/06 and 97/06.

b) Pesticides
- Federal Law 7802/99
- Federal Decree 4047/02
- Law 6360/76 - ANVISA - National Agency for Sanitary Surveillance

c) Transportation of Dangerous Goods
- Decree 96044/88
- ANTT Resolution (National Land Transportation Agency) 420/02

d) Radioactive Material
- CNEN Resolution (National Nuclear Energy Council) NE 2:01
- CNEN Resolution (National Nuclear Energy Council) NE 5:02

e) Explosive Material
- Federal Decree 3665/00

f) Controlled Chemical Products
- Ordinance of the Ministry of Justice 1274/2003.

ii. Eventual dependence on few suppliers

The main inputs purchased by Vale in 2016 were: liquid and solid fuels, conveyor belts, grinding bodies, parts and components of mining equipment, and of railways and tires. In addition, the main provision of services consisted of cargo transport, sea freight services, steel structures assembly, facilities maintenance and repair, earthworks, rent of handling equipment, maintenance and repair of equipment and project management.

In 2016, the main categories of equipment purchased by the procurement sector were lifting equipment, freight cars and power distribution. The major groups of Vale's suppliers of such equipment are AMSTED-MAXION, THYSSENKRUPP and ABB, together accounting for 2.6% of the total supplies purchased in this period.

Fuel consumption is quite intense, especially in iron ore operations and transportation. The main supplier of this raw material is Petrobras Distribuidora, which contributed with approximately 75% of Vale's fuel purchases in 2016.

During this period, 57% of the electricity consumed by Vale was self-produced in Brazil, the remainder being supplied through energy purchases in the market, of which the main suppliers were major players in the electricity market in Brazil. The ten largest suppliers of inputs, equipment and services contributed with 22% of the total supplies purchased until December 31, 2016.

iii. Eventual volatility in prices

Vale has some contracts in which prices are pegged to market indexes (parametric formulas) and therefore subject to these volatilities. Prices may also vary in relation to historical prices depending

on supply versus demand in the market at the moment of competition. For additional information regarding the possible volatility of Vale's product prices, see section 4.2 of this Reference Form.

7.4 - Customers responsible for more than 10% of total net income

In 2016, no customer was responsible for more than 10% of Vale's net income.

7.5 - Relevant effects of the state regulation on the Company's activities

a. Need for governmental authorizations for the exercise of activities and history of relationship with the public administration to obtain such authorizations

Vale is subject to numerous government regulations in all jurisdictions in which it operates worldwide. Hereinafter, we indicate a summary of the regulations that have the most significant impact on Vale's operations.

Mining Rights

Mining and mineral processing are subject to extensive regulation. In order to carry out these activities, Vale is obligated to obtain and maintain certain governmental and private licenses, which may include concessions, licenses, requirements, leases, locations or permits (all of which are referred to below as "Concessions"). The legal and regulatory regimes applicable to the mining industry and government concessions differ between jurisdictions, often in a significant way. In many jurisdictions, including Brazil, mineral resources belong to the State and can only be extracted through a government grant (see "Mining Activities Regulation"). In other jurisdictions, such as Ontario, Canada, an important part of Vale's mining operations is performed in accordance with Vale's mining rights (private licenses). Government agencies are generally in charge of provide mining concessions and monitor the fulfillment of mining laws and regulations.

The table below provides a summary of the main concessions and other similar rights of Vale for current operations. It does not include information regarding the fertilizer business (discontinued operations).

Local	Mining Title	Approximate covered area (in hectares)	Expiration date
Brazil	Mining concessions (including requirements for news concessions)	574,967	Undetermined
Canada (1)	Mining concessions (terminology variates between provinces)	225,685	2017-2036
Indonesia*(2)*	*Contract of work*	118,435	2025
Australia	*Mining Leases*	4,559	2041
New Caledonia	Mining Concessions	21,077	2017-2051
Mozambique (3)	Mining Concessions	23,780	2032

(1) The maturity date of the leases in Sudbury is subject to the current renewal requests. The approval process for these requests is in progress, but it may take a few years.
(2) Entitled to two extensions of 10 years subject to the approval of the Indonesia government.
(3) Entitled to extensions of 25 years, subject to the approval of the Mozambique government.

In addition to the concessions listed above, Vale has exploitation licenses and requirements covering 4.4 million hectares in Brazil and 1.4 million hectares in other countries.

Many concessions impose obligations on concessionaires, such as, for example, how operations are carried out and what type of investments will be required. In order to maintain mining rights, it is necessary to meet these requirements, which generally imply relevant investments and high operating costs

Regulation of mining activities

There are several recent proposals or changes in the mineral legislation and regulations in the jurisdictions where we operate, which may significantly affect the Company.

- *Brazil.* The mining activity in Brazil is currently governed by the Brazilian Mining Code of 1967, which provides for different regimes for utilization of mineral substances, which differ according to the ore to be exploited and the dimension of the project to be developed. Currently, there are five mining utilization regimes, namely: Research Authorization, Mining Concession, License Registration or Mining Licensing, Mining Prospector Permit and Monopolization.

  The Federal Government sent to Congress in June 2013 a proposal for a new Brazilian Mining Code, which is under discussion. This proposal includes, among other things, the preservation of the main rights for mineral licenses up to the date of enactment, a revision of the *royalties*, a new regime for mining concessions for a period of up to 40 years (renewable for periods of up to 20 years) through a bidding process, and creation of a Mining Agency with the objective of simplifying the process of granting mining titles. The government recently expressed its intention to split the project into three separate parts (royalties, new mining concessions regime and the creation of a mining agency) to optimize the approval process.

- *New Caledonia*. The mining law approved in 2009 requires that the mining projects obtain authorization from government agencies, rather than a declaration, as required by previous legislation. VNC submitted a new update request for this authorization in October 2015. The VNC mining operation license was granted in September 2016 and is valid until the end of 2036. The new mining authorization is approved and in force. In addition, in 2014, local authorities in New Caledonia have created a protected marsh that covers 27% of the total area leased by VNC that may affect potential mining activities. Part of this protected marsh is adjacent to the future VNC tailings deposit, which may affect the design of that deposit, which in turn may result in additional investment costs.

Environmental regulations

Vale is subject to environmental regulations that apply to the specific types of mining and processing activities that it performs. Vale is required to obtain approvals, licenses, permits or authorizations from public authorities to operate. In most jurisdictions, to build new facilities, Vale must submit environmental and social impact studies to the approval and often make investments in order to minimize those impacts. Vale must operate its facilities in accordance with the terms of approvals, licenses, permits or authorizations.

Vale's activities, operations, products, services and projects are subject to environmental regulation in accordance with the associated aspects. Such regulation requires the obtaining of licenses, authorizations and environmental licenses, which make up the environmental licensing process, which are subsidized by the analysis and prior approval of several environmental studies required by the responsible bodies at different levels of government. Likewise, with each significant change, alteration or extension necessary of Vale's activities, operations, products, services and projects, information is submitted to said environmental agencies with the purpose of ensuring their legal compliance and obtaining, when necessary, the issuance of a new authorization act or adequacy of the one already issued.

The authorizing acts issued establish actions for control, mitigation, compensation and environmental management, considering parameters and other requirements that must be met by the Company during the course of its activities, demanding specific investments for greater adherence to its processes, tasks and equipment.

In order to improve the environmental licensing process, Vale developed the Environmental Licensing Good Practices Guide that provides (i) integration between the environmental area and the others involved in the life cycle of the enterprise, (ii) the performance of fully trained technical teams (iii) greater interaction with environmental agencies and (iv) implementation of an Executive Committee responsible for accelerating internal decisions regarding licensing.

Vale also invests in technological and process innovations that result in solutions for more efficient environmental actions. This not only results in an improvement in their environmental performance, but also in the opportunity for better competitive performance, given the fact that environmental regulation applies to all competing companies, as far as such actions result in lower long-term costs deadline. Examples include: (a) the *truckless* system that is being implemented in the Ferro Carajás S11D Project, which exempts the use of off-road trucks for the transportation of ore and sterile, with consequent reduction of emissions of greenhouse gases and particulate matter, reduction of risks of accidents and trampling of fauna, as well as (b) the implementation of water reuse processes, with great savings in the capture of this resource.

The use of natural resources is largely regulated by current legislation and the company's demand considers, among other aspects, its environmental impacts on water resources, ecosystems, aerial and hydrographic basins, natural underground cavities, forests, sea, and coasts. The Brazilian legal system predicts the possibility of administrative, civil and criminal liability, with the imposition of sanctions in case of non-compliance with the legislation. In the scope of environmental civil liability, financial guarantees may be used in some cases, such as in the case of decommissioning of the Company's assets and remediation of eventual environmental liabilities.

Legislation on Environmental Infringements

The environmental regulations that affect Vale's operations are related, among other issues: (a) to emissions into air, soil and water; (b) recycling and tailings management; (c) protection and preservation of forests, coasts, natural subterranean cavities, river basins and other ecosystem characteristics; (d) use of water; (e) financial provisions and closure plans required since the mining license, including climate change, decommissioning and recovery of the impacted area.

Federal Decree No. 6,514/2008 regulated the Law on Environmental Crimes (Federal Law No. 9,605/98), providing for infractions and administrative sanctions against the environment, such as those against the protection of fauna, flora, pollution, urban planning and cultural heritage, environmental management, conservation units, among others.

Federal Decree No. 6,514/08 also establishes penalties for noncompliance with the legislation, which may vary from warning, embargo to work, stoppage of activities and fine penalty (which may vary from R $ 5,000.00 to R $ 50,000.00).

Legislation on protected areas

Protection of forests and other forms of vegetation is regulated by Federal Law 12,651/12, which established the new Forest Code, and by a set of federal, state and municipal regulations.

Federal Law No. 12,651/12 provides, among others, the obligation of owners or holders of rural properties to maintain a preserved Legal Reserve area, which will vary according to the biome in which the rural property is located, being able to reach the percentage of 80% in the areas of Legal Amazon. In 2014, the Rural Environmental Registry ("CAR") was nationally implemented. The period for enrollment in the CAR, originally of 1 year, was extended successively, being today of December 31, 2017 by virtue of Federal Law 13,295/2016.

The institution and protection of Conservation Units ("CUs"), in turn, are provided for in Federal Law 9,885/00, which establishes the National System of Conservation Units ("NSCU"). CUs are governed by their creation decrees and management plans, and interferences within their limits without the consent of the unit's management body may characterize administrative infraction and lead to the application of penalties.

In contrast to the environmental impacts inherent to its business, Vale supports the implementation of CUs in Brazil, since the financial resources paid for environmental compensation, linked to the licensing of ventures of significant environmental impact, are intended to support the creation or maintenance of CU, as defined by the environmental licensing body.

The Company also adopts mitigating or compensatory measures related to its environmental impacts, complying with legal requirements of federal, state or municipal origin, considering the interferences of its projects and/or operations in the territory, including: permanent preservation areas, vegetation and protected plant species by law, speleological and archaeological patrimony, and payment for the wood suppressed in specific situations.

Waste Management and Contaminated Areas

Activities of solid waste management are regulated by the National Solid Waste Policy, established by Federal Law No. 12,305/10. This law requires the responsibility of all parties involved in the management of waste, for example, in the allocation environmentally appropriate of waste generated.

All areas identified as contaminated need to be investigated and if the risk analysis demonstrates need for intervention, it should be the subject of remediation until the risks are controlled. Failure to fulfill responsibilities may lead to administrative and criminal sanctions and indemnities in the civil sphere.

The owner of a contaminated property is obliged to repair any environmental damages or negative impacts that exist in the area, regardless of the causes of contamination, which can entail significant expenses (this obligation is linked to the property, not to the user). It should be noted that liability for an environmental damage is not subject to limitation, that is, it does not expire with the lapse of time.

Cavities

The underground natural cavities represent fragile ecosystems that make up the national speleological heritage. The intervention in underground natural cavities is regulated by Federal Decree No. 6,640/2008, which provides for the form of intervention in these areas, according to the degree of cavity relevance. The interference in cavities imposes the need to carry out extensive technical studies and is the subject of complex discussions with the involved organs. The occurrence of natural underground cavities can be decisive in the planning and implementation of mining projects, in order to limit or modify the exploitation plans, as well as to generate additional costs related to cavity preservation or compensatory measures arising from cavity impacts.

Archaeological sites and areas of historical and cultural interest

The Federal Constitution establishes that the government and civil society are responsible for the protection of cultural heritage. In areas with potential occurrence of archaeological sites and areas of historical and cultural interest, the Company shall obtain the authorization of the National Historical and Artistic Heritage Institute ("IPHAN") in the planning phase of the project. The unauthorized intervention in cultural, historical and archaeological areas is considered an administrative infraction subject to the application of penalties.

The actions adopted by Vale, pertinent to the disclosure and safeguarding of Cultural Heritage, take place in all stages of the project and not only in the planning phase. On the date of this Reference Form, Vale has 21 archaeological sites preserved inside Vale properties, several of these sites tumbled and coexisting with the Company's operations. Vale is responsible for its protection, maintenance and guarantee of enjoyment by the communities.

Water resources

According to the National Water Resources Policy 9,433/1997, the Company is subject to the granting by the Public Authority of the rights to use the following water resources: (1) derivation or capture of a portion of the water existing in a water body for final consumption, including public

supply, or production process input; (2) extraction of underground aquifer water for final consumption or production process input; (3) discharge into the body of sewage and other treated or untreated liquid or gaseous effluents for the purpose of dilution, transportation or final disposal; (4) use of hydroelectric potential and (5) other uses that alter the regime, quantity or quality of water in a body of water.

The Company complies with its quantitative and qualitative monitoring of water resources and effluents, which considers its legal obligations (conditioning of licenses, authorization, permits, etc.).

Carbon Emissions and Climate Change

The physical effects of climate change can affect the technical specifications of the Company's projects, use of equipment and supplies, provision of services, etc., with the potential to generate impact on schedule and operating costs.

A possible governmental adoption of a carbon pricing policy, either through a fee (or tax) on emissions of greenhouse gases and/or through the creation of a carbon market, and consequently imposing a limit on emissions of the Company, may require additional investments to reduce emissions. In particular, regulatory measures aimed at taxation of carbon emissions in international shipping may raise trans-ocean freight costs for the Company. At the limit, depending on the technical and economic feasibility, carbon pricing can influence changes in the Company's energy matrix and in the technology of existing and future processes.

The Company has the Global Policy on Mitigation and Adaptation to Climate Change that defines the corporate guidelines for addressing the issue throughout the company and controlled group. As described in one of the pillars of this Policy, the Company has an initiative to engage the supply chain on climate change.

Indian people

It was enacted in 2011 and revised in 2015 a Brazilian regulation for the protection of indigenous peoples, which requires Vale to carry out specific impact studies and sponsor mitigation programs in connection with operations and projects near indigenous lands.

As envisaged in International Labor Organization (ILO) Convention No 169, projects that directly impact indigenous communities should be the subject of a prior, free and informed consultation process with such communities.

Also according to Interministerial Ordinance 60/2015, the participation of the National Indian Foundation (FUNAI) in the environmental licensing of projects will occur whenever such projects are located in indigenous lands, or present elements that may cause direct socioenvironmental impacts on indigenous lands, (such as mining or railroads located up to 10 kilometers away from the Indigenous Land in the Legal Amazon).

Vale conducts processes of prior, free and informed consultation with the Awa, Guajajara, Kaapor, Gavião and Kayapo peoples due to the licensing processes of the Carajás Railroad - EFC. Vale is in the process of implementing the Basic Environmental Plan with the Awa, Guajajara, Kaapor, Kayapo, Tupiniquim and Guarani peoples.

Dams

In May 2016, the state of Minas Gerais issued a decree ordering an immediate assessment of the stability conditions of upstream dams and suspending new licensing procedures for the construction or lifting of upstream dams until the state environmental authority defined new rules and procedures. Vale carried out extraordinary audits on the stability conditions of its upstream dams and no anomalies were identified. Vale has filed reports with local government authorities in September 2016. In March 2017, the state of Minas Gerais determined that dams already

altered by the upstream method, but had their stability conditions verified by audit, could be altered by other constructive methods.

Environmental liability

Environmental liability can occur in three diverse and independent spheres: (i) civil; (ii) administrative and, (iii) criminal.

- *Civil liability:* The entrepreneur, regardless of the existence of guilt, shall indemnify or repair damages caused to the environment and to third parties affected by their activities. Environmental legislation stipulates joint liability among polluters (Federal Law 6,938/81), which implies the possibility of holding all parties involved in an event that causes damages to the environment.

- *Administrative liability:* The administrative liability arises from an action or omission that results in the violation of any norm of preservation of the environment (Federal Decree nº 6,514 / 08). Sanctions against an administrative infraction may include warning, fine, product disruption, suspension of sale and manufacture of the product, seizure of work or activity, demolition of work, among other rights restrictions.

- *Criminal liability:* In the criminal sphere, Federal Law no. 9,605 / 98 (Environmental Crimes Law) is subject to its effects any person, physical or juridical who practices conduct that is harmful to the environment. The Law also provides for the possibility of disregarding the legal personality that causes the environmental infraction in certain cases. The sanctions applicable to legal entities may be (i) partial or total suspension of the activity; (ii) temporary interdiction of establishment, work or activity; and, (iii) prohibition of contracting with the Power Authority, as well as to obtain subsidies, grants or donations.

Other Considerations on Environmental Legislation

Environmental legislation is becoming more stringent around the world, which can lead to higher costs for compliance with environmental laws. In particular, the Company expects more attention from several governments on issues associated with the reduction of greenhouse gas emissions as a result of concerns about climate change, especially after the entry into force of the Paris Agreement at the end of 2016 . There are several examples of environmental regulation and compliance initiatives that may affect the Company's operations:

- *Canada*. In Canada, stricter water effluent standards are being proposed by the government, and a cap on greenhouse gas emissions and trade regulation are being enacted in Ontario and proposed in Manitoba and Newfoundland and Labrador, which could affect Company. In Canada, Vale is making significant investments to ensure compliance with air emissions regulations, which include, among other things, sulfur dioxide, greenhouse gas emissions, particulates and metals.

- *Indonesia.* Under the Indonesian Government Regulation of 2014 on waste B3, PTVI slag is classified as hazardous waste, and PTVI submitted a formal request to the regulatory body for approval.

- *China.* An amendment to the environmental protection law was approved in April 2014, imposing tougher obligations on pollution prevention and control of companies and providing more severe penalties. This change could negatively affect exports of coal from Mozambique's Vale to China.

- *New Caledonia*. A law approved in the Southern New Caledonia Province in February 2014 has imposed stricter limits on emissions of nitrogen oxide, sulfur oxide and particulates from large power plants, which will affect the power station that supplies electricity to the VNC. This is expected to result in an increase in the price of energy paid by VNC.

Royalties and other taxes on mining activities

In many jurisdictions, Vale is required to pay royalties or taxes on its incomes or profits from extractions and sales of the minerals. These payments constitute an important element of the economic performance of a mining operation. The following royalties and taxes apply in some of the jurisdictions in which Vale has its largest operations:

- Brazil. Vale pays a royalty known as Financial Compensation for the Exploration of Mineral Resources (CFEM) on net sales, and is calculated based on revenues from the sale, net of taxes, of extracted mineral products, less insurance and transportation costs. The current rates on our products are: 2% for iron ore, copper, nickel, fertilizers and other materials, 3% for bauxite, potassium and manganese ore and 1% for gold. In 2013, the Brazilian Federal Government sent to Congress a bill proposing changes to the Brazilian Mineral Code, which may result in an increase of *royalties* rates. The bill is currently under discussion in the Brazilian Congress. Several Brazilian states charge a tax on mineral production (Inspection Fee of Mineral Resources - TFRM), with rates ranging from R $ 0.50 to R $ 3,214 per metric ton of minerals produced or transferred from the state.

- Canada. The Canadian provinces where Vale operates charge a profit tax on mining operations. Profit from mining operations is generally determined by reference to gross revenue from sales of mine output and deducting some costs, such as mining and processing costs and investment in processing assets. Statutory mining rates are 10% in Ontario, with graded aliquots of up to 17% in Manitoba and a combined 16% *royalty* and mining rate in Newfoundland and Labrador. The mining tax paid is deductible for company income tax purposes.

- Indonesia. Vale's subsidiary PTVI pays 2% mining royalties on its nickel matte revenues when LME nickel prices are below US$ 21,000 per metric ton and 3% on its nickel matte LME nickel prices are equal to or greater than US$ 21,000 per metric ton.

- Zambia. In June 2016, the Zambian government amended the Mines and Mining Act and implemented a series of changes to the tax regime applicable to the mining industry. The mineral royalties applicable to underground copper operations, such as *joint venture* operations, are 4% of the standard value, when the price of copper is below US$ 4,500 per ton, 5%, when the price of copper is Between US$ 4,500 and US$ 6,000, and 6% when the price of copper is above US$ 6,000. The 15% tax on profit, applicable when taxable profits exceed 8% of gross sales, was not reintroduced and profit tax on mining operations remained at 30% and 35% for profit from mineral processing.

Regulation of other activities

In addition to mining and environmental regulation, Vale is subject to comprehensive regulatory regimes for some of its activities, such as rail transportation, port operations and power generation. It is also subject to legislation regarding employee health and safety, security and support to communities close to mines and other issues. The descriptions below are related to some of the other regulatory regimes applicable to your operations:

- Regulation of the Brazilian railways and ports. Vale's Brazilian rail business operates under concession contracts with the Brazilian Federal Government, and its railway concessions are subject to regulation and supervision by the Ministry of Transport, Ports and Civil Aviation and the National Land Transport Agency (ANTT). The EFC and EFVM concessions expire in 2027 and may be renewed at the discretion of the Brazilian Federal Government. VLI also obtained a sub-concession contract for commercial operation of a 720-kilometer segment of the FNS railroad in Brazil, which expires in 2037, while the FCA and MRS concessions expire in 2026. The prices of rail transport can be negotiated directly with the users of these services, subject to the maximum tariff limits

approved by ANTT for each of the concessionaires and each of the different products transported. ANTT regulations also oblige concessionaires to grant railroad rights use (*trackage rights*) to other railroad operators, to make investments in the railway network, and to meet certain productivity and safety requirements, among other obligations. In 2015, Vale and other railroad concessionaires in Brazil began discussions with ANTT about the possibility of early renewal of railway concession contracts. If an early renewal of the concession is agreed, Vale may agree on additional performance indicators, new investment obligations and service standards.

Port operations in Brazil are subject to regulation and supervision by the National Aquatic Transportation Agency (ANTAQ), the federal agency that oversees maritime transport and ports, and by the Ministries of Transportation, Ports and Civil Aviation, through the National Ports, whose purpose is to formulate policies and guidelines. In 2014, Vale entered into adhesion contracts by which the Union authorizes the operation and operation of private terminals. These agreements will be in force until 2039, with the exception of the lease of CPBS, which will expire in 2026.

- Regulation of chemical products. Some of Vale's products are subject to regulations applicable to the marketing, distribution and use of chemical substances present in its composition. For example, the European Commission has adopted the European Chemicals Policy, known as REACH - Registration, Evaluation and Authorization of Chemicals (REACH). According to REACH, European manufacturers and importers are required to register substances before entering the European market and in some cases may be subject to an authorization procedure. A company that does not comply with REACH regulations may receive fines and penalties.

- *Regulation of international shipping.* Vale is subject to the health, safety and environmental regulations issued by the International Maritime Organization ("IMO"). IMO standards are based not only on international shipping categories but also on types of cargoes transported, including special rules for iron ore, coal, nickel and copper. IMO is currently debating new measures to improve the energy efficiency of international shipping, including the development of a global data collection system, which will ultimately enable market-based measures to curb greenhouse gas emissions. These measures to curb greenhouse gas emissions can increase our freight cost in the future.

  In 2016, the IMO also approved a regulation setting limits for the emission of sulfur oxides, which will come into force in 2020. Such regulation may increase the cost of freight due to the need to use low sulfur fuels or additional air pollutant control equipment. In addition, the International Convention for the Control and Management of Ships' Ballast Water and Sediments will enter into force in September 2017. Under this convention, all ships during their international voyages are required to manage their ballast water and sediment in accordance with defined requirements, which may also result in increases in freight costs and port operation.

b. Environmental policy of the Company and costs incurred to comply with environmental regulations and, if applicable, other environmental practices, including adherence to international environmental protection standards

Vale's governance structure is based on policies with guidelines and principles that guide the Company's strategy, processes and actions. The main policies related to the environment and social performance are Vale's Global Sustainability Policy, revised in 2016, to include improvements in health, safety, environment and community management, the Global Climate Change Policy, and the Human Rights Policy. The Company also follows standards of social action and commercial and human rights principles based on the Human Rights and Business Matrix of the United Nations Human Rights Council.

Such policies, along with specific plans and programs for each unit, provide the guidance needed to achieve your sustainability goals and your business decisions in the short, medium and long term.

The Integrated Management of Health and Safety and Environment System, known as SGI, aims to identify and treat risks to workers, the environment and communities through the implementation of control, monitoring, conservation, protection and recovery measures, aimed at To ensure the minimization of risks and impacts to workers and the ecosystems where it operates.
The SGI is defined through the Sustainability Policy (POL-0019-G), the Sustainability Standard (NFN0009) and its Manual is based on the international guidelines of ISO 14001 and OHSAS 18001. Vale's Sustainability Standard defines its structure through 12 (twelve) Requirements and the SGI Manual describes in detail the content of the requirements and their management. In order to evaluate the effectiveness of the SGI, Vale periodically submits its operations to internal and external audits:

Below are Vale's unities with certification ISO 14001 and OHSAS 18001:

ISO 14001

- Iron ore: Ferrosos South, Ferrosos Southeast, Ferrosos Central West, Ferrosos North, Tubarão Complex and Vale Omã;
- Nickel: Onça Puma, Vale Europa (Refineries Acton and, Clydach), Vale Dalian (China), Vale Taiwan (Taiwan) e Vale Matsusaka (Japan);
- Logistics: Port and Rail Operations of the Tubarão Complex;
- Copper: Minas do Sossego and Salobo;
- Fertilizers: Cubatão (1, 2 and, 3), Catalão, Araxá, Tapira and, Uberaba.

OHSAS 18001

- Nickel: Onça Puma, Vale Europa (Refineries Acton and, Clydach), Vale Dalian (China) and, Vale Taiwan (Taiwan);
- Copper: Minas do Sossego and Salobo;

In the last 3 years, approximately US$ 2 billion have been invested in environmental management actions, such actions being aimed at compliance with regulations or other environmental practices.

In mining, the most significant atmospheric emissions are of particulate matter from diffuse sources (fugitive emissions), such as vehicular traffic on unpaved roads, exposed areas subject to wind dragging, handling of ore and bulk materials and rail transport.

The particulate matter from these diffuse sources is monitored at points defined in conjunction with environmental agencies and that seek to represent the area of the operational unit and surrounding communities.

Vale acts strongly to reduce these diffuse emissions by adopting control measures such as the improvement of sprinkler systems, testing of dust suppressor products, conveying of conveyor belts and transfer houses, windfences[1], revegetation of slopes and improvement of management processes.

Emissions from fixed sources allow a more consistent monitoring since these facilities have chimneys and allow to implement specific control actions, such as filters and electrostatic precipitators integrated by online systems, that aim to guarantee the control of the legal requirements and performance standards of the Vale.

[1] Wind barriers that surround the product storage yards and reduce the drag of dust.

Another relevant aspect of the Integrated Management System is the subject of water resources, a fundamental input for operations. The optimization of its use and the control and treatment of the generated effluents are present in the routine of the managers by means of the implementation of the monitoring plans, the analysis of the indicators, the establishment of goals and also the search for the development of new technologies.

The guidelines for asset demobilization and mine closure include corporate practices and procedures, implemented throughout the life cycle of the enterprise. Such procedures include the composition of the asset demobilization provision, in line with the Brazilian Securities Commission (CVM) and the *Securities Exchange Commissio*n (SEC) guidelines (IAS 37 and *Sarbanes-Oxley* Act). The definition of the future use of each unit is established in the Mine Closure Plan, considering environmental, social and economic aspects, according to specific operational procedure, observing that the Sustainability Report reflects the percentage of adherence to these guidelines.

With regard to risk management, tailings dams are highly relevant, being subjected to periodic safety audits and also to operating and monitoring procedures to assess geotechnical stability. For more information, see the item "Dams" in the item above.

Vale's environmental performance also involves the recovery of degraded areas ("RAD"), a set of interventions whose purpose is to restore the altered sites to a condition of physical, chemical, biological and socioeconomic stability. It applies both to areas that have been affected by the company's typical activities (opening access roads, mine operations, industrial and administrative facilities, etc.) and in places where environmental conditions have been altered by other economic activities (agriculture, livestock, etc.), as a form of environmental compensation (areas acquired for this purpose, Conservation Units) and/or environmental regularization of properties occupied by the Company (Legal Reserves, Permanent Preservation Areas). The recovery can be carried out in different environmental compartments (water, soil, vegetation cover), in an individualized or integrated way, in accordance with the specific characteristics of the sites to be recovered and with the intended future uses. Therefore, RAD may involve manual, mechanized or combined procedures with varying degrees of intensity, lead times, and costs.

Vale operates in several regions, including areas of high cultural value and high relevance to biodiversity. In all stages of its ventures, Vale develops actions to mitigate, monitor and compensate for negative impacts and to potentiate positive impacts in the localities where it operates. In addition, it develops and supports actions that encourage research and conservation of biodiversity and the sustainable use of natural resources. Among these, Vale maintains its own protected natural areas and, in partnership with government agencies, supports the maintenance of several conservation units contributing to the conservation of threatened species and biomes, as well as promoting engagement with communities, scientific insights and other relevant actors.

In order to build a positive legacy in the last 25 years, Vale offers support to indigenous communities in the fields of education, health, infrastructure development and technical assistance, in order to improve the quality of life and self-sufficiency of these communities. For further details on the above information, see the Company's Sustainability Report, available for viewing on the website indicated in item 7.8 (d) of this Reference Form.

c. Dependence on patents, trademarks, licenses, concessions, franchises, royalties agreements relevant to the development of activities.

Vale operates mines, railways, ports, maritime terminals and hydroelectric power plants, in general, through concessions granted by federal and state governments in several countries. Thereby, Vale depends on the concession of operating licenses of such assets for the development of Vale's activities. For more information on Vale's licenses and concessions, see item 9.1 b of this Reference Form.

In addition, Vale's portfolio of intangible assets, as a whole, generates added value for the operating units in different aspects, either because of its commercial bias, which involves

technology transfer, open innovation and economic exploitation, or as a unique competitiveness tool, as it creates technological barriers to competitors, or even as an instrument to increase productivity and/or reduce personal and environmental risks, such as patents related to health and safety of employees in strategic areas. Among the intangible assets, Vale considers its records for the "VALE" brand to be the most relevant to Vale's activities, which together with the other assets bring legal and indirect technical and financial benefits to Vale's activities on several fronts of production.

7.6 - Relevant incomes from abroad

The following are the relevant incomes of Company coming from abroad in the last three fiscal years:

	Fiscal Year Ended December 31					
R$ millions	**2014**	**%**	**2015**	**%**	**2016**	**%**
North America	**6,486,000**	7.85	**6,501,000**	8.33	**7,553,000**	7.98
USA	3,210,000	3.89	2,804,000	3.59	3,475,000	3.67
Canada	3,276,000	3.97	3,697,000	4.74	4,078,000	4.31
South America	**10,258,000**	12.42	**7,809,000**	10.00	**8,343,000**	8.82
Brazil	8,723,000	10.56	6,560,000	8.40	7,103,000	7.51
Other	1,535,000	1.86	1,249,000	1.60	1,240,000	1.31
Asia	**45,947,000**	55.61	**44,733,000**	57.31	**58,027,000**	61.32
China	29,762,000	36.02	30,812,000	39.47	43,778,000	46.26
Japan	8,530,000	10.32	6,498,000	8.32	6,019,000	6.36
South Korea	3,639,000	4.40	2,633,000	3.37	3,041,000	3.21
Taiwan	1,697,000	2.05	2,064,000	2.64	2,147,000	2.27
Other	2,319,000	2.81	2,726,000	3.49	3,042,000	3.21
Europe	**15,525,000**	18.79	**15,104,000**	19.35	**16,042,000**	16.95
Germany	4,936,000	5.97	4,746,000	6.08	4,772,000	5.04
France	1,329,000	1.61	1,086,000	1.39	1,471,000	1.55
United Kingdom	1,665,000	2.02	1,285,000	1.65	1,123,000	1.19
Italy	1,989,000	2.41	1,531,000	1.96	1,589,000	1.68
Other	5,606,000	6.79	6,456,000	8.27	7,087,000	7.49
Other Countries	**4,403,000**	5.33	**3,910,000**	5.01	**4,668,000**	4.93
Net Income	**82,619,000**	100.00	**78,057,000**	100.00	**94,633,000**	100.00

7.7 - Effects of foreign regulation on activities

For information on the effects of foreign regulation on Vale's activities, see item 7.5 of this Reference Form.

7.8 - Socio-environmental policies:

(a) if the issuer discloses social and environmental information:

1. Do you publish a sustainability report or a similar document?

The Company discloses a Sustainability Report. Vale is committed to sustainability, since it can not grow without taking into account the physical limits of the planet or the well-being of the communities in which it operates. Since 2013, Vale has incorporated environmental and social actions directly into its strategic planning, moving away from an isolated investment model. It practices sustainable mining, dedicating resources to education and researching the application of technologies to use natural resources efficiently. It actively supports an open dialogue with key stakeholders (governments, communities, customers, suppliers, employees and others) as it recognizes that only by working together can it achieve sustainable growth and contribute to social well-being. Vale follows social action standards and principles on business and human rights based on the Human Rights and Business Matrix of the United Nations Human Rights Council. Vale is also committed to reducing greenhouse gas emissions.

The Company (i) owns the Sustainability KPI, whose indicators are linked to Vale's variable remuneration program, and seek to continuously improve the Company's performance with respect to its sustainability aspects; (Ii) establishes priority environmental aspects such as the reduction of greenhouse gas emissions, the preservation of water resources, the improvement of waste management, energy efficiency and the protection of natural areas; (Iii) is committed to promoting the sustainability agenda with its suppliers and customers and to promoting sustainable development in partnership with governments and society; and (iv) incorporates social issues of the operating units.

The Company, with the support of its Board of Directors, reaffirms in its Sustainability Report its commitment to the United Nations Global Compact and reports progress in implementing its principles.

The focus of the Company's investments is the development of world-class assets with long life, low cost, high quality products, employing state-of-the-art technology and capacity for expansion, taking into account the generation of articulated value to commitments with The people in the different locations where the Company operates and with the planet.

The Company also participates in the United Nations *Global Lead* Pact group of companies and is committed to the promotion of its principles, in subjects related to human rights, labor rights, anti-corruption and protection of the environment.

The Company was recognized once again by CDP's *Climate Change Program* as one of the leading companies in Brazil, keeping itself among the best scores regarding the quality and transparency of information disclosure. The company also maintained the Gold seal of the Brazilian *GHG Protocol* Program for its corporate inventory of GHG emissions.

In line with sustainability practices, Vale continues to implement measures aimed at reducing the incidence of accidents. In Brazil, in 2016, the frequency rate of accidents with distance (LWCFR), as measured by the number of accidents per million man-hours worked, was 0.45. The Personal Injury Frequency Rate (TRIFR), in terms of number of accidents per million man-hours worked, was 1.23. Global indicators also reflect progress in Vale's objectives, with a reduction of 15.52% in the LWCFR, reaching 0.49 in 2016.

2. Do you have a socio-environmental responsibility policy?

The pillar "Incorporating Sustainability into Business" is one of Vale's five strategic pillars and, in order to achieve progress in its management, the Company establishes global policies, such as Sustainability Policy, Human Rights Policy and Mitigation Policy and Adapting to Climate Change.

Accordingly, the Company has (i) a Sustainability Policy, revised in 2016, in order to include improvements in the management of health, safety, environment and communities, as well as (ii) a Social Performance Guide, and guidelines of the Code of Ethics and Conduct, Anti-Corruption, Human Rights and Sustainability Policies, which aims to build a relationship of respect and trust with the communities in the territories where Vale operates, according to the priorities and specificities of each Territory and with the objective of leaving a positive social, economic and environmental legacy, considering the current public policies and the local social actions of the sectors: public, private and civil society.

Also, in order to guide its social investment, Vale has specific guidelines detailed in the procedure of Management of Social and Environmental Expenditures Vale, attached to the Guide to Social Action. In addition, social investment also observes the Company's Cultural Policy regarding the socio-cultural field.

(b) The methodology followed in the preparation of this information:

The methodology used to prepare the Sustainability Report is the *Global Reporting Initiative* ("*GRI*"). The GRI guidelines are an international reference for all those interested in disseminating information about the way organizations are managed, their environmental, social and economic performance and impacts in these areas. GRI offers principles, content and an implementation manual so that different organizations, regardless of their size, sector or location, can prepare sustainability reports. The Vale 2016 Sustainability Report was prepared in G4 version of GRI, Comprehensive option.

(c) If this information is audited or reviewed by an independent entity:

The Sustainability Report is audited annually by an independent audit firm. The 2016 Sustainability Report was audited by Bureau Veritas Certification Brazil.

(d) The page on the World Wide Web where you can find this information:

The Company's Sustainability Report is available for viewing at www.vale.com/rs2016.

The Company's Sustainability Policy is available for consultation at: http://www.vale.com/pt/suppliers/code_conduct/documents/pol-0019-g%20-%20pol%20sustentabilidade_rev%2000_port.pdf

The Company's Human Rights Policy is available for consultation at: http://www.vale.com/pt/suppliers/code_conduct/documents/pol%C3%ADtica%20de%20direitos%20humanos.pdf

The Company's Policy on Mitigation and Adaptation to Climate Change is available for consultation at: http://www.vale.com/pt/suppliers/code_conduct/documents/pol%C3%ADtica%20de%20mit%20e%20adapta%C3%A7%C3%A3o%20%C3%A0s%20mc.pdf

7.9 - Other relevant information

Company's trading strategy

Vale's mission is to transform natural resources into prosperity and sustainable development. In all its business lines, it is committed to:

- Prioritize the management of risks and impacts, aiming to achieve zero damage to its employees and surrounding communities, and establish a positive social, economic and environmental legacy in the locations where it operates.
- Invest primarily in world-class assets with long life, low cost, expansion potential and high quality product, capable of generating value throughout the different economic cycles.
- Maintain a lean management organization with teamwork and fiscal responsibility, excellence in project execution, and firm commitment to transparency and value creation for shareholders.

Below are the main business strategies of Vale.

Commitment to sustainability

Vale is committed to promoting sustainable development, which means generating value for its shareholders and other stakeholders and, at the same time, improving the health and safety of its employees, enhancing the well-being of communities around their operations and protect the environment. This can be achieved through conscious and responsible management, voluntary corporate actions and inter sectoral partnerships. The following is a list of measures that illustrate Vale's commitment to sustainability:

- Since 2013, the Company incorporates environmental and social actions directly into its strategic planning. Vale reviewed its Global Sustainability Policy in 2016 to address improvements in health, safety, environment and community management. The Company also follows standards of social action and commercial and human rights principles based on the Human Rights and Business Matrix of the United Nations Human Rights Council.

- Vale is committed to reducing greenhouse gas emissions by investing in energy efficiency, improvement of processes, control systems and the use of clean fuels. In 2016, its operations (including discontinued operations) generated 910 thousand tons of non-mineral waste, 96% of which were non-hazardous and 4% of hazardous waste. Of the total amount, 65.2% was sent for recycling processes.

- The Company is also committed to reducing the use of water in its activities by investing in technologies and initiatives to control the total withdrawal of water, mainly by implementing water reuse. In 2016, it withdrew a total of 426.3 million cubic meters of water, and used about 394.3 million cubic meters in its operations (including discontinued operations), the remainder being allocated to third parties. Of the total volume of water used in 2016, 80% or 1.6 billion cubic meters was reused.

Disciplined management of capital

In all of its business lines, the Company is committed to investing in world-class assets with long life, low cost, expansion potential and high quality product, capable of generating value throughout the different economic cycles. Vale exercises disciplined management of capital and maintains a low cost structure. Keeping your credit ratings and reducing your debt leverage are among your key commitments. In recent years, Vale has suspended asset operations in response

to market conditions, and has divested the assets it considers non-strategic or in order to optimize the structure of its business portfolio. The disposal of assets improves the allocation of capital and provides funds to finance the execution of projects of higher priority and to manage liquidity.

Improving competitiveness in the global iron ore market

Vale is committed to improving its competitiveness in the global iron ore market by focusing on its product line to capture industry trends, improving quality and productivity, controlling costs, strengthening its rail, port and shipping logistics infrastructure and distribution centers, and strengthening relationships with customers. Its diversified portfolio of high-quality products, strong technical *marketing* strategy, efficient logistics and long-lasting relationship with key customers will help the Company achieve this goal.

Vale will continue to promote "*Brazilian blend fines*" (BRBF), a product resulting from the blend of Carajás fines, which contain higher iron concentration and lower silica concentration in the ore, with fines from the South and Southeast Systems, Which contain a lower concentration of iron in the ore. The resulting blend implies strong performance in any type of sintering. BRBF is blended and sold at its Teluk Rubiah marine terminal in Malaysia and at five distribution centers in China, which reduces shipping time to the Asian market and increases the capillarity of its distribution allowing the use of smaller vessels. The blend strategy also allows the use of iron ore with lower iron concentration, especially the Southern System, allowing more efficient mining plans and greater use of dry processing methods, which in turn reduces Capital, expands the life of the mines and reduces the use of water in the Company's operations.

Improving logistics capacity to support the Company's iron ore and coal business

Vale has been expanding the capacity of its railways and ports and signing long-term charter contracts and developing distribution centers in Asia to meet the logistics needs of its iron ore and coal business.

- Vale is increasing the logistics capacity of its Northern System to support the iron ore production of the S11D project. The Company believes that the quality of its logistics assets, its vast experience as operator of ports and railways and its participation in MRS and VLI position it as a leader in the logistics segment in Brazil.

- Vale's strategy for maritime iron ore shipping is to ensure long-term transportation capacity and protect against spot freight rate volatility, without incurring costs associated with the construction and ownership of ships. The Company transports a large amount of its iron ore products from Brazil to Asia through long-term charter contracts with charterers of huge 400,000-tonne ("DWT") ore bulk carriers.

- Vale has finalized the *ramp-up* of its distribution center in Malaysia and is developing port service contracts with several ports in China to obtain the benefits of being closer to the customers of iron ore. This *downstream* management of the supply chain plays an important role in its trading strategy as it reduces the time to market and increases the capillarity of distribution in the Asian market, allowing the sale of smaller lots at competitive costs.

- In order to position itself for the future expansion of its coal production in Mozambique and leverage its presence in Africa, Vale is currently undertaking the ramp-up of the expansion of the local railway capacity after the rehabilitation of the existing network and after the construction of New railways, with the aim of developing the logistics corridor of its mine to the newly built port in Nacala-a-Velha, Mozambique.

Maximizing value in the nickel and copper Business

Vale is the world's largest nickel producer with large-scale, long-term and low-cost operations, a substantial resource base and diversified mining operations, producing nickel from nickel sulphides and laterites, through a advanced technology. The Company has processing facilities in North America, Europe, Asia, Brazil, New Caledonia and Indonesia, which produce a wide variety of products for use in most nickel applications. The Company is a leading producer of high quality nickel products for applications outside the stainless steel industry, such as galvanizing, steel alloys, high nickel alloys and batteries, which accounted for 58% of its refined nickel sales in 2016. Vale's goal is to strengthen its competitiveness in the nickel business. In the long term, the battery segment shows significant growth potential as the production of electric vehicles continues to attract significant investment, which could positively impact the price of nickel and its premiums. Vale continues to optimize its operations and to review its use of the assets, in order to increase its productivity and improve the return on capital.

Vale produces copper concentrates at its Sossego and Salobo facilities located in the Carajás region. These copper mines benefit from their infrastructure facilities that serve the Northern System. The gold that Vale produces in Sossego and Salobo increases the aggregate value of these operations. A key aspect of Vale's strategy for its copper assets in the Carajás region is to improve the efficiency and utilization of assets while evaluating opportunities to extend Sossego operations and expand Salobo's operations. Vale also produces copper as a co-product in its nickel operations, mainly in Sudbury and Voisey's Bay, Canada.

Optimization of the coal business

Vale has coal operations in Moatize (Mozambique), as well as a minority stake in a *joint venture* in China. Vale intends to increase its coal production, especially through the expansion of a new coal processing and handling plant (CHPP) at Moatize operations in Mozambique and the *ramp-up* of the Nacala Logistics Corridor in Mozambique and In Malawi, where it establishes a strategic partnership with Mitsui. As the *ramp-up* of the new CHPP in Moatize and the Nacala Logistics Corridor concludes, costs should decrease, increasing Vale's competitiveness in coal operations.

Development of the Company's resource base

Vale capitalizes on its global presence to develop mineral exploration initiatives. Vale conducts *brownfield* exploration to maximize the results of existing mining areas and support both projects and operations. The Company conducts its *greenfield* exploration activities in six countries: Brazil, Peru, Chile, Canada, Australia and, Indonesia. In particular, it seeks to identify opportunities and develop deposits with potential for large-scale production at low cost. Vale's exploration activities are concentrated in iron ore, nickel and copper.

Optimization of the Company's energy matrix

As a major consumer of electricity, Vale invests in power generation projects to support its operations and reduce its exposure to energy price volatility and regulatory uncertainties. In this way, it develops hydroelectric power plants in Brazil, Canada and Indonesia, and 50% of its world electricity needs are supplied by its own plants. Vale is seeking to develop a clean energy matrix with a focus on reducing carbon emissions.

Organic growth

Vale has an extensive investment program for the organic growth of its business. The most important projects that have been in progress since the beginning of 2016 are summarized below:

- *Carajás Serra Sul S11D.* In the fourth quarter of 2016, Vale began production at the mine and the mining plant, located in the Serra Sul de Carajás, in the Brazilian state of Pará. The nominal capacity of the project is 90 Mtpy.

- *Moatize II.* In the third quarter of 2016, Vale completed the construction of a new

pit and the expansion of the new coal processing and handling plant ("CHPP") located in Tete, Mozambique, in addition to the associated infrastructure. The nominal capacity is 11 Mtpy of coal, increasing the capacity of the complex to 22 Mtpy.

- *Pecém Steel Company.* In the second quarter of 2016, Vale completed the construction of an integrated steel plate mill in the Brazilian state of Ceará, in partnership with Dongkuk Steel Mill Co. ("Dongkuk") and Posco. Vale owns 50% of the joint venture, while Dongkuk owns 30% and Posco 20%. The nominal capacity is 3.0 Mtpy.

Optimization of base metal operations in Canada

Vale plans to optimize its nickel operations throughout the Canada as part of an overall strategy to reduce its atmospheric emissions and to comply with local regulations. The Company's goal is to focus its refining and *smelting* activities in Sudbury, where the focus will be on the production of copper concentrate, copper matte and refined nickel. At Long Harbor Vale will produce discs of nickel, copper cathode and metallic cobalt. Vale will gradually discontinue its smelting and refining activities at Thompson, where it will focus on the production of nickel concentrate.

- *Sudbury, Ontario* - In the second half of 2017, Vale will convert its two-ovens operation in Sudbury to a single oven. As a result of this change, the Company expects to increase the proportion of copper concentrate production in relation to total copper production, from the current rate of 45% to 70% in 2017 and to 80% in 2018, by maximizing capacity Of nickel smelter. In addition, the Company plans to stop the production of copper anode and increase the production of copper matte. By 2018, Vale expects about 10% of its copper production to be sold on the market in the form of copper matte. Vale plans to renovate one of the ovens in operation from March 2017 to June 2017, followed by the immediate decommissioning of the other oven. The refurbished oven will have increased capacity, however, due to the change of operation to a single oven, the total production of refined nickel and copper in the long term will decrease by approximately 30%.

- *Thompson, Manitoba - Vale intends to convert its operations in Thompson, Manitoba, from an integrated operation to a mine-plant operation. Vale intends to deactivate one of the two on-site ovens, starting in 2017, and expects to deactivate the other oven in 2018, thereby closing the remaining smelting and refining activities to concentrate the operation solely on the production of nickel concentrate. Vale plans to ship most of the ore from Thompson to be refined at Long Harbor and Sudbury.*

Discontinued Operations

In December 2016, Vale agreed to sell substantially its fertilizer business to Mosaic subject to certain prior conditions. Until the end of 2017, which is expected for the end of 2017, Vale continues to carry out potassium and phosphate operations in Brazil and holds a 40% economic interest and 51% voting interest in a *joint venture* that operates a phosphate rock mine in Peru. As a result of this operation, the fertilizer business is classified as discontinued operations, which requires the presentation of previous years of this line of business as discontinued operations.

Phosphates and nitrogenous

The Company's subsidiary, Vale Fertilizantes, is a producer of phosphate rock, phosphate fertilizers (for example, monoammonium phosphate (MAP), triple superphosphate (TSP) and

simple superphosphate (SSP)), dicalcium phosphate (DCP) and nitrogen fertilizers (for exemple, ammonia and ammonium nitrate). It is the largest producer of agricultural nutrients based on phosphate and nitrogen in Brazil. Vale Fertilizantes operates the following phosphate rock mines through indefinite concessions: Catalão, in the state of Goiás, Tapira, Patos de Minas and Araxá, all in the state of Minas Gerais, and Cajati, in the state of São Paulo. In addition, Vale Fertilizantes has nine processing plants for the production of phosphate and nitrogen based nutrients, located in Catalão, in the state of Goiás, in Araxá, Patos de Minas and Uberaba, all located in the state of Minas Gerais, Cajati And three mills in Cubatão, all located in the state of São Paulo. In February 2015, operations at the Guará plant were suspended due to market conditions.

Since 2010, Vale has also had a 40% economic interest and a 51% voting interest in the *joint venture* Compañía Minera Miski Mayo SRL, which operates the Bayóvar phosphate rock mine in Peru with a nominal capacity of 3,9 Mtpa, through an indefinite concession.

The following table presents the information on the production of phosphate rock.

		Production for the year ended December 31		
Mine	**Type**	**2014**	**2015**	**2016**
		(Thousand metric tons)		
Bayovar	Open sky	3,801	3,881	3,853
Catalão	Open sky	1,055	1,000	872
Tapira	Open sky	2,005	1,970	1,633
Patos de Minas(1)	Open sky	73	23	0
Araxá	Open sky	883	707	711
Cajati	Open sky	605	581	477
Total		8,421	8,163	7,546

(1) The Patos de Minas operation was suspended in the third quarter of 2015 due to market conditions.

The following table presents the information on the production of nutrients based on phosphate and nitrogen.

	Production for the year ended December 31		
Product	**2014**	**2015**	**2016**
	(Thousand metric tons)		
Monoammonium phosphate (MAP)	1,065	1,097	1,020
Triple Superphosphate (TSP)	910	866	833
Simple Superphosphate (SSP)	1,854	1,953	1,753
Dicalcium phosphate (DCP)	502	480	487
Ammonia (1)	178	138	135
Nitric acid	469	475	468
Ammonium nitrate	485	515	523

(1) After the sale of Araucária in June 2013, Vale produces ammonia only at its Cubatão plant.

Potassium

The Company's potassium operations are concentrated in Brazil and are conducted by the parent company, Vale S.A., through the parent company, with undetermined mining concessions. Vale has a lease agreement with Taquari-Vassouras, the only potassium mine in Brazil (in Rosario do Catete, in the state of Sergipe), with Petrobras since 1992. In April 2012, Vale extended the concession to another 30 years. The following table gives information about potassium production.

		Production for the year ended December 31			
Mine	**Type**	**2014**	**2015**	**2016**	**Process Recovery in 2016**
		(Thousand metric tons)			(%)
Taquari-Vassouras	Underground	492	481	501	86.1

Updates related to the rupture of the Samarco tailings dam

On November 5, 2015, the iron ore tailings dam (Fundão) dam in the state of Minas Gerais, Brazil, owned by Samarco S.A. ("Samarco"), which affected communities and ecosystems, including the Rio Doce. The rupture resulted in 19 fatalities and caused material and environmental damage to the affected areas.

After the rupture, Samarco, together with the authorities, provided first aid, food, water, housing, social assistance and financial aid to families and affected persons, and Vale and BHPB, Samarco shareholders, actively Support to Samarco during this period.

As a consequence of the rupture of the dam, the Government of Minas Gerais determined the suspension of Samarco operations. Except for the Fundão tailings dam and the Santarém water dam, which was affected by the overflow of tailings from the Fundão dam, all other Samarco production assets remained intact. As of the date of this Reference Form, Samarco has not yet resumed its operations. Mining and processing activities.

On March 2, 2016, Samarco, and its shareholders, Vale and BHPB entered into an agreement with the Federal Government, the two Brazilian states affected by the rupture of the dam (Espírito Santo and Minas Gerais) and certain other parties. Term of Transaction and Adjustment of Conduct ("TTAC"). For information on this TTAC as well as on other relevant terms of conduct adjustment related to Samarco, see item 4.7 of this Reference Form.

Under the terms of the TTAC, on June 24, 2016, Samarco, Vale and BHPB established a foundation called "Fundação Renova" ("Foundation") to develop and implement restoration programs to restore the environment, communities Local and social conditions of the affected areas, as well as compensation programs.

If Samarco fail to fulfill its obligations to provide resources to the Foundation, Vale and BHPB will be responsible, under the terms of the agreement, for providing funds to the Foundation in proportion to its 50% stake in Samarco.

As a result of the uncertainties regarding Samarco's future cash flow, Vale recorded a provision in its interim financial statements of June 30, 2016, in the amount of R $ 3.7 billion, which is the best estimate of the resources necessary to comply with the Repair and compensation programs foreseen in the TTAC, equivalent to the percentage of 50% of Vale's stake in Samarco.

Given the updated cash flow forecast of Samarco, shareholders were required to comply with the obligations of the TTAC and therefore, Vale contributed R $ 239 million to the Foundation in the second half of 2016 and R $ 75 million in the first quarter of 2017. These amounts were deducted from the R $ 3.7 billion provision made in June 2016. For information on provisions, see item 10.1 (h) of this Reference Form.

In the first half of 2017, Vale made available short-term credit facilities of up to R $ 375 million (US$ 115 million) to Samarco in order to support its operation, without this setting up an obligation of the shareholders with Samarco. The working capital maintenance funds of Samarco are being released by shareholders as they are required and are subject to certain conditions.

On December 20, 2016, the Company informed that it has entered into a non-binding with BHPB and Samarco on the general terms and conditions for the use of Vale's Timbopeba pit for the deposit of tailings by Samarco, since it operate again. The Company would transfer the Timbopeba pit to Samarco, and in return, Samarco would provide Vale with a quantity of unprocessed ore (*Run-of-Mine - ROM*) for a certain period. A definitive agreement regarding this transaction remains subject to the success of the negotiation between the parties, *due diligence* and the necessary governmental approvals, which the Company expects to happen during the year 2017. After obtaining the environmental licenses necessary for the use of the Alegria Sul pit, Samarco is expected to temporarily deposit its tailings in this pit for a period of 2 to 3 years. The

use of the Timbopeba pit will allow Samarco to operate for several years, without the need for a new dam structure.

Law 12,973

Law 12,973 (regulated by Normative Instructions No. 1,515 and 1,520) was amended on May 13, 2014, which significantly altered the federal tax legislation in force, affecting broadly the taxation of Brazilian companies. Among the issues addressed by Law 12,973, the following are included:

- A new mechanism for the taxation in Brazil of profits generated abroad by direct and indirect subsidiaries abroad, on an accrual basis and by affiliates on a cash basis, calculated on the balance sheet in accordance with local practices, and there are conditions for the deduction of taxes paid in the outside with limit. If certain conditions brought by the law are reached, it will be allowed: (1) consolidation of results (profits and losses) of direct and indirect subsidiaries eligible for taxation purposes up to 2022, and (2) deferred payment of up to eight years of tax due on the profits of eligible foreign companies. [This change resulted in an increase in income tax from the year 2015];

- Termination of the Transitional Tax Regime ("RTT"), with the adaptation of the fiscal rules in force to the new accounting standards in force in Brazil. In general terms, Law 12,973 regulated the tax treatment applicable to revenues, costs, expenses and equity variations recognized by Brazilian companies in accordance with the new accounting criteria adopted in Brazil, which are the result of the convergence process of the accounting rules then adopted in Brazil International standards (IFRS);

- changes in the tax amortization rules of the goodwill paid on the acquisition of shareholdings. Among the several new rules referring to goodwill on acquisitions of equity interest, Law 12,973 determined that only will be deductible from the IRPJ and CSLL calculation base, and the deduction of the goodwill generated between the Company's companies is no longer accepted, among other new rules regarding goodwill on acquisitions of shareholdings. Same group or by exchange of shares (between the respective broadcasters). Additionally, Law 12,973 established the order in which the PPA (purchase price allocation) will be made in acquisitions and corporate reorganizations.

- new concept of gross revenue, for purposes of incidence of PIS and COFINS. Law 12,973 also broadened the concept of gross revenue, which may impact the calculation of PIS and COFINS, which affect gross revenues of legal entities;

- Treatment of dividends and interest on shareholders' equity ("JCP"). Law 12,973 recognized the exemption of profits or dividends distributed until November 12, 2013, the date of publication of Law 12,973, in excess of the amount calculated based on the accounting criteria in force in 2007. For the calculation of the deductible limit of the JCP, Law 12,973 authorized the use of the value of the shareholders' equity of the respective Brazilian company, as calculated based on Law 6,404/76.

The new rules resulting from Law 12,973 came into effect as of January 1, 2015.

8.1 - Acquisition or disposal of any relevant asset that does not classify as normal operation in the business of the issuer

Except for the sale of a substantial portion of the Company's fertilizer assets to The Mosaic Company, there were no acquisitions or disposals of any material assets that were not classified as normal operation in the Company's business during the last 3 fiscal years. For more information on the referred to sale, see item 15.7 of this Reference Form.

8.2 - Significant changes to the manner in which the issuer's business is conducted

There were no significant changes to the manner in which the Company business was conducted in the last 3 fiscal years .

8.3 - Relevant agreements entered into by the issuer and its subsidiaries not directly related to its operating activities

There has been no significant agreements entered into by the Company and/or its subsidiaries with third parties not directly related to their operating activities in the last 3 fiscal years.

8.4 - Other relevant information

There is no other relevant information that has not been disclosed in the other items.

9.1 Relevant non-current assets

The main assets of the Company's non-current assets are described in items 9.1(a), 9.1(b) and 9.1(c) of this Reference Form.

With respect to the Company's Property, plant and equipment, the main assets consist of several properties, facilities, equipment and mining rights, as described in item 9.1 (a) of this Reference Form.

The following tables show the book value of the Company's Property, plant and equipment as at December 31, 2016, by category and geographic location:

As at December 31, 2016 (In R$ thousand)	Brazil	Canada	New Caledonia	Asia	Africa	Others	Total
Real Estate and Land	25,430,537	4,119,999	2,663,811	4,143,534	570,634	221,784	**37,150,299**
Equipment and facilities	31,991,465	5,581,201	4,855,776	5,396,207	2,073,434	3,109,098	**53,007,181**
Mining Assets	5,173,151	16,781,265	1,467,370	2,884,065	-	1,006,083	**27,311,934**
Other [1]	17,909,310	4,272,929	659,464	463,331	248,858	940,348	**24,494,240**
Under construction [2]	31,962,261	2,704,902	415,833	711,919	2,695,814	161,531	**38,652,260**
Total	112,466,724	**33,460,296**	**10,062,254**	**13,599,056**	**5,588,740**	**5,438,844**	**180,615,914**

[1] Computer equipment, Railways and Others.

[2] Property, plant and equipment under construction.

9.1 Relevant non-current assets / 9.1.a - Property, plant and equipment

Description of the Property, plant and equipment	Country Located	State Located	Municipal Located	Type of property
Integrated system for iron ore production from the Northern System	Brazil	DI	Various	N/A
Integrated system for iron ore production from the Southeast System	Brazil	DI	Various	N/A
Integrated system for iron ore production from the Southern System	Brazil	DI	Various	N/A
Tubarão I Pelletizing Plant	Brazil	ES	Vitória	Own
Tubarão II Pelletizing Plant	Brazil	ES	Vitória	Own
Tubarão III Pelletizing Plant	Brazil	ES	Vitória	Leased
Tubarão IV Pelletizing Plant	Brazil	ES	Vitória	Leased
Tubarão V Pelletizing Plant	Brazil	ES	Vitória	Leased
Tubarão VI Pelletizing Plant	Brazil	ES	Vitória	Leased
Tubarão VII Pelletizing Plant	Brazil	ES	Vitória	Leased
Tubarão VIII Pelletizing Plant	Brazil	ES	Vitória	Own
Factory Pelletizing Plant	Brazil	MG	Congonhas	Own
Vargem Grande Pelletizing Plant	Brazil	MG	Nova Lima	Own
Integrated nickel production system: mine, processing plant, smelter	Canada		Sudbury	N/A
Integrated nickel production system: mine, processing plant, smelter	Canada		Thompson	N/A
Mine and nickel processing plant	Canada		Voisey's Bay	N/A
Manganese mines	Brazil	DI	Various	N/A
Iron Mines - various Central West System	Brazil	MS	Various	N/A
Oman Pelletizing Plant	Oman			Own
Mine and nickel processing plant	New Caledonia		Noumea	N/A
PTVI Nickel Mine	Indonesia		Sorowako	N/A
Clydach Nickel Refinery	Wales		Clydach	Own
Sossego Mine	Brazil	PA	Various	N/A
Salobo Mine	Brazil	PA	Various	N/A
Onça Puma Mine	Brazil	PA	Various	N/A
Moatize thermal and metallurgical coal mine	Mozambique		Various	N/A
Taquari-Vassouras Potassium mine[1]	Brazil	SE	Various	Own
Bayóvar Phosphate Rock Mine[1]	Peru		Piura	N/A
Mine and phosphate rock processing plant[1]	Brazil	DI	Various	N/A
Port Colborne smelter of precious metals	Canada		Ontario	Own
Iron alloy plant	Brazil	DI	Various	Own
Platinum Refinery	Great Britain		Acton	Own

Taiwan Nickel Refinery	Taiwan	Kaoshing	Own
Matsuzaka Nickel Refinery	Japan	Matsuzaka	Own
Dalian Nickel Refinery	China	Dalian	Own

9.1 - Relevant non-current assets / 9.1.b - intangible assets, such as patents, trademarks, licenses, concessions, franchises and contracts to transfer technology and domain names in the global computer network

Type of asset	Description of asset	Lifetime	Events that may cause the loss of rights	Consequence of loss of rights
Concessions	Mining concessions in Brazil	Indefinite	Non-compliance with the current and ongoing Mineral Legislation: carrying out predatory mining, disabled mines without the communication and authorization of the competent body, not fulfilling repeated requests for routine inspections.	Interruption and/or the cancellation of mining operations in Brazil.
Concessions	Licenses and mining leases in Canada	2017-2036	Non-payment of mining tax or rental fees, failure to comply with legislation, non application for renewal, refusal of the application renewal, non-fulfillment of renewal requirements.	Interruption and/or cancellation of mining and/or mineral exploration in Canada.

Type of asset	Description of asset	Lifetime	Events that may cause the loss of rights	Consequence of loss of rights
Concessions	Contract of work in Indonesia	2025	End of the contract period, annulment resulting from an illegality or irregularity found in the procedure or in the act of granting it and in case of bankruptcy or termination of the Concessionaire. Non-compliance with legislation. The Contract of Work for Vale mines in Indonesia expires in 2025. However, according to the new Mining Law, Vale may request at least two 10-year extensions.	Interruption and/or the cancellation of mining operations in Indonesia.
Concessions	Mining lease in Australia	2041	Non-payment of lease/royalties, non-submission of activity report. Non-compliance with legislation.	Interruption and/or cancellation of mining operations in Australia.
Concessions	Mining concessions in New Caledonia	2017-2051	Non-payment of fees, non-payment of lease/royalties, non-submission of activity report, lack of activity in concessions. Non-compliance with legislation.	Interruption and/or cancellation of mining operations in New Caledonia, impossibility of amassing mineral resources that allow our mining activities to be expanded outside the VNC project area.

Type of asset	Description of asset	Lifetime	Events that may cause the loss of rights	Consequence of loss of rights
Concessions	Mining concession in Mozambique	2032	In Mozambique, the hypotheses of loosing the mining concession are mainly related to (i) the abandonment of the mine, (ii) the mining activities under health and safety conditions that are incompatible with the requirements of local legislation, (iii) non-payment of mineral production taxes and other taxes due as a result of developing mining activity; and (iv) the bankruptcy of the company. No demarcation of the area, non-payment of specific taxes, non-submission of work reports and not carrying out the work according to the mining plan.	Interruption and/or cancellation of mining operations in Mozambique.
Concessions	Concession to operate EFC cargo and passenger rail transport services	2027	The concession shall be terminated upon completion of one of the following events: end of the contractual period, expropriation, expiry, cancellation, annulment, bankruptcy or termination of the Concessionaire. Additional information on the "Period" field: 2027 (extendable for 30 years)	Interruption and/or cancellation of railroad operations, which is part of Vale's Northern System.

Type of asset	Description of asset	Lifetime	Events that may cause the loss of rights	Consequence of loss of rights
Concessions	Concession to operate EFVM cargo and passenger rail transport services	2027	The concession shall be terminated upon completion of one of the following events: end of the contractual period, expropriation, expiry, cancellation, annulment, bankruptcy or termination of the Concessionaire. Additional information on the "Period" field: 2027 (extendable for 30 years)	Interruption and/or cancellation of railroad operations, which is part of Vale's Southeast System.
Concessions	The Central-Eastern grid concession, belonging to Rede Ferroviária Federal S.A., granted to FCA	2026	The concession shall be terminated upon completion of one of the following events: end of the contractual period, expropriation, expiry, cancellation, annulment, bankruptcy or termination of the Concessionaire. Additional information on the "Period" field: 2026 (extendable for 30 years)	Interruption and/or cancellation of railroad operations.
Concessions	Sub-concession Contract with the lease of the Ferrovia Norte Sul railway network	2038	The concession shall be terminated upon completion of one of the following events: end of the contractual period, expropriation, expiry, cancellation, annulment, bankruptcy or termination of the Sub-concessionaire. Additional information on the "Period" field: 2038 (extendable for 30 years)	Interruption and/or cancellation of railroad operations.

Type of asset	Description of asset	Lifetime	Events that may cause the loss of rights	Consequence of loss of rights
Concessions	Concession to use Public Property to generate electricity - Candonga HPP	2035	(i) The end of the final period of the agreement; (ii) expropriation; (iii) expiry; (iv) termination; (v) annulment arising from an illegality or irregularity found in the procedure or in the act of granting it; and (vi) bankruptcy or termination of the Concessionaire.	Interruption and/or cancellation of the supply of own electricity generation.
Concessions	Concession to use Public Property to generate electricity - Estreito HPP	2037	(i) The end of the final period of the agreement; (ii) expropriation; (iii) expiry; (iv) termination; (v) annulment arising from an illegality or irregularity found in the procedure or in the act of granting it; and (vi) bankruptcy or termination of the Concessionaire.	Interruption and/or cancellation of the supply of own electricity generation.

Type of asset	Description of asset	Lifetime	Events that may cause the loss of rights	Consequence of loss of rights
Concessions	Concession to use Public Property to generate electricity - Machadinho HPP	2032	(i) Return of assets, after the agreement period has ended; (ii) expropriation; (iii) expiry.	Interruption and/or cancellation of the supply of own electricity generation.
Concessions	Concession to use hydroelectric power - PCH (Small Hydro) Nova Maurício	2021	End of the concession period	Interruption and/or cancellation of the supply of own electricity generation.
Concessions	Concession to use hydroelectric power - PCH (Small Hydro) Glória	2021	End of the concession period	Interruption and/or cancellation of the supply of own electricity generation.

Type of asset	Description of asset	Lifetime	Events that may cause the loss of rights	Consequence of loss of rights
Concessions	Concession to use hydroelectric power - PCH (Small Hydro) Ituerê	2021	End of the concession period	Interruption and/or cancellation of the supply of own electricity generation.
Concessions	Concession to use hydraulic energy - PCH (Small Hydro) Mello	2025	End of the concession period	Interruption and/or cancellation of the supply of own electricity generation.
Trademarks	Registration of the "Vale" Trademark and logo Registration No. 829354905, nominative, class 37	2020	From an administrative perspective (INPI), trademark registrations already granted may be challenged by invalidity proceedings, or may be subject to partial or total lapse of time, if the trademark is not being used in the manner for which registration was granted. Judicially, third parties may ask for the records to be nulled, alleging infringement of their intellectual property rights. Trademark registrations are maintained through periodic payments to INPI. The payment of the fees and the continued use of the trademarks is essential to avoid the termination of the registrations and the consequent transfer of the rights of the holder. Additional information on the "Period" field: 2017 (extendable for 10 years)	The loss of trademark rights implies the impossibility of preventing third parties from using identical or similar trademarks to put on competing services or products, since the owner no longer holds the right to exclusively use them. The holder may also be criminally or civilly sued, for improper use in case of violating third party rights, and may result in not being able to use the trademarks in the carry out their activities. It is not possible to quantify the impact of these hypotheses.

Type of asset	Description of asset	Lifetime	Events that may cause the loss of rights	Consequence of loss of rights
Licenses/Domain Name on the World Wide Web	Domain Name on the World Wide Web: Vale.com.br	16/09/2018	The loss of rights related to these assets is related to: (i) non-payment of the domain maintenance; (ii) verification, at the time of registration or later, of the use of CNPJ, CPF, company name or false, invalid, incorrect or outdated name; (iii) failure to submit the documents in a timely manner; (iv) by a court order; and (v) by express request of the registrant of the domain.	There is no way to quantify the impact, but if the domain name is lost, it may be registered by third parties.

Type of asset	Description of asset	Lifetime	Events that may cause the loss of rights	Consequence of loss of rights
Licenses/Domain Name on the World Wide Web	Domain Name on the World Wide Web: Vale.com	07/10/2020	The loss of rights related to these assets is related to: (i) non-payment of the domain maintenance; (ii) verification, at the time of registration or later, of the use of CNPJ, CPF, company name or false, invalid, incorrect or outdated name; (iii) failure to submit the documents in a timely manner; (iv) by a court order; and (v) by express request of the registrant of the domain.	There is no way to quantify the impact, but if the domain name is lost, it may be registered by third parties.

9.1 - Relevant non-current assets / 9.1.c - Investments in companies

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Aços Laminados do Pará S.A.	10.335.963/0001-08	-	Subsidiary	Brazil	RJ	Rio de Janeiro	100.000000

Description of activities Develop technical and economic feasibility studies, as well as market studies, business plans, and other related studies aimed at the implementation of an integrated steel plant in Marabá ("Project"), Pará, which will be dedicated to steel production, comprising one or more sintering plants, a coke oven, blast furnace, steelworks and caster/finishing machines of the Project, including market, engineering and environmental assessments, budgets and tax and economic analyzes (the "Project Study"); acquire the property where the Project will be set up and sign the necessary contracts for that acquisition; obtain the licenses required to implement the Project, including, but not limited to, environmental licenses; negotiate all commercial contracts needed to implement the Project, including the supply of iron ore/pellets, coal supply contracts, iron alloys, logistics services contracts, among others.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	1.474926	0.000000	0.00				
31/12/2015	2.108434	0.000000	0.00				
31/12/2014	3,426791	0.000000	0.00	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				31/12/2016		31/12/2016	344,000,000.00

Reasons for acquiring and maintaining this shareholding Promote the consumption of iron ore in Brazil by investing in a steel products company.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Biopalma da Amazônia S.A., Reflorestamento, Indústria e Comércio.	08.581.205/0001-10	-	Subsidiary	Brazil	PA	Belém	97,610000

Description of activities Biopalma is a public limited company and its main activities are the cultivation of oil palm and other plant species; The extraction, processing and marketing of its oils, among others.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	96.559633	0.000000	0.00				
31/12/2015	-32.507740	0.000000	0.00				
31/12/2014	15.563506	0.000000	0.00	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				31/12/2016		31/12/2016	857,000,000.00

Reasons for acquiring and maintaining this shareholding The use of the palm oil production complex located in the State of Pará.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
California Steel Industries, Inc.	00.000.000/0000-00	-	Affiliate	United States	-	-	50.000000

Description of activities Development of any type of activity that is not illegal in the State of Delaware.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	-1.468189	0.000000	13,000,000.00				
31/12/2015	25.357873	0.000000	0.00				
31/12/2014	15,058824	0.000000	0.00	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				31/12/2016		31/12/2016	604,000,000.00

Reasons for acquiring and maintaining this shareholding Carry out re-rolling operations in the USA.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Companhia Coreano-Brasileira de Pelotização – Kobrasco	33.931.494/0001-87	-	Affiliate	Brazil	ES	Vitória	50.000000

Description of activities Production and sale of iron ore pellets, as well as other activities directly or indirectly related to its object, including import, export and the provision of services of any nature, and may also hold an interest, under any type, in other companies.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	-8.677686	0.000000	90.000.000,00				
31/12/2015	6.140351	0.000000	67.000.000,00				
31/12/2014	7,042254	0.000000	39,000,000.00	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				31/12/2016		31/12/2016	221,000,000.00

Reasons for acquiring and maintaining this shareholding Production and sale of iron ore pellets and the execution of any activities, directly or indirectly, related to the production and sale of iron ore pellets. The Company may also hold an interest in other industrial and/or commercial activities related to its main purpose, as well as hold an interest, in whichever manner, in other ventures in Brazil.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Companhia Hispano-Brasileira de Pelotização – Hispanobrás	27.240.092/0001-33	-	Affiliate	Brazil	ES	Vitória	50.890000

Description of activities Production and sale of iron ore pellets and the execution of any activities, directly or indirectly, related to the production and sale of iron ore pellets. The Company may also hold an interest in other industrial and/or commercial activities related to its main purpose, as well as hold an interest, in whichever manner, in other ventures in Brazil.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	-13.963964	0.000000	95,000,000.00				
31/12/2015	4,225352	0.000000	44,000,000.00				
31/12/2014	8.673469	0.000000	25,000,000.00	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				31/12/2016		31/12/2016	191,000,000.00

Reasons for acquiring and maintaining this shareholding	Expand Vale's share of the Brazilian pellet market.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Companhia Ítalo-Brasileira de Pelotização – Itabrasco	27.063.874/0001-44	-	Affiliate	Brazil	ES	Vitória	50.900000

Description of activities	Production and sale of iron ore pellets and the execution of any activities, directly or indirectly, related to the production and sale of iron ore pellets. The Company may also hold an interest in other industrial and/or commercial activities related to its main purpose, as well as hold an interest, in whichever manner, in other ventures in Brazil.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	14.948454	0.000000	33,000,000.00				
31/12/2015	19.753086	0.000000	36,000,000.00				
31/12/2014	11.724138	0.000000	13,000,000.00	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				31/12/2016		31/12/2016	223,000,000.00

Reasons for acquiring and maintaining this shareholding	Expand Vale's share of the Brazilian pellet market.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Companhia Nipo-Brasileira de Pelotização – Nibrasco	27.251.842/0001-72	-	Affiliate	Brazil	ES	Vitória	51.000000

Description of activities	Production and sale of iron ore pellets and the execution of any other activities, directly or indirectly, related to the production and sale of iron ore pellets. The company may also focus on other industrial and/or commercial activities related to its main activity and hold an interest, in whichever manner, in other ventures in Brazil.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	-13.054187	0.000000	141.000.000,00				
31/12/2015	7.407407	0.000000	102.000.000,00				
31/12/2014	1.612903	0.000000	114,000,000.00	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				31/12/2016		31/12/2016	353,000,000.00

Reasons for acquiring and maintaining this shareholding	Expand Vale's share of the Brazilian pellet market.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Companhia Portuária da Baia de Sepetiba	72.372.998/0001-66	-	Subsidiary	Brazil	RJ	Rio de Janeiro	100.000000

Description of activities	The construction and operation of a port facility, also for private use, located within the Sepetiba Port area of Rio de Janeiro, specialized in the handling and storage of iron ore and its iron products. In a subsidiary and supplementary manner, the company may carry out port operations with other types of solid bulk, provided that these subsidiary operations do not affect the main operations. The company is forbidden to carry out any acts that are outside the scope of its object, except with the express authorization of Companhia Docas do Rio de Janeiro – CDRJ.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	-19.020716	0.000000	455.000.000,00				
31/12/2015	37.922078	0.000000	188.000.000,00				
31/12/2014	2,122016	0.000000	341,000,000.00	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				31/12/2016		31/12/2016	430,000,000.00

Reasons for acquiring and maintaining this shareholding	Provision of port services for iron ore operations.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Henan Longyu Energy Resources Co. Ltd.	00.000.000/0000-00	-	Affiliate	China	-	-	25.000000

Description of activities	Exploration and development of coal resources; production, washing, processing, trading and sales (including export) of coal and other related products; the use, for various purposes, of coal mining resources; production and repair of mechanical and electrical mining products, equipment rental and the treatment of tailings; and the provision of technical and post-sale consulting services in relation to the above items. The company may adjust its corporate purpose, based on the need for business development and its own capacity, upon approval at the general shareholders' meeting and the relevant governmental authorities.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	-22.194305	0.000000	0.00				
31/12/2015	26.617179	0.000000	109.000.000,00				
31/12/2014	12.934132	0.000000	75,000,000.00	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				31/12/2016		31/12/2016	929,000,000.00

Reasons for acquiring and maintaining this shareholding	Hold stake in the company that owns coal assets in China.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Mineração Corumbaense Reunida S.A. – MCR	03.327.988/0001-96	-	Subsidiary	Brazil	MS	Corumba	100.000000

Description of activities	Investigation and research into minerals, exploration, use and administration of mines and deposits in general, obtaining research permits, mining concessions for all types of minerals under the disciplinary legislation on the matter, the purchase and lease of land, equipment and installations, including the rights and interests in the subsoil and on the surface; the purchase, sale, processing, refining, industrialization, import and export, marketing and rail, road and/or maritime transport of ores, minerals and metals of any kind, on their own account or third parties; purchase and sale of any and all manufactured products, machinery and equipment related to the activities listed above; representation of other companies, Brazilian or foreign; and an interest in other companies, commercial or civil, as a partner, shareholder or quotaholder.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value	Book Value

31/12/2016	0.000000	0.000000	0.00				
31/12/2015	97.150611		147.000.000,0				
		0.000000	0				
	-11.944870	0.000000	456,000,000.0				
31/12/2014			0	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				31/12/2016			
						31/12/2016	0.00

Reasons for acquiring and maintaining this shareholding Expand Vale's share in the granulated iron ore market.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Minerações Brasileiras Reunidas S.A. – MBR	33.417.445/0001-20	-	Subsidiary	Brazil	MG	Nova Lima	58.930000

Description of activities The mining industry, including research and mining; the provision of technical services especially to mining companies; transportation, processing, shipment and the trading of ore, on their own account or by third parties; the export and import of ores; shareholding in other companies, especially those engaged in mining or transportation, industrialization, shipment and trade in ore; the provision of transport services, port and waterway support.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016			1,329,000,000.				
	-4.382348	0.000000	00	**Date**	**Value (R$)**	**Date**	**Value (R$)**
31/12/2015	25.918093	0.000000	324,000,000.00				
31/12/2014	15.577778	0.000000	0.00				
				31/12/2016			
						31/12/2016	6,262,000,000.00

Reasons for acquiring and maintaining this shareholding Running iron ore operations in Brazil.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
MRS Logística S.A.	01.417.222/0001-77	1794-9	Affiliate	Brazil	RJ	Rio de Janeiro	48.160000

Description of activities Provide rail freight services; to operate loading, unloading, storage and transshipment services in the stations, yards and on the railway lines subject to the concession; to use modal transport related to rail transport; to act, under the law, as a port operator, performing goods handling and storage services and operations going to or from waterway transport; participate in projects that aim to promote the socio-economic development of the areas of influence, aimed at expanding railway services granted; and perform all of the activities related to those described above; and to carry out other activities based on the Company's infrastructure.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	10.863510	0.000000	34.000.000,00				
31/12/2015	5.977860	0.000000	87.000.000,00				
	2,496218	0.000000	108,000,000.0				
31/12/2014			0	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				31/12/2016			
						31/12/2016	1,592,000,000.00

Reasons for acquiring and maintaining this shareholding Provision of logistics services for iron ore and pellet operations.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Salobo Metais S.A.	33.931.478/0001-94	-	Subsidiary	Brazil	RJ	Rio de Janeiro	100.000000

Description of activities Exploitation of mineral deposits in Brazil, and in particular the Salobo field, located in the Serra dos Carajás, state and city of Maraba, Para State, subject of Mining Ordinance No. 1121, of 07/14/87, comprising the Mining, processing, smelting, refining, transportation and sale of copper, gold and its by-products.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	4.788146	0.000000	258,000,000.00	Date	Value (R$)	Date	Value (R$)
31/12/2015	7.574760	0.000000	0.00	31/12/2016		31/12/2016	8,557,000,000.00
31/12/2014	6.615169	0.000000	0.00				

Reasons for acquiring and maintaining this shareholding Operation of the Salobo copper deposit in Brazil.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Samarco Mineração S.A.	16.628.281/0001-61	-	Affiliate	Brazil	MG	Belo Horizonte	50.000000

Description of activities Research, ore mining throughout the Brazilian national territory, industrialization and the sale of minerals, transportation and navigation inside the port, including for third parties, the import of equipment for its use, spare parts and raw materials, production and distribution of electricity and the sale of coal, and may also hold an interest in other companies as a shareholder or quotaholder.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	0.000000	0.000000	0.00				
31/12/2015	0.000000	0.000000	459,000,000.00				
31/12/2014	0.000000	0.000000	906,000,000.00	Date	Value (R$)	Date	Value (R$)
				31/12/2016		31/12/2016	0.00

Reasons for acquiring and maintaining this shareholding Expand Vale's share in the Brazilian iron ore and pellet market.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Vale International Holdings GMBH	00.000.000/0000-00	-	Subsidiary	Austria	-	Salzburg	100.000000

Description of activities Acquisition and administration of shares and interests in companies/associations of any kind and investments in assets; control and manage one or more activities that are related to any of the companies in which it holds an interest or has invested in its assets; exercise any and all activities needed or are useful so that the aforementioned objectives can be achieved.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	-37.532749	0.000000	0.00				
31/12/2015	83.427159	0.000000	0.00				
31/12/2014	-48,075004	0.000000	0.00	Date	Value (R$)	Date	Value (R$)
				31/12/2016		31/12/2016	8,345,000,000.00

Reasons for acquiring and maintaining this shareholding	Holding company of the mineral exploration company worldwide.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Vale Canada Limited	00.000.000/0000-00	-	Subsidiary	Canada	-	Toronto	100.000000

Description of activities	The activities of Vale Canada Limited are managed from its headquarters in Toronto, in the Canadian state of Ontario, which continues with its corporate functions and has significant local share.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	-24.086957	0.000000	0.00				
31/12/2015	-22.853599	0.000000	0.00				
31/12/2014	12.722659	0.000000	0.00	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				31/12/2016		31/12/2016	17,460,000,000.00

Reasons for acquiring and maintaining this shareholding	Run nickel and by-product operations (copper, cobalt, platinum group metals and other precious metals) in Canada, the United Kingdom and Indonesia.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Vale International SA	00.000.000/0000-00	-	Subsidiary	Switzerland	-	-	100.000000

Description of activities	Acquire, hold, manage and sell direct or indirect interests in companies or companies, mainly abroad; trade and distribute the products of group companies, develop customer relationships and provide technical assistance, including product development and production planning, to customers and group companies worldwide; to carry out research and development activities in the mining, logistics and energy sectors; finance companies and group companies and provide commercial, financial, administrative and legal services to other companies and group companies in Switzerland and abroad. The company may carry out any activities related to its object, or favor it, namely manage and define property rights and/or license of patents, trademarks of any kind, know-how and any other intellectual property rights, buy, hold and sell real estate.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	25.218029	0.000000	0.00				
31/12/2015	18.715821	0.000000	0.00				
31/12/2014	-27.720040	0.000000	0.00	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				31/12/2016		31/12/2016	34,172,000,000.00

Reasons for acquiring and maintaining this shareholding	Carrying out financial transactions and commercial activities.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Vale Manganês S.A.	15.144.306/0001-99	-	Subsidiary	Brazil	BA	Simões Filho	100.000000

Description of activities	The ironwork industry, metallurgy, industry and trade of iron alloys; mineral exploitation, including research, mining, processing, transport, trade, import and export of mineral substances, on its own account or in association with other undertakings; reforestation; the extraction, production, trade, import and export of wood and charcoal and other goods of mineral or vegetable origin used in their production processes and their by-products; trade in

the import and export of goods related or needed for its activities, including equipment, supplies and various materials; any other related activities that do not conflict with its purpose or with the legislation in force.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	-11.982249	0.000000	0.00				
31/12/2015	-6.241331	0.000000	0.00				
31/12/2014	8,421053	0.000000	0.00	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				31/12/2016		31/12/2016	595,000,000.00

Reasons for acquiring and maintaining this shareholding Running iron alloy and manganese operations in Brazil.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Vale Soluções em Energia S.A. - VSE	09.327.793/0001-22	-	Affiliate	Brazil	RJ	Rio de Janeiro	100.000000

Description of activities Research and development of technologies to obtain ecologically efficient systems and products for energy generation, as well as the development and testing of prototypes; development of technical-economic feasibility studies related to the company's object, as well as market studies, business plans, and other related studies; holding an interest, as a partner or shareholder, in other companies, simple or entrepreneurial, and in commercial ventures of any nature, including consortiums, in Brazil and/or abroad; development, industrialization, construction, purchase, sale, distribution, leasing, lending, import and export of machinery and equipment for industry, including accessories, parts and other materials needed to obtain ecologically efficient products to generate electricity and the service provision for the assembly, maintenance and technical assistance of machines and equipment to generate electricity.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	0.000000	0.000000	0.00	**Date**	**Value (R$)**	**Date**	**Value (R$)**
31/12/2015	0.000000	0.000000	0.00	31/12/2016		31/12/2016	49,806,000.00
31/12/2014	0.000000	0.000000	0.00				

Reasons for acquiring and maintaining this shareholding To develop power generation systems.

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
VLI S.A.	12.563.794/0001-80	-	Affiliate	Brazil	SP	São Paulo	37.600000

Description of activities VLI SA aims to provide integrated cargo transport services using railways and roads, construction, maintenance, monitoring, operating railways and/or own or third-party rail traffic, construction, operating own maritime terminals or third party terminals, to exploit, with own or third-party vessels, long-distance maritime trade, cabotage and inland waterway transport of cargo in general, including port support navigation, exploitation of activities directly or indirectly related to cargo transport services.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	3.949967	0.000000	0.00				
31/12/2015	3.157895	0.000000	25,000,000.00				
31/12/2014	100.000000	0.000000	0.00	**Date**	**Value (R$)**	**Date**	**Value (R$)**

	31/12/2016		3,158,000,000.00
		31/12/2016	

Reasons for acquiring and maintaining this shareholding Carrying out integrated cargo transport

Company Name	CNPJ	CVM code	Type of Company	Country headquartered	State headquartered	Municipal headquartered	Issuer share (%)
Companhia Siderúrgica do Pecém	09.509.535/0001-67	-	Affiliate	Brazil	RJ	Rio de Janeiro	50.000000

Description of activities The Company's aims to develop a steel production complex in the State of Ceará, consisting of a steel mill dedicated to the production and export of steel plates.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market value		Book Value	
31/12/2016	95.221843	0.000000	0.000000				
31/12/2015	-54.337662	0.000000	0.000000				
31/12/2014	19.713930	0.000000	0.000000	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				31/12/2016		31/12/2016	1,716,000,000.00

Reasons for acquiring and maintaining this shareholding Investment made to increase participation in Vale's iron ore market in the Atlantic accounting.

9.2 – Other relevant information

Additional Information relating to Item 9.1 (a)

The assets "Taquari-Vassouras potassium mine", "Bayóvar phosphate ore mine" and "Phosphate ore mine and processing plant" belong to the Fertilizer segment which were classified in the Company's financial statements as fixed assets kept for sale

Additional Information relating to Item 9.1 (b)
On December 31, 2016, Vale recognized as Intellectual Property intangible assets a total of 6,675 processes around the world, in a total of 172 countries (161 patents in Brazil and 996 abroad; 907 trademark applications in Brazil and 1,713 abroad; 482 website dominion names in Brazil and 2,322 abroad; and 93 computer programs in Brazil and one abroad).

Additional Information relating to Item 9.1 (c)

Due to restrictions on completing the information in the system, the table below is based on the variations for 2015 and 2014

Company Name	CNPJ	CVM Code	Type of Company	Host Country	Host State (Federation Unit)	Host Municipality	Issuer share (%)
Mineração Corumbaense Reunida S.A. – MCR	03.327.988 / 0001-96	-	Subsidiary	Brazil	MS	Corumba	100.000000

Description of the activities developed	Investigation and research into ores and minerals, exploration, use and administration of mines and deposits in general, obtaining research permits, mining concessions for all types of ores and minerals under the disciplinary legislation on the matter, the purchase and lease of land, equipment and installations, including the rights and interests in the subsoil and on the surface; the purchase, sale, processing, refining, industrialization, import and export, marketing and rail, road and/or maritime transport of ores, minerals and metals of any kind, on their own account or third parties; purchase and sale of any and all manufactured products, machinery and equipment related to the activities listed above; representation of other companies, Brazilian or foreign; and an interest in other companies, commercial or civil, as a partner, shareholder or quota-holder.

Financial Year	Book value - variance (%)	Market value - variance (%)	Amount of dividends received (Reais)	Market Value		Book Value	
12/31/2016	0.000000	0.000000	0.00				
12/31/2015	97.150611	0.000000	147,000,000.00				
12/31/2014	-11.944870	0.000000	456,000,000.00	**Date**	**Value (R$)**	**Date**	**Value (R$)**
				12/31/2016		12/31/2016	0.00

10. Directors' comment

10.1 – General corporate financial and economic conditions

The financial information included in this Reference Form, except when otherwise stated, refers to our consolidated financial statements for the fiscal years ended on December 31, 2014, 2015 and 2016.

The information contained in this Item 10 of the Reference Form should be read and analyzed in conjunction with our consolidated financial statements, available on our website (www.vale.com.br) and on the website of the Brazilian Securities and Exchange Commission ("*Comissão de Valores Mobiliários*") (www.cvm.gov.br).

The comparative information related to the fiscal years ended on December 31, 2014 and 2015 has been restated to reflect application of IFRS 5 "Non-current assets held for sale and discontinued operations" after approval by the Board of Directors of the sales of fertilizer assets, as presented in Note 14 of our consolidated financial statements of December 31, 2016.

a. General Corporate Financial and Economic Conditions

On December 31, 2016, Vale presented operating revenues (net sales) of R$ 94.6 billion and a margin (before impairment on non-current assets and onerous contracts and the result on the measurement or sale of non-current assets) of 29.7%. Operating income was R$ 24.0 billion, basically due to an increase in the price of its products. This was a year in which the Company pursued several opportunities to reduce costs. Vale reduced its net operating expenses (including sales and administrative, research and development, pre-operating, operation stoppage and other net operating income and expenses) in an amount equivalent to R$ 1.690 billion, in comparison with the same period in 2015. In addition, Vale showed a reduction on the line "impairment of assets", to R$ 3.940 billion compared with R$ 33.945 billion in 2015. Cash generated on continuing operations, as measured by adjusted EBITDA[2], was R$ 40.9 billion in 2016.

On December 31, 2015, Vale presented Operating Revenues (Net Sales) of R$ 78.1 billion and an Operating Margin (before impairment of non-current assets and onerous contracts and results on measurement or sale of non-current assets) of 10.5%. Operating loss was R$ 25.7 billion in 2015, a reduction of close to R$ 45.4 billion as compared to the operating income in 2014, basically due to the increase in "impairment of non-current assets and onerous contracts" of R$ 33.9 billion and reduction in iron ore prices. This was a year in which the Company continued its cost reduction efforts, discipline on its investments and focus on its core business. Vale reduced its net operating expenses by 19.8% (including sales and administrative, research and development, pre-operating, operation interruption and other net operating income and expenses), equivalent to R$1.746 billion, as compared to 2014. Cash generated on continuing operations, as measured by Adjusted EBITDA[1], was R$ 21.7 billion in 2015.

On December 31, 2014, Vale presented Operating Revenue (Net Sales) of R$ 82.6 billion and an Operating Margin (before impairment of non-current assets and onerous contracts and results on measurement or sale of non-current assets) of 24.3%. Operating income was R$ 19.7 billion in 2014. Cash generated on continuing operations, as measured by adjusted EBITDA[1], was R$ 30.4 billion in 2014.

Sales of ferrous minerals – iron ore fines, manganese, ferroalloys and other products and services related to ferrous minerals represented 73.9% of the Company's total Operating Revenue (Net Sales) in 2016, as compared to 71.0% for the same period in 2015. In 2014, total ferrous mineral net sales revenues represented 73.1%.

The share of base metals in total net revenues was 22.5% in 2016, as compared to 26.3% in 2015. In 2014, the share of base metals in total net revenues was 22.0%.

In 2016, 2015 and 2014, the share of coal revenues in total net revenues was 3.0%, 2.2% and 2.1%, respectively.

Other segments represented 0.6% of total Operating Revenue (Net Sales) in 2016, as compared to 0.5% in 2015. In 2014, the contribution of other segment to total Operating Revenue (Net Sales) was 2.8%.

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[2] Adjusted EBITDA is operating income or loss plus dividends received from associated companies and joint venture and excluding depreciation, depletion and amortization, impairment of non-current assets and onerous contracts and results on measurement or sale of non-current assets.

	Fiscal Year Ended on December 31st of		
Business Segment	**2014**	**2015**	**2016**
Ferrous Minerals	73.1 %	71.0%	73.9%
Base Metals	22.0%	26.3%	22.5%
Coal	2.1%	2.2%	3.0%
Others	2.8%	0.5%	0.6%
Total	**100.0%**	**100.0%**	**100.0%**

On December 31, 2016, the Company's net debt (the total of loans and financing in our current and non-current liabilities) totaled R$ 95.564 billion, as compared to R$ 112.666 billion, on December 31, 2015, representing a reduction of 15.2%, principally as a result of the appreciation of the Brazilian real in relation to the U.S. dollar. Despite the reduction in gross debt in Brazilian reais during the period in question, gross debt expressed in dollars increased by 1.6% from US$ 28.853 billion on December 31, 2015 to US$ 29.322 billion on December 31, 2016.

On December 31, 2015 and 2014, gross debt totaled R$ 112.666 billion and R$ 76.517 billion, respectively, the 47.2% increase observed between the two fiscal years in question being the result basically of the devaluation of the Brazilian real against the U.S. dollar. Despite the increase in debt expressed in reais in the period between December 31, 2014 and December 31, 2015, absolute debt expressed in U.S. dollars increased less than the increase in gross debt in reais, that is, 0.2% from US$ 28.807 billion on December 31, 2014 to US$ 28.853 billion on December 31, 2015.

On December 31, 2016, the Company's current ratio (current assets divided by current liabilities) was 1.38 as compared to 1.09 on December 31, 2015 and 1.56 on December 31, 2014. The increase in the Company's liquidity in 2016 as compared to the previous fiscal was due principally to the decrease in the Company's debt as a result of the appreciation of the Brazilian real vis-à-vis the U.S. dollar, which impacted the dollar-denominated portion of the debt. The decrease in the current ratio in 2015 as compared to the previous fiscal year can be explained by the increase in the Company's debt due to the devaluation of the Brazilian real vs. The U.S. dollar which impacted the dollar-denominated portion of the debt.

On December 31, 2016, the Company presented Equity attributable to Vale shareholders of R$ 127.241 billion, as compared to R$ 131.160 billion on December 31, 2015. Net worth decreased by 3.0%, basically due to distribution of results in the form of interest on capital ("*juros sobre o capital próprio*"). On December 31, 2015, equity attributable to Vale shareholders was R$ 131.160 billion, or 10.4% less that the shareholder's equity reported on December 31, 2014, due to that fiscal year's net loss.

In 2016, 2015 and 2014, Vale distributed dividends and interest on capital to its shareholders in the amount of R$ 857 million (US$ 250 million), R$ 5.0 billion (US$ 1.5 billion) and R$ 9,7 billion (US$ 4.2 billion), respectively.

b. Capital Structure

The table below shows how the Company's activities are being funded including equity and third party financing:

In billions of Brazilian reais	**Fiscal years ended on December 31st**		
	2014	**2015**	**2016**
Third Parties (current and non-current liabilities)	159.814	206.128	188.994
Equity (Net Worth)	149.601	139.419	133.702
Total Capital (Third Parties + Equity)	309.415	345.547	322.696

c. Payment Capacity as Related to Financial Commitments

The Net Debt/Adjusted EBITDA ratio was 2.3 on December 31, 2016, vs. 4.8 on December 31, 2015 e 2,5 on December 31, 2014. The reduction in this ratio on December 31, 2016, vs. 2015, was a result of increases in commodity prices. The increase in this ratio as of December 31, 2015 vs. the previous year, resulted from decreases in commodity prices and devaluation of the Brazilian real in comparison with the U.S. dollar.

The times interest earned ratio, measured by dividing Adjusted EBITDA by interest payments was 7.2x on December 31, 2016, 4,3x on December 31, 2015 and 7,6x on December 31, 2014. The increase in the times interest earned ratio on December 31, 2016 vs. 2015, can be explained by the increase in commodity prices. The decrease observed on December 31, 2015 as compared to the previous year can be explained by the reduction in EBITDA, which was affected by the reduction in global commodity prices.

In billions of Brazilian reais	On December 31st, of: 2014	2015	2016
Gross debt	76.517	112.666	95.564
Cash Position*	10.555	14.022	13.891
Financial position	0.392	0.109	0.059
Net debt	65.570	98.535	81.614

* Includes cash and cash equivalents with maturities of 90 days or less

d. Sources Utilized to Finance Working Capital and Investments in Non-Current Assets

The sources of funds utilized by Vale during the last three fiscal years were cash generated from operations, loans and financing, issuance of securities and disposal of investments.

Operating activities on continuing operations generated cash flows of R$ 21.137 billion in 2016, against R$ 13.791 billion in 2015 and R$ 27.506 billion in 2014. In fiscal year 2016, cash flow from operations was greater than in the previous fiscal year chiefly due to higher commodity prices, especially iron ore and pellets. In fiscal year 2015, operating cash flow was lower than the previous fiscal year principally to the lower iron ore and pellet prices.

Among the most relevant operation during the last three fiscal years, we highlight the following:

- In December 2016, our wholly-owned subsidiary, Vale Canada, received a loan of € 200 million (R$ 688 million) from the French Government, with a maturity based on a timetable of repayment to begin at the end of 2021 and ending in November 2026, guaranteed by Vale S.A. On December 31, 2016, the balance outstanding on this operation was R$ 688 million.

- In August 2016, our wholly-owned subsidiary Vale Overseas Ltd. issued US$ 1.0 billion (R$ 3.259 billion) in securities maturing in 2026, guaranteed by Vale S.A. On December 31, 2016, the balance outstanding on this operation was R$ 3.338 billion.

- In June 2016, our wholly-owned subsidiary Vale Overseas Ltd. issued US$ 1.25 billion (R$ 4.07 billion) in securities maturing in 2021, guaranteed by Vale S.A. On December 31, 2016, the balance outstanding on this operation was R$ 4.087 billion.

- In January 2016, we used US$ 3 billion of our revolving credit facilities with a syndicate of international banks, which will come due in 2018 and 2020. This amount was fully repaid in 2016; US$ 1.0 billion was paid in June and the outstanding balance of US$ 2.0 billion paid off in November.

- In 2016, we borrowed US$ 950 million (R$ 3.096 billion) in pre-export loan contracts with commercial banks. On December 31, 2016, the balance outstanding on these operations was US$ 876 million (R$ 2.855 billion).

- In November 2015, Vale issued US$ 354 million (R$ 1.154 billion) in export credit notes maturing in 2022 with the *Banco do Brasil*. On December 31, 2016, the balance outstanding on this operation was US$ 475 million (R$ 1.548 billion).

- In August 2015, Vale issued infrastructure debentures, with placement through public offering, in a total amount of R$1.350 billion. The infrastructure debentures will be monetarily adjustment and pay annual interest, based on variation of the IPCA price index + 6.6232% per annum and IPCA + 6.6252% per annum depending on the series to which they belong. On December 31, 2016, the balance outstanding on this operation was R$ 1.517 billion.

- In May 2015, Vale contracted a new revolving credit facility in the amount of US$ 3.0 billion (equivalent to R$ 9.8 billion), for five years. This revolving credit facility replaced one of equal value contracted in 2011, and contracted with a syndicate of 24 international banks. On December 31, 2016, the balance outstanding on this operation was R$ 9,8 billion.

- In March 2015, Vale signed a bank credit note with Bradesco Bank in the amount of R$ 700 million. This contract was used as backing security for a CRI (Real Estate Receivable Certificate), to finance projects within the scope of *S11D Logística*, in the *Ponta Madeira* Port Complex. The contract term is seven years and the funds were fully disbursed by June 30, 2015. On December 31, 2016, the balance outstanding on this operation was US$ 256 million (equivalent to R$ 835 million).

- From March to July 2015, Vale contracted and disbursed export pre-payments with five- and seven-year maturities, linked to future sales, totaling US$ 1.20 billion (equivalent to R$ 3.9 billion). On December 31, 2016, the balance outstanding on these operations was R$ 3.8 billion.

- In December 2014, Vale contracted export pre-payments with the Bank of China, with a six-year maturity, in the amount of US$ 300 million (equivalent to R$ 978 million), which has already been fully disbursed. The total term of the operation is six years. On December 31, 2016, the balance outstanding on these operations was R$ 986 million.

- In May 2014, Vale signed two new loan contracts with the National Economic and Social Development Bank (BNDES) for a total amount of R$ 6.2 billion. These contracts refer to the implementation of the S11D and CLN S11D projects. The loans have ten-year terms and the funds are to be disbursed within three years of the agreement based on the timetable of the projects. As of December 31, 2016, a total of R$ 7.731 billion had been disbursed within the scope of these contracts.

- In January 2014, Vale issued infrastructure debentures in the amount of US$ 376 million (equivalent to R$ 1.225 billion The infrastructure debentures are adjusted monetarily and pay annual interest, priced at the variation of the IPCA price index + 6.46% per annum (equivalent to NTN-B 2020 – 0.15%), IPCA + 6.57% per annum (equivalent to NTN-B 2022 – 0.10%), IPCA + 6.71% per annum (equivalent to NTN-B 2024 + 0%) and IPCA+6.78% per annum (equivalent to NTN-B 2030 + 0%), with maturities in 2021, 2024, 2026 and 2029, depending on the series to which they belong. On December 31, 2016, the balance outstanding on this operation was US$ 465 million (equivalent to R$ 1.5 billion).

- In January 2014, Vale contracted a loan in the amount of US$ 775 million (equivalent to R$ 2.5 billion), with the Canadian agency EDC. The loan was divided into two tranches with five- and seven-year maturities. The amount had been fully disbursed as of December 31, 2014. On December 31, 2016, the balance outstanding on this operation was US$786 (equivalent to R$ 2.6 billion).

e. Sources of Funding for Working Capital and Potential Investments in Non-Current Assets to Cover Liquidity Deficiencies

In the regular course of business, Vale's principal need for funding has been capital investment, payment of dividends and debt service. The sources of funds frequently used are: cash flow on operations and loans.

The principal sources of funding to cover liquidity deficiencies are facilities offered by local banks based on Vale's exports (Advances on Foreign Exchange Contracts - ACCs and Advances on Delivered Exchange Contracts - ACEs).

Vale also has available revolving credit facilities which it may use at its discretion. In July 2013, Vale contracted a revolving credit facility in the amount of US$ 2.0 billion (equivalent to R$ 6.5 billion), for five years, while during the fiscal year ended on December 31, 2014, Vale did not contract any revolving credit facilities.

In May 2015, in turn, a new revolving credit facility was contracted in the amount of US$ 3.0 billion (equivalent to R$ 9.8 billion), for five years, totaling US$ 5 billion in facilities of this nature available as of December 31, 2016, which may be used by Vale, Vale Canada Ltd. (Vale Canada) and Vale International S.A. (Vale International).

In January 2016, we used US$ 3 billion of our revolving credit facilities with syndicates of international banks, with maturities in 2018 and 2020. This amount was fully repaid in 2016, with US$1.0 billion paid in June and the remaining balance of US$ 2.0 billion in November.

f. Levels of indebtedness and characteristics of these debts

On December 31, 2016, total debt was R$ 95.564 billion, with an installment of R$ 1.538 billion guaranteed by Vale assets, with amortization maturities averaging 7.91 years and average cost of 4.63 % per annum in US dollars.

DEBT STRUCTURE	On December 31st of:

in billions of Brazilian reais	2014	2015	2016
Gross debt	76.517	112.667	95.564
Installments guaranteed by Vale assets	5%	1.7%	1.6%
Average amortization maturities (in years)	9.10	8.13	7.91
Average cost (in U.S. dollars)	4.5%	4.5%	4.63%

Since July 2005, Vale has been considered as investment grade by some of the principal credit risk classification agencies. As of the date of this Reference Form, Vale has obtained the following credit risk classifications: BBB- (Standard & Poor's), Ba3 (Moody's), BBB- (Dominion Bond Ratings) and BBB (Fitch).

i. Loan contracts and relevant financing arrangements

The most important categories of the Company's total debt are presented below. The amounts shown exclude accumulated costs.

- Loans and financing contracted in U.S. dollars (R$ 23.7 billion, R$ 27.5 billion and R$ 18.7 billion on December 31, 2016, 2015 and 2014, respectively). These loans include export financing facilities, import financing from export credit agencies and loans from commercial banks and multilateral organizations.

- Fixed income securities issued in U.S. dollars (R$ 42.6 billion, R$ 50.5 billion and R$ 35.2 billion on December 31, 2016, 2015 and 2014, respectively). Vale has issued several debt securities in the capital market including through its wholly-owned subsidiary, Vale Overseas, in the total amount of US$ 13 billion (equivalent to R$ 43.2 billion) as of December 31, 2016. Its subsidiary Vale Canada has issued debt securities in the amount of US$ 400 million (equivalent to R$ 1.3 billion).

- Fixed income securities issued in euros (R$ 5.2 billion, R$ 6.4 billion and R$ 4.8 billion on December 31, 2016, 2015 and 2014 respectively). Vale has issued debt securities in the capital market in the total amount of €1,5 billion (equivalent to R$ 5.2 billion).

- Other debt (R$ 22.0 billion, R$ 21.2 billion and $ 16.5 billion on December 31, 2016, 2015 and 2014, respectively). The Company has several loans contracted in Brazil, principally with the BNDES and some private Brazilian banks in addition to other loans and financing in other currencies.

For information on the most relevant financing operations during the last three fiscal years, please see Item 10.1(d) above.

ii. Other long-term relationships with financial institutions

Vale, its subsidiaries and associated companies maintain commercial relationships within its normal course of business with some of the principal financial institutions in Brazil, in accordance with normal practices of the financial market.

iii. Degree of subordination among the debt

There is no degree of contractual subordination among the Company's unsecured debt. The financial debt backed by real guarantees have the preferences and prerogatives prescribed by law.

In addition, considering all the Company's current and non-current liabilities, a total of R$ 188.994 billion or 99.1% corresponds to unsecured liabilities as of December 31, 2016, vs. R$ 206.128 billion or 97.8% on December 31, 2015 and R$136.350 billion or 97.6% on December 31, 2014. These amounts are subject to the preference of the Company's liabilities which have real guarantees, such as mortgages of assets, which totaled R$ 1.538 billion on December 31, 2016, or 0.99% of the Company's total current and non-current liabilities, as compared to a total of R$ 1.937 billion or 2.22% on December 31, 2015 and R$ 3.485 billion or 2.44% on December 31, 2014.

iv. Any restrictions imposed on the issuer, especially with regard to limits on debt and contracting of new debt, distribution of dividends, disposal of assets, issuance of new securities and sale of shareholder control, in addition to stating that the issuer is complying with such restrictions

Some of the long-term financial instruments contain covenants related to observance of certain financial indicators. The indicators are:

(i) leverage, thus understood to be the ratio obtained by dividing Gross Debt by Adjusted EBITDA

("Leverage"); and

(ii) times interest earned, thus understood to be the ratio obtained by dividing Adjusted EBITDA by Interest Expenses ("Times Interest Earned").

For more on Adjusted EBITDA, including how it is calculated, please see item 3.2 of this Reference Form.

On December 31, 2016, R$ 19.564 billion of the Company's total consolidated gross debt was tied to the Leverage and Times Interest Earned ratios. Vale was in conformance with the required levels for these ratios on December 31, 2015, which on that date were:

(i) Leverage: 2.3x, considering that the maximum limit to be observed by the Company was 5.5x;

(ii) Times Interest Earned: 7,2x, considering that the maximum limit to be observed by the Company was 2.0x.

It should be pointed out, as a preventive measure, before the end of the 2015 fiscal year, that Vale formalized an agreement during the last quarter of the fiscal year in question to increase the maximum limit for the Leverage ratio, which was previously 4.5 and increased to 5.5x, as shown in item (i) above. Thus, we clarify that the Leverage ratio had been increased to 5.5 by the end of 2016.

This type of measure ensures more flexibility during the period in which Vale completes its cycle of investments. In addition, no clause directly restricts the capacity to distribute dividends or interest payments on capital.

It should be highlighted that, on December 31, 2016, the Company remained in conformity with the required level for the Leverage and Times Interest Earned ratios, which on that date were:

(a) Leverage: 24x and (b) Times Interest Earned: 6.9x.

g. Limits to financing contracted and percentages already in use

Below is a description of the limits established for the infrastructure debentures and relevant financing contracts in the last three fiscal years.

Date	Institution	Destination	Amount	Percentage Used	Fund disbursement
5/19/2014	BNDES	Financing of the S11D and CLN S11D projects	R$ 6.2 billion	68%	The credit is made available in installments based on the projects' timetable.
12/27/2013	BNDES	Financing of the Tecnored Investment Plan	R$ 137 million	100%	The credit is made available in installments based on the project timetable.
9/24/2012	BNDES	Financing of the CLN150 project	R$ 3.88 billion	99%	The credit is made available in installments based on the project timetable.
4/1/2008	BNDES	Investments in Brazil	R$ 7.3 billion	96%	The credit is made available in installments based on the project timetable.

h. Significant changes in each item of the financial statements

Fiscal year ended on December 31, 2015 compared to the fiscal year ended on December 31, 2016

Analysis of Operating Results 2016 vs. 2015

The following table shows the amounts on the consolidated income statement for the fiscal years ended on December 31, 2016 and 2015:

(in billions of Brazilian reais)	Fiscal years ending on December 31st of				
Income Statement	2015	% on Net Sales	2016	% on Net Sales	(%) (2015 vs. 2016)
Net sales revenue	78.057	100.0	94.633	100.0	21.2

Cost of goods sold and services provided	(62.780)	(80.4)	(61.143)	(64.6)	(2.6)
Administrative and selling expenses	(2.009)	(2.6)	(1.755)	(1.9)	(12.6)
Research and development	(1.326)	(1.7)	(1.098)	(1.2)	(17.2)
Pre-operating and operational stoppage	(3.127)	(4.0)	(1.570)	(1.7)	(49.8)
Other operating expenses, net	(0.588)	(0.8)	(0.937)	(1.0)	59.4
Impairment on non-current assets and onerous contracts	(33.945)	(43.5)	(3.940)	(4.2)	(88.4)
Results on measurement or sale of non-current assets	0.052	0.1	(0.228)	(0.2)	N/A
Operating income (loss)	**(25.666)**	**(32.9)**	**23.962**	**25.3**	N/A
Results on equity in associated companies and joint ventures	(1.526)	(2.0)	1.111	1.2	N/A
Impairment and other results on equity in associated companies and joint ventures	(1.431)	(1.8)	(4.353)	(4.6)	N/A
Interest expenses, net	(36.053)	(46.2)	6.302	6.7	N/A
Net income (loss) before income taxes	**(64.676)**	**(82.9)**	**27.022**	**28.6**	**N/A**
Income taxes	19.339	24.8	(9.567)	(10.1)	N/A
Losses on discontinued operations	(0.660)	(0.8)	(4.159)	(4.4)	N/A
Losses attributable to non-controlling interest	(1.784)	(2.3)	(0.015)	(0.0)	N/A
Net income (loss) for the fiscal year	(44.213)	(56.6)	13.311	14.1	N/A

Net Sales Revenue

Operating Revenue (Net Sales) was R$ 94.633 billion in 2016, versus R$ 78.057 billion in 2015, representing an increase of 21.2%, due principally to the increase in commodity prices and greater volumes sold.

Ferrous minerals

Iron ore

Sales revenue of iron ore increased 30.8%, from R$ 41.427 billion in 2015 to R$ 54.187 billion in 2016, principally due to the increase of the mineral's price on the international market, and also the increased volume chiefly related to the performance of the North System.

Pellets

Sales revenues from pellets increased 10.8% from R$ 11.916 billion in 2015 to R$ 13.198 billion in 2016, due to the increase in pellet prices on the international market and increase sales volume.

Ferroalloys and manganese

Sales revenues of ferroalloys and manganese increased 99.0% from R$ 518 million in 2015 to R$ 1.031 billion in 2016, due to price increases.

Coal

Sales revenues of coal increased 65.7% from R$ 1.739 billion in 2015 to R$ 2.882 billion in 2016, given the increase in prices and volumes of thermal coal on the international market.

Base Metals

Nickel and other products

Revenues on these products remained constant going from R$ 15,534 billion in 2015 to R$ 15,504 billion in 2016, principally due to the increased sales volume of nickel resulting from the New Caledonia and *Onça Puma* operations, which were offset by a decline in prices on the international market.

Copper

Sales revenues of copper increased 16.4%, going from R$ 4.957 billion in 2015 to R$ 5.770 billion in 2016 principally due to the conclusion of the *Salobo* ramp-up.

Other segments
Revenues on sales of other products and services went from R$ 414 million in 2015 to R$548 million in 2016, due to the sale of steel plates in 2016.

Cost of Goods Sold and Services Rendered

The cost of products and services sold (excluding depreciation) was R$ 49.797 billion in 2016, representing a decrease of R$ 2.162 billion (4.2%) as compared to R$ 51.959 billion in 2015, due, principally, to the impact of exchange rate variation (R$ 1,085 billion) on dollar-denominated costs, such as, for example, cost of maritime freight on iron ore shipments and the cost of base metal operations outside of Brazil.

Costs related to each business segment are detailed below:

Cost of goods sold and services rendered by segment **in billions of Brazilian reais**	**2015**	**2016**
Ferrous minerals	34.211	31.475
Base metals	14.427	14.343
Coal	2.857	3.090
Others	0.464	0.889
Total (excluding depreciation)	**51.959**	**49.797**

Selling and administrative expenses

Selling and administrative expenses decreased 12.6% from R$ 2.009 billion in 2015 to R$ 1.755 billion in 2016, due principally to the reduction in the cost of personnel and services.

Research and development expenses

Research and development expenses decreased 17.2% from R$ 1.326 billion in 2015 to R$ 1.098 billion in 2016, due principally to the completion of projects in all segments.

Pre-operational and operational stoppage expenses

in 2016, pre-operational and operational stoppage expenses were R$ 1.570 billion, a decrease of R$ 1.557 billion when compared to R$ 3.127 billion in 2015, principally due to the ramp-up of the operations in New Caledonia registered in 2015 which were not classified in this group in 2016 due to the start-up of operations.

Other operating income (expenses), net

Other operating income (expenses) increased 59.4% from R$ 588 million in 2015 to R$ 937 million in 2016, principally due to the non-recurring positive effects of the goldstream transaction (R$ 722 million in 2015 and R$ 480 million in 2016) and the annual revision of the mine closing and other assets provision, which generated a positive impact in 2015 of R$ 1.281 billion and R$ 124 million in2016, as a result of the increase in the useful life of some mines and revision of the scope of work necessary to close assets.

Impairment of non-current assets and onerous contracts

In 2016, impairment of non-current assets and onerous contracts totaled R$ 3.940 billion principally due to (i) projected nickel prices, impacting the assets of Vale Newfoundland & Labrador Limited and *Vale Nouvelle-Calédonie S.A.S*; (ii) the contracts with guaranteed minimum volume for utilization of the river structure and manganese supply; (iii) reversal of the impairment resulting from the decision to resume the pellet operation in São Luís at the beginning of 2018; and (iv) revision of the operating plans for the coal assets in Australia.

The impairment of non-current assets and onerous contracts recorded in 2015 in the amount of R$ 33,945 billion reflected principally the reduction in the estimates of future coal prices together with the increase in logistic costs, and reduction in the recoverable values of the cash-generating units Vale Newfoundland & Labrador Limited and Vale Nouvelle-Calédonie S.A, and reversal of the remaining impairment balance for *Onça Puma* in the amount of R$ 976 million, whose initial value was recorded in 2012.

No impairments were made on investments of subsidiaries and joint ventures in 2016.

			Impairment **(reversals)** **(In billions of Brazilian reais)**		
Segments by asset class	**Assets or cash-generating unit**	**Book Value**	**2016**	**2015**	**2014**

		(After *impairment*)			
Property, Plant and Equipment and Intangible Assets					
Iron Ore	North System	0.536	(0.536)	0,213	-
Coal	Australia	0.140	0.091	2,460	0,787
Base metals- Nickel	Newfoundland (VNL)	6.241	2.112	13,394	-
Base metals- Nickel	Nouvelle-Caledonie (VNC)	10.976	0.952	5,660	0,628
Base metals- Nickel	Onça Puma	6.766	-	(0.976)	(4.295)
Coal	Moçambique	5.722	-	9.302	-
Iron Ore	Central West System	-	-	2.023	-
Iron Ore	Simandou Project	-	-	-	2.793
Miscellaneous	Other assets	-	0.460	0.487	-
Impairment of non-current assets			**3.079**	**32.563**	**(0,087)**
Onerous contracts			0.861	1,382	-
Impairment of non-current assets and onerous contracts			**3,940**	**33.945**	**(0.087)**
Investments in associated companies and joint ventures					
Iron ore	Samarco Mineração S.A.	-	-	0.510	-
Base metals- Copper	Teal Minerals Inc.	-	-	1.217	-
Others	Vale Soluções em Energia S.A.	-	-	-	0.071
Impairment on investments in associated companies and joint ventures			**-**	**1.727**	**0.071**

Other results on equity in associated companies and joint ventures

This refers principally to the provision for meeting the agreement related to the breach in the dam of *Samarco Mineração S.A*. ("Samarco"), a joint venture between Vale and *BHP Billiton Brasil Ltda*. ("BHPB"), as detailed below:

Reparation agreement

In March 2016, Samarco and its shareholders, Vale S.A. and BHPB, celebrated an Term of Transaction and Adjustment of Conduct ("TTAC") with the authors of the public civil law suit for R$20.2 billion, the parties being, the Federal Government, the two states impacted by the breach of the dam (Espirito Santo and Minas Gerais) and other government authorities, to implement recovery and compensation programs for the areas and communities impacted by the breach of the Samarco dam. The TTAC does not provide for the assumption of civil, criminal or administrative liabilities related to the breach of the Fundão dam. The term TTAC is 15 years, renewable in successive one-year terms until all obligations under the TTAC has been fulfilled.

According to the TTAC, Samarco, Vale and BHPB have agreed to establish a foundation to develop and implement the recovery and socioeconomic and socio-environmental programs to be funded by Samarco with the following contributions: R$ 2.0 billion in 2016, R$ 1.2 billion in 2017 and R$ 1.2 billion in 2018.

On June 24, 2016, the "Fundação Renova" ("Foundation") was established to develop and implement programs for socioeconomic and socio-environmental recovery and compensation under the TTAC. The Foundation started operations in August 2016.

From 2019 to 2021, the annual contributions to the Foundation will be between R$ 800 million to R$ 1.6 billion based on the approved projects. Staring in 2022, the annual amounts to be transferred will be defined based on the amount necessary to execute the approved projects for each year. The Foundation will allocate an amount of R$240 million annually for 15 years to execute the compensatory programs, with these annual amounts already included in the contributions for the first six years. By the end of 2018, Samarco must make R$500 million available for the basic sanitation program of the impacted regions under the terms established in the TTAC.

In the event Samarco fails to fulfill its obligations to transfer funds to the Foundation, Vale. and BHPB will be responsible, under the terms of the TTAC, to provide funds to the Foundation in the proportion of their equity shares in Samarco, 50% each.

As a consequence of the breach in the dam, Samarco's operations have been suspended pro determination of governmental authorities.

Constitution of a provision-estimates used

Based on the uncertainties related to Samarco's cash flow, Vale S.A. established a provision in its interim financial statements on June 30, 2016, in the amount of R$ 5.560 billion, which, when discounted to present value at a risk-free rate, totaled R$ 3.733 billion, this being the best estimate of the amount of funds necessary to meet the reparation and compensatory programs described in the TTAC, equivalent to its 50% equity share in Samarco.

In August 2016 and in Januaru 2017, Samarco issued private debentures, non-convertible, which were equally underwritten by the Company and by BHPB, with the funds contributed by Vale until march 31st, 2017, allocated as follows: (i) R$ 409 million utilized by Samarco in the reparation programs described in the TTAC and, therefore, discounted from the R$3.733 billion provision mentioned above; and (ii) R$ 425 million utilized by Samarco to maintain its operations, with this amount recognized by the Company under the classification "Impairment and other results on equity participations and joint ventures".

With the constitution of the Foundation, execution of the recovery and compensatory programs, for the most part, has been transferred from Samarco. Thus, Vale has also begun to make contributions to the Foundation, totaling R$ 239 million in 2016, ansd R$ 75 million in the first trimester of 2017, to be used in the programs described in the Agreement.

As a result of the abovementioned events, movement of the provision during 2016 and in the first trimester of 2017 is demonstrated below:

In billions of Brazilian reais	**2016**
Balance on January 1st2016	-
Constitution of the provision	3.733
Payments made	(0.461)
Interest appropriated	0.239
Balance on December 31st, 2016	**3.511**
Payments made	0.212
Interest appropriated	0,147
Balance on December 31st, 2016	**3.396**

On each financial statement presentation date, the Company will reevaluate the key assumptions utilized by Samarco to prepare its cash flow, and any changes will be reflected in the respective provision, when applicable.

Results on measurement or sale of non-current assets

The result on sales of assets decreased from an income of R$ 52 million in 2015 to an expense of R$ 228 million in 2016. This variation can be explained by the fact that in 2016, the results on measurement or sale of non-current assets referred solely to ship assets which in 2015 the result included ship and energy assets.

Results on equity in associated companies and joint ventures

The result on equity participations increased by R$ 2.637 billion from an expense of R$ 1.526 billion in 2015 to an income of de R$ 1.111 billion in 2016, principally because of the *Companhia Siderúrgica do Pecém* ("CSP"), which was positively impacted by the exchange effect of the California Steel Industries ("CSI"). There was no effect on Samarco's operations.

Fertilizer Assets (Discontinued operations)

In December 2016, the Company signed an agreement with The Mosaic Company ("Mosaic") to sell: (i) its phosphate assets located in Brazil, except those principally related to nitrogen assets located in the city of Cubatão; (ii) control of *Campañia Minera Miski Mayo S.A.C*, in Peru; (iii) its potassium assets located in Brazil; and (iv) the potassium projects in Canada.

As such, the fertilizer segment, including the Cubatão assets, is presented as a discontinued operation and the related assets and liabilities classified as assets and liabilities held for sale, as established by IFRS 5.

Consequently, the net assets of the fertilizer segment have been adjusted to reflect their fair value less cost of sale and a loss of R$ 5.899 billion (R$ 3.893 billion net of taxes) was recognized on the statement of the result of discontinued operations for the fiscal year ended on December 31, 2016.

The results of discontinued operations of the Fertilizer segment for the fiscal year are presented below:

	Consolidated (In billions of Brazilian reais)		
	Fiscal years ended on December 31st of		
	2016	2015	2014
Result of discontinued operations			
Sales revenue, net	6.470	7.442	5.656
Cost of goods sold and services rendered	(6.495)	(5.878)	(5.314)
Operating expenses	(0.448)	(0.690)	(0.668)
Results on measurement or sale of non-current assets	(5.899)	(0.608)	(2.800)
Operating income (loss)	**(6.372)**	**0.266**	**(3.126)**
Interest expenses, net	0.069	(0.485)	(0.127)
Results on equity in associated companies and joint ventures	0.010	0.019	0.010
Net income (loss) before income taxes	**(6.293)**	**(0.200)**	**(3.243)**
Income taxes	2.134	(0.460)	1.058
Net income (loss) on discontinued operations	**(4.159)**	**(0.660)**	**(2.185)**
Net income (loss) attributed to non-controlling interests	(0.009)	0.031	0.014
Net income (loss) attributed to Vale shareholders	**(4.150)**	**(0.691)**	**(2.199)**

Impairment and other results on equity is associated companies and joint ventures

We present the composition of "Impairment and other results on equity in associated companies and joint ventures":

	Fiscal years ended on December 31st of		
	Consolidated (In billions of Brazilian reais)		
	2016	2015	2014
Samarco Provision	(3.967)	-	-
Divestiture - *Thyssenkrupp Companhia Siderúrgica do Atlântico Ltd*	(0.266)	-	-
Divestiture – *Paragominas*	(0.120)	-	-
Divestiture of Shandong Yankuang International Coking Co., Ltd.	-	0.241	-
Power generation assets	-	0.055	-
Divestiture of the *Vale Florestar Fundo de Investimento em Participações*	-	-	(0.068)
Impairment of investments	-	(1.727)	(0.071)
Total	**(4.353)**	**(1.431)**	**(0.139)**

Net Interest Income (Expense)

There was a 672.1% increase in net interest income (expense) which went from a net expense of R$ 36.053 billion in 2015 to a net income of R$ 6.302 billion in 2016, principally due to a positive exchange variation and income on debt swap derivatives in reais.

Income taxes

In 2016, the Company recorded an income tax expense of R$ 9.567 billion, compared to a negative expense of R$ 19.339 billion in 2015, based on the income recorded in 2016 against a tax loss carryover from 2015.

Net income/loss

The Company's result went from a net loss of R$ 44.213 billion in 2015 to a net income of R$ 13.311 billion in 2016, mainly due to the reduction in impairment recognized in 2016, higher commodity prices and the positive effect on interest income from the 17% year-end-to-year-end appreciation of the BRL against the USD in 2016 as explained above.

Analysis of the changes in balance sheet items on December 31, 2016 as compared to December 31, 2015

(In billions of Brazilian reais)	12/31/2015	% of Total[1]	12/31/2016	% of Total[1]	Variation (%) (2015 vs. 2016)
Current Assets					
Cash and cash equivalents	14.022	4.1	13.891	4.3	(0.9)
Financial investments	0.109	0.0	0.059	0.0	(45.9)

(In billions of Brazilian reais)	12/31/2015	% of Total[1]	12/31/2016	% of Total[1]	Variation (%) (2015 vs. 2016)
Derivative financial investments	0.474	0.1	0.892	0.3	88.2
Accounts Receivable	5.763	1.7	11.937	3.7	107.1
Inventories	13.775	4.0	10.913	3.4	(20.8)
Prepaid income taxes	3.513	1.0	0.518	0.2	(85.3)
Recoverable taxes	5.482	1.6	5.296	1.6	(3.4)
Related parties	0.273	0.1	0.233	0.1	(14.7)
Others	1.215	0.4	1.814	0.6	49.3
Non-current assets held for sale	15.792	4.6	27.994	8.7	77.3
	60.418	17.5	73.547	22.8	21.7
Non-Current Assets					
Derivative financial instruments	0.363	0.1	1.454	0.5	300.6
Loans	0.732	0.2	0.587	0.2	(19.8)
Prepaid income taxes	1.840	0.5	1.718	0.5	(6.6)
Recoverable taxes	1.956	0.6	2.368	0.7	21.1
Deferred income taxes	30.867	8.9	23.931	7.4	(22.5)
Legal deposits	3.445	1.0	3.135	1.0	(9.0)
Related parties	0.005	0.0	0.005	0.0	0.0
Others	2.392	0.7	0.894	0.3	(62.6)
	41.600	12.0	34.092	10.6	(18.0)
Investments	11.481	3.3	12.046	3.7	4.9
Intangibles	20.789	6.0	22.395	6.9	7.7
Property, Plant &Equipment	211.259	61.1	180.616	56.0	(14.5)
	285.129	82.5	249.149	77.2	(12.6)
Total Assets	**345.547**	**100.0**	**322.696**	**100.0**	**(6.6)**

[1]Of total assets.

Liabilities and Shareholders' Equity	12/31/2015	% of Total[1]	12/31/2016	% of Total[1]	Variation (%) (2015 vs. 2016)
Current liabilities					
Accounts payable to suppliers and contractors	13.140	3.8	11.830	3.7	(10.0)
Payroll and payroll taxes	1.464	0.4	2.362	0.7	61.3
Derivative financial instruments	8.107	2.3	1.349	0.4	(83.4)
Loans and financing	9.788	2.8	5.410	1.7	(44.7)
Related parties	1.856	0.5	2.190	0.7	18.0
Income taxes payable- Installment Plan	1.348	0.4	1.492	0.5	10.7
Taxes and royalties payable	0.977	0.3	0.652	0.2	(33.3)
Income taxes payable	0.943	0.3	0.556	0.2	(41.0)
Retirement benefit obligations	0.266	0.1	0.225	0.1	(15.4)
Obligations on asset demobilization	0.346	0.1	0.154	0.0	(55.5)
Dividends and interest on capital payable	-	-	2.602	0.8	-
Other	2.531	0.8	4.234	1.3	67.3
	40.766	11.8	33.056	10.2	(18.9)

Liabilities related to non-current assets held for sale	0.416	0.1	3.554	1.1	754.3
	41.182	11.9	36.610	11.3	(11.1)
Non-Current Liabilities					
Derivative financial instruments	6.132	1.8	3.991	1.2	(34.9)
Loans and financing	102.878	29.8	90.154	27.9	(12.4)
Related parties	0.830	0.2	0.415	0.1	(50.0)
Retirement benefit obligations	6.831	2.0	6.038	1.9	(11.6)
Legal case contingencies	3.210	0.9	2.734	0.8	(14.8)
Income taxes payable- Installment Plan	15.953	4.6	16.170	5.0	1.4
Deferred income taxes	6.520	1.9	5.540	1.7	(15.0)
Obligations on asset demobilization	9.313	2.7	8.055	2.5	(13.5)
Participative Debentures	1.336	0.4	2.526	0.8	89.1
Redeemable equity participation of non-controlling interest	-			-	-
Other	11.943	3.5	16.761	5.2	40.3
	164.946	47.7	152.384	47.2	(7.6)
Shareholders' Equity					
Equity of Vale shareholders	131.160	38.0	127.241	39.4	(3.0)
Equity of noncontrolling interests	8.259	2.4	6.461	2.0	(21.8)
Total Shareholders' Equity	139.419	40.4	133.702	41.4	(4.1)
Total liabilities and shareholders' equity	**345.547**	**100.0**	**322.696**	**100.0**	**(6.6)**

[1]EOf total liabilities and shareholders' equity.

Current Assets

Cash and cash equivalents

There was no material change in cash and cash equivalents during the fiscal year ended on December 31, 2016.

Accounts receivable

The 107.1% increase in accounts receivable which went from R$ 5.763 billion on December 31, 2015 to R$ 11.937 billion on December 31, 2016 occurred due to the higher sales prices principally of iron ore at the close of the fiscal year which ended on December 31, 2016.

Inventories

The 20.8% reduction in inventories from R$ 13.775 billion on December 31, 2015 to R$ 10.913 billion on December 31, 2016, occurred due to the lower volume of items in inventory and reduction in production costs.

Prepaid income taxes

Prepaid income taxes decreased 85.3% from R$ 3.513 billion on December 31, 2015 to R$ 518 million on December 31, 2016, due to items offset during the period.

Non-current assets held for sale

On December 31, 2016, non-current assets held for sale totaled R$ 27.994 billion R$ 13.178 billion of which related to the Fertilizer operation, R$ 13.652 billion to the Nacal operation and R$ 1.164 billion to ship assets. On December 31, 2015, the assets held for sale referred solely to the Nacal operation. For more information on the Nacal operation, please see item 10.3(b) of this Reference Form.

Non-Current Assets

Deferred income taxes

The total amount recorded in deferred income taxes decreased 22.5% from R$ 30.867 billion on December 31, 2015 to R$ 23.931 billion on December 31, 2016, basically as a result of ta losses of its holding company and subsidiary abroad.

Investments

The investments account increased 4.9% from R$ 11.481 billion on December 31, 2015 to R$ 12.046 billion on December 31, 2016, reflecting the result of the positive equity participation account and capital contributions to CSP in 2016.

Property, Plant and Equipment

The Property, plant and equipment account decreased 14.5% from R$ 211.259 billion on December 31, 2015 to R$ 180.616 billion on December 31, 2016, due principally to the write off of fertilizer assets held for sale and variation of assets abroad due to devaluation of the dollar vs. the real.

Current liabilities

Derivative financial instruments

The reduction in the amounts of derivative financial instruments was 83.4%, going from R$ 8.107 billion on December 31, 2015 to R$ 1.349 billion on December 31, 2016, principally due to: (i) maturity of the fuel oil operations, together with the effect of the decrease in the fuel's market price and (ii) the depreciation of the U.S. dollar vs. the Brazilian real, which affected fuel operations and exchange swaps.

Loans and financing

There was a 44.7% reduction in the current portion of long-term loans from R$ 9.788 billion on December 31, 2015 to R$ 5.410 billion on December 31, 2016, due principally to the exchange variation on debts in currencies other than the real and paying off short-term debt from long-term funds raised.

Liabilities related to non-current assets held for sale

Liabilities related to non-current assets held for sale increased 754.3% from R$ 416 million on December 31, 2015 to R$ 3.554 billion on December 31, 2016, due to the fact that the Fertilizer segment had been put up for sale.

Non-Current Liabilities

Derivative financial instruments

The reduction in the value of the derivative financial instruments was 34.9%, going from R$ 6.132 billion on December 31, 2015 (excluding the minimum return options related to the Brookfield Asset Management ("Brookfield") contract with VLI S.A. ("VLI")) for R$ 3.991 billion on December 31, 2016 (including the minimum return options related to the contract between Brookfield and VLI), principally due to the depreciation of the U.S. dollar vs. the real, obtaining a gain on marked to market value of the swap instruments, whose objective is to reduce the volatility of cash flow, net of transfers of fuel oil positions to current liabilities.

Loans and financing

There was a 12.4% decrease in the loans and financing balance, going from R$ 102.878 billion on December 31, 2015 to R$ 90.154 billion on December 31, 2016, basically reflected the Exchange rate variation, as a considerable portion of the loans was contracted in foreign currency.

Labor case contingencies

There was a 14.8% reduction in labor case contingencies from R$ 3.210 billion on December 31, 2015 to R$ 2.734 billion on December 31, 2016, reflecting principally reversals due to changes in expectations, new calculations and closure of cases.

Obligations on asset demobilization

The 13.5% reduction in the provision for obligations on asset demobilization from R$ 9.313 billion on December 31, 2015 to R$ 8.055 billion on December 31, 2016, was due principally to the exchange rate variation on the portion of the balance of companies abroad and transfer to the held for sale classification, partially offset by the adjustment to present value of the obligation due to a change in discount rate.

Participative Debentures

There was an 89.1% increase in the value of the participative debentures, going from R$ 1.336 billion on December 31, 2015 to R$ 2.526 billion on December 31, 2016, due to the increase in the mark to market of the security based on commodity prices.

Equity of the Controlling Shareholders

The equity of the controlling shareholders decreased by 3%, principally due to the distribution of part of the fiscal year's net income in the form of interest on capital, going from R$ 131.16 billion on December 31, 2015 to R$ 127.241 billion on December 31, 2016.

Fiscal year ended on December 31, 2015 compared to the fiscal year ended on December 31, 2014

Analysis of Operating Results 2015 vs. 2014

The following table shows the amounts on the consolidated income statement for the fiscal years ended on December 31, 2014 and December 31, 2015:

Income Statement In billions of Brazilian Reais	**2014**	**% of Net Sales**	**2015**	**% of Net Sales**	**Variation (%) (2014 vs.2015)**
Net sales revenue	82.619	100.0	78.057	100.0	(5.5)
Cost of goods sold and services provided	(53.773)	(65.1)	(62.780)	(80.4)	16.8
Administrative and selling expenses	(2.452)	(3.0)	(2.009)	(2.6)	(18.1)
Research and development	(1.568)	(1.9)	(1.326)	(1.7)	(15.4)
Pre-operating and operational stoppage	(2.299)	(2.8)	(3.127)	(4.0)	36.0
Other operating expenses, net	(2.477)	(3.0)	(0.588)	(0.8)	(76.3)
Impairment of non-current assets and onerous contracts	0.087	0.1	(33.945)	(43.5)	n/a
Results on measurement or sale of non-current assets	(0.441)	(0.5)	0.052	0.1	(111.8)
Operating income (loss)	**19.696**	**23.8**	**(25.666)**	**(32.9)**	**(230.3)**
Results on equity in associated companies and joint ventures	1.131	1.4	(1.526)	(2.0)	(234.9)
Impairment and other results on equity in associated companies and joint ventures	(0.139)	(0.2)	(1.431)	(1.8)	929.5
Interest expenses, net	(14.626)	(17.7)	(36.053)	(46.2)	146.5
Net income (loss) before income taxes	**6.062**	**7.3**	**(64.676)**	**(82.9)**	**(1166.9)**
Income taxes	(3.658)	(4.4)	19.339	24.8	(628.7)
Losses on discontinued operations	(2.185)	(2.7)	(0.660)	(0.9)	n/a
Losses attributable to non-controlling interest	(0.735)	(0.9)	(1.784)	(2.3)	n/a
Net income (loss) for the fiscal year	0.954	1.2	(44.213)	(56.6)	n/a

[1] Of net sales revenues.

Net Sales Revenue

Operating Revenue (Net Sales) was R$ 78.057 billion in 2015, against R$ 82.619 billion in 2014, a 5.5% reduction. The lower level of revenue was due principally to the decline in commodity prices, partially offset by the increase in sales volume of iron ore fines.

Ferrous minerals

Iron ore

Iron ore sales revenues decreased 8.6%, from R$ 45.341 billion in 2014 to R$ 41.427 billion in 2015, principally due to the reduction in the price of the mineral on the international market led by the decline in consumption on the part of China, partially offset by the increase in the sales volume of iron ore from improvement in the distribution channel.

Pellets

Sales revenue on pellets decreased 4.0% from R$ 12.397 billion in 2014 to R$ 11.916 billion in 2015, due to the decrease in the price of pellets on the international market, which was partially offset by the devaluation of the real, given the fact that the majority of the Company's revenue is denominated in dollar.

Ferroalloys and manganese

Sales revenues of ferroalloys and manganese decreased 44.5%, from R$ 933 million in 2014 to R$ 518 million in 2015, due to lower prices.

Coal

Sales revenues of coal remained constant, going from R$ 1.740 billion in 2014 to R$ 1.739 billion in 2015, despite a decline in prices on the international market.

Base Metals

Nickel and other products

There was a 5.7% increase in sales revenue on these products, from R$ 14.703 billion in 2014 to R$ 15.534 billion in 2015, principally due to the increased nickel sales volume, the result of record production levels at the New Caledonia, Indonesia and *Onça Puma* operations.

Copper

Sales revenues of copper increased 44.4%, from R$ 3.434 billion in 2014 to R$ 4.957 billion in 2015, due to the *Salobo* ramp-up.

Other segments

Revenues from other segments decreased 466.9% from R$ 2.347 billion in 2014 to R$ 414 million in 2015, due to the absence of steel sales.

Cost of goods sold and services rendered

The cost of products and services sold (excluding depreciation) was R$ 51.959 billion in 2015, with a R$ 6.362 billion increase as compared to the R$ 45.597 billion in 2014, principally due to the exchange rate variation and greater volume sold. The cost of ferrous minerals increased by R$ 3.371 billion (10.9%) and that of base metals increased by R$ 3.592 million (24.9%), both increases caused principally by the higher sales volume.

The costs related to each business segment are detailed below:

Cost of goods sold and services rendered by segment[1]	**Fiscal year ended on December 31st of**	
in billions of Brazilian reais	**2014**	**2015**
Ferrous Minerals	30.840	34.211
Base metals	10.835	14.427
Coal	2.514	2.857
Others	1.408	0.464
Total (excluding depreciation)	**45.597**	**51.959**

1 The amounts mentioned above were considered net of depreciation.

Administrative and selling expenses

Selling and administrative expenses decreased 18.1% from R$ 2.452 billion in 2014 to R$ 2.009 billion in 2015, principally due to continuation of the process to streamline our organizational structure.

Research and development expenses

Research and development expenses decreased 15.4% from R$ 1.568 billion in 2014 to R$ 1.326 billion in 2015, principally due to project completions.

Impairment of non-current assets and onerous contracts

In 2015, impairment of assets totaled R$ 33.945 billion principally due to the reduction in the estimates of future coal prices together with the increase of logistics costs, reduction in the recoverable value of the *Vale Newfoundland* and *Vale Nouvelle-Calédonie* Cash Generating Units and reversal of the remaining *Onça Puma* impairment balance in the amount of R$ 976 million, whose initial value had been recorded in 2012. The reduction recorded in 2014 in the amount of R$ 87 million refers principally to BSGR Limited, in the amount of R$ 2.793 billion, to the impairment of the Integra and Isaac Plains mine complexes of R$ 787 million, partially offset by the reversal of part of the *Onça Puma* impairment balance in the amount of R$ 4.295 billion, whose initial value was recorded in 2012.

Pre-operating and operational stoppage expenses

In 2015, pre-operating and operational stoppage expenses were R$ 3.127 billion, which represented an increase of R$ 918 million as compared to the R$ 2.299 billion in 2014, principally to higher expenses with the *New Caledonia Long Harbour* projects.

Other operating income (expenses), net

Other operating income (expenses) decreased 76.3% from R$ 2.477 billion in 2014 to R$ 588 million in 2015, chiefly due to the positive non-recurring effects of R$ 722 million on the goldstream transaction recorded in the first quarter of 2015 and R$ 1.281 billion, recorded in the fourth quarter of 2015, related to the annual review of the provisions for mine closing and other assets, which generated a positive impact, as a result of the increase in useful life of some mines and review of the scope of the work necessary to close certain assets.

Results on measurement or sale of non-current assets

The result on sale of assets decreased 111.8%, from an expense of R$ 441 million in 2014 to an income of R$ 52 million in 2015. This positive variation was due principally to the sale of power generation assets in 2015.

Results on equity in associated companies and joint ventures

The result on equity participations decreased R$ 2.657 billion (135%) from an income of R$ 1.131 billion in 2014 to an expense of R$ 1.526 billion in 2015, principally as a result of the Teal Minerals association (copper operation in Lubambe, Africa), which was negatively impacted by the impairment of its assets and by the result of Samarco.

Net Interest Income (Expense)

The was a 146.5% increase in the net interest expense account going from R$ 14.626 billion in 2014 to R$ 36,053 billion in 2015, mainly due to exchange rate variations.

Income taxes

In 2015, a net income tax income of R$ 19.339 billion was recorded as compared to an expense of R$ 3.658 billion in 2014, principally due to a tax loss in 2015.

Net income (loss)

Net income went from R$ 954 million in 2014 to a loss of R$ 44.213 billion in 2015, due mainly to the factors explained above.

Analysis of the changes in balance sheet items on December 31, 2015 as compared to December 31, 2014

In billions of Brazilian reais	12/31/2014	% of Total[1]	12/31/2015	% of Total[2]	Variation (%) (2014 vs. 2015)
Current Assets					
Cash and cash equivalents	10.555	3.4	14.022	4.0	32.8
Financial investments	0.392	-	0.109	-	(72.2)
Derivative financial investments	0.441	0.1	0.474	0.1	7.5
Accounts Receivable	8.700	2.8	5.763	1.7	(33.8)
Inventories	11.956	3.9	13.775	4.0	15.2
Prepaid income taxes	4.200	1.4	3.513	1.0	(16.4)
Recoverable taxes	4.515	1.5	5.482	1.6	21.4
Related parties	1.537	0.5	0.273	0.1	(82.2)
Others	1.780	0.6	1.215	0.3	(31.7)
Non-current assets held for sale	9.669	3.1	15.792	4.6	63.3

In billions of Brazilian reais	12/31/2014	% of Total[1]	12/31/2015	% of Total[2]	Variation (%) (2014 vs. 2015)
	53.745	17.4	60.418	17.5	12.4
Non-Current Assets					
Derivative financial instruments	0.231	0.1	0.363	0.1	57.1
Loans	0.609	0.2	0.732	0.2	20.2
Prepaid income taxes	1.271	0.4	1.840	0.5	44.8
Recoverable taxes	1.064	0.3	1.956	0.6	83.8
Deferred income taxes	10.560	3.4	30.867	8.9	192.3
Legal deposits	3.370	1.1	3.445	1.0	2.2
Related parties	0.093	-	0.005	-	(94.6)
Others	1.873	0.6	2.392	0.7	27.7
	19.071	6.1	41.600	12.0	118.1
Investments	10.978	3.6	11.481	3.3	4.6
Intangibles	18.114	5.9	20.789	6.0	14.8
Property, Plant &Equipment	207.507	67.0	211.259	61.2	1.8
	255.670	82.6	285.129	82.5	11.5
Total Assets	309.415	100.0	345.547	100.0	11.7

[1]Of total assets
[2]Of total assets

Liabilities and shareholders' equity	12/31/2014	% of Total[1]	12/31/2015	% of Total[1]	Variation (%) 2014 vs. 2015
Current liabilities					
Accounts payable to suppliers and contractors	11.566	3.8	13.140	3.8	13.6
Payroll and payroll taxes	3.089	1.0	1.464	0.4	(52.6)
Derivative financial instruments	3.760	1.2	8.107	2.3	115.6
Loans and financing	3.768	1.2	9.788	2.8	159.8
Related parties	0.813	0.3	1.856	0.5	128.3
Income taxes payable- Installment Plan	1.213	0.4	1.348	0.4	11.1
Taxes and royalties payable	1.461	0.5	0.977	0.3	(33.1)
Income taxes payable	0.937	0.3	0.943	0.3	0.6
Retirement benefit obligations	0.177	-	0.266	0.1	50.3
Obligations on asset demobilization	0.361	0.1	0.346	0.1	(4.2)
Dividends and interest on capital payable					
	1.074	0.3	2.531	0.8	135.7
Other	28.219	9.1	40.766	11.8	44.5
	0.294	0.1	0.416	0.1	41.5
Liabilities related to non-current assets held for sale	28.513	9.2	41.182	11.9	44.4

In billions of Brazilian reais	12/31/2014	% of Total[1]	12/31/2015	% of Total[2]	Variation (%) (2014 vs. 2015)
Non-Current Liabilities	4.276	1.4	5.581	1.6	30.5
Derivative financial instruments	72.749	23.5	102.878	29.8	41.4
Loans and financing	0.288	0.1	0.830	0.2	188.2
Related parties	5.941	1.9	6.831	2.0	15.0
Retirement benefit obligations	3.405	1.1	3.210	0.9	(5.7)
Legal case contingencies	15.572	5.0	15.953	4.6	2.4
Income taxes payable- Installment Plan	8.874	2.9	6.520	1.9	(26.5)
Deferred income taxes	8.588	2.8	9.313	2.7	8.4
Obligations on asset demobilization	4.584	1.5	1.336	0.4	(70.9)
Participative Debentures	0.645	0.2	-		(100.0)
Redeemable equity participation of non-controlling interest	6.379	2.1	12.494	3.6	106.7
Other	131.301	42.4	164.946	47.7	25.6
Shareholders' Equity	146.414	47.3	131.160	38.0	(10.4)
Equity of Vale shareholders	3.187	1.0	8.259	2.4	159.1
Equity of noncontrolling interests	149.601	48.3	139.419	40.4	(6.8)
Total Shareholders' Equity	309.415	100.0	345.547	100.0	11.7

[1] Of total liabilities and shareholders' equity.
2 Of total liabilities and shareholders' equity.

Current Assets

Cash and cash equivalents

The 32.8% increase in cash and cash equivalents from R$ 10.555 billion on December 31, 2014 to R$ 14.022 billion on December 31, 2015, occurred mainly due to the divestiture transactions, namely: (i) R$4.8 billion from the sale of twelve VLOCs (*very large ore carriers*) to Chinese ship owners; (ii) R$4 billion from the sale of 36,4% of preferred shares in MBR; (iii) R$ 2.8 billion from the goldstream transaction as a sub-product of the *Salobo* copper mine; and (iv) R$ 306 million, from the sale of energy assets. Part of the amounts above were used for general corporate purposes.

Inventories

The 15.2% increase in inventories from R$ 11.956 billion on December 31, 2014 to R$ 13.775 billion on December 31, 2015, occurred basically due to exchange rate variations as some inventories are valued in U.S. dollars.

Prepaid income taxes

Prepaid income taxes decreased 16.4% from R$ 4.200 billion on December 31, 2014 to R$ 3.513 billion on December 31, 2015, due to tax credits used during the period.

Non-current assets held for sale

On December 31, 2015, non-current assets held for sale totaled R$ 15.792 billion, related to Nacala, as compared to R$ 9.669 billion on December 31, 2014 related to Nacala and disposal of power generation assets.

Non-current assets

Deferred income taxes

The total recorded as deferred income tax increased 192.3% from R$ 10.560 billion on December 31, 2014 to R$ 30.867 billion on December 31, 2015, which refers mainly to the booking of taxes losses on the holding company and its subsidiary abroad and prior years related to the accumulated losses due to Law 12.973.

Investments

The investments account increased 4.6% from R$ 10.978 billion on December 31, 2014 to R$ 11.481 billion on December 31, 2015, reflecting the investment made in *Aliança Geração de Energia S.A*.

Property, Plant and Equipment

The Property, plant and equipment account increased 1.8% from R$ 207.507 billion on December 31, 2014 to R$ 211.259 billion on December 31, 2015, due mainly to the exchange rate variation of some assets abroad, partially offset by depreciation expenses and disposal of assets, principally Nacala.

Current Liabilities

Derivative financial instruments

The increase in derivative financial instruments was 115.6% from R$ 3.760 billion on December 31, 2014 to R$ 8.107 billion on December 31, 2015, principally due to (i) maturity of the fuel oil operations, together with the effect of the decline in the fuel's Market price and appreciation of the U.S. dollar vs. the real, which affected fuel operations and Exchange swaps.

Loans and financing

The 158.9% increase in the current portion of long-term debt from R$ 3.768 billion on December 31, 2014 to R$ 9.788 billion on December 31, 2015, was due mainly to the exchange rate variation and reclassification of part of the long-term debt with maturity during 2016.

Liabilities related to non-current assets held for sale

Liabilities related to non-current assets held for sale increased 41.5% from R$ 294 million on December 31, 2014 to R$ 416 million on December 31, 2015, due to putting up Nacal assets for sale.

Non-current liabilities

Derivative financial instruments

The increase in derivative financial instruments was 30,5% from R$ 4.276 billion on December 31, 2014 to R$ 5.581 billion on December 31, 2015, mainly due to the appreciation of the U.S. dollar vis-à-vis the real, with a loss obtained on the marking to market of the swap instruments, whose objective is to reduce the volatility of the fuel oil positions to current liabilities.

Loans and financing

The increase in the loans and financing account was 41.4% from R$ 72.749 billion on December 31, 2014 to R$ 102.878 billion on December 31, 2015, basically reflecting exchange rate variation as a considerable portion of the loans was contracted in foreign currency.

Legal case contingencies

The reduction in the contingencies for legal cases was 5.7% from R$ 3.405 billion on December 31, 2014 to R$ 3.210 billion on December 31, 2015, principally reflecting reversals due to changes in expectations.

Obligations on asset demobilization

The 8.4% increase in the provision for obligations on asset demobilization from R$ 8.588 billion on December 31, 2014 to R$ 9.313 billion on December 31, 2015, was due principally to the Exchange rate variation applicable on part of the balance of companies abroad, partially offset by the adjustment to present value of the obligation due to the change in discount rate.

Participative Debentures

The reduction in the value of the participative debentures was 70.9% from R$ 4.584 billion on December 31, 2014 to R$ 1.336 billion on December 31, 2015, due to a reduction in the security's marking to Market based on commodity prices.

Equity of the Controlling Shareholders

Equity of the controlling shareholders decreased 10.4%, from R$ 146.414 billion on December 31, 2014 to R$ 131.160 billion in December 31, 2015, as a result of the period's loss.

Analysis of Cash Flows: 2016 vs. 2015

The following table presents the amounts of the consolidated statement of cash flows for the fiscal years ended on December 31, 2016 and December 31, 2015:

In billions of Brazilian reais	Fiscal years ended on December 31st of:		
	2016	**%**	**2015**
Cash flow from operating activities:			
Net income (loss) before income taxes from continuing operations	27.022	n/a	(64.676)
Adjustments to reconcile the fiscal year's net income with funds from operating activities	(5.387)	n/a	80.395
Net cash from operating activities	21.635	37.6	15.719
Net cash utilized in investment activities	(16.639)	(17.3)	(20.116)
Net cash provided by (used in) financing activities	(2.920)	n/a	5.250
Increase (reduction) in cash and cash equivalents	2.076	n/a	0.853
Cash and cash equivalents- beginning of period	14.022	(32.8)	10.555
Effect of exchange rate variation on cash and cash equivalents	(2.207)	184.4	2.614

Cash and cash equivalents- end of period	13.891	(0.9)	14.022

Fiscal year ended on December 31, 2016 compared with the fiscal year ended on December 31, 2015

Net cash provided by operating activities

Cash provided by operating activities reached the level of R$ 21.635 billion in 2016, against R$ 15.719 billion in 2015, which represented an increase of 37.6%, due principally to the increase in the price of iron ore.

Net cash provided by (utilized for) investment activities

Net cash utilized in investment activities reached R$ 16.639 billion in 2016, versus R$ 20.116 billion in 2015, representing a decrease of 17.3%, due to a reduction in capital investment.

Net cash provided by (utilized for) financing activities

Net cash provided by (utilized in) financing activities represented an application of funds of R$ (2.920) billion in 2016, versus a source of funds in 2015 of R$ 5.250 billion in 2015, due to a higher level of debt amortization.

Cash Flow Analysis: 2015 vs. 2014

The following table presents the amounts of the consolidated statement of cash flows for the fiscal years ended on December 31, 2015 and December 31, 2014:

In billions of Brazilian reais	**Fiscal years ended on December 31st of**		
	2015	**%**	**2014**
Cash flow from operating activities:			
Net income (loss) before income taxes from continuing operations	(64.676)	n/a	6.062
Adjustments to reconcile the fiscal year's net income with funds from operating activities	80.395	270.0	21.730
Net cash from operating activities	15.719	(43.4)	27.792
Net cash utilized in investment activities	(20.116)	(10)	(22.360)
Net cash provided by (used in) financing activities	5.250	n/a	(8.634)
Increase (reduction) in cash and cash equivalents	0.853	n/a	(3.202)
Cash and cash equivalents- beginning of period	10.555	(15.3)	12.465
Effect of exchange rate variation on cash and cash equivalents	2.614	102.3	1.292
Cash and cash equivalents- end of period	14.022	32.8	10.555

Fiscal year ended on December 31, 2015 compared with the fiscal year ended on December 31, 2014

Net cash provided by operating activities

Cash provided by operating activities reached R$ 15.719 billion in 2015, versus R$ 27.792 billion in 2014, representing a decrease of 43.4%, due mainly to reduction in the prices of our products.

Net cash (utilized) in investment activities

Net cash utilized in investment activities reached R$ 20.116 billion in 2015, versus R$ 22.360 billion in 2014, which represented a decrease of 10.0%, as a result of the Company's adjustment to new projects, as some of them are on their way to the implementation phase, like the S11D project, one of the Company's largest, which is scheduled to begin in the second half of 2016.

Net cash provided by (utilized in) financing activities

Net cash provided by (utilized in) financing activities represented a source of funds in the amount of R$ 5.250 billion in 2015, as opposed to a use of funds in the amount of R$ (8.634) billion in 2014, due to reduction in payment of dividends to shareholders and the transaction of the sale of Class A preferred MBR shares, representing 36.4% of its capital.

10.2 – Operating and Financial Result

a. results of Vale's operations, especially:

i. description of important components of revenue

In 2016, Vale reported a net operating revenue of R$ 94.633 billion and operating margin (before results on the measurement or sale of non-current assets and the impairment of non-current assets and onerous contracts) of 29.7%. Operating income was R $ 24.0 billion, a variation of R $ 49.6 billion compared to the operating loss of 2015, mainly due to the recovery of the prices of its products and the impact of the reduction of recoverable amount of assets of 2015.

The fiscal year of 2016 was a year in which the Company sought opportunities to reduce costs. Vale reported a 24.0% decrease in its net operating expenses (including sales and administrative, research and development, pre-operating and operations stoppage and other operating revenue (expenses), corresponding to R $ 1.690 billion, in comparison to 2015, mainly due to the reduction in revenue from the *gold stream* operation and a reduction in the provision related to the demobilization of assets, related to the change in rate due to the change in risk.

In addition, Vale reported a variation of R$ 30.0 billion in "Impairment of non-current assets and onerous contracts" from R$ 33.945 billion in 2015 to R$ 3.940 billion in 2016. Cash flow from continuing operations, as measured by Adjusted EBITDA, was R $ 40.9 billion in the fiscal year ended December 31, 2016.

In 2015, Vale reported a net sales operating revenue of R$ 78.1 billion and operating margin (before impairment of non-current assets and onerous contracts and result in the measurement or sale of non-current assets) of 10.5 %. Operating loss was R$ 25.7 billion in 2015, representing a reduction of approximately R$ 45.4 billion in operating profit in 2014, mainly due to the increase in the "impairment of non-current assets and onerous contracts" of R$ 33.9 billion and reduction of iron ore prices. Cash generation from continuing operations, as measured by Adjusted EBITDA, was R$ 21.7 billion in 2015.

In 2014, Vale reported net sales operating revenue of R$ 82.619 billion and operating margin (before impairment of non-current assets and onerous contracts and result in the measurement or sale of non-current assets) of 24.3%. Operating income was R $ 19.696 billion in 2014.

Adjusted EBITDA

	Fiscal year ended December 31st of		
In billions	**2014**	**2015**	**2016**
Net Sales Revenue	82.619	78.057	94.633
EBIT	20.050	8.227	28.130
Adjusted EBITDA	30.480	21.741	40.906
Shareholder remuneration (parent company)	9.739	5.026	5.524

EBITDA	**Fiscal year ended December 31st of**		
In billions	**2014**	**2015**	**2016**
Adjusted EBITDA from continuing operations	**30.480**	**21.741**	**40.906**

Depreciation, depletion and amortization	(9.128)	(12.450)	(12.107)
Dividends received from associates and joint ventures	(1.302)	(1.064)	(0.669)
Result in the measurement or sale of non-current assets	(0.441)	0.052	(0.228)
Impairment of non-current assets and onerous contracts	0.087	(33.945)	(3.940)
Operating income (loss)	**19.696**	**(25.666)**	**23.962**
Net financial result	(14.626)	(36.053)	6.302
Result from participation in associates and joint ventures	1.131	(1.526)	1.111
Impairment and other results from participation in associates and joint ventures	(0.139)	(1.431)	(4.353)
Taxes on profit	(3.658)	19.339	(9.567)
Net income (loss) from continuing operations	**2.404**	**(45.337)**	**17.455**
Loss attributable to non-controlling shareholders	(0.749)	(1.815)	(0.006)
Net income (loss) attributed to Vale's shareholders	**3.153**	**(43.522)**	**17.461**

Individually, the most important product in terms of revenue generation in 2016, 2015 and 2014, was iron ore

	Fiscal year ended on December 31st of					
In billions	**2014**	**%**	**2015**	**%**	**2016**	**%**
Ferrous minerals	60.395	73.1	55.413	71.0	69.929	73.9
Iron ore	45.341	54.9	41.427	53.1	54.187	57.3
Pellets	12.397	15.0	11.916	15.3	13.198	13.9
Manganese and Ferroalloys	0.933	1.1	0.518	0.7	1.031	1.1
Others	1.724	2.1	1.552	2.0	1.513	1.6
Coal	1.740	2.1	1.739	2.2	2.882	3.0
Base metals	18.137	22.0	20.491	26.3	21.274	22.5
Nickel and other products	14.703	17.8	15.534	19.9	15.504	16.4
Copper	3.434	4.2	4.957	6.4	5.770	6.1
Others	2.347	2.8	0.414	0.5	0.548	0.6
Net Revenue	82.619	100.0	78.057	100.0	94.633	100.0

Sales of ferrous minerals - iron ore, pellets, manganese ore and ferroalloys - accounted for 73.9% of Vale's total net operating revenue in the fiscal year ended December 31, 2016, compared to 71.0% in the fiscal year ended on December 31, 2015 and 73.1% in 2014

In 2016, 2015 and 2014, the share of the base metals segment in the total net operating revenue was 22.5%, 26.3%, and 22.0%, respectively.

In 2016, 2015 and 2014, the share of coal revenue in the total net operating revenue was 3.0%, 2.2% and 2.1%, respectively.

In 2016, 2015 and 2014, the contribution of other segments to total net operating revenue was 0.6%, 0.5% and 2.8%, respectively

In the fiscal year ended December 31, 2016, sales to Asia accounted for 61.3% of total revenue, up slightly from 57.3% and 55.6% for the years ended December 31, 2015 and 2014 respectively. The share of sales to the Americas was 16.8%, down from 18.3% and 20.3% for the years ended December 31, 2015 and 2014, respectively. Revenue for Europe accounted for 17.0% in the 12-month period ended December 31, 2016, 19.3% and 18.8% in the same period ended December 31, 2015 and 2014, respectively, while the rest of the world contributed 4.9% of revenues in the fiscal year ended December 31, 2016, compared to 5.0% and 5.3% for the years ended December 31, 2015 and 2014, respectively

Considering sales by country, China accounted for 46.3% of our revenues in the fiscal year ended December 31, 2016, followed by Brazil with 7.5%, Japan with 6.4%, Germany with 5.0% %, Canada 4.3% and the United States with 3.7%. In 2015, China accounted for 39.5% of our revenues, followed by Brazil with 8.4%, Japan with 8.3 %, Germany with 6.1%, South Korea with 3.4% and the United States and Canada with 3.6% and 4.7% respectively. In 2014, China accounted for 36.0% of our revenues, followed by Brazil with 10.6%, Japan with 10.3%, Germany with 6.0%, South Korea with 4.4% % And Canada with 4.0%.

	Fiscal year ended December 3st of					
In billions	**2014**	**%**	**2015**	**%**	**2016**	**%**
North America	**6.486**	**7.9**	**6.501**	**8.3**	**7.553**	**8.0**
USA	3.210	3.9	2.804	3.6	3.475	3.7
Canada	3.276	4.0	3.697	4.7	4.078	4.3
South America	**10.258**	**12.4**	**7.810**	**10.0**	**8.343**	**8.8**
Brazil	8.723	10.6	6.561	8.4	7.103	7.5
Others	1.535	1.9	1.249	1.6	1.240	1.3
Asia	**45.947**	**55.6**	**44.732**	**57.3**	**58.027**	**61.3**
China	29.762	36.0	30.812	39.5	43.778	46.3
Japan	8.530	10.3	6.497	8.3	6.019	6.4
South Korea	3.639	4.4	2.633	3.4	3.014	3.2
Taiwan	1.697	2.1	2.064	2.6	2.147	2.3
Others	2.319	2.8	2.726	3.5	3.069	3.2
Europe	**15.525**	**18.8**	**15.104**	**19.3**	**16.042**	**17.0**
Germany	4.936	6.0	4.746	6.1	4.772	5.0
France	1.329	1.6	1.086	1.4	1.471	1.6
United Kingdome	1.665	2.0	1.285	1.6	1.123	1.2
Italy	1.989	2.4	1.531	2.0	1.589	1.7
Others	5.606	6.8	6.456	8.3	7.087	7.5
Other countries	**4.403**	**5.3**	**3.910**	**5.0**	**4.668**	**4.9**
Net Revenue	**82.619**	**100.0**	**78.057**	**100.0**	**94.633**	**100.0**

ii. Factors that materially affected the operating results

Demand and prices

The following table indicates the average prices of the main products in each of the indicated periods.

	Fiscal year ended on the 31st of December of		
	2014	**2015**	**2016**
	R$ per metric ton, except when indicated		
Iron ore	178.89	148.94	186.89
Pellets	292.39	268.13	276.63
Manganese	283.23	191.54	378.56
Ferroalloys	3,422.18	3,018.72	2,579.57
Coal			
Thermal coal	159.30	175.02	158.862
Metallurgical coal	245.76	285.63	408.18
Nickel	38,679.67	39,012.71	33,832.35
Copper	14,164.84	14,566.75	15,454.23

The following table indicates the amounts sold of the main products in each of the indicated periods.

	Fiscal year ended on the 31st of December of		
	2014	2015	2016
	(In thousands of metric tons)		
Iron ore	255.877	276.393	289.940
Pellets	43.682	46.284	47.709
Manganese	1.879	1.764	1.851
Ferroalloys	150	69	127
Coal			
Thermal coal	1.152	892	5.457
Metallurgical coal	6.330	5.614	4.907
Nickel	272	292	311
Copper	353	397	430

Iron ore and pellets

Demand for iron ore and pellet products is derived from the global demand for carbon steel, which in turn is heavily influenced by global industrial production. Pricing of iron ore and pellets is done according to various levels of quality and physical characteristics. Several factors influence the prices of different types of iron ore, such as iron content of deposits, particle size, moisture, type and concentration of contaminants (such as phosphorus, alumina and manganese) in the ore. In general, the classification of iron ores between fine, granulated and pellet feed determine the price differences

China's demand has been a major factor in world demand and prices.

Chinese imports of iron ore reached 1,024 million metric tons in 2016, reaching 7.5% above the level of 953 million metric tons in 2015; Which in turn was 2% above the level of 933 million metric tons in 2014. On the other hand, the volume imported from 2014 was 15% above the level of 810 million metric tons in 2013. The imports of ore in 2016 occurred in a greater proportion than the 1.2% growth in Chinese steel production, strengthening the hypothesis of mines closure in China.

Our iron ore prices are based on a variety of pricing options, which are generally based on *spot* rates for determining the prices charged to customers. Final prices may be based on spot rates of months prior to the date of shipment, or the current quarter of shipment, or according to the spot rate of cargo delivery to the customer.

The prices of fine iron ore govern premiums according to the contained iron content and its degree of impurity. Prices of pelletized iron ore and pellets contain premiums regarding the prices of fine iron ore and are determined based on negotiations with customers. The average price of iron ore in the fiscal year ended December 31, 2016 was 25.4% and 4.5% higher than the average prices practiced in 2015 and 2014, respectively. The average pellet price in December 31, 2016 was 3.2% higher and 5.4% lower than the average prices for 2015 and 2014, respectively.

Manganese and ferroalloys

The prices of manganese ore and ferroalloys are mainly influenced by the carbon steel market trends. Ferroalloy prices are also influenced by the prices of its main inputs, such as manganese ore, energy and coke. Manganese ore sales are based on the spot or quarterly market. ferroalloy prices are established on a quarterly basis.

Coal

Demand for metallurgical coal is driven by steel demand, mainly in Asia. Demand for thermal coal is directly related to the consumption of electricity, which will continue to be driven by world economic growth, particularly in emerging economies. Currently, prices for metallurgical coal are established on a quarterly basis (benchmark price system) or following *spot* reference rates. The prices of thermal coal are fixed in spot trades and / or through annual contracts.

Nickel

Nickel is a metal traded on the London Metal Exchange (LME), and is mainly used in the production of stainless steel. Most nickel products are priced at a discount or premium regarding the LME price, depending on the technical and physical characteristics of the product. Nickel demand is largely affected by the production of stainless steel, which accounted for 69% of consumption in the fiscal year ended December 31st, 2016 (66% and 68% in the years ended December 31, 2015 and 2014, respectively).

Vale maintains short-term fixed volume contracts with its customers for most of its annual nickel sales. These contracts, along with sales of nickel products for other applications (nickel superalloys, steel alloys, forges, *plating*, batteries and special applications) provide greater stability to their annual sales volumes. In 2016, 58% of refined nickel sales were destined for other applications outside the stainless-steel industry, compared to the average primary nickel producer industry of 31%, bringing further stability to the Company's sales volume. Because of the focus on these higher value segments, the average realized price of refined nickel usually exceeds nickel prices of the LME.

Copper

Copper prices are determined based on: (a) the price of copper metal in the end markets, such as LME and NYMEX; and (b) in the case of intermediate products, such as copper concentrate (which represent most Company sales) and copper anode, the rates for treatment and refining are negotiated with each customer. Under the MAMA (month *after month of arrival*) sales system, sales of copper concentrates and anodes are temporarily determined at the time of shipment, with final prices being fixed on the LME price basis for a future period, usually one to three months after delivery of the product.

Exchange rates

The impact of variations in exchange rates on Vale's operating results is described in item "10.2 (b)" of this Reference Form.

b. Changes in revenues attributable to price changes, exchange rates, inflation, changes in volumes and introduction of new products and services

Variations in exchange rates

Most of the Company's revenue is expressed in US dollars, while most costs of goods sold are expressed in different currencies, mainly the real (54% as of December 31, 2016), in addition to the US dollar (29% in December 31, 2016), Canadian dollars (12% as of December 31, 2016), Indonesian rupiahs, Australian dollars, euros and others. Thus, variations in exchange rates affect the Company's operating margin.

Most of the long-term debt is expressed in currencies other than the real, mainly the US dollar (around 71.5% as of December 31, 2016). Since Vale's functional currency is the real, changes in the value of the US dollar in relation to the Brazilian real result in changes in net liabilities, which result in exchange gains or losses on financial results.

As of December 31, 2016, the debt expressed in reals was R$ 21.578 billion. As most of the revenue is linked to US dollars, Vale uses derivatives to convert debt from reals to US dollars.

As a consequence of the appreciation of the real against the US dollar in the fiscal year ended December 31, 2016, net monetary and exchange rate variation had a positive impact on net income of R $ 10.8 billion in the year .The net result of currency and interest rate swaps, mainly structured to convert the debt in reals into US dollars to protect cash flow against exchange rate volatility, produced a positive accounting effect of R$ 3.2 billion in the fiscal year ended December 31, 2016, of which R$ 2.6 billion generated negative cash effects.

Regarding the fiscal years ended December 31, 2014 and 2015, the company's revenue was substantially expressed in US dollars, while most costs of goods sold were expressed in different currencies, especially the real (54% and 49% For the years ended December 31, 2014 and 2015, respectively), plus the US dollar (30% and 34% for the years ended December 31, 2014 and 2015, respectively), Canadian dollars (13% and 13% ended December 31, 2014 and 2015, respectively), Indonesian rupiahs, Australian dollars, euros and others. Thus, changes in exchange rates affected the Company's operating margin.

Most of the long-term debt in fiscal years 2014 and 2015 was expressed in currencies other than the real, mainly the US dollar (71% in 2014 and 73.7% in 2015). As Vale's functional currency is the real, changes in the value of the US dollar relative to the Brazilian real led to changes in net liabilities, which resulted in exchange gains or losses on financial results.

On December 31, 2014 and December 31, 2015, the debt expressed in reals was R$ 16.751 billion and R $ 21.638 billion, respectively. As most of the revenue was linked to US dollars, Vale used derivatives to convert debt from reals to US dollars. As a consequence of the depreciation of the real against the US dollar in 2014 and 2015 (in addition to inflation this year), net monetary and exchange variation caused a negative impact on net income of R$ 5.377 billion in 2014 and R $ 25.109 Billion in 2015.The net result of currency and interest rate swaps, mainly structured to convert the debt into reals into US dollars to protect the cash flow against exchange rate volatility, produced a negative accounting effect of R$ 1.8 billion in 2014, of which R $ 11 million generated a negative cash effect, and (ii) a negative accounting effect of R $ 4.6 billion in 2015, of which R$ 1.0 billion generated negative cash effects.

Price and Volume Variations

The Company's revenues are mainly affected by changes in prices as well as changes in the volumes of the products it commercializes.

As of December 31, 2016, net operating revenue from sales of the Company's products was R$ 94.6 billion. Since most of the revenue is linked to the commercialization *of ferrous minerals*, including iron ore and pellets, the increase in the price and volumes of iron ore and pellets contributes significantly to the increase of the Company's revenues. As of December 31, 2014, and December 31, 2015, revenue from the sale of the Company's products was R$ 82.6 billion and R $ 78.1 billion, respectively.

Sales of *ferrous minerals* accounted for 73.9% of the Company's total net sales operating revenue in 2016, compared to 71.0% in the same period in 2015 and 73.1% in 2014 .The increase in the Company's net sales operating revenue from sales of *ferrous minerals* was mainly due to the increase in the average price of (i) iron ore, which in the fiscal year ended December 31, 2016 was 25.4% And 4.5% higher than the average prices practiced in 2015 and 2014 respectively, and (ii) pellets, which in the fiscal year ended December 31, 2016 was 3.2% higher and 5.4% lower than the average prices for 2015 and 2014, respectively.

The share of base metals in total net revenue was 22.5% in 2016, compared to 26.3% in 2015 and 22.0% in 2014.

In the fiscal years ended December 31, 2016, 2015 and 2014, the share of coal revenue in total net revenue was 3.0%, 2.2% and 2.1%, respectively. Other products accounted for 0.6% of total net operating revenue in 2016, compared to 0.5% in 2015 and 2.8% in 2014.

	Fiscal Year Ended On December 31st, of		
Business Segments	**2014**	**2015**	**2016**
Ferrous Minerals	73.1%	71.0%	73.9%
Base Metals	22.0%	26.3%	22.5%
Coal	2.1%	2.2%	3.0%
Others	2.8%	0.5%	0.06%
Total	**100.0%**	**100.0%**	**100.0%**

Several factors influenced the prices and demand of the Company's different products, such as: (a) iron content and product impurities and particle size (for iron ore and pellets); (B) carbon steel market trends and price of main inputs (for manganese and ferroalloys); (C) demand for steel, mainly in Asia and supply of coal, especially in Chinese production; (D) discount or premium over the price negotiated at the London Metal Exchange (LME) (for nickel); And (e) the price of copper metal in the end markets (for copper).

For more information on price changes of Company's products, as well as on changes in volumes sold in the last three fiscal years, see item "10.2 (a) (i) (ii)" of this Reference Form, especially the comparative tables inserted in such items.

Variations in inflation rates

The Company's revenues are not significantly affected by inflation rates, with the main changes in operating revenues attributable to changes in prices, changes in volumes.

c. Impact of inflation, price variation of the main inputs and outputs, exchange rate and interest rate on the operating result and the financial result of the issuer, when relevant

For comments on the impact of inflation, variation of prices of the main products and the exchange rate, see item "10.2 (b)" of this Reference Form.

Interest rate

Vale is exposed to the risks of interest rates of loans and financing. The debt linked to interest-rate in US dollars consists primarily of loans, including export prepayment operations, loans in commercial banks and multilateral organizations. These debts are generally indexed to the *London Interbank Offered Rate* (LIBOR). The floating rate of its debts expressed in reals includes debentures, loans obtained with the BNDES, fixed assets and financing for the acquisition of services in the Brazilian market. Interest of these obligations is mainly linked to the CDI (Interbank Deposit Certificate), the benchmark interest rate in the Brazilian interbank market, and the TJLP (Long Term Interest Rate). We use *swap* transactions to convert a large portion of this debt to fixed rates in US dollars. As of December 31, 2016, before *swap* operations, 23% of the debt was expressed in reals and the other 77% expressed in other currencies. As of December 31, 2015, before *swap* operations, 19% of the debt was expressed in reals and the other 81% expressed in other currencies. As of December 31, 2014, 22 % of the debt was expressed in reals and the other 78% expressed in other currencies.

As of December 31, 2016, approximately 47.4% of debt was linked to the floating interest rate, compared to around 42.4% at December 31, 2015 and 45.2% at December 31, 2014.

Fuel oil and gas costs are an important component of our cost of production and accounted for 7.0% of our total cost of goods sold in the fiscal year ended December 31, 2016, 6.4% in 2015 and 6.4% % in 2014.The decrease in the price of oil and gas positively affects all the Company's business, according to the local prices practiced in each operating unit. Electricity costs accounted for 3.9% of total cost of goods sold in the year ended December 31, 2016, 2.6% in 2015 and 2.2% in 2014.

The impairment of noncurrent assets and onerous contracts recorded in 2016 resulted in a loss of R$ 3.940 billion. This amount refers to the recoverable amount of the Company's assets, based on premises that include discounted cash flow and commodity prices.

Vale does not provide guidance in the form of quantitative forecasts regarding its future financial performance. Vale seeks to disclose as much information as possible about its vision of the different markets in which it operates, its guidelines, strategies and its execution, to provide participants in the capital market with good conditions to form expectations about its performance in the medium and long term.

10.3 – Events with material effects, occurred and expected, on the financial statements

a. Introduction or disposal of operating segment

2016

In December 2016, the Company entered into an agreement with The Mosaic Company ("Mosaic") to sell: (i) its phosphate assets located in Brazil, except for those mainly related to nitrogenous assets located in Cubatão; (ii) control of the Miski Mayo SAC Mining Company in Peru; (iii) its potassium assets located in Brazil; And (iv) its potassium projects in Canada.

The agreed value of this contract is R $ 8.148 billion (US $ 2.5 billion), of which R $ 4.074 billion (US $ 1.25 billion) will be paid in cash and R $ 4.074 billion (US $ 1.25 billion) With 42.3 million common shares to be issued by Mosaic, which on the date of the transaction represents approximately 11% of Mosaic's total common shares outstanding .The conclusion of the transaction is expected for the end of 2017 and is subject to the separation of the nitrogenous assets of Vale Fertilizantes SA, to the fulfillment of usual conditions precedent, including the approval of the Administrative Council of Economic Defense (CADE) and other antitrust authorities and other operational and regulatory issues.

Vale may receive additional Mosaic *earn-out* payments of up to R $ 847 million (US $ 260 million) if the MAP (Mono-ammonium-phosphate) prices and the real against the US dollar rates exceed certain levels during each of the next two 12-month periods after the completion of the transaction.

Assets located in Cubatão, which are mostly dedicated to operation with nitrogenous products, will be transferred from Vale Fertilizantes SA to an independent legal entity, for which the Company is actively seeking to identify potential buyers.

Therefore, the fertilizer segment, including the assets of Cubatão, is presented as a discontinued operation and the related assets and liabilities were classified as assets and liabilities held for sale, as established by IFRS 5.

Consequently, the net assets of the fertilizer segment were adjusted to reflect the fair value minus the costs to sell and a loss of R $ 5.899 billion (R $ 3.893 billion net of taxes) was acknowledged in the statement of result of discontinued operations for the year ended On December 31, 2016.

2015

There was no introduction or disposal of operating segments in the fiscal year of 2015 that caused or could have material effects on the financial statements.

2014

There was no introduction or disposal of operating segments in the fiscal year of 2014 that caused or could have material effects on the financial statements.

b. incorporation, acquisition, or disposal of ownership interest

Key acquisitions
2016

Minas da Serra Geral S.A. ("MSG")

In March 2016, the Company took out the option to purchase an additional 50% stake in MSG held by JFE Steel Corporation ("JFE") for the amount of R$ 65 million. As a result, Vale holds 100% of MSG's share capital.

2015

No equity interest was acquired in the 2015 financial year that caused or could have material effects on the financial statements.

2014

No equity interest was acquired in the 2014 financial year that caused or could have material effects on the financial statements.

Main disposals of investments and sales of assets

In accordance with the Company's strategy, it continues to reduce its interest in non-core assets. The following is a summary of the main asset disposals and sales over the last three years.

2016

Thyssenkrupp Companhia Siderúrgica do Atlântico Ltd ("CSA")

In April 2016, the Company sold 100% of its stake in CSA (26.87%) for a non-significant amount.

Coal - Corredor logístico Nacala ("Nacala")

In December 2014, the Company entered into an agreement with Mitsui & Co. ("Mitsui") to sell 50% of its stake in the Corredor Logístico Nacala and 15% of its stake in Vale Moçambique, which owns the coal assets. After the transaction is finalized, Vale will indirectly hold 81% of the Moatize mine (Vale Moçambique) and approximately 50% of the Corredor Nacala assets. Since Nacala will be a controlled by Vale and Mitsui, the assets and liabilities were classified as non-current assets held for sale, with no impact on profit or loss.

In September 2016, the Company reviewed the terms of this transaction, in which Mitsui agreed to contribute up to R$ 1.467 billion (US$ 450 million), of which: (i) R$ 831 million (US$ 255 million) for 15% of Vale's stake in the Moatize coal mine; and (ii) an additional contribution of up to R$ 636 million (US$ 195 million) which depends upon attaining certain conditions, including the performance of the mine. In addition, Mitsui will contribute R$ 1,134 billion (US$ 348 million) for a 50% stake in equity and quasi-equity of Nacala and will grant a long-term loan of R$ 538 million (US$ 165 million).

As at December 31, 2016, the completion of the transaction depends on the successful completion of Project Finance and certain government authorizations expected to be authorized in 2017.

Navigation assets

In June 2016, Vale approved the plan to sell its fleet of eleven ships. As a result, the aforementioned assets were reclassified to non-current assets held for sale and a loss for R$ 228 million was recorded as "Profit or loss in the measurement or sale of non-current assets".

In the year ended December 31, 2016, the Company sold three Very Large Ore Carriers ("VLOC's") for R$ 863 million and four Capesize vessels for R$ 470 million. Four ships are still recognized as assets held for sale on December 31, 2016.

Sale of part of the gold flows produced as by-products

In 2013, the Company entered into a gold transaction with Silver Wheaton Corp. ("SLW") to sell 25% of the gold mined as a by-product during the useful life of the Salobo copper mine and 70% of the gold mined as a by-product of Sudbury nickel mines over the next 20 years. The Company received an initial cash payment of R$ 4.060 billion (US$ 1.9 billion).

The original transaction was amended, in March 2015 and August 2016, to include, in each contract, the additional sale of 25% of gold mined as a by-product over the useful life of the Salobo copper mine. In the first addendum, the Company received an initial cash payment of R$ 2.826 billion (US$ 900 million) and the second addendum, (i) an initial cash payment of R$ 2.568 billion (US$ 800 million) and (ii) an option amount, resulting from a reduction in the exercising price from R$ 211.00 (US$ 65.00) to R$ 142.00 (US$ 43.75) on the 10 million SLW warrants held by the company since 2013 and maturing in 2023.

As a result, SLW held, as at December 31, 2016, 75% of the flow of gold payable in the copper concentrated in the Salobo mine and 70% of the gold mined as a by-product of the Sudbury nickel mines over the next 17 years.

As the gold is delivered to SLW, Vale receives a payment equal to the lower of: (i) US$ 400 per ounce of refined gold delivered (of which payments are subject to an annual increase of 1% per year beginning on January 1, 2017 for the original and additional transactions and each subsequent January 1), and (ii) the market reference price on the delivery date.

Vale may also receive an additional cash payment depending on its decision to expand the processing capacity of Salobo copper mine by more than 28 Mtpa by 2036. Salobo will have a total processing capacity of 24 Mtpa of Run-of-mine (ROM). This additional contingent amount may range from US$ 113 million to US$ 953 million, depending on the ore content, time and size of the expansion.

2015

Divestiture of Shandong Yankuang International Coking Co., Ltd. ("Yankuang")

The Company has completed the sale of its total stake in Yankuang, a producer of coke, methanol and other products. In this transaction, Vale recognized a gain of R$ 241 million as "Impairment losses and other profit or loss from the share in associates and joint ventures".

Restructuring energy generation assets

On February 27, 2015, Vale concluded the transaction started in 2013 with Cemig GT to form the joint venture Aliança Geração de Energia S.A., and on March 31, 2015, Vale concluded the transaction with CEMIG GT for the sale of 49% of Vale's stake in Norte Energia.

Sale of stake in MBR

On July 29, 2015, Vale entered into an Agreement to Sell Shares and Other Covenants with the Investment Fund in Participações Multisetorial Plus II ("FIP Plus II "), whose quotas are held on this date by Banco Bradesco BBI S.A. ("BBI"), through which it promised to sell Class A preferred shares, representing 36.4% of the share capital of Minerações Brasileiras Reunidas S.A. – MBR ("MBR"), for a price of R$ 4.0 billion, subject to usually applicable suspensive conditions, including prior approval of the transaction by CADE. On September 1, 2015, the sale was completed at the agreed price, which was transferred in a single installment on that date, giving Vale 61.9% of the total direct and indirect capital and 98.3% of the MBR's ordinary capital. Vale also holds an option to purchase the shares issued by MBR, which is currently held by BBI, which succeeded FIP Plus II.

Sale of marine transport assets and the cooperation agreement

In 2015, the Company concluded the sale of 12 vessels with a capacity of 400,000 tons each. The Company received cash funds of R$ 4.770.

2014

Sale of stake in Vale Florestar

On June 4, 2014, Vale announced that it had entered into an agreement to sell its entire stake in Vale Florestar Fundo de Investimento em Participações ("*FIP Vale Florestar*") to a subsidiary of Suzano Papel e Celulose S.A. ("*Suzano Subsidiary*"), a eucalyptus pulp producing company, for the amount of R$ 205 million. All the usual precedent conditions and approvals, including the approval of the Administrative Council for Economic Defense - CADE were fulfilled, and, as such, the transaction was executed on August 8, 2014.

BNDESPar, Petros and FUNCEF, other FIP Vale Florestar quota holders also sold their respective stake to the Suzano Subsidiary, which now holds 100% of FIP Vale Florestar.

Sale of marine transport assets and the cooperation agreement

In September 2014, Vale International e a China Ocean Shipping Company ("Cosco") entered into a strategic cooperation agreement to ship iron ore. Under the agreement, four VLOCs (*Very Large Ore Carriers*), with capacity of 400 thousand tons, currently owned and operated by Vale International, are sold to Cosco. That sale was completed on June 2, 2015, with the transaction amounting to US$ 445 million.

In September 2014, Vale International and the China Merchants Group also signed an agreement that includes strategic cooperation between both companies in the iron ore shipping industry. Under the agreement, the companies have agreed to enter into a long-term charter agreement to the transport iron ore from Brazil to China on VLOCs to be built and operated by the China Merchants Group ("Cooperation Agreement").

On May 19, 2015, Vale International and China Merchants Energy Shipping Co., Ltd. ("CMES"), a subsidiary of the China Merchants Group, entered into an addendum to the Cooperation Agreement, whereby Vale would sell four 400,000-ton VLOCs to CMES, which are currently owned and operated by Vale. That sale was completed on September 29, 2015, with the transaction amounting to US$ 448 million.

c. Unusual events or transactions

2016

Contingencies related to the Samarco accident

(i) Public-interest civil action filed by the federal government and others

The Federal Government, both Brazilian states affected by the collapse of the dam (Espírito Santo and Minas Gerais) and other governmental authorities, filed a public-interest civil action against Samarco and its shareholders, Vale S.A. and BHPB, for the amount stated by the plaintiffs at R$ 20.2 billion.

On May 5, 2016, the Transaction and Adjustment of Conduct ("TTAC") of March 2, 2016 was ratified in the Federal Regional Court of the 1st Region (TRF). In June 2016, the Superior Court of Justice (STJ) issued an injunction, suspending the decision of the TRF, until the final judgment of the action. With this injunction, the public civil action, previously suspended due to the homologation of the TTAC, was restored. For more information on TTAC, see item 4.7 of this Reference Form.

On August 17, 2016, the TRF of the 1st Region dismissed the interlocutory appeal filed by Samarco, Vale and BHPB against the aforementioned injunction and declared the decision null and void that approved the TTAC. The injunction maintained by the TRF of the 1st Region determined, among other measures, the unavailability of the Samarco, Vale and BHPB mining concessions, without, however, limiting its production and sales activities and the deposit of R$ 1.2 billion, by January 2017. This deposit was provisionally replaced by the guarantees included in the preliminary agreement with the Federal Public Prosecutor, as shown in detail below.

(ii) Public-interest Civil action filed by the Federal Public Ministry

On May 3, 2016, the MPF filed a public-interest civil action ("ACP") against Samarco and its shareholders (Vale and BHPB), through which it submits several requests, including: (i) the adoption of measures aimed at mitigating the social, economic and environmental impacts resulting from the collapse of the Fundão dam, as well as other emergency measures; (ii) payment of compensation to the community; and (iii) payment of collective pain and suffering. The initial value of the lawsuit stated by the MPF is R$ 155 billion. On September 13, 2016, the first hearing was held. On November 21, 2016, the Court determined to serve the defendants with a process and the lawsuit was contested. On January 18, 2017, Samarco and its shareholders (Vale and BHPB) entered into an agreement with the Federal Public Prosecutor's Office for a Preliminary Adjustment ("TAP"), which was approved by the court of the 12th Federal Civil/Agricultural Court of Minas Gerais on March 16, 2017. Preliminary Adjustment the TAP establishes procedures and the timeframe to conclude the final agreement, the hiring of specialized companies for technical advice to the MPF and offer of certain guarantees. The Preliminary Adjustment I approval implied the suspension of the ACP, as well as the suspension of other related proceedings, with the aim of avoiding contradictory or conflicting decisions, bringing a procedural unit to allow a final agreement to be negotiated. For more information on Preliminary Adjustment Term I, see item 4.7 of this Reference Form.

In addition, a second Preliminary Term ("Second Term") was signed, which establishes a timeframe for the provision of funds for programs to award socio-environmental and socio-environmental damages caused by the collapse of the Fundão Dam in the municipalities of Barra Longa, Rio Doce, Santa Cruz do Escalvado and Ponte Nova for R$ 200 million. For more information on Preliminary Adjustment Term II, see item 4.7 of this Reference Form.

The commitments established in both Terms of the Preliminary Adjustment were partially approved.

For more information regarding the collapse of the Samarco Mineração S.A. Dam, see section 10.1 h.

Impairment

Impairment losses (reversals) recognized in the year are as follows:

Segments per class of asset	Assets or cash generating unit	Book Value (After *Impairment*)	*Impairment* (reversals) (In billions) 2016	2015	2014
Property, plant and equipment and intangible assets					
Iron ore	Northern System	0.536	(0.536)	0.213	-
Coal	Australia	0.140	0.091	2.460	0.787
Basic Metals - Nickel	Newfoundland (VNL)	6.241	2.112	13.394	-
Basic Metals - Nickel	New Caledonia (VNC)	10.976	0.952	5.660	0.628
Basic Metals - Nickel	Onça Puma	6.766	-	(0.976)	(4.295)
Coal	Mozambique	5.722	-	9.302	-
Iron ore	Central-west system	-	-	2.023	-
Iron ore	Simandou Project	-	-	-	2.793
Various segments	Other assets	-	0.460	0.487	-
Impairment of non-current assets			**3.079**	**32.563**	**(0.087)**
Onerous contracts			0.861	1.382	-
Impairment of non-current assets and onerous contracts			**3.940**	**33.945**	**(0.087)**
Investments in associates and joint ventures					
Iron ore	Samarco Mineração S.A.	-	-	0.510	-
Basic Metals - Copper	Teal Minerals Inc.	-	-	1.217	-
Other	Vale Soluções em Energia S.A.	-	-	-	0.071
Impairment of investments in associates and joint ventures			**-**	**1.727**	**0.071**

2015

Impairment

Impairment losses (reversals) recognized in the year are shown in the table above**.**

2014

Impairment

Impairment losses (reversals) recognized in the year are shown in the table above**.**

10.4 - Significant changes in accounting practices - Emphasis of matter in the auditor's report

a) significant changes in accounting practices

2016

In 2016, there were no significant changes in any of the pronouncements. All pronouncements issued in 2016 aim to adopt new accounting guidelines as from 2017, among which are IFRS 16 - *Leases*, the most significant. IFRS 16 replaces IAS 17 Leases and related interpretations and enters into force for annual reporting periods starting on or after January 1, 2019, and is adopted when it becomes effective, when implemented in Brazil by the CPC and approved by the CVM and the CFC.

(I) Pronouncements, interpretations or updates issued by the IASB for adoption after December 31, 2016

- IFRS 16 Leases
- Recognition of Deferred Tax Assets (Amendments to IAS 12)
- Disclosure Initiative (Amendments to IAS 7)
- Classification and Measurement of Share-based Payment Transactions (Amendments to IFRS 2)
- IFRIC 22 Foreign Currency Transactions and Advance Consideration
- Transfers of Investment Property (Amendments to IAS 40)

(II) Pronouncements, interpretations, guidelines or revisions approved by the CVM for adoption after December 31, 2016

- CVM Resolution 763, of December 22, 2016 - Approves Technical Pronouncement CPC 48 of the Comitê de Pronunciamentos Contábeis, which deals with financial instruments.

- CVM Resolution 762, of December 22, 2016 - Approves Technical Pronouncement CPC 47 of the Comitê de Pronunciamentos Contábeis, which deals with revenue from contracts with customers.

- CVM Resolution 761, of December 22, 2016 - Approves the Technical Pronouncements Review Document No. 10 regarding Pronouncements CPC 03 (R2) and CPC 32 issued by the Comitê de Pronunciamentos Contábeis.

(III) Pronouncements, interpretations and guidelines issued and/or updated by the CPC, adopted during 2016

- CPC 02 (R2) - The Effects of Changes in Foreign Exchange Rates.

- CPC 26 (R1) - Presentation of Financial Statements.

- CPC 39 – Financial Instruments: Presentation.

- ICPC 09 (R2) - Individual Financial Statements, Separate Statements, Consolidated Statements and Application of the Equity Method.

2015

There were no significant changes in accounting practices during 2015.

2014

In 2014, there were no significant changes in any of the pronouncements. All pronouncements issued in 2014 aim to adopt new accounting guidelines as from 2016, among which are IFRS 15 - *Revenue from Contracts with Customers*, the most significant. IFRS 15 addresses the recognition of revenue from customer contracts (except for contracts that fall under the scope of *Leasing* contracts, insurance contracts and financial instruments), and replaces the current IAS 18 - Revenue, IAS 11 - Construction contracts, and they are adopted when they come into effect, when they are implemented in Brazil CPC and approved by CVM and CFC. The deadline for the mandatory adoption of IFRS 15 has been changed to 2018, and in 2016 they had not been adopted by the Company.

(I) Pronouncements, interpretations or updates issued by the IASB for adoption after December 31, 2014

- Sale or Contribution of Assets between an Investor and its Associate or Joint Venture (Amendments to IFRS 10 and IAS 28)
- Equity Method in Separate Financial Statements (Amendments to IAS 27)
- Accounting for Acquisitions of Interests in Joint Operations (Amendments to IFRS 11)
- Clarification of Acceptable Methods of Depreciation and Amortization (Amendments to IAS 16 and IAS 38)
- IFRS 15 Revenue from Contracts with Customers.
- IFRS 9 Financial Instruments
- Disclosure Initiative (Amendments to IAS 1)

(II) Pronouncements, interpretations, guidelines or revisions approved by the CVM for adoption after December 31, 2014

- CVM Resolution 733, of December 23, 2014 - Approves the Technical Pronouncements Review Document No. 07 regarding Pronouncements CPC 18, CPC 35 and CPC 37 issued by the Comitê de Pronunciamentos Contábeis.

(III) Pronouncements, interpretations and guidelines issued and/or updated by the CPC, adopted during 2014

- ICPC 09 (R2) - Individual Financial Statements, Separate Statements, Consolidated Statements and Application of the Equity Method
- ICPC 19 - Taxes
- ICPC 20 - The Limit on a Defined Benefit Asset, Minimum Funding Requirements and their Interaction
- OCPC 07 - Transparency in the Disclosure of General Financial Reports
- OCPC 8 - TECHNICAL GUIDANCE OCPC 08

b. Significant effects from the changes in accounting practices

There were no changes in the accounting practices adopted by the Company between the financial years ended December 31, 2014 and 2016.

c. emphasis of matter in the auditor's report

There was no emphasis in our independent auditors' reports regarding the financial statements for 2014, 2015 and 2016.

There are no paragraphs of emphasis in the financial statements for the financial years ended December 31, 2014, 2015 and 2016.

In 2014, KPMG Auditores Independentes assumed responsibility for the independent audit of the Company's Financial Statements, and issued a report on the financial statements for 2014.

10.5 - Significant accounting policies

The preparation of financial statements requires the use of certain critical accounting estimates as well as the judgment of the Company's Management in applying the accounting policies of the Group.

These estimates are based on the best knowledge in each year. Changes in facts and circumstances may lead to a review of estimates, so actual future results may differ from estimates.

The significant estimates and assumptions used by the Company's Management in the preparation of these financial statements are as follows:

a) Mineral Reserves and Useful Life of Mines

Estimates of proven and probable reserves are periodically evaluated and updated. These reserves are determined using generally accepted geological estimation techniques. The calculation of reserves requires the Company to assume positions on future conditions that are uncertain, including future ore prices, exchange and inflation rates, mining technology, the availability of licenses and production costs. Changes in some of these assumed positions may have a significant impact on the Company's proven and probable reserves.

The estimate used for the volume of mineral reserves is based on a calculation of the portion of the mining assets that has depleted, and its estimated useful life is the preponderant factor to quantify the provision for the environmental recovery of the mines and the impairment of long-term assets. Any change in the estimate of the volume of mine's reserves and the useful life of the related assets may have a significant impact on the depreciation, depletion and amortization charges and the impairment assessment.

b) Demobilization of Assets

The Company recognizes a liability based on the fair value for the demobilization of assets in the period in which they occur, according to the notes to the financial statements. The Company considers that calculating accounting estimates, relating to the recovery of degraded areas and the costs of closing mines, is a significant accounting practice since it involves large provisions and are estimates that involve several assumptions such as interest rates, closing costs, useful life of asset considering the current stage of depletion and the projected depletion dates of each mine. These estimates are reviewed annually.

c) Taxes on profit

The calculation of the provision for income tax or deferred income tax, asset or liability position, and any provision for losses on tax credits requires the Management's estimates.

Deferred taxes, assets arising from tax losses, negative base social contributions and temporary differences are recognized taking into account the analysis of future profits, based on economic and financial projections, using internal assumptions and macroeconomic, trading and tax scenarios, which may change in the future. The assumption of future profits is based on production, sales planning, *commodities*, operational costs, restructuring and capital cost planning.

d) Provisions for contingencies

Provisions for contingencies are only recorded when the possibility of a loss is considered probable by the legal board and its legal advisors and can be measured with reasonable certainty.

By their very nature, lawsuits will be settled when one or more future events occur or cease to occur. Typically, the occurrence or non-occurrence of such events does not depend exclusively on the Company's performance, and uncertainties in the legal environment require Management to prepare estimates and significant judgments regarding the results of future events.

e) Post-retirement employee benefits

The amounts recorded under this item depend on a series of factors that are determined based on actuarial calculations, which use several assumptions to determine costs and liabilities. One of the assumptions used is the determination and use of the discount rate. Any change in these assumptions will affect the accounting records.

The Company, together with the external actuaries, review, at the end of each year, the assumptions that will be used for the following year. These assumptions are used to determine the fair value of assets and liabilities, costs and expenses and estimated future cash outflows that are recorded in pension plan obligations.

f) Impairment of Assets

Each year, the Company tests the recoverability of its tangible and intangible assets per cash generating unit, usually using a discounted cash flow criterion that depends on several estimates.

The Company determined its cash flows based on budgets approved by the Management. They used the following key assumptions: (i) reserves and mineral resources measured by internal specialists; (ii) costs and investments using the best estimate of projects based on past performance; (iii) selling prices consistent with the projections available in the reports published by the industry, considering the market price when appropriate; (iv) the useful life of each unit (relationship between production and mineral reserves); and (v) discount rates that reflect the specific risks of each cash-generating unit. Therefore, there is a possibility that changes in circumstances may alter these projections, which may affect the recoverable amount of the assets.

g) Fair Value of Derivatives and Other Financial Instruments

The fair value of financial instruments not traded on an active market is determined using valuation techniques. The Company uses its judgment to choose the various methods and to establish assumptions that are based primarily on the market conditions existing on the reporting date.

The analysis of the impact if the actual results differ from the Management's estimates is shown in note 33 of the 2016 financial statements, under the heading "Sensitivity analysis of derivative financial instruments".

h) Samarco Mineração S.A

The provision for compliance with the Transaction Terms and Conduct Adjustment TTAC of March 2, 2016 relating to the collapse of the Samarco Mineração S.A. ("Samarco") dam requires the use of estimates that may be affected mainly by: (i) changes in the scope of work included in the Agreement as a result of additional technical analyses; (ii) resolution of uncertainty regarding the resumption of Samarco operations; (iii) discount rate updates; and (iv) resolution of existing legal claims. As a result, the expenses to be incurred in the future may differ from the amounts recognized in the provision and changes in these estimates may result in a material impact on the amount of the provision in the future.

10.6 - Relevant items not shown in the financial statements

a. The assets and liabilities held by the Company, directly or indirectly, that do not appear on its balance sheet (off-balance sheet items), such as:

i. Operating leases, assets and liabilities

Vale has an operating lease agreement with its entities that are jointly controlled by Companhia Coreano-Brasileira de Pelotização, Companhia Hispano-Brasileira de Pelotização, Companhia Ítalo-Brasileira de Pelotização and Companhia Nipo-Brasileira de Pelotização where Vale leases its Pelletizing. These operating lease agreements run for between 3 to 10 years and are renewable.

The Company also has an operating lease for the exploration and processing of iron ore with joint ventures and port operations with third parties.

The commitments of future minimum payments of operating leases are as follows, as at December 31, 2016:

In billions	
2017	0.517
2018	0.465
2019	0.457
2020	0.455
2021 and subsequent periods	1.689
Total minimum payments required	**3.583**

ii. A portfolio of receivables written-off, on those receivables the entity maintains risks and liabilities, indicating the respective liabilities.

There are no portfolios of receivables written-off where risks and liabilities are maintained by Vale that do not appear on its balance sheet.

iii. future product and service purchase contracts

Commitments to purchase obligations derive mainly from *take or pay* contracts, which are used to purchase energy and raw materials and services.

The commitments of future minimum payments relating to the future obligation to purchase are as follows, as at December 31, 2016:

In billions	
2017	8.959
2018	1.266
2019	0.647
2020	0.487
2021 and subsequent periods	3.927
Total minimum payments required	**15.286**

iv. construction contracts not terminated

There are no construction contracts not terminated that do not appear on the Company's balance sheet.

v. Contracts for future receipts of financing

(I) Basic Metal Operations

Nickel Operations - New Caledonia

In relation with the construction and installation of our nickel processing plant in New Caledonia, the subsidiary Vale Canada Limited ("Vale Canada") has provided guarantees for financing agreements structured on the French tax law for BNP Paribas acting for the benefit of certain Investors). The guarantees refer to payments related to financing owed by the subsidiary Vale Nouvelle-Calédonie S.A.S. ("VNC") to an entity controlled by French investors on certain assets of the operation. Consistent with VNC's commitments on financing, assets were substantially finalized as at December 31, 2012. Vale Canada also made a commitment that the assets will be operated for a period of five years. Vale Canada believes that the probability of the guarantees being claimed is remote.

Nickel operations - Indonesia

In October 2014, PT Vale Indonesia TBK ("PTVI"), a company controlled by Vale and listed in Indonesia, renegotiated its agreement with the Government to operate (known as the Contract of Work - "CoW"). The renegotiation included PTVI's commitment to divest a 20% stake in the Indonesian market (approximately 20% of PTVI's shares are already listed on the Indonesian stock exchange) within five years. The divestment will be carried out by the majority shareholders of PTVI, Vale Canada and Sumitomo Mining Metal Co., Ltd., based on their interest.

Nickel Operations - Canada

Vale Canada and Vale Newfoundland & Labrador Limited ("VNLL") and the Province of Newfoundland and Labrador ("Province") have signed a VNLL Development Agreement with respect to the development and operation of the Voisey's Bay mine together with other obligations on the processing in the Province and the export of nickel and copper concentrate. On December 19, 2014, the Sixth Addendum to the Development Agreement was executed. The Sixth Addendum includes operational commitments and other key commitments in the agreement. Accordingly, under the Development Agreement, VNLL has a potential bond securitized by letters of credit and other securities, which may become due and payable in the event of certain commitments relating to the construction of the underground mine being postponed or not achieved.

Other

In addition to the operations described above, in the course of certain nickel operations, letters of credit, guarantees and bonds of R$ 3.6 billion (US$ 1.1 billion) have been provided that are associated with items such as environmental claims, commitments with demobilization of assets, electricity contracts, post-retirement benefits, service to the community agreements and import and export commitments.

(II) Debentures

At the time of privatization in 1997, the Company issued debentures to existing shareholders, including the Brazilian Government. The terms of the debentures were established to ensure that pre-privatization shareholders participated in possible future benefits that would be obtained from the exploration of certain mineral resources.

A total of 388,559,056 debentures were issued at a nominal value of R$ 0.01 (one centavo), the amount of which will be adjusted according to the General Market Price Index ("IGP-M"), as defined in the Debenture deed. At December 31, 2016, December 31, 2015 and December 31, 2014, the fair

value of the debentures amounted to R$ 2.526 billion, R$ 1.336 billion and R$ 4.584 billion, respectively.

The holders of these debentures are entitled to receive premiums paid every six months, equivalent to a percentage of net revenues from certain mineral resources, according to the Debenture deed. In 2016 and 2015, the Company paid debenture holders a total of R$ 268 million and R$ 209 million, respectively.

(III) Guarantee granted to affiliates

On December 31, 2016, the total guarantees granted by Vale (within the limit of its direct or indirect interest) to the companies Norte Energia S.A. and Companhia Siderúrgica do Pecém S.A. amounted to R$ 1.2 billion and R$ 4.7 billion, respectively.

(b) Other items not shown in the financial statements

Railway Companies

Through the Ministry of Transport, the Company entered into concession contracts for the exploration and development of a public service to transport cargo and passengers by rail, under the supervision of the National Agency and Land Transport (ANTT). The concessions are classified as intangible assets in the accounting records.

The concession periods for the Vitória to Minas and Carajás railroads are until June 2027. The contractual bases and the terms of termination of the railway concessions have not changed during the financial year.

The concession will be terminated if: the contractual term ends, expropriation, expiration, cancellation, annulment, bankruptcy or extinction of the concessionaire.

Port Terminals

Vale has specialized port terminals, as follows:

Tubarão Terminal	Vale S.A.	Vitória/ES	2039
Praia Mole Terminal	Vale S.A.	Vitória/ES	2039
Ponta da Madeira Marine Terminal	Vale S.A.	São Luís/MA	2039
Ilha Guaíba Terminal	Vale S.A.	Mangaratiba/RJ	2039
Ore Export Terminal	CPBS - Companhia Portuária Baía de Sepetiba	Itaguaí/RJ	2021
Gregório Curvo Terminal	MCR - Mineração Corumbaense Reunida S.A.	Corumbá/MS	2039

Except for the Ore Export Terminal awarded to CPBS - Companhia Portuária Baía de Sepetiba, the other port terminals have adapted their adhesion contract to the new port landmark, Law 12815/2013, and new contracts were signed in September 2014, with a term of 25 years, which can be extended for equal periods.

There are no other items not shown in Vale's financial statements other than those previously reported.

10.7 - Comments on items not shown in the financial statements

(a) as such, items change or may change the revenues, expenses, operating income, finance expense or other items in the issuer's financial statements

Vale Directors do not expect any material effects on the transactions described in item "10.6" of this Reference Form and there is nothing in the financial statements that may change the revenue, expenses, operating income, finance expense or other Vale accounting information.

(b) nature and purpose of the transaction

For a description of the nature and purpose of each transaction, see item "10.6" of this Reference Form.

(c) nature and amount of the liability assumed and the rights generated in favor of the issuer as a result of the transaction

For a description of the amount of the liability assumed and the rights generated in favor of Vale as a result of transactions not shown in our financial statements, see item "10.6" of this Reference Form.

10.8 - Company's business plan

a. investments, including: (i) quantitative and qualitative description of the ongoing investments and the planned investments; (ii) sources of investment financing; and (iii) relevant ongoing divestitures and planned divestitures.
b. acquisition of plants, equipment, patents or other assets that are expected to materially influence Vale's production capacity
c. new products and services, including: (i) description of ongoing research already disclosed; (ii) total amounts spent by the issuer on research to develop new products or services; (iii) projects under development already disclosed; and (iv) total amounts spent by the issuer in the development of new products or services

NOTE: To translate investment amounts made, the average exchange rate was used in the periods for translation.

In 2016, Vale's investments (project execution and maintenance of operations) amounted to R$ 18,062 billion. R$ 10.796 billion was invested to execute projects and R$ 7.266 billion to maintain existing operations. Investments in corporate social responsibility amounted to R$ 2.458 billion, composed of R$ 1.962 billion in environmental protection and conservation and R$ 496 million in social projects.

In 2015, Vale's investments (project execution and maintenance of operations) amounted to R$ 27.202 billion. R$ 18.381 billion was invested to execute projects and R$ 8.821 billion to maintain existing operations. Investments in corporate social responsibility amounted to R$ 2,673 billion, composed of R$ 1,764 billion in environmental protection and conservation and R$ 909 million in social projects.

In 2014, Vale's investments (project execution and maintenance of operations) amounted to R$ 27.403 billion. R$ 18.465 billion was invested to execute projects and R$ 8.938 billion to maintain existing operations. Investments in corporate social responsibility amounted to R$ 2.693 billion, of which R$ 2.050 billion was allocated to environmental protection and R$ 643 million to social projects. Investments in acquisitions amounted to R$ 162 million in 2014.

Since 2013, Research and Development (R&D) expenses have not been included in the value of investments, which, in turn, are composed of project execution and the maintenance of existing operations, and is based on disbursements.

The main acquisitions are mention in item "10.3" of this Reference Form.

In 2016, Vale began operations in three projects: the S11D, Moatize II and CSP mine and plant.

In 2015, Vale began operations in three projects: Conceição Itabiritos II, Cauê Itabiritos and the Nacala Port.

In 2014, Vale began operations in eight projects: 5th line project at Brucutu, Tubarão VIII, Teluk Rubiah, Salobo II, Serra Leste, Vargem Grande, Long Harbour and Nacala.

Capital Budget 2017

In December 2016, the Board of Directors approved the investment budget for 2017, of US$ 4.546 billion (equivalent to R$ 14.331 billion) including expenses of US$ 1.846 billion (equivalent to R$ 5.819 billion) to execute the projects and US$ 2.700 billion (equivalent to R$ 8.511 billion) dedicated to maintaining the existing operations and awarded projects.

Our main iron ore growth initiative, the S11D mine and plant project, and its integrated infrastructure, CLN S11D, accounts for 87% of the US$ 1.846 billion budgeted to develop the project in 2017.

The table below shows the estimated allocation of investments to maintain existing operations:

INVESTMENT TO MAINTAIN 2017 OPERATIONS - ALLOCATION PER BUSINESS SEGMENT						
US$ million	**Operations**	**Tailing Stacks and Dams**	**Health and safety**	**Social and Corporate Responsibility**	**Administrative and Others**	**Total**
Iron ores	596	95	105	35	63	894
Basic metals	692	40	66	230	16	1,045
Coal	123	3	15	1	7	149
Total	1,412	138	186	266	86	2,088

[1] *Includes the Clean AER project.*

The table below shows the main projects under development by Vale and/or its subsidiaries:

Project	**Estimated *Start-up* Date**	**Investment made**			**Expected investment**		**Status[1]**
		R$ million					
		2014	**2015**	**2016**	**2017**	**Total**	
IRON ORE							
CLN S11D Project Increase logistics capacity of the Northern System to support the S11D mine, including doubling approximately 570 km of the railway, constructing a 101-km railway branch, the acquisition of wagons and locomotives and *Onshore* and *Offshore* expansions at the Ponta da Madeira marine terminal. Increase in the nominal logistics capacity of the Carajás Railroad to approximately 230 Mtpa.	1H14 to 2H18	2,328	3,910	3,507	2,108	22,012	Offshore port expansion started up and had loaded 11 vessels (3,100,000 t) by January. Physical progress of the onshore port expansion was 89%. Physical progress of the railroad was 60%, totaling 291 km delivered. 76% physical progress.
Carajás Serra Sul S11D Development of mine and processing plant. Located in the southern mountain range of Carajás, Pará. Estimated nominal capacity of 90 Mtpa.	2H16	2,041	3,729	3,265	1,779	17,270	The S11D started up successfully in 4Q16, with ore being fed in both mobile crushing and transfer systems, through the conveyor belt system, to the processing plant located 9 km from the mine. The ore processed was stacked in the yard and loaded onto the

Project	Estimated *Start-up* Date	Investment made			Expected investment		Status[1]
		R$ million					
		2014	2015	2016	2017	Total	
							trains to go to the Ponta da Madeira marine terminal. Shipments began in January 2017 with ore blended from S11D with other mines of the Northern System. 97% physical progress.

10.9 - Other factors that have a significant influence on the operating performance and that have not been identified or commented on in the other items of this section

There are no other factors that occurred in the last three financial years that have significantly influenced the operating performance and that were not identified or commented on in the other items of this section.

11.1 - Identification of forecasts

a. Object of projections

At the date of this Reference Form, the Company has no projections for the period still in progress disclosed to the market.

b. Term under consideration and the validity of forecasts

Not applicable, considering that at the date of this Reference Form, the Company has no projections for the period still in progress disclosed to the market.

c. Premises of projections, with an indication of those which can be influenced by the administration of the Company

Not applicable, considering that at the date of this Reference Form, the Company has no projections for the period still in progress disclosed to the market.

d. Values of indicators that are the object of projections

Not applicable, considering that at the date of this Reference Form, the Company has no projections for the period still in progress disclosed to the market.

11.2 Follow-up and changes to disclosed projections:

a. identify which are being replaced by new projections included in the form and which ones are being repeated in the form

Vale provided a projection relating to the period that has elapsed, and has not made new projections since then. Vale had estimated that its Adjusted EBITDA (LAJIDA) ("Adjusted EBITDA") for the second semester of 2016 was between US$4.5 billion (R$14.9 billion)[3], and US$5.4 billion (R$17.8 billion)[1].

Note that the information highlighted above represented a mere estimate and in no way was a promise of performance by the Company and/or its management.

The projected period for the Adjusted EBITDA was the second semester of 2016 and the validity period of the estimate made was until the disclosure of the income statement for the fiscal year ending on December 31, 2016, which has already occurred.

The assumptions used to forecast the Adjusted EBITDA for the second semester of 2016 were: (a) exchange rate of 3.30 Brazilian Reais per US Dollar in the second semester of 2016; (b) average price of iron ore between US$50 and US$55 per metric ton in the second semester of 2016; (c) average price of nickel at US$10.500 per metric ton in the second semester of 2016; (d) average price of copper at US$4.700 per metric ton in the second semester of 2016; (e) volume of iron ore production between 340 and 350 million metric tons for 2016.

b. regarding projection periods already elapsed, compare the data projected with the effective performance of the indicators, indicating clearly the reasons that led to deviations in the projections

Vale's Adjusted EBITDA in the second semester of 2016 totaled US$7.8 billion (R$25.3 billion), US$2.4 billion over the upper limit of the projection (i.e., US$5.4 billion), mainly due to the increased market prices for iron ore, nickel, copper, and coal in the fourth quarter of 2016.

The average IODEX (62% iron content) index, published by Platts, reached US$70.8 per metric ton in the fourth quarter of 2016, an increase of US$12.2 per metric ton compared to the third quarter of 2016 and resulting in an average of US$64.7 per metric ton for the second semester. The LME's average nickel price went from US$10,265 per metric ton in the third quarter of 2016 to US$10,810 per metric ton in the fourth quarter of 2016, while that of copper increased from US$4,772 per metric ton in the third quarter to US$5,277 per metric ton in the fourth quarter, well above the assumptions used in the projection.

c. regarding projections for periods still ongoing, to make known if projections are still valid on the date of submission of the form, and, when applicable, explain why they have been abandoned or replaced

Not applicable, as there are no projections for periods still in progress on the delivery date of this Reference Form.

[3] It considers the exchange rate of the 3.30 Brazilian Reais per US Dollar in the second semester of 2016 used as an assumption for the purpose of estimating the Adjusted EBITDA in US$.

12.1 - Description of Administrative Structure

The committees or similar structures that participate in the issuer's risk management policy informed in item 5.2 "f" shall also be described in items 12.1 "a" and 12.7 of the Form.

a. Attributions of each body and committee, pointing out whether they have their own regulations.

Board of Directors:

The Board of Directors of Vale is comprised of 11 members and their respective deputies, with unified term of two years, and subject to reelection. Under Vale Bylaws, the Chairman of the Board of Directors and Managing Director positions cannot be held by one single individual. Also under the terms of the Bylaws, the Board of Directors has the powers contemplated in law:

I. electing, evaluating, and removing Vale's Executive Officers, and determining their attributions;
II. distributing the compensation set by the shareholders' meeting among its members and the Board of Executive Officers;
III. attributing to an Executive Officer the role of Investors Relations;
IV. approving policies of selection, evaluation, development, and compensation of the members of the Board of Executive Officers;
V. setting the general direction on the businesses of Vale, its fully-owned subsidiaries and controlled companies;
VI. approving Vale's general Human Resource policies proposed by the Board of Executive Officers;
VII. approving strategic guidelines and the strategic plan of Vale proposed annually by the Board of Executive Officers;
VIII. approving Vale's annual and multi-annual budgets proposed by the Board of Executive Officers;
IX. monitoring and evaluating the financial and economic performance of Vale, being entitled to request reports from the Board of Executive Officers with specific performance indicators;
X. approving investment and/or development opportunities proposed by the Board of Executive Officers that exceed the limits established for the Board of Executive Officers as defined by the Board of Directors;
XI. issuing opinions on merger, split-off, or incorporation decisions of which Vale is a party, as well as share purchases, proposed by the Board of Executive Officers;
XII. in accordance with the corporate purpose of Vale, making decisions on the setting-up of companies or transformation into a different type of company, direct or indirect participation or withdrawal from other companies, consortia, foundations, and other organizations through exercise of withdrawal rights, exercise or non-exercise of rights of preference in subscription and acquisition, directly or indirectly, of corporate equity or of any other form of participation or withdrawal as prescribed by law, including, but not limited to, merger, split-off, and incorporation of companies in which it participates;
XIII. approving the corporate risk and financial policies of Vale, proposed by the Board of Executive Officers;
XIV. approving the issuance of simple debentures, not convertible into shares and without collateral, proposed by the Board of Executive Officers;
XV. approving the accounts of the Board of Executive Officers, presented in the Annual Management Report, as well as Financial Statements, for later submission for appreciation by the annual shareholders' meeting;
XVI. approving profit application in the fiscal year, distribution of dividends, and, when necessary, capital budget, proposed by the Board of Executive Officers, for later submission for appreciation by the annual shareholders' meeting;
XVII. appointing and removing external auditors of Vale, by recommendation of the Fiscal Council, according to item (ii) in § 1 in Article 39;

XVIII. appointing and removing the person responsible for internal auditing and for the Ombudsman of the company, who shall report directly to the Board of Directors;

XIX. approving policies and the annual internal audit plan of Vale, as well as to acknowledge the respective reports and determine the adoption of any necessary measures;

XX. supervising the management by Executive Officers and examining at any time the books and papers of Vale, requesting information on contracts executed or to be executed, and any other acts, in order to ensure the financial integrity of Vale;

XXI. approving alterations in corporate governance rules, including without limitation the accountability and information disclosure processes;

XXII. approving policies on employee conduct based on the ethical and moral standards described in the Code of Ethics and Conduct of Vale, to be complied with by all managers and employees at Vale, its subsidiaries and controlled companies;

XXIII. approving policies to avoid conflicts of interest between Vale and its shareholders or managers, as well as on the adoption of measures considered necessary in the event such conflicts arise;

XXIV. approving Vale's policies of institutional responsibility, especially those related to: the environment, work health and safety, and the social responsibility of Vale, proposed by the Board of Executive Officers;

XXV. establishing criteria for the Board of Executive Officers for purchase of, financed sale of, or placing liens on, fixed assets and for the constitution of encumbrances, compliant with the terms in article 7 in the Bylaws;

XXVI. approving the provision of guarantees in general for the Board of Executive Officers to obtain loans, and finance, and other contracts;

XXVII. establishing criteria for the Board of Executive Officers for the execution of commitments, non-exercise of rights and transactions of any nature, except waiver of preemptive rights in the subscription and purchase of corporate shares, under the terms in item XII in Article 14 in the Bylaws;

XXVIII. approving any matters, which are not under responsibility of the Board of Executive Officers, under the terms in the Bylaws, as well as matters which limitations are outside of the scope of the Board of Executive Officers, as provided for in Article 14 in the Bylaws;

XXIX. approving any reformulations, alterations or amendments to shareholder agreements or consortia contracts or agreements among shareholders or among consortia parties of companies in which the company participates and, moreover, signing of new agreements and/or consortia contracts that address matters of this nature;

XXX. authorizing the negotiation, signing, or alteration of contracts of any kind or value between Vale and (i) its shareholders, either directly or through intermediary companies, (ii) companies that directly or indirectly participate, in the capital of a controlling shareholder or which are controlled by or are under joint control of entities that participate in the capital of the controlling shareholder and/or (iii) companies in which the controlling shareholder of the Company participates, and the Board of Directors may establish delegations, with standards and procedures that meet the requirements and nature of operations, without prejudice of keeping the aforementioned group duly informed of all company transactions;

XXXI. comment on any issue to be presented at the shareholders' meeting;

XXXII. authorizing the purchase of shares of their own issuance for maintenance in treasury, cancelation or subsequent sale;

XXXIII. approving or delegating to the Board of Executive Officers recommendation of persons who should form part of the management, consulting, and financial bodies of those companies and organizations in which Vale participates, either directly or indirectly; and

XXXIV. approving recommendations submitted by the Fiscal Council of the Company in the exercise of its legal and statutory attributions.

The Company's Board of Directors has its own Bylaws, which were approved by the Board of Directors on May 25, 2016.

Advisory Committees:

The Board of Directors counts on the assistance, on a permanent basis of five (5) technical and advisory committees, as follows: Executive Development Committee; Strategic Committee; Financial Committee; Comptrollership Committee, and Governance and Sustainability Committee.

The mission of these committees is to assist the Board of Directors, including the monitoring of Vale activities, in order to provide more effective and higher quality solutions.

The Company's Advisory Committee has its own Bylaws, which were approved by the Board of Directors on November 27, 2014. The Strategic Committee Bylaws was amended on June 25, 2015.

Executive Development Committee:

Under terms of Article 21 of the Bylaws, the Executive Development Committee shall be responsible for:

I. issuing reports on the human resources general policies of the Company submitted by the Board of Executive Officers to the Board of Directors;
II. analyzing and issuing reports to the Board of Directors on the proposal of distribution of the annual global amount reserved for compensation of managers and appropriateness of the remuneration model for members of the Board of Executive Officers;
III. submitting and keeping current the methodology of performance evaluation of the members of the Board of Executive Officers;
IV. helping the Board of Directors to define the goals to evaluate the performance of the Board of Executive Officers; and
V. accompanying the development of the succession plan of the Board of Executive Officers.

Strategic Committee:

Under terms of Article 22 of the Bylaws, the Strategic Committee is responsible for:

I. recommending Vale's strategic guidelines and strategic plan;
II. recommending investment and/or divestment opportunities;
III. recommending operations relating to merger, split-off, and incorporation of Vale and its subsidiaries.

Financial Committee:

Under terms of Article 23 of the Bylaws, the Financial Committee is responsible for:

I. evaluating the risks and internal financial control systems of the Company;
II. evaluating the compatibility between the shareholders remuneration level and the parameters established in the annual budget and financial planning, as well as their consistency with the general policy on dividends and the capital structure of the Company;
III. evaluating Vale's annual budget and the annual investment plan;
IV. evaluating Vale's annual fund raising and risk exposure limit plan;
V. evaluating Vale's risk management process;
VI. accompanying the financial performance of capital projects and current budget.

Comptrollership Committee:

Under terms of Article 24 of the Bylaws, the Comptrollership Committee is responsible for:

I. issuing reports on policies and the Company's annual auditing plan submitted by the employee responsible for internal auditing, and on its execution;
II. tracking the results of the Company's internal auditing, and identifying, prioritizing, and submitting to the Board of Directors actions to be monitored by the Board of Executive Officers;
III. evaluating, upon request by the Board of Directors, the internal audit procedures and performance, regarding best practices;
IV. supporting the Board of Directors, upon request, in the process to choose and evaluate the annual performance of those responsible for Vale's internal audit

Governance and Sustainability Committee:

Under terms of Article 25 of the Bylaws, the Committee on Governance and sustainability is responsible for:

I. evaluating the efficiency of Vale's governance practices and the workings of the Board of Directors, and submitting improvements;
II. submitting improvements to the Code of Ethics and Conduct and the management system in order to avoid conflicts of interest between the company and its shareholders or managers;
III. evaluating transactions with related parties submitted to analysis of the Board of Directors, as well as issuing reports on potential conflicts of interest involving related parties
IV. evaluating the proposal to change Policies that are not attributed to other committees, the Bylaws and Internal Regulations of Vale's Advisory Committees;
V. analyzing and proposing improvements to Vale's Sustainability Report;
VI. evaluating Vale's performance regarding sustainability aspects and proposing improvements based on a long term strategic view;
VII. supporting the Board of Directors, upon request, in the process to choose and evaluate the annual performance of those responsible for Vale's Ombudsman;
VIII. supporting the Board of Directors, upon request, in the process to evaluate the Ombudsman while dealing with issues related to Ombudsman and violations against the Code of Ethics and Conduct.

Board of Executive Officers:

The Board of Executive Officers of Vale is comprised by, at least, 6, and at the most, 11 members, with a term of two years, subject to reelection. Under Vale's Bylaws, the Chairman of the Board of Directors and CEO positions cannot be held by one single individual. Also, under terms of the Bylaws, the Board of Executive Officers has the following responsibilities, in addition to those contemplated in law:

I. approving the creation and elimination of Executive Departments subordinated to each Executive Officer;
II. preparing and submitting to the Board of Directors the company's general policies on human resources, and executing the approved policies;
III. complying and requiring compliance with the general direction of the company businesses as established by the Board of Directors;
IV. preparing and submitting, annually, to the Board of Directors, Vale's strategic guidelines and the strategic plan, and executing the approved strategic plan;
V. preparing and submitting Vale's annual and multi-annual budgets to the Board of Directors, and executing the approved budgets;
VI. planning and conducting Vale's operations and reporting Vale's economic and financial performance to the Board of Directors, and producing reports with specific performance indicators;
VII. identifying, evaluating and submitting investment and/or divestiture opportunities to the Board of Directors which exceed the limits of the Board of Executive Officers as defined by the Board of Directors, and executing the approved investments and/or divestitures;

VIII. identifying, evaluating and submitting to the Board of Directors operations relating to merger, split-off, incorporation in which Vale is a party, as well as share purchases, and conducting the approved mergers, split-offs, incorporations and purchases;
IX. preparing and submitting Vale's finance policies to the Board of Directors, and executing the approved policies;
X. submitting to the Board of Directors the issuance of simple debentures, not convertible into shares and without collateral;
XI. defining and submitting to the Board of Directors, upon preparation, the company's balance sheet, profit distribution, dividend distribution, and, if needed, capital budget;
XII. preparing, at each fiscal year, the Annual Management Report and Financial Statements to be submitted to the Board of Directors and, later, to the shareholders' meeting;
XIII. adhering to and encouraging adhesion to Vale's Code of Ethics and Conduct, established by the Board of Directors;
XIV. preparing and submitting to the Board of Directors Vale's policies on corporate responsibility, such as the environment, health, safety and social responsibility, and implementing the approved policies;
XV. authorizing the purchase of, sale of and placing of liens on fixed and non-fixed assets including securities, contracting of services, whether the company is the provider or receiver of such services, being empowered to establish standards and delegate powers, all in accordance with the criteria and standards established by the Board of Directors;
XVI. authorizing the signing of agreements, contracts and settlements that constitute liabilities, obligations or commitments on the Company, being empowered to establish standards and delegate powers, all in accordance with the criteria and standards established by the Board of Directors;
XVII. proposing to the Board of Directors any reformulations, alterations, or amendments of shareholders' agreements or of agreements among the shareholders of companies in which Vale participates, as well as suggesting the signing of new agreements and consortia contracts that address subjects of this nature;
XVIII. authorizing the opening and closing of branch offices, subsidiary branch offices, depots, agencies, warehouses, representative office or any other type of establishment in this country [Brazil] or abroad;
XIX. authorizing the signing of commitments, waiver of rights, and transactions of any nature, except in regard to the waiver of preemptory rights in subscription and purchase, under the terms in item XII above in matters related to the Board of Directors, and may establish rules and delegate powers, all within the limits of the Board of Executive Officers as established by the Board of Directors;
XX. establishing and informing the Board of Directors of the limits of the individual responsibility of Executive Officers, within the limits of the Board of Executive Officers as established by the Board of Directors;
XXI. establishing, based on the limitations determined by the Board of Directors to the Board of Executive Officers, the limitations along the hierarchic line of Vale's management organization;
XXII. laying down voting guidelines to be followed at the shareholders' meetings or their equivalent by its representatives in the companies, foundations and other organizations in which Vale participates, directly or indirectly, respecting the investment opportunities and the guidelines approved by the Board of Directors, as well as the respective budget and all within its respective limits in regard to, among other things, indebtedness, the sale of or placing of liens on assets, the waiver of rights, and the increase or reduction of corporate equity;
XXIII. complying and requiring compliance with the general direction of the company as determined by the Board of Directors; and
XXIV. appointing, for approval by the Board of Directors, the people to be members at management, Consulting, and fiscal boards of the companies and entities where Vale holds interest, including indirect interest.

The Company's Board of Executive Officers has its own Bylaws, which were approved on December 9, 2013.

Non-Statutory Committees:

The Board of Executive Officers shall have, for advice on a permanent basis, three (3) technical and advisory committees, denominated as follows: Disclosure Committee, Risk Management Executive Committee, and Ethics Committee.

The Ethics Committee and the Risk Management Executive Committee have their own Bylaws. The Disclosure Committee, on the other hand, does not. Its activities are described in the Disclosure Policy approved by the Board of Directors on May 24, 2012. The Policy was reviewed and approved by the Board of Directors on August 29, 2016.

Disclosure Committee:

The primary attributes of the Disclosure Committee are (a) evaluation of the relevance of acts or events that have occurred and are related to the business of Vale; and (b) oversight of the disclosure of information to the capital markets pursuant to the terms of the Disclosure Policy. For more information on the Disclosure Committee see item 21.1.

Risk Management Executive Committee:

The primary responsibilities of the Risk Management Executive Committee are issuing an opinion on Vale's principles and instruments of risk management; and periodic reporting to the Board of Executive Officers on (a) the primary risks to which Vale is exposed (by type of risk and/or business) and the impact of these risks on the asset portfolio and cash flow; (b) how the risks are being monitored and managed, and (c) the impact on the profile of risk of the asset portfolio and on cash flow resulting from the inclusion of new investments and/or projects in the business plan, and, if necessary, what strategies of risk mitigation are recommended. The Risk Management Executive Committee reports regularly to the Board of Executive Officers, and the latter is responsible for evaluating and approving strategies for risk mitigation over the long term, as recommended by the Risk Management Committee.

Ethics Committee

The main tasks of the Ethics Committee are: (i) to promote Company values through discussion, evaluation, and the proposal of actions related to: (a) non-compliance with the applicable law; (b) breach of the Code of Ethics and Conduct; and (c) unethical actions or actions that infringe the Company's internal regulations (standards, policies, codes); (ii) assist the Ombudsman Board in the establishment of performance indicators that will allow for the assessment Board's work; (iii) assist the Ombudsman Board is making use of a database containing the history of previous cases, classified as per type of complaint, severity and scope; (iv) discuss issues related to different action plans to address complaints of a similar nature, seeking, whenever possible, take consistent actions based on the catalogued history; (v) discuss training programs/actions on ethics and conduct to promote awareness of all Company employees, including outsourced employees; (vi) assist in the clarification of search situations that are not in the Code of Ethics and Conduct, when the Ombudsman Board fails to solve them. It should be noted that cases involving the Ombudsman Officer must be sent to the Board of Directors by any member of the Committee. The Ethics Committee reports regularly to Vale's Ombudsman Board, which is responsible for the continuous improvement of ethical awareness of values such as "Do the right thing" in all company units worldwide, and it answers to Vale's Board of Directors. The Ethics Committee is made up of the Audit, Human Resources, Ombudsman and General Consultant Officers.

Fiscal Council:

The Fiscal Council is comprised by at least 3 and at the most 5 permanent members and the same number of deputy members. The Vale's Fiscal Council shall be responsible for exercising the functions

attributed to it by the applicable prevailing legislation, in Vale's Bylaws, and as regulated by its own Internal Rules to be approved by its members.

The Fiscal Council, additionally to attributions set forth in Law 6,404/76, is responsible to:

I - identify critical accounting aspects and analyze appropriate application of generally accepted accounting principles;
II - monitor the integrity of the financial statements, the annual report, the semiannual and quarterly reports of the Company, reviewing financial content decisions in such documents and debating them with the Management and the External Auditor;
III - maintain the communication between the Fiscal Council and the External Audit, under applicable regulation (Rule 10A-3 by SEC and PCAOB AS 16);
IV - comment on the equity and reasonability of operations to alter capital stock, issuance of debentures, or subscription bonus, investment plans or capital budgets, dividend distribution, transformation, incorporation, merger or split, responsibility of the Shareholders' Meeting, as well as eventual conflicts of interest between the controlling shareholder and minor shareholders of the Company, related to such operations;
V - request to Company Management, books, documents, or information needed to perform its inspection activities;
VI - recommend to the Board of Directors the choice, compensation and removal of the Company's External Auditor;
VII - supervise and evaluate annually the works presented by the External Auditor and, if deemed to be necessary, recommend to the Management the eventual withholding of the compensation and/or removal of the External Auditor;
VIII - evaluate and monitor the independence and objectiveness of the External Auditor, debating the audit plan, including the nature of the work, the scope, the audit risks, its effectiveness in line with the applicable regulation, and disclosure obligations prior to the service provision;
IX - deliberate with the External Audit the acquisition of services unrelated to the audit of financial statements, being entitled to pre-approve a list of services that could be provided by the Auditor, to be periodically reviewed;
X - be aware of Internal Audit reports, by the External Auditor and the Comptrollership Committee, analyzing recommendations and opinions and inviting them to attend, if needed, meetings of the Fiscal Council;
XI - ensure coordination between the Internal Audit and the External Auditor, ensure that the Internal Audit has sufficient resources to perform its functions, review and monitor its effectiveness and that it is in an appropriate position within the Company functional structure;
XII - evaluate the report issued by the External Auditor, with material questions addressed to the Management, regarding accounting records, financial statements, internal control systems applicable to Vale and its subsidiaries and affiliates, accompanied by the respective comments and responses by the Management;
XIII - mediate eventual disputes between Management and the External Auditor regarding the financial statements of the Company, and guarantee that the Board of Directors promptly receives relevant information on questions in the report on internal controls by the External Auditor;
XIV - evaluate financial controls, internal controls and the Company risk management system, in order to ensure effectiveness and appropriateness as well as funds spent, qualification, and experience of the responsible parties and their training programs;
XV - discuss with the External Auditor, Internal Audit, Comptrollership Committee, and the Financial Executive Officers, the result of the evaluation of the internal control systems as a whole, aiming its improvement and certifying that recommendations made and not questioned by the Board of Executive Officers will be deployed within the appropriate terms;
XVII - evaluate the effectiveness of procedures adopted by the Company to receive, process and deal with claims related to accounting matters, internal accounting controls, and auditing matters, that should guarantee the confidentiality and unknown identity of the claimant, compliant with applicable laws;

XVIII - prepare the annual budget, including, especially, services provided by external assistants (lawyers, consultants, analysts, and others) for purposes of helping it to achieve its purpose, being entitled to approve the payment to these assistants and any administrative expenses needed for performance of their functions, always compliant with the budget;
XIX - engage in the attributions applicable to its supervision position during Company liquidation, according to applicable laws; and
XX - engage in any other attributions or duties, competence of independent members of the Board, under the terms in the Trading Regulation, according to exemptions granted by the Hong Kong Stock Exchange (HKSE) to the Company.

The Fiscal Council has its own Bylaws, whose review was approved on September 29, 2014.

Internal Audit:

The main role of Vale's Internal Audit area is to support the management and the Company's as a whole is to improve its internal controls, in order to allow that eventual deficiencies found are solved effectively and timely. The main mechanism used for evaluation purposes by the Internal Audit are the goals and procedures established in the Annual Audit Plan ("Plan"), approved by the Board of Directors of Vale, evaluating compliance with it by other areas of Vale. The Plan, in turn, is the schedule of audit examinations, as well as budget and resources needed to perform such evaluation. It is based on a methodology focused on risk, including the history of works done, information included by the Management and the Board of Directors. The non-statutory officer of Internal Audit should review and adjust the Plan, accordingly, in response to changes in Vale businesses and considering eventual risks, operations, systems, and controls. Any significant deviation from the approved Plan must be notified to the Board of Directors, by the Comptrollership Committee.

The Internal Audit area was created by the end of the 1960s and is currently directly subordinated to the Board of Directors, and the Comptrollership Committee, also subordinated to the Board of Directors, accompanies the performance of the Internal Audit.

The Internal Audit department has its own Bylaws, which was approved on December 10, 2015 by the Board of Directors.

b. Date of formation of the Fiscal Council, if it is not permanent, and of the formation of the committees.

The Fiscal Council has been a permanently functioning body since September 25, 1997.

The five Advisory Committees were formed by the Board of Directors on December 19, 2001, and pursuant to resolutions of the Special Shareholders' Meeting held on December 27, 2002, upon which date their existence became part of the Bylaws.

The Disclosure Committee and the Risk Management Committee were formed upon deliberations by the Board of Directors on June 19, 2002 and December 12, 2005, respectively, and the Ethics Committee was created in 2014.

c. Mechanisms for evaluating the performance of each body or committee as well as the performance of its members, with identification of method applied.

Pursuant to Chapter VI of the Internal Regulations of the Fiscal Council and provisions of the Sarbanes-Oxley Law, the Fiscal Council evaluates its own performance annually at the end of each audit cycle. The self-evaluation process considers the following: matters covered in monthly meetings, financial Statements, risk management, and internal controls, management and internal audit responsibility, relationship with external auditors, resources and special research, formation of the Fiscal Council, and

training and professional development of members. Only the independent auditors of Vale shall have knowledge of the self-evaluation conducted by the members of the Fiscal Council.

As of December 31, 2016, Vale did not have in place mechanisms of formal evaluation of the performance of its Board of Directors, of its Supervisory Committees, or of their members.

On December 31, 2016, Vale did not have a formal mechanism of evaluation for the Company's Board of Executive Officers as a collegiate. Members of the Board of Executive Officers, on the other hand, are assessed annually based on their performance and based on objective and measurable goals derived from strategic planning and from the annual budget approved by the Board of Directors. These goals are based on Vale's performance and performance indicators such as EBITDA and Free Cash Flow are used to measure them, in addition to general productivity and sustainability indicators. The budget and performance management departments are in charge of monitoring the goals. The final results must be formally validated by Vale's Board of Directors.

d. On Executive Officers, their responsibilities and individual powers

Chief Executive Officer:

Under terms of Article 33 of the Bylaws, the Chief Executive Officer has the following responsibilities:

I. presiding over meetings of the Board of Executive Officers;
II. exercising executive direction of the Company, with powers to coordinate and supervise the activities of the other Executive Officers, exerting his best efforts to ensure faithful compliance with the decisions and guidelines laid down by the Board of Directors and the Shareholders' Meeting;
III. coordinating and supervising the activities of the business areas and units that are directly subordinated to him;
IV. selecting and submitting to the Board of Directors the names of candidates for Executive Officer posts to be elected by the Board of Directors, as well as to propose their respective removal;
V. coordinating the proceeding of decision-making of the Board of Executive Officers in order to prioritize consensual decision among its members. If consensus is not achieved, the Chief Executive Officer may (i) withdraw the subject in debate; (ii) articulate the position of the majority, including making use of the deciding vote or (iii) in the interest of the Company and through well-based reasoning, decide individually on matters of joint deliberation; in this case he must report to the Board of Directors on the use of this prerogative at the first meeting of the Board of Directors that occurs after the corresponding decision. Decisions related to annual and multi-annual budgets and the Strategic Plan and the Annual Report on Administration of Vale shall be taken by a majority of votes, when considering all of the Executive Officers, so long as the favorable vote of the Chief Executive Officer is among them;
VI. indicating who among the Executive Officers shall replace an Executive Officer in case of a temporary impairment or absence;
VII. keeping the Board of Directors informed about Vale's activities; and
VIII. preparing the annual report and drawing up the balance sheet together with the other Executive Officers.

Executive Officers:

Under terms of Article 34 of the Bylaws, the Executive Officers have the following responsibilities:

I. performing the services for which they are responsible;
II. participating in meetings of the Board of Executive Officers, contributing to the definition of the policies to be followed by the company reporting on matters of the respective areas of responsibility;

III. complying with and ensuring compliance with the policy and general direction of the company's business established by the Board of Directors, each being responsible for their specific area of activities; and
IV. contracting the services of attorneys, consultants, analysts, and other resources necessary for performance of the functions of the Fiscal Council, within budget, as well as contracting experts under terms of Article 163, §8 of Law 6,404/76.

In addition to this, under terms of Article 28 of the Bylaws and within the limits established for each Executive Officer, decisions on matters affecting the specific area of responsibility of each one shall be made by him alone, so long as the matter does not affect the area of responsibility of another Executive Officer, or in conjunction with the Chief Executive Officer in matters or situations pre-established by the latter.

12.2 - Description of the rules, policies, and practices relating to Shareholders' Meetings

a. Notification Periods

Usually, Vale convenes the Shareholders' Meetings by publishing a call of notice at least thirty days in advance, for the first call, in accordance with the terms of Article 8 of CVM Instruction No. 559, of March 27, 2015.

In addition, pursuant to Article 8, §2 of Vale's Bylaws, a holder of special class preferred shares (Golden Shares) shall be called formally by the company, by means of personal correspondence directed to his legal representative at least fifteen (15) days in advance, for the purpose of considering any matter subject to the right of veto specified in Article 7 of the Bylaws and in item 18 of this Reference Form.

b. Powers

Vale's Shareholders' Meeting has powers pursuant to Law 6.404/76, and the Shareholders' Meeting shall be responsible to:

I – amend the Bylaws;
II – elect or dismiss, at any time, members of the Company Board of Directors and Fiscal Council, provided that the Board of Directors is entitled to elect and dismiss Company directors and determine their attributions;
III – annually receive accounts from manager and deliberate on financial Statements;
IV – establish the annual and overall remuneration of the Company's management and members of the Fiscal Council;
V – authorize the issuance of debentures, provided that the Board of Directors may authorize the issuance of debentures in specific cases provided for in Law 6,404/76 and the Company Bylaws;
VI – suspend the exercise of shareholders' rights;
VII – deliberate on the valuation of assets provided by shareholders to comprise the capital stock;
VIII – authorize the issuance of beneficiaries;
IX – deliberate on the transformation, merger, incorporation and division of the company, its dissolution and liquidation, elect and dismiss liquidating agents and appreciate the accounts; and
X – authorize managers to declare bankruptcy and composition with creditors.

c. Addresses (physical or electronic) at which documents relating to the Shareholders' Meeting shall be available to shareholders for their review

At Vale's headquarters at Avenida das América, 700, 8, Bloco 8, Loja 318, 3º andar, Barra da Tijuca, city of Rio de Janeiro, State of Rio de Janeiro, Brazil, and at the electronic addresses of Vale (www.vale.com) the *Comissão de Valores Mobiliários* - CVM (www.cvm.gov.br), BM&FBOVESPA – Bolsa de Valores, Mercadorias e Futuros (www.bmfbovespa.com.br;); and the Securities and Exchange Commission (www.sec.gov).

d. Identification and handling of conflicts of interests

According to Vale's Bylaws, the Board of Directors may set policies to avoid conflicts of interest between Vale and its shareholders or its managers, as well as on the adoption of provisions deemed necessary should conflicts of interest arise.

On December 19, 2013, the Board of Directors approved the Policy on Transactions with Related Parties, which sets forth the guidelines and principles to assure that the transfer, onerous or free of charge, of resources, services, or obligations engaging people and/or companies with whom Vale may contract under conditions which are not independent conditions as the ones that characterize transactions with third parties ("Related Parties" and "Transactions with Related Parties", respectively), is conducted within Market standards, compliant with the best corporate governance practices, the

appropriate transparency, prioritizing the best interests of Vale, avoiding abuses or misuse of company assets. This policy applies to Vale, its controlled companies, joint ventures and entities where Vale holds significant influence, Vale shareholders, managers, and controlling shareholders, as well as kin to Vale managers and controlling shareholders. For more information on the Policy on Transactions with Related Parties, see item 16.1 in this Reference Form.

Under terms of the Bylaws and the Policy for Transactions with Related Parties, the Governance and Sustainability Committee may issue reports related to potential conflicts of interest between Vale and its shareholders or managers. The Committee may also evaluate the selection process and conditions of transactions to be considered by the Board of Directors.

Additionally, Vale shareholders or shareholders' representatives at Shareholders' Meetings should comply with the following procedure in case of conflict of interests:

I. the shareholder or shareholder representative must immediately state its particular conflict interest. Should he failed to do so, another person may state such conflict;

II. as soon as the conflict of interest is stated regarding a specific issue, the respective Vale's shareholder or shareholder representative will have access only to documents and information on the matter that is disclosed to the Market, under the terms in the effective legislation, and should be away, even physically, of the discussions at the Shareholders' Meeting, compliant with his legal duties. The statement of conflict of interests, absence, and temporary reservation should be recorded in the minutes.

If requested by the President, the shareholders or shareholder representatives engaged in a situation of conflict of interests may partially attend the discussion, aiming to provide more information on the Transaction with Related Party object of the discussion. In this case, they should be removed from the final portion of the discussion.

e. Request for power-of-attorney by the management to exercise voting rights

There are no rules, policies or practices for requesting powers-of-attorney by the management to exercise voting rights in the Shareholders' Meetings.

f. Formalities required for the acceptance of powers of attorney granted by shareholders, indicating whether the issuer requires or waivers the recognition of a signature, notarization, consularization, and sworn translation, and if the issuer admits powers of attorney granted by shareholders through electronic means

A shareholder who wishes to attend the Shareholders' Meetings must provide valid photo identification (original or notarized copy) and proof of Vale share ownership issued by the bookkeeping financial institution or custody agent up to four (4) business days before the date of the Meeting.

Any shareholder may appoint a proxy, or more than one as the case may be, to attend meetings and vote in his name. If represented by proxy, the shareholder shall comply with the terms of Article 126, Law No. 6,404/76, and must have been appointed by power-of-attorney no earlier than one year and qualify as a shareholder, manager, attorney who is a Member of the Brazilian Bar Association, or be a financial institution, and it is the role of the investment fund manager to represent the co-owners. In case of power of attorney in foreign language, this should be accompanied by corporate documents, related to the corporation and the power of attorney duly translated into Portuguese by a sworn translator. It is not necessary to consularize and notarize the translation. It should be noted that documents in English and in Spanish are exempted from translation.

According to CVM's understanding, under the terms in Circular Order CVM/SEP 001/17, corporate shareholders may be represented at the shareholder assemblies by their legal representatives or by duly established attorneys, pursuant to the company's bylaws and to applicable rules in the Civil Code. The attorney must not necessarily be shareholder of manager or, be a lawyer. Likewise, investment funds, as decided by the CVM Collegiate in the scope of CVM Administrative Proceeding No. RJ-2014-3578, may be represented at the shareholders' meeting through legal representatives or through agents duly composed of their manager or administrator, in accordance with their statutes. In any case, it should be noted that legal entity shareholders and investment fund shareholders represented at the Meeting by proxy shall submit, in addition to a power of attorney and identification document of the proxy, (i) proof of ownership of shares issued by Vale sent by the bookkeeping financial institution or custodian within four (4) business days of the date of the Meeting and (ii) supporting documents for representation, including a power of attorney and a copy of the articles of association and the minutes of the election of administrators, and, in the case of an investment fund, a copy (ii.a) of the statutes of the fund in force, (ii.b) of the bylaws or articles of association of their administrator or manager, as appropriate, and (ii.c) of the minutes of the election of the respective administrators. If such documents are in a foreign language, they must be translated into Portuguese by a sworn translator, and do not require notarization and consularization. It should be noted that documents in English and in Spanish are exempted from translation.

For the purposes of facilitating the Meeting, shareholders represented by proxy may, at their exclusive discretion, deliver the documents within seventy-two (72) hours prior to the Meeting.

The validity of the representation documents will be verified prior to the Meeting, thus it is requested that shareholders arrive at the Meetings earlier to have enough time to verify said documents on time for the meeting.

In the last fiscal year, Vale did not admit powers of attorney granted by shareholders through electronic means.

g. Formalities required for the acceptance of the remote voting ballot, when sent directly to the company, indicating if the issuer requires or waivers the recognition of a signature, notarization, and consularization

As of 2017, the Company adopted the possibility of its shareholders exercising the right to vote remotely, in accordance with regulations in force.

As provided for in Articles 21-A and the following of CVM Instruction No.481/2009, the Company's shareholders may forward, in the cases provided for in CVM Instruction No. 481/2009, as well as in other Meetings in which the Company discretionarily chooses to adopt the Ballot (as provided for in the Manual of the respective Meeting), its voting instructions in relation to the subject matters of the Meeting by completing and sending the remote voting ballot ("Ballot"), which will be attached to the respective Manual.

The Ballot shall:

- be accessed, for printing and preliminary completion, through links previously indicated in the Manual of the respective Meeting; and

- be **received** within seven (7) days of the Meeting. Any voting ballots received after this date will be disregarded.

Once the remote voting period has ended, the shareholder may not change the voting instructions sent, except in the respective Meeting, in person or be means of a regularly established proxy, by

means of a specific request to disregard the voting instructions sent via Ballot, prior to submitting the respective matters to a vote.

Regarding the formalities required for the acceptance of said ballot, when sent directly to the Company, the following will be required:

(i) original copy of the remote voting ballot duly completed, initialed (on all pages), and signed, noting that the Company does not require the recognition of signatures for ballots issued in Brazilian territory or the notarization of those issued outside the country;

(ii) copy of the following documents:

Individuals

- valid identification document with a photograph of shareholder. The following documents may be presented: (i) Brazilian Identity Card (RG); (ii) Alien Identity Card (RNE); (iii) Passport; (iv) Class Entity Card as civil identification for legal purposes (e.g. OAB, CRM, CRC, CREA); or (v) Brazilian Driver's License (CNH).

Legal entities

- proof of representation, including the articles of association and minutes of the election of administrators, and in the case of an investment fund, copies (i) of the statutes of the fund in force, (ii) of the bylaws or articles of association of its administrator or manager, as appropriate, and (iii) of the minutes of the election of the respective administrators. If such documents are in a foreign language, they must be translated into Portuguese by a sworn translator, and do not require notarization and consularization. It should be noted that documents in English and in Spanish are exempted from translation.

- valid identification document with a photograph of the legal representative. The following documents may be presented: (i) Brazilian Identity Card (RG); (ii) Alien Identity Card (RNE); (iii) Passport; (iv) Class Entity Card as civil identification for legal purposes (e.g. OAB, CRM, CRC, CREA); or (v) Brazilian Driver's License (CNH).

The documents shall be sent to the following postal address:
To: Vale – Investor Relations Department
Avenida das Américas, nº 700, bloco 8, 2º andar, loja 218
Barra da Tijuca
Rio de Janeiro/RJ.
CEP: 22640-100

The shareholder may also, if they prefer, to anticipate the forwarding of documents to the Company, sending digitized copies of the Ballot and the documents mentioned above to the email address vale.ri@vale.com. **In any case, it is essential that the Company receives an original copy (physical) of the Ballot and a copy of the documents previously sent by email by the shareholder, within seven (7) days of the respective Meeting at the address indicated above.**

Within three (3) days of receiving said documents, the Company will inform the shareholder, via the email address indicated by them in the Ballot, of its receipt and acceptance.

If the Ballot is not properly completed or accompanied by the supporting documents described above, it will be disregarded and the occurrence will be informed to the shareholder by means of a digital

communication sent to the email address indicated in the Ballot, which will indicate the need for resubmitting the Ballot or supporting documents (as long as there is enough time), describing the procedures and time frames required for the regularization of the remote vote.

During the voting period, the shareholder may send new voting instructions to the Company, if deemed necessary, so that the last voting instruction presented in the Company's voting agenda will be considered.

If there are differences between the Ballot received directly by the Company and the voting instruction contained in the voting agenda from the bookkeeper for the same CPF [Individual Taxpayer's ID] or CNPJ [Corporate Taxpayer's ID] number, the voting instructions from the bookkeeper shall prevail, in accordance with the provisions of Article 21-W, §2 of CVM Instruction No. 481/09.

Vale emphasizes that:

- Ballots sent by shareholders who are not eligible to vote in the Meeting or in the respective resolution will not be considered for the purpose of counting votes;

- only shares held by each shareholder on the date of the respective Meeting will be considered for purposes of counting votes, regardless of the date of submission of the Ballot, and if the shareholder disposes shares between the date of submission of the Ballot and the date of the Meeting, the votes related to the disposed shares will be disregarded; and

- the voting instruction from a given CPF or CNPJ will be attributed to all of the shares held by that CPF or CNPJ, in accordance with the stock holdings provided by the bookkeeper on the date of the Meeting.

h. If the Company provides an electronic system to receive remote voting ballots or for remote participation

The Company does not provide an electronic system to receive remote voting ballots or for remote participation.

i. Instructions for the shareholder or group of shareholders to include proposals for resolutions, tickets, or candidates for members of the Board of Directors and the Fiscal Council on the remote voting ballot

Pursuant to Article 21-L, I of CVM Instruction No. 481/2009, the holder of at least 0.5% of a certain type of shares issued by the Company may, subject to the other terms and conditions established by current regulations, request the inclusion of candidates to the Company's Board of Directors and Fiscal Council on the Ballot. In addition, in line with paragraph II of said article, the holder of at least 1.0% of a certain type of shares issued by the Company may, subject to the other terms and conditions established by current regulations, request the inclusion of proposals for resolutions in the Ballot provided due to the Company's annual shareholders' meeting.

If a shareholder in compliance with the requirement set forth in the previous paragraph wishes to include proposals for resolutions, tickets, or candidates to members of the Board of Directors or the Fiscal Council in the Ballot should submit said proposals by mail to the address given in item 12.2. g. above, along with the documents relevant to the proposal, or by email to vale.ri@vale.com.br, within the terms and other conditions established by current regulations.

j. Whether Vale keeps Internet forums and pages for shareholders to receive and share comments relating to meeting minutes

Vale does not keep Internet forums and pages for shareholders to receive and share comments relating to meeting minutes. Despite the above, Vale makes available, following the management proposal related to Annual and Special Shareholders' Meetings held on April 17, 2015, an email address (vale.ri@vale.com) where shareholders can solve their questions and find additional clarification on matters included in the agenda.

k. Other information required for remote participation and exercising the right to vote remotely

Below are information and procedures to be followed for the purpose of exercising the right to vote remotely through service providers:

A) Exercise by sending instructions for completion transmitted to the Company's bookkeeper

This option is exclusively intended for holders of shares kept by Banco Bradesco S.A. ("Bradesco") and which are not deposited in a central depository.

The holder of shares not deposited in a central depository – i.e., at BM&FBOVESPA S.A. – Bolsa de Valores, Mercadorias e Futuros ("BM&FBOVESPA") – and who chooses to exercise their right to vote remotely through a provider of bookkeeping services for shares issued by the Company, Bradesco, shall visit any one of Bradesco's branch agencies within 7 days of the Meeting, during local banking hours, with the Ballot completed, initialed, and signed, as well as the documents listed in the table below, so that the information contained in the Ballot is transferred to Bradesco's systems.

Documents to be presented at a Bradesco Branch, together with the Ballot	**Individual**	**Legal Entity**	**Investment Fund**
CPF and Identification Document with a photograph of the shareholder or their legal representative *	X	X	X
Consolidated and updated Articles of Association or Bylaws **	-	X	X
Document proving the powers of representation **	-	X	X
Consolidated and updated statutes of the fund	-	-	X

* Accepted identification documents: RG, RNE, CNH, Passport, and officially recognized working papers.

** For investment funds, manager's and/or administrator's documents, subject to the voting policy.

Pursuant to Article 21-B of CVM Instruction No. 481/2009, the shareholder shall transmit the instructions for completing the Ballot to the bookkeeper within seven (7) days prior to the date of the Meeting.

In case of doubt, the shareholders may contact Bradesco through the following channels:

PHONE: 0800 701 1616

email: 4010.acecustodia@bradesco.com.br

Bradesco informs that the information above was only included so that the shareholder has a channel for clarifying any doubts related to sending the Ballot to the bookkeeper.

However, Bradesco will not accept Ballots sent electronically, and will only consider Ballots presented through any one of Bradesco's branch agencies.

B) Exercise by sending instructions for completion transmitted to custodians

This option is intended exclusively for holders of shares in custody of the central depository – i.e., with BM&FBOVESPA. In this case the remote vote shall be exercised by shareholders in accordance with the procedures adopted by their respective custodians.

The holder of shares deposited in the Central Depository of BM&FBOVESPA and who chooses to exercise their right to vote remotely through service providers shall transmit their voting instructions to their respective custodians, subject to the statutes determined by them which, in turn, shall forward said votes to the Central Depository of BM&FBOVESPA.

For this, shareholders shall contact their respective custodians and verify the procedures established by them for issuing voting instructions via Ballot, as well as documents and information required by them for the exercise of said power.

Pursuant to Article 21-B of CVM Instruction No. 481/2009, the shareholder shall transmit the instruction for completing the Ballot to their custodians within 7 days of the respective Meeting, unless a shorter term is established by their custodians.

It is worth noting that, as determined by Article 21-S of CVM Instruction No. 481/2009, the Central Depository of BM&FBOVESPA, upon receiving the voting instructions of shareholders through their respective custodians, will disregard any instructions that differ from a same resolution issued by the same CPF or CNPJ registration number.

The Company maintains an investor relations area dedicated to clarifying the doubts of its shareholders and the market in general, including issues related to meetings. In case of doubt, the shareholder may contact us by email at vale.ri@vale.com.

C) Exercise of the vote by holders of American Depositary Shares (ADSs)

Subject to the terms of every Manual of every Meeting, the holders of ADSs may participate in the Meeting, in which they will be represented by Citibank N.A. ("Citibank"), as a depositary financial institution, subject to the terms and procedures established in the "Deposit Agreement" entered into with Vale. Citibank will send the vote cards (proxies) to the holders of the ADSs, so that they can exercise their voting rights, and will be represented at the Meeting through its representative in Brazil, Banco Bradesco S.A.

Except as provided above, there is no other information required for remote participation and the exercise of remote voting rights.

12.3. Board of Director's rules, policies and practices

a. Number of meetings conducted in the past fiscal year, distinguishing between ordinary and extraordinary meetings.

The Board of Directors ordinarily holds meetings once a month, and special meetings whenever called by the Chairman or, in his absence, by the Vice-Chairman or by any other two (2) Board members.

Meetings of the Board of Directors are held at the Company headquarters, and may exceptionally be held elsewhere, and attendance may be by means of teleconference, videoconference or other communication means that ensures effective participation and voting authenticity.

In the fiscal year ended on December 31, 2016, the Company held 12 annual meetings and seven special meetings.

b. Shareholder provisions establishing voting restrictions on members of the Board of Directors

Vale does not have a shareholders' agreement. However, on February 19, 2017, Litel Participações S.A., Litela Participações S.A., Bradespar S.A., Mitsui & Co., Ltd., and BNDESPAR Participações S.A. - BNDESPAR, shareholders of Valepar S.A. (jointly, "Signatory Parties") signed a Shareholders' Agreement of Valepar S.A. ("Valepar's Shareholders' Agreement"), which entered into force on May 10, 2017, and is effective for six (6) months or until the date of approval of the acquisition of Valepar S.A. ("Valepar") by Vale at a Shareholders' Meeting of Valepar, whichever occurs first.

The Valepar's Shareholders' Agreement sets forth that the signatories agree upon guiding their representatives at Shareholders' Meetings and Meetings of the Board of Directors of Vale to vote according to the decisions at Valepar Prior Meeting.

With the exception of the qualified quorums mentioned below, in the preliminary meetings the matters will be decided by a majority of common shares linked to the Valepar's Shareholders' Agreement held by the Signatory Parties present.

According to the Valepar's Shareholders' Agreement, there should be approval by at least 75% of the holders of common shares for adoption of the following:

I. changes to Vale's Bylaws, except when required by law;

II. increase in the share capital of Vale or its subsidiaries, including, but not limited to, the issuance of new shares, the creation of a new class of shares, changes in the characteristics of existing shares or a reduction in the capital of these companies;

III. issue of Vale debentures, whether or not convertible into shares, subscription bonuses, stock purchase options or any other security;

IV. determination of the issuing price of new shares of Vale capital stocks or any other securities;

V. merger, acquisition, merger of shares, and spin-off operations in which Vale participates, as well as its transformation;

VI. requisition by Vale, or the respective suspension of the processes of liquidation, break-up, judicial or extrajudicial recovery, bankruptcy, or voluntary acts of financial reorganization;

VII. dismissal of members of the Board of Directors and of the Board of Executive Officers, including their respective chairmen;

VIII. dismissal of members of Vale's Board of Directors, including its chairman, and election and dismissal of Vale's Board of Executive Officers;

IX. acquisition of shares of Vale's capital to be held in the treasury, cancellation, or subsequent disposal;

X. interest of Vale in holdings or consortium of any kind;

XI. execution of distribution, investment, sale, exporting, technology transfer, license of brand, patent exploitation, use concession and lease agreements where Vale acts as party;

XII. establishment of the overall annual remuneration of Vale's management;

XIII. resolution on the distribution of the total amount of remuneration of Vale's management among the members of its Board of Directors, its Board of Executive Officers, its Fiscal Council, and its committees;

XIV. attribution of profit shares to Vale managers;

XV. approving policies of selection, evaluation, development, and compensation of the members of Vale's Board of Executive Officers;

XVI. establishment of the duties of the Board of Executive Officers, as well as of Vale's Board of Executive Officers;

XVII. modification of Vale's business purpose;

XVIII. distribution of dividends and/or interest on Vale's capital, or its non-distribution;

XIX. appointment and removal of Vale's independent auditor;

XX. creation of encumbrance or liens, including collateral, by Vale, to guarantee third-party obligations, including from its controlled or subsidiary companies;

XXI. adoption of deliberation on any matter that, according to the law, entitles the shareholder to be removed from Vale upon refund of his shares;

XXII. appointment and removal, by Vale's Board of Executive Officers, of its representatives in controlled or associate companies or in companies where Vale holds the right to appoint the managers;

XXIII. establishment of Vale's maximum limit of indebtedness;

XXIV. hiring of loans, financing, or commercial lease operations by Vale or carrying out other operations that are economically similar or equivalent in nature, which are not provided for in its funding plan;

XXV. approving Vale's strategic guidelines and strategic plan;

XXVI. approval of annual and multi-year budgets and Vale's funding plans;

XXVII. approval of investment or divestment by Vale;

XXVIII. establishment of companies by Vale or the transformation of existing companies into another type of company, the acquisition or disposal, direct or indirect, of interests in the capital of other companies, consortiums, foundations, and other entities, including through the exercise of the right of withdrawal, the exercise or waiver of rights of preference in the subscription and acquisition, direct or indirect, of equity holdings, or in any other manner permitted by law, including, but not limited to, the merger, spin-off, acquisition, and merger of shares operations in the companies in which Vale participates;

XXIX. approval of Vale's annual management report and financial statements;

XXX. approving any reformulations, alterations or amendments to shareholder agreements or consortia contracts or agreements among shareholders or among consortia parties of companies in which the company participates and, moreover, signing of new agreements and/or consortia contracts that address matters of this nature;

XXXI. approval of Vale's Policy on Transactions with Related Parties;

XXXII. signing or change of any type of contract or value related to any situations that, pursuant to Vale's Policy on Transactions with Related Parties, is considered a transaction with a related party;

XXXIII. disposal, by Vale, of permanent assets that, individually or cumulatively, have, in a period of twelve (12) months, a value higher than one percent (1%) of the total assets, calculated based on Vale's most recent ITR, as appropriate.

For further information, see item 15.5 in this Reference Form.

c. Rules on identifying and handling conflicts of interest

On December 19, 2013, the Board of Directors approved the Policy on Transactions with Related Parties, which sets forth the guidelines and principles to assure that the transfer, onerous or free of charge, of resources, services, or obligations engaging people and/or companies with whom Vale may contract under conditions which are not independent conditions as the ones that characterize transactions with third parties ("Related Parties" and "Transactions with Related Parties", respectively), is conducted within Market standards, compliant with the best corporate governance practices, the appropriate transparency, prioritizing the best interests of Vale, avoiding abuses or misuse of company assets. This policy applies to Vale, its controlled companies, joint ventures and entities where Vale holds significant influence, Vale shareholders, Vale managers, including Board of Directors members and controlling shareholders members, as well as kin to Vale managers and controlling shareholders. For more information on the Policy on Transactions with Related Parties, see item 16.1 in this Reference Form.

Thus, the corporate policy described below to identify and resolve conflicts of interest in meetings of the Board of Directors and the Board of Executive Officers, applying Brazilian laws:

I. the member of Vale's Board of Directors or Board of Executive Officers in conflict of interest must promptly state its particular conflict of interest. Should he failed to do so, another person may state such conflict;

II. as soon as the conflict of interest is stated regarding a specific issue, the member of Vale's Board of Directors or Board of Executive Officer of Vale shall not receive documents or information on the matter and should be away, even physically, compliant with his legal duties. The statement of conflict of interests, absence, and temporary reservation should be recorded in the minutes;

III. in case of Transactions with Related Parties including a signatory shareholder of Valepar Shareholders' Agreement and, therefore, member of Vale's controlling body, the member(s) of the Board of Directors appointed by him should not receive documents or information on the matter and should be away, even physically, requesting registration in the specific minutes, of the reason for his removal. Such member(s) should return to deliberation to state his vote, compliant with the terms in Valepar Shareholders' Agreement, and applicable legal terms;

IV. when requested by the Chairman of the Board of Directors or the President, as the case may

be, members of the Board of Directors or Board of Executive Officers of Vale engaged in a conflict of interest may partially attend the discussion aiming to provide more information on the Transaction with Related Parties in question. In this case, they should be removed from the final portion of the discussion.

Any violation against the terms in the Policy will be deemed as a violation against the Code of Ethics and Conduct and will be subject to procedures and penalties set forth there in. Additionally, the violator will also be subject to punishments set forth in the law, additionally to be responsible for losses and damages caused to Vale or to third parties.

Furthermore, the Code of Ethics and Conduct provides that the members of the Board of Directors and the Advisory Committees, the Fiscal Council, Officers, employees and interns, and controlled companies (provided that they are subject to the laws of the local jurisdiction), are required to defend the interests of Vale in matters in which they are participating and avoid situations in which conflicts of interest with Vale may arise, and when that is not possible, to abstain from representing Vale in the matter in question, immediately disclosing the conflict to his immediate superior.

Violations of the Code of Ethics, rules, and disciplinary standards of Vale subject violators to disciplinary penalties, which may include warning (verbal or formal), suspension, and termination of employment. In applying disciplinary penalties, the nature and seriousness of the infraction shall be considered, noting Vale human resources rules and applicable law.

12.4 - Description of binding clause the for the resolution of conflicts the through arbitration

There are no binding clauses in the Bylaws for the resolution of conflicts by and between shareholders and Vale through arbitration.

12.5 / 6 - Composition and professional experience of Management and Fiscal Council:

Name	**Date of Birth**	**Management body**	**Date of election**	**Term**
CPF [Individual Taxpayer's ID] or passport number	**Occupation**	**Elected position**	**Date of entry**	**Elected by controller**
Other positions held at the company	**Independent Member**	**Criteria applied to determine independence**	**Number of Consecutive Terms**	**% member participation in meetings after coming to position**
Gerd Peter Poppinga	August 29, 1959	Member of the Board of Executive Officers only	May 11, 2017	May 26, 2019
604.856.637-91	Geologist	Executive Director of Ferrous Metals	May 22, 2017	No
NA	N/A	N/A	4	N/A
Luciano Siani Pires	February 10, 1970	Member of the Board of Executive Officers and of the Disclosure and Risk Management Executive Committees	May 11, 2017	May 26, 2019
013.907.897-56	Mechanic Engineer	Executive Officer of Finance and Investors Relations	May 22, 2017	No
He is the Executive Officer of Finance and Investor Relations and, since August 2016, is also responsible for Vale's Capital Projects Implementation area. He is a permanent member of the Risk Management Committee (since 2012), and he is also a member of the Disclosure Committee of Vale (since 2012).	N/A	N/A	4	N/A
Clovis Torres Junior	September 9, 1967	Member of the Board of Executive Officers and to the Ethics and Disclosure Committees	May 11, 2017	May 26, 2019
423.522.235-04	Attorney	Executive Officer of HR, Health and Safety, Sustainability, Energy, Mergers and Acquisitions, Governance, Corporate, Legal, and Fiscal Integrity.	May 22, 2017	No

He is a member of Vale's Information Disclosure Committee and Ethics Committee.	N/A	N/A	1	N/A
Murilo Pinto de Oliveira Ferreira	June 22, 1953	Member of the Board of Executive Officers and of the Strategic and Disclosure Committees	May 21, 2015	May 26, 2017
212.466.706-82	Business Administrator	10 – CEO/Superintendent	May 21, 2015	No
CEO of Vale (since 2011), Permanent member of the Strategic Committee and of Information Disclosure Committee of Vale (since 2011).	N/A	N/A	3	N/A
Jennifer Anne Maki	April 7, 1970	Member of the Board of Executive Officers only	May 11, 2017	May 26, 2019
063.119.857-13	Accountant	Executive Officer of Basic Metals	Until June 10, 2017	No
N/A	N/A	N/A	1	N/A
Humberto Ramos de Freitas	November 1, 1953	Member of the Board of Executive Officers only	May 21, 2015	May 26, 2017
222.938.256-04	Metallurgic Engineer	Executive Officer of Logistics and Mineral Research	May 21, 2015	No
He is the Executive Officer of Logistics and Mineral Research at Vale (since 2011), current designation of the Board of Executive Officers of Logistics and Mineral Exploration.	N/A	N/A	N/A	N/A
Roger Allan Downey	April 1, 1967	Member of the Board of Executive Officers only	May 11, 2017	May 26, 2019
623.291.626-34	Manager	Executive Officer of Fertilizers and Coal and Strategy	May 22, 2017	No
Since 2014, he is also member of the Vale's Risk Management Executive Committee.	N/A	N/A	4	N/A
Francisco Ferreira Alexandre	October 29, 1962	Member of the Board of Directors	April 20, 2017	Until 2019 Annual Shareholders' Meeting
301.479.484-87	Civil Engineer	23 – Board of Directors (Alternate Member)	April 20, 2017	Yes
N/A	N/A	N/A	3	0%

Eduardo de Salles Bartolomeo	April 12, 1964	Member of the Board of Directors and of the Financial Committee	April 20, 2017	Until 2019 Annual Shareholders' Meeting
845.567.307-91	Engineer	22 - Board of Directors (Effective Member)	April 20, 2017	Yes
Member of the Financial Committee since April 2017.	N/A	N/A	1	55%
Fernando Jorge Buso Gomes	June 6, 1956	Member of the Board of Directors and of the Governance and Sustainability, Economic Development, Strategic and Financial Committees	April 20, 2017	Until 2019 Annual Shareholders' Meeting
370.624.177-34	Bank employee	21 – Vice-Chairman of the Board of Directors	April 20, 2017	Yes
He is the Coordinator of the Governance and Sustainability Committee (since 2015), member of the Executive Development Committee, the Financial Committee (since 2015), the Strategic Committee (since April 2017). He was reappointed Vice-Chairman of the Board of Directors on April 26, 2017.	N/A	N/A	1	79%
Denise Pauli Pavarina	April 14, 1963	Member of the Board of Directors and of the Governance and Sustainability Committee	April 20, 2017	Until 2019 Annual Shareholders' Meeting
076.818.858-03	Banking employee	22 - Board of Directors (Effective Member)	April 20, 2017	Yes
Member of the Governance and Sustainability Committee (since April 2017)	N/A	N/A	1	N/A
Yoshitomo Nishimitsu	August 5, 1975	Member of the Board of Directors	April 20, 2017	Until 2019 Annual Shareholders' Meeting
060.569.787-61	Geologist	23 – Board of Directors (Alternate Member)	April 20, 2017	Yes
N/A	N/A	N/A	1	79%
Eduardo Refinetti Guardia	January 19, 1966	Member of the Board of Directors and of the Financial Committee	April 20, 2017	Until 2019 Annual Shareholders' Meeting
088.666.638/40	Economist	22 - Board of Directors (Effective Member)	April 20, 2017	Yes

He is a member of the Financial Committee (since April 2017).	No	N/A	1	78%
Gilberto Antonio Vieira	November 12, 1955	Member of the Board of Directors	April 20, 2017	Until 2019 Annual Shareholders' Meeting
221.153.079-68	Banking Employee / Lawyer	23 – Board of Directors (Alternate Member)	April 20, 2017	Yes
N/A	N/A	N/A	1	0%
Gueitiro Matsuo Genso	December 12, 1971	Member of the Board of Directors, of the Strategic Committee, and the Executive Development Committee.	April 20, 2017	Until 2019 Annual Shareholders' Meeting
624.201.519-68	Bank employee	20 – Chairman of the Board of Directors	April 20, 2017	Yes
Member of the Strategic Committee (since 2015) and of the Executive Development Committee (since April 2017). He was reappointed Chairman of the Board of Directors on April 26, 2017.	N/A	N/A	3	95%
Oscar Augusto Camargo Filho	March 9, 1938	Member of the Board of Directors, of the Strategic Committee, and the Executive Development Committee.	April 20, 2017	Until 2019 Annual Shareholders' Meeting
030.754.948-87	Lawyer	22 - Board of Directors (Effective Member)	April 20, 2017	Yes
Member of the Strategic Committee (since 2006) and of the Executive Development Committee (since 2003)	N/A	N/A	8	79%
Moacir Nachbar Junior	April 5, 1965	Member of the Board of Directors and of the Comptrollership Committee.	April 20, 2017	Until 2019 Annual Shareholders' Meeting
062.947.708-66	Bank employee	23 – Board of Directors (Alternate Member)	April 20, 2017	Yes
Member of the Comptrollership Committee (since 2015)	N/A	N/A	1	11%
Robson Rocha	March 12, 1959	Member of the Board of Directors	April 20, 2017	Until 2019 Annual Shareholders' Meeting
298.270.436-68	Manager	23 – Board of Directors (Alternate Member)	April 20, 2017	Yes
N/A	N/A	N/A	3	0%

Lucio Azevedo	December 8, 1958	Member of the Board of Directors	April 20, 2017	Until 2019 Annual Shareholders' Meeting
526.635.317-15	Train operator	22 - Board of Directors (Effective Member)	April 20, 2017	No
Employee of Vale since 1985, acting as train operator, assigned to *Sindicato dos Trabalhadores em Empresas Ferroviárias dos Estados do Maranhão, Pará e Tocantins*	N/A	N/A	1	47%
Raimundo Nonato Alves de Amorim	February 17, 1959	Member of the Board of Directors	April 20, 2017	Until 2019 Annual Shareholders' Meeting
147.611.573-72	Electromechanical Technician	23 – Board of Directors (Alternate Member)	April 20, 2017	No
Employee of Vale since 1985, assigned to *Sindicato dos Trabalhadores na Indústria de Extração de Ferro e Metais Básicos de Marabá, Parauapebas, Curionópolis e Canaã dos Carajás, no Estado do Pará*	N/A	N/A	0	N/A
Shinichiro Omachi	July 18, 1960	Member of the Board of Directors	April 20, 2017	Until 2019 Annual Shareholders' Meeting
Passport No. TR9943586	Graduate in Economy	22 - Board of Directors (Effective Member)	April 20, 2017	Yes
N/A	N/A	N/A	0	N/A
Eduardo de Oliveira Rodrigues Filho	August 20, 1954	Member of the Board of Directors and of the Financial Committee and of the Governance and Sustainability Committee	April 20, 2017	Until 2019 Annual Shareholders' Meeting
442.810.487-15	Engineer	23 – Board of Directors (Alternate Member)	April 20, 2017	Yes
Member of the Financial Committee (since 2011) and of the Governance and Sustainability Committee (since 2015).	N/A	N/A	4	21%
Luiz Maurício Leuzinger	February 5, 1942	Member of the Board of Directors	April 20, 2017	Until 2019 Annual Shareholders' Meeting
009.623.687-68	Engineer	23 – Board of Directors (Alternate Member)	April 20, 2017	Yes
N/A	N/A	N/A	4	21%

Dan Antonio Marinho Conrado	July 26, 1964	Member of the Board of Directors and of the Governance and Sustainability Committee	April 20, 2017	Until 2019 Annual Shareholders' Meeting
754.649.427-34	Bank employee	22 - Board of Directors (Effective Member)	April 20, 2017	Yes
Member of the Governance and Sustainability Committee (since April 2017)	N/A	N/A	4	89%
Marcel Juviniano Barros	September 5, 1962	Member of the Board of Directors and of the Executive Development Committee	April 20, 2017	Until 2019 Annual Shareholders' Meeting
029.310.198-10	Bank employee	22 - Board of Directors (Effective Member)	April 20, 2017	Yes
Member of the Executive Development Committee (since 2013)	N/A	N/A	4	89%
Arthur Prado Silva	April 29, 1972	Member of the Board of Directors and of the Executive Development Committee	April 20, 2017	Until 2019 Annual Shareholders' Meeting
991.897.047-20	Bank employee	23 – Board of Directors (Alternate Member)	April 20, 2017	Yes
Member of the Comptrollership Committee (since April 2017)	No	N/A	1	0%
Robert Juenemann	October 22, 1965	Fiscal Council	April 20, 2017	Until 2018 Annual Shareholders' Meeting
427.077.100-06	Lawyer	44 - F.C. (Effective Member) Elected by Preferred Shareholders	April 25, 2017	No
N/A	N/A	N/A	0	N/A
Marcelo Amaral Moraes	July 10, 1967	Fiscal Council	April 20, 2017	Until 2018 Annual Shareholders' Meeting
929.390.077-72	Graduate in Economy	43 – F.C. (Effective Member) Elected by Controlling	April 25, 2017	Yes
N/A	N/A	N/A	14	100%
Marcus Vinícius Dias Severini	October 2, 1957	Fiscal Council	April 20, 2017	Until 2018 Annual Shareholders' Meeting
632.856.067-20	Accountant	43 – F.C. (Effective Member) Elected by Controlling	April 25, 2017	Yes
N/A	N/A	N/A	0	N/A

Raphael Manhães Martins	February 8, 1983	Fiscal Council	April 20, 2017	Until 2018 Annual Shareholders' Meeting
096.952.607-56	Lawyer	45 – F.C. (Effective Member) Elected by common shareholders	April 25, 2017	No
N/A	N/A	N/A	3	92%
Sergio Mamede Rosa do Nascimento	April 29, 1954	Fiscal Council	April 20, 2017	Until 2018 Annual Shareholders' Meeting
650.042.058-68	Manager	43 – F.C. (Alternate Member) Elected by Controlling	20/04/2017	Yes
N/A	N/A	N/A	1	0%
Bernardo Zito Porto	November 4, 1990	Fiscal Council	April 20, 2017	Until 2018 Annual Shareholders' Meeting
139.715.767-45	Lawyer	45 – F.C. (Alternate Member) Elected by common shareholders	April 25, 2017	No
N/A	N/A	N/A	0	NA
Gaspar Carreira Júnior	July 28, 1967	Fiscal Council	April 20, 2017	Until 2018 Annual Shareholders' Meeting
000.459.657-90	Economist	44 – F.C. (Alternate Member) by preferred shareholders	20/04/2017	No
N/A	N/A	N/A	0	NA
Eduardo Cesar Pasa	September 2, 1970	Fiscal Council	April 20, 2017	Until 2018 Annual Shareholders' Meeting
541.035.920-87	Bank employee	43 – F.C. (Effective Member) Elected by Controlling	April 25, 2017	Yes
N/A	N/A	N/A	0	N/A

Professional Experience / Disclosure of Convictions / Independence Criteria

Jennifer Anne Maki

063.119.857-13
She has served as Managing Director of Basic Metals at Vale since September 2015. Her main professional experiences include: (i) CEO of Vale Canada Limited (since 2014); (ii) Chief Financial and Administration Officer of Vale Canada Limited (January 2014 to December 2014), Vale's subsidiary in Canada, where she also held the title of (iii) Vice President of the Treasury (January to October 2007) ; (iv) Chief Financial Officer (2007 to 2013); and (iv) member of the Pension Committee (since 2007), a body for which she was elected President in 2009; (v) Member of the Board of Commissioners of PT Vale Indonesia Tbk (PTVI) (since 2007), a company in the mining segment, owned by the Company's economic group, having served as President of such body in 2014; (vi) Member of the Board of the Ronald McDonald House of Toronto (January 2013 to January 2015), a philanthropic entity; AND (vii) Member of the Board of Directors of Vale New Caledonia, since 2008, a company that is part of the Company's economic group. Bachelor's Degree in Commerce from Queen's University in April 1993 and in Accounting from the Institute of Chartered Accountants in Ontario, Canada, in February 1996. Ms. Jennifer Anne Maki has declared, for all legal purposes, that in the last five (5) years, she has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified her for the practice of any professional or commercial activity. Ms. Jennifer Anne Maki has declared that she is not a politically exposed person as defined in the applicable regulations.

Luciano Siani Pires
013.907.897-56

He the Chief Finance and Investor Relations Officer, a Permanent Participant of the Executive Committee of Risk Management and a Member of the Information Disclosure Committee of Vale (since 2012). As of August 4, 2016, he became responsible for Vale's Capital Projects Implementation area. He has held positions in the Company as (i) Alternate Member of the Board of Directors (2005 to 2007) and Permanent Member of the Financial Committee (2012 to 2015); (ii) Global Director of Strategic Planning (2008 to 2009 and in 2011); (iii) Global Human Resources Director (2009 to 2011), and (iv) Managing Director of Finance, Supplies, Shared Services and Investor Relations (2012 to 2013). He was also a full member of the Board of Directors of Valepar S.A. (2007 to 2008), the controlling shareholder of Vale, a closed-capital holding company. He graduated in mechanical engineering from the Pontifical Catholic University of Rio de Janeiro (PUC-RJ) in December 1991 and holds an MBA in Finance from Stern School of Business, New York University, completed in May 2001. Mr. Luciano Siani Pires has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Luciano Siani Pires has declared that he is not a politically exposed person, as defined in the applicable regulations.

Clovis Torres Junior

423.522.235-04

He is the Managing Director of Human Resources, Health & Safety, Sustainability, Energy, Mergers & Acquisitions, Governance, and Corporate, Legal and Fiscal Integrity (since August 2016), also serving as Member of the Information Dissemination Committee (since 2011) and the Ethics Committee of Vale (since 2013) and as a General Advisor and Director of Corporate Integrity (since 2011). His main professional experiences in the last 5 years include: (i) Member of the Board of Directors of Petróleo Brasileiro S.A. – Petrobras (May 2015 to November 2015), a publicly traded company in the oil segment; (ii) President of the Board of Directors of Petrobras Distribuidora S.A. (May 2015 to November 2015), a private company specializing in the marketing and distribution of oil products; (iii) President of the Board of Directors of the Brazilian Mining Institute – IBRAM (since June 2015); (iv) Vice President of the National Union of the Iron and Basic Metals Extraction Industry – SINFERBASE (since October 2014); (v) Member of the Business Economic Council of the Federation of Industries of the State of Rio de Janeiro – FIRJAN (since 2015); (vi) Member of the Board of Directors of Vale International S.A. (since 2012), a company of the Company's economic group; (vii) Member of the Board of Directors of Vale International Holdings GmbH (since 2012), a company of the Company's economic group; and (viii) Vice President of the Decision-Making Board of Vale do Rio Doce de Seguridade Social – VALIA (since 2015), a company of the Company's economic group. He graduated in Law from the Catholic University of Salvador in November 1989 and holds a Master's Degree in International Law, Commerce and Finance from Tulane University, completed in May 1993. Mr. Clovis Torres has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Clovis Torres Junior declared himself to be politically exposed, under the terms of CVM Instruction No. 301 of April 16, 1999, as amended, since he held a position in the last five years as a member of the Board of Directors of Petróleo Brasileiro SA - Petrobras and Chairman of the Board of Directors of Petrobras Distribuidora SA

Murilo Pinto de Oliveira Ferreira

212.466.706-82

He serves as Chief Executive Officer at Vale (since 2011), Permanent Participant of the Strategic Committee and Member of the Information Disclosure Committee of Vale (since 2011). He began his professional career at Vale in 1977 as a financial and economic analyst, where he held several positions, having been the Director of the Aluminum Department (2003 to 2005), Managing Director of Investment and Business Development (2005 to 2006) and Managing Director of Nickel and Marketing of Basic Metals (2007 to 2008). His main professional experiences include the positions of (i) President of the Board of Directors of Petróleo Brasileiro S.A. – Petrobras, a publicly traded company in the oil segment (May 2015 to November 2015) (ii) President of the Board of Directors of Ferro Gusa Carajás S.A. (2005 to 2006), a company in the pig iron segment, incorporated by Vale in 2008; (iii) Chief Executive Officer of Vale do Rio Doce Energia S.A., now Vale Energia S.A. (2005 to 2007), a company in the energy segment, member of the Vale group; (iv) Chairman of the Board of Directors of Mineração Rio do Norte S.A. (2006 to 2008), a company in the bauxite extraction segment; (v) Member of the Board of Directors of Mineração Onça Puma Ltda. (2007 to 2008), a nickel mining company, incorporated by Vale in 2008; (vi) President of the Board of Directors of Valesul Alumínio S.A. (2006 to 2008), an company in the aluminum segment, member of the Vale group; (vii) Chief Executive Officer of Vale Canada Limited (2007 to 2008), Vale's subsidiary in Canada, where he also held the position of (viii) Advisor (2006 to 2007); (ix) Member of the Board of Directors of Vale Canada Holdings (2006 to 2008), Vale's subsidiary in Canada, where he also held the positions of (x) Director and Vice President of the Executive Committee (2007 to 2008); (xi) Member of the Board of Commissioners of PT Vale Indonesia Tbk (2007 to 2008), a company in the mining segment, member of the Vale group; (xii) Director and President of the Board of Directors of Vale Nouvelle-Calédonie S.A.S. (2007 to 2008), a company in the mining segment, member of the Vale group; (xiii) Member of the Board of Directors of Usinas Siderúrgicas de Minas Gerais S.A. – USIMINAS (2006 to 2008), a publicly traded company that develops steel activities; (xiv) Member of the Managing Board of the Technology Association Institute – ITV (2011 to 2013), an association that fosters research focusing on the development of sustainable technologies; (xv)

Partner of Studio Investimentos (2009 to 2011), a management company focusing on the Brazilian stock market. He graduated in Business Administration from Fundação Getúlio Vargas, São Paulo, in August 1977, and holds a postgraduate degree in Business Administration and Finance from Fundação Getúlio Vargas Foundation, Rio de Janeiro, completed in May 1982, and a Senior Executive specialization from the IMD Business School, Lausanne, Switzerland, completed in December 2007. Mr. Murilo Ferreira has declared, for all legal purposes that in the last five (5), he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity.

Gerd Peter Poppinga
604.856.637-91
He serves as Managing Director of Ferrous Minerals at Vale (since November 2014). His main professional experiences include the positions of (i) Managing Director of Basic Metals and Information Technology at Vale (2011 to 2014); (ii) Member of the Board of Directors of Vale International S.A. (since June 2015); (iii) Deputy Chief Executive Officer for the Asia & Pacific region at Vale Canada (2009 to 2011), a company that is part of the Company's economic group; (iv) Director of Strategy, Business Development, Human Resources and Sustainability at Vale Canada (2008 to 2009); and (v) Director of Strategy and Information Technology at Vale Canada (2007 to 2008). In connection with his role at Vale, Mr. Poppinga was also a Member of the Board of Directors and Board of Executive Board of several companies from 2005 to 2010. From 1985 to 1999, Mr. Poppinga served in various positions at Mineração de Trinidade S.A. – SAMITRI, a publicly traded mining company acquired by Vale in 2001. He graduated in Geology from the Federal University of Rio de Janeiro (UFRJ) in 1980 and the Universität Erlangen in 1982, Germany, having completed a postgraduate degree in Applied Geology from the Clausthal University of Technology, Zellerfeld in 1984. He also holds a specialization in Geostatistics from the Federal University of Ouro Preto (UFOP), Negotiation Dynamics from INSEAD, Senior Leadership Program from MIT, Leadership Program from the IMD Business School, and Strategic Megatrends with Asia Focus from Kellogg Singapore, in addition to having an Executive MBA from Fundação Dom Cabral. Mr. Gerd Peter Poppinga has declared, for all legal purposes, that in the last five (5), he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Gerd Peter Poppinga has declared that he is not a politically exposed person as defined in the applicable regulations.

Humberto Ramos de Freitas
222.938.256-04

He serves the Managing Director of Logistics and Mineral Research at Vale (since 2011), current name of the Executive Board of Logistics and Mineral Exploration, where he also held the positions of (i) Logistics Operations Director (2009 to 2010); (ii) Director of Ports and Navigation Operations (2007 to 2009); (iii) Director of the Port Operations Department (2007 to 2008); (iv) General Manager of the Manganese Department (1993 to 1997); and (v) General Manager of the Port of Ponta da Madeira (1993 to 1997). His main professional experiences include the positions of: (i) Member of the Board of Directors of MRS Logística S.A. (since 2010), a company in the freight transportation segment, a member of the Vale group; and (ii) Chief Executive Officer of Valesul Alumínio S.A. (2003 to 2007), a company in the aluminum segment, member of the Vale group. He graduated in Metallurgical Engineering from the Escola de Minas de Ouro Preto in 1976, having attended an Executive specialization course (MIT Executive) in the United States, completed in 2005, as well as extension courses in (i) Advanced Management Programs (PGA) from Fundação Dom Cabral (taught by INSEAD), completed in 2004; (ii) Partnership for Corporate Development (PDE) from Fundação Dom Cabral, completed in 1996; (iii) Executive Development Program from J.L. Kellogg School of Management, Northwestern University, United States, completed in 1995; (iv) Strategic Business Planning from the consulting firm McKinsey, completed in 1993; and (v) Management Training from the Association of Overseas Technical Scholarship in Japan, concluded in 1991. Mr. Humberto Freitas has declared, for all legal purposes, that in the last five (5), he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity.

Roger Allan Downey
623.291.626-34

He serves as Managing Director of Fertilizers, Coal and Strategy (since 2015), where he also held the positions of Managing Director of Operations and Marketing of Fertilizers and Coal (2012 to 2013), Managing Director of Fertilizers and Coal (2013 to 2015), and Strategic Marketing Manager – Iron Ore (2002 to 2005). Since 2015, he has also been a member of the Risk Management Executive Committee of Vale. His main professional experiences in the last 5 years include: (i) Managing Partner of CWH Consultoria Empresarial SC Ltda. (January to April 2012), a consulting firm; (ii) Alternate Member of the Board of Directors of Valepar S.A. (February to April 2012), controlling shareholder of Vale, a closed-capital holding company; (iii) Chief Executive Officer of Vale Fertilizantes (since June 2012); and (iv) Chairman of the Board of Directors of Vale Fertilizantes (since May 2012). He holds a Bachelor's degree in business administration from the University of Western Australia, July 2001, and a degree in Business Administration from the Australian National Business School/UWA, July 2002, as well as an MBA from the University of Western Australia, April 2003. Mr. Roger Allan Downey, has declared, for all legal purposes, that in the last 5 (five) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Roger Allan Downey has declared that he is not a politically exposed person as defined in the applicable regulations.

Francisco Ferreira Alexandre

301.479.484-87

He serves as Alternate Member of the Board of Directors of Vale (since April 2013). His main professional experiences in the last 5 years include: (i) Alternate Member of the Board of Directors of Valepar S.A. (since April 2013), the controlling shareholder of Vale, a closed-capital holding company; (ii) Superintendent Director at BRF Previdência (since 2012), a pension fund; and (iii) Member of the Board of Directors of Kepler Weber S.A. (2011 to 2013), a company that manufactures structures for storing and transporting agricultural products. He graduated in Law from Centro de Ensino Superior de Maceió (CESMAC) in December 1992, and in Civil Engineering from the Federal University of Alagoas (UFAL) in March 1994. He holds a postgraduate degree in Economics and Labor Relations from PUC São Paulo, completed in July 2002, an MBA in Corporate Finance from the IAG of the Pontifical Catholic University of Rio de Janeiro (PUC-RJ), completed in December 2004, and an AMP (Advanced Management Program) by Harvard Business School, October 2009. Mr. Francisco Ferreira Alexandre has declared, for all legal purposes, that in the last 5 (five) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Francisco Ferreira Alexandre has declared that he is not a politically exposed person as defined in the applicable regulations.

Fernando Jorge Buso Gomes

370.624.177-34

He serves a Member of the Board of Directors of Vale (since April 2015) and Vice President of the Board of Directors of Vale (since January 2017), Coordinator of the Governance and Sustainability Committee (since April 2015), and a member of the Development Executive Committee, the Financial Committee (since April 2015), and the Strategic Committee (since April 2017). His main professional experiences in the last 5 years include: (i) Vice President of the Board of Directors of Valepar S.A. (since January 2017), controlling shareholder of Vale, a closed-capital holding company, where he also serves as (ii) Director (since April 2015); (iii) Chief Executive Officer (since May 2016); and (iv) Chief Investor Relations Officer of Bradespar S.A. (since April 2015), a publicly traded company holding equities of Valepar S.A., a holding company; (v) Director of Banco Bradesco BBI S.A. (December 2006 to April 2015), an investment bank; (vi) Vice President of the Board of Directors (May 2011 to April 2014) and (vii) Member of the Board of Directors of Sete Brasil S.A. (April 2014 to April 2015), an offshore company; (viii) Member of the Board of Directors of Smartia Corretora de Seguros S.A. (September 2012 to July 2015), an insurance brokerage firm; (ix) President of the Board of Directors of SMR Grupo de Investimentos e Participações S.A. (September 2014 to July 2015), a holding company; (x) Member of the Board of Directors of BCPAR S.A. (May 2013 to April 2015), a holding company; (xi) Member of the Board of Directors of 2b Capital SA (since November 2014), an investment management company, where he also held the position of (xii) Chief Executive Officer (March 2015 to June 2016) and (xiii) Director (since June 2016); (xiv) Member of the Board of Directors of BR Towers S.A. (January 2013 to November 2014), a company engaged in the construction and rental of telecommunication towers; (xv) Member of the Board of Directors of LOG Commercial Properties S.A. (2013 to 2015), a publicly traded company in the construction segment; (xvi) Chief Executive Officer of Antares Holdings Ltda., a holding company (April 2015 to April 2017); (xvii) Chief Executive Officer of Brumado Holdings Ltda. (April 2015 to April 2017); (xviii) Director of Millennium Security Holdings Corp., a holding company (since October 2015); and (xix) Full Member of the Board of Directors of the Equity Investment Fund Probes (May 2011 to April 2015). He holds a Bachelor degree in Economic Sciences from Faculdades Integradas Bennett, December 1978. Mr. Fernando Jorge Buso Gomes has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Fernando Jorge Buso Gomes has declared that he is not a politically exposed person as defined in the applicable regulations.

Denise Pauli Pavarina
076.818.858-03
She serves as a full member of the Board of Directors (since February 2017) and a member of Governance and Sustainability Committee of Vale (since April 2017). Her main professional experiences in the last 5 years include: (i) Full Member of the Board of Directors of Valepar S.A. (since March 2017), controlling shareholder of Vale, a closed-capital holding company; (ii) Deputy Chief Executive Officer (January 2012 to February 2015), (iii) Managing Chief Executive Officer (since February 2015), (iv) Member of the Ethics Committee (since 2016) and Member of the Sustainability Committee (since March 2017) of Banco Bradesco S.A., a multiple bank with a commercial portfolio; (v) President of ANBIMA – Brazilian Association of Financial and Capital Market Entities (April 2012 to April 2016), an association operating in the segment of business associations; (vii) Member of the Board of Directors (since March 2015), (vii) Coordinator of the Advisory Committee for the Intermediation Sector (since June 2016), (viii) Member of the IT Committee (since December 2016), and (ix) Member of the Integration Monitoring Committee (since March 2017) of BM&FBOVESPA S.A. – Securities, Commodities and Futures Exchange; (x) Director of Bram – Bradesco Asset Management S.A. (since January 2012), a private company operating in securities distribution; (xi) Member of the Board of Representatives of the National Confederation of Financial Institutions (representing ANBIMA) – CNF (April 2012 to April 2016); (xii) Member of the Board of Trustees of Fundação Bradesco (since December 2009), a private foundation active in the segment of education; (xiii) Member of the Board of Directors of the Foundation Institute of Diseases of the Digestive System and Nutrition (since February 2012), a hospital care foundation; (xiv) Member of the Strategic Committee (representing ANBIMA, December 2012 to August 2013), (xv) Member of the Advisory Board (December 2012 to August 2014), Member of the Board of Directors (representing ANBIMA, December 2012 to April 2016) and (xvi) Member of the Board of Directors (since July 2016) of BRAIN – Brasil Investimentos & Negócios Institute, an association operating in the segment of corporate associate organizations; (xvii) Managing Director of Kirton Bank S.A. (since July 2016), a multiple bank with a commercial portfolio; (xviii) Managing Director of Kirton Gestão de Recursos Ltda. (since July 2016), a fund management company; (xix) Member of the Investment Committee of NEO Capital Mezanino Fundo de Investimento em Participações (since September 2010), a company operating in the segment of investment management; and (xx) Member of the Board of Directors (September 2010 to November 2014) and (xxi) Vice President of the Board of Directors (since November 2014) of 2bCapital S.A., a closed-capital fund management company. She graduated in Economics from Faculdade Armando Álvares Penteado (FAAP) in March 1985 and Law from Universidade Paulista (UNIP) in January 2006, and holds an Executive MBA in Finance from Insper – Institute of Education and Research in 1999. Ms. Denise Pauli Pavarina has declared, for all legal purposes, that in the last five (5) years, she has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified her for the practice of any professional or commercial activity. Ms. Denise Pauli Pavarina has declared that she is not a politically exposed person, as defined in the applicable regulations.

Yoshitomo Nishimitsu
060.569.787-61
He serves as Alternate Member of the Board of Directors of Vale (since April 2015). His main professional experiences in the last 5 years include: (i) Alternate Member of the Board of Directors of Valepar S.A. (May 2014 to April 2015), controlling shareholder of Vale, a closed-capital holding company; (ii) since April 2001, he has held various positions in Mitsui & Co., Ltd., a foreign trading company, which is the Company's indirect controlling shareholder; and (iii) since March 2014, he holds the position of General Manager of the Mineral and Metallic Resources Division of Mitsui & Co. (Brazil) S.A. He graduated in Geology from Kobe University in March 1999 and holds a postgraduate degree in Geology from Kyoto University, completed in March 2001. Mr. Yoshitomo Nishimitsu has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Yoshitomo Nishimitsu has declared that he is not a politically exposed person, as defined in the applicable regulations.

Eduardo Refinetti Guardia
088.666.638-40
He serves as a Full Member of the Board of Directors (since July 2016) and Member of the Financial Committee of Vale (since April 2017). His main professional experiences in the last 5 years include: (i) Executive Secretary of the Ministry of Finance (since June 2016); (ii) President of the Board of Directors of Banco do Brasil S.A. (since June 2016), a publicly traded financial institution; (iii) Managing Director of Products at BM&FBOVESPA (June 2013 to May 2016); and (iv) Managing Director of Finance, Corporate Affairs and Investor Relations at

BM&FBOVESPA (June 2010 to June 2013). He graduated in Economics from the Pontifical Catholic University of São Paulo in 1987 and completed a Master's degree in Economics from the State University of Campinas in 1992 and a Ph.D. in Economics from the University of São Paulo in 1999. Mr. Eduardo Refinetti Guardia was a professor at the Department of Economics of the School of Economics and Administration of the Pontifical Catholic University of São Paulo (April 1990 to March 1997). Mr. Eduardo Refinetti Guardia has declared, for all legal purposes, that in the last 5 (five) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision, at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Eduardo Refinetti Guardia has declared that he is considered a Politically Exposed Person, pursuant to CVM Instruction 463, of January 8, 2008, as he holds a special position in the Executive branch of the Federal Government (Executive Secretary of the Ministry of Finance).

Gilberto Antonio Vieira
221.153.079-68
He serves Alternate Member of the Board of Directors of Vale (since April 2015). His main professional experiences in the last 5 years include: (i) Alternate Member of the Board of Directors of Valepar S.A. (since April 2015), controlling shareholder of Vale, a closed-capital holding company; (ii) Director and Secretary-General of the National Confederation of Workers in Credit Companies – CONTEC (since September 1996), a trade association; (iii) Alternate Member of the Board of Directors of Cooperativa Habitacional ANABB Ltda. (March 2014 to March 2015), a housing cooperative, where he currently holds the position of (iv) Member of the Board of Delegates (since April 2015); (v) Member of the Audit Committee of Caixa de Assistência dos Trabalhadores de Banco do Brasil (June 2008 to May 2012), a health plan provider; and (vi) Member of the Advisory Group on Labor and Union Relations of the National Association of Employees of Banco do Brasil – ANABB (June 2012 to December 2015). He graduated in Law from University Education Center of Brasília (CEUB) in January 1990 and in Administration from the Blumenau University Foundation (FURB) in December 1978, where he also obtained the degree of Specialist in Administration in September 1980. He also obtained a postgraduate degree in Foreign Trade from UDF/ICAT in November 1985 and in Politics and Strategy from the University of Brasília (UNB), in July 1998. Mr. Gilberto Antonio Vieira has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Ms. Gilberto Antonio Vieira has declared that he is not a politically exposed person, as defined in the applicable regulations.

Gueitiro Matsuo Genso
624.201.519-68
He serves as Member of the Board of Directors (since March 2015), Member of the Strategic Committee (since April 2015) and Member of the Executive Development Committee (since April 2017). His main professional experiences in the last 5 years include: (i) Chief Executive Officer of Valepar S.A., controlling shareholder of Vale, a closed-capital holding company (since April 2015); (ii) Chief Executive Officer of PREVI – Caixa de Previdência dos Funcionários do Banco do Brasil (since 2015), a supplementary pension entity, which holds an indirect interest in the Company through Litel Participações S.A., an integral shareholder of the controlling block of Valepar S.A., the controlling shareholder of the Company; (iii) Director of Natural Person Clients at Banco do Brasil S.A. (2014 to 2015), a financial institution, where he also held the position of (iv) Director of Real Estate Credit (2011 to 2014); (v) Member of the Board of Directors of Câmara Interbancária de Pagamentos (August 2014 to August 2015), a non-profit entity operating in the clearing and settlement of payment instruments; and (vi) Member of the Audit Committee of the Insurance Group BB Mapfre (June 2011 to August 2015). He graduated in Management from Faculdade Sociedade Paranaense de Ensino e Informática (SPEI) in August 2002. He took an MBA in Basic General Education for Executives at Fundação Getúlio Vargas (FGV-PR), completed in August 1998, and in Agribusiness (ESALQ/USP), completed in June 2002. Mr. Gueitiro Matsuo Genso has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Gueitiro Matsuo Genso has declared that he is not a politically exposed person, as defined in the applicable regulations.

Oscar Augusto Camargo Filho
030.754.948-87

He has been a Full Member of the Board of Directors of Vale (since September 2003), Member of the Strategic Committee (since March 2006) and Member of the Executive Development Committee (since November 2003). His main professional experiences in the last 5 years include: (i) Full Member of the Board of Directors of Valepar S.A. (September 2003 to May 2014), controlling shareholder of Vale, a closed-capital holding company; and (ii) Managing Partner of CWH Consultoria Empresarial (since October 2003), a consulting firm. He graduated in Law from the School of Law of the University of São Paulo in December 1963 and completed a postgraduate degree in International Marketing from Cambridge University in September 1971. Mr. Oscar Augusto Camargo Filho has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Oscar Augusto Camargo Filho has declared that he is not a politically exposed person, as defined in the applicable regulations.

Moacir Nachbar Junior

062.947.708-66

He serves as Alternate Member of the Board of Directors and Member of the Comptrollership Committee of Vale (since April 2015). His main professional experiences in the last 5 years include: (i) Full Member of the Board of Directors of Valepar S.A. (since April 2015), controlling shareholder of Vale, a closed-capital holding company; (ii) Managing Chief Executive Officer of Banco Bradesco S.A. (since February 2015), a financial institution; (iii) Alternate Member of the Board of Directors of the Brazilian Association of Publicly Traded Companies – ABRASCA (April 2013 to April 2017), a civil association that provides advisory services on the interests of publicly traded companies; (iv) Alternate Member of the Board of Directors of Fidelity Processadora e Serviços S.A. (February 2012 to April 2015), a credit card processing company; (v) Member of the Board of Trustees of Fundação Bradesco (since March 2005), a foundation operating in the segment of education; (vi) Member of the Board of Directors of the Foundation Institute of Diseases of the Digestive System and Nutrition (since February 2012), a medical and hospital care foundation; (vii) Alternate Member of the Advisory Board of the Credit Guarantee Fund – FGC (since October 2013), which guarantees credits to institutions associated therewith; (viii) Alternate Member of the Audit Committee of Top Bradesco Club, Segurança, Educação e Assistência Social (April 2003 to April 2012), a company specializing in activities of associations for the defense of social rights; (ix) Director of 2bCapital Participações Ltda. (April 2015 to June 2016); (x) Chief Executive Officer of 2b Capital S.A., a closed-capital company specializing in fund management (since June 2016), where he also held the position of (xi) Director (March 2015 to March 2016); (xii) Managing Director of BEC – Distribuidora de Títulos e Valores Mobiliários Ltda. and (xiii) Managing Director of BEM – Distribuidora de Títulos e Valores Mobiliários Ltda. (April 2015 to April 2017); (xiv) Director of Kirton Bank S.A. (since July 2016), a multiple bank with a commercial portfolio; (xv) Member of the Banking Self-Regulation Board of FEBRABAN – Brazilian Federation of Banks (since December 2016); and (xvi) Member of the Executive Disclosure Committee (since February 2012), (xvii) the Sustainability Committee (since October 2013), (xviii) the Committee on Internal Controls and Compliance (since February 2015), (xix) the Committee on Integrated Risk Management and Capital Allocation (since 2015) and (xx) the Ethics Conduct Committee (since April 2015) of Banco Bradesco S.A., where he also held the positions of (xxi) Department Director (March 2005 to January 2012) and (xxii) Deputy Executive Director (January 2012 to February 2015). He graduated in Accounting in December 1987, with a "Lato Sensu" postgraduate degree in Financial Administration in July 1990, from Faculdades Integradas Campos Salles, MBA in Comptrollership from FIPECAFI – Accounting, Actuarial and Financial Research Foundation – FEA-USP, in November 2000, and Tuck Executive Program from the Tuck School of Business at Dartmouth – Hanover, New Hampshire, United States, in August 2009. Mr. Moacir Nachbar Junior has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Moacir Nachbar Junior has declared that he is not a politically exposed person, as defined in the applicable regulations.

Eduardo de Salles Bartolomeo

845.567.307-91

He serves as Member of the Board of Directors and Member of the Financial Committee of Vale (since April 2017), where he held the positions of Director of Logistics Operations (January 2004 to June 2006), Chief Executive Officer (February 2007 to May 2012) and Member of the Strategic Committee (September 2016 to April 2017). His main professional experiences in the last 5 years include: (i) CEO of Nova Transportação do Sudeste – NTS S.A. (since April 2017), a company in the gas segment; (ii) Member of the Board of Directors of Login Logística Intermodal (since April 2016), a publicly traded company in the logistics segment; (iii) CEO of BHG – Brazilian Hospitality Group (July 2013 to July 2015), a publicly traded company in the hospitality segment; and (iv) Member of the Board of Directors of Arteris S.A. (April 2015 to April 2017), a publicly traded company in the road concession sector. He graduated in Metallurgical Engineering from Fluminense Federal University in January 1988, with an MBA from Katholieke Universiteit Leuven, Belgium, completed in June 1993, and an MBA from the Massachusetts Institute of Technology, United States, completed in June 2013. Mr. Eduardo de Salles Bartolomeo has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any

conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Eduardo de Salles Bartolomeo has declared that he is not a politically exposed person, as defined in the applicable regulations.

Robson Rocha
298.270.436-68
He serves as Alternate Member of the Board of Directors of Vale (since April 2015). His main professional experiences in the last 5 years include: (i) Member of the Board of Directors of Vale (April 2011 to April 2015); (ii) Alternate Member of the Board of Directors of Valepar S.A. (since April 2015), controlling shareholder of Vale, a closed-capital holding company; and (iii) Vice President of People Management and Sustainable Development of Banco do Brasil S.A. (April 2009 to April 2015), a publicly traded financial institution. He graduated in Business Administration from UNICENTRO – Newton Paiva, Belo Horizonte, in December 1998. He holds a specialization in Strategic Management from the Federal University of Minas Gerais (UFMG), completed in March 2001, a Master's degree in Marketing from the Human Sciences Foundation – Pedro Leopoldo, completed in December 2001, and an MBA in Finance from Fundação Dom Cabral, completed in December 2002. Mr. Robson Rocha has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Robson Rocha has declared that he is not a politically exposed person, as defined in the applicable regulations.

Lucio Azevedo
526.635.317-15
He serves as Member of the Board of Directors of Vale (since April 2015) and as an employee of Vale S.A. (since 1985), occupying the position of machine engineer, assigned to the Union of Workers of Railway Companies of the States of Maranhão, Pará and Tocantins. His main professional experience in the last 5 years is as President of the Union of Workers in Railway Companies of the States of Maranhão, Pará and Tocantins (since 2013), a trade association. Mr. Lucio Azevedo has incomplete Secondary School education. Mr. Lucio Azevedo has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazilian, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Lucio Azevedo has declared that he was is a politically exposed person, as defined in the applicable regulations.

Raimundo Nonato Alves de Amorim
147.611.573-72
His main professional experiences in the last 5 years include: (i) Alternate Member of the Board of Directors of Vale (April 2009 to April 2013) and (ii) President of the Union of Workers in the Iron and Basic Metals Extraction Industry of Marabá, Parauapebas, Curionópolis and Canaã dos Carajás, PA (since November 2001), a trade association. Mr. Raimundo is an Electrotechnical Technician from the Department of Supplementary Education (DESU/SEDUC). Mr. Raimundo Nonato Alves de Amorim has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Raimundo Nonato Alves de Amorim has declared that he is not a person politically exposed, as defined in the applicable regulations.

Shinichiro Omachi
TK9943586
He serves as Full Member of the Board of Directors of Valepar (since April 2015). His main professional experiences in the last 5 years include the following positions in Mitsui & Co., Ltd., a foreign trading company, the indirect controlling shareholder of the Company: (i) Managing Director and Director of Mineral and Metal Business Operations (since April 2015); (ii) Managing Director and Director-General of the Investment Management Division (April 2014 to March 2015); and (iii) Deputy Director of Mineral and Metal Business Operations (April 2012 to March 2014). Mr. Shinichiro Omachi also holds the position of Director of Inversiones Mineras Acrux SpA (since April 2015), a Chile-based copper investment company. He graduated in Economics from Keio University in March 1984 and completed a Master's degree in Business Administration from the Sloan School of Management (MIT) in June 1998. Mr. Omachi has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the

Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Omachi has declared that he is not a politically exposed person, as defined in the applicable regulations.

Eduardo de Oliveira Rodrigues Filho
442.810.487-15
He serves as Alternate Member of the Board of Directors (since April 2011), Member of the Financial Committee (since April 2011) and Member of the Governance and Sustainability Committee of Vale (since April 2015). His main professional experiences in the last 5 years include: (i) Full Member of the Board of Directors (since May 2014) and Alternate Member of the Board of Directors of Valepar S.A. (April 2008 to January 2012), controlling shareholder of Vale, a closed-capital holding company; and (ii) Managing Partner of CWH Consultoria Empresarial (since March 2008), a consulting firm. He graduated in Civil Engineering from the Pontifical Catholic University of Rio de Janeiro (PUC-RJ) in December 1978 and holds a postgraduate degree in Transporting Planning from the University of Westminster, completed in October 2000. Mr. Eduardo de Oliveira Rodrigues Filho has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Eduardo de Oliveira Rodrigues Filho has declared that he is not a politically exposed person, as defined in the applicable regulations.

Luiz Maurício Leuzinger
009.623.687-68
He serves as Alternate Member of the Board of Directors of Vale (since May 2012), where he held the same position from April to September 2003. He also served as Member of the Financial Committee (August 2007 to April 2015), Member of the Executive Development Committee (May 2012 to April 2015) and Member of the Governance and Sustainability Committee (May 2014 to April 2015). His main professional experiences in the last 5 years include: (i) Full Member of the Board of Directors of Valepar S.A. (June 2012 to April 2015); (ii) Alternate Member of the Board of Directors of Valepar S.A. (since 2015), controlling shareholder of Vale, a closed-capital holding company; (iii) Chief Executive Officer of Bradespar S.A. (April 2012 to April 2015), a publicly traded company with an equity holding in Valepar S.A., a holding company, indirect controlling shareholder of Vale; and (iv) Member of the Board of Directors of Valid Soluções e Serviços de Segurança em Meios de Pagamento e Identificação S.A. (since January 2006), current corporate name of American Banknote S.A., a publicly traded company engaged in general graphics and plastic cards, magnetic cards, delivery of services, etc. He graduated in Electrical Engineering from the National School of Engineering (current Federal University of Rio de Janeiro – UFRJ) in December 1965. He completed a specialization in Economic Engineering and a Master's degree in Electrical Engineering at the Illinois Institute of Technology in Chicago, United States, both in July 18, 1968. Mr. Luiz Maurício Leuzinger has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Luiz Maurício Leuzinger has declared that he is not a politically exposed person, as defined in the applicable regulations.

Dan Antonio Marinho Conrado
754.649.427-34

He serves as Full Member of the Board of Directors (since October 2012) and Member of the Governance and Sustainability Committee (since April 2017), having served as President of the Board of Directors of the Company (October 2012 to February 2016) and a permanent participant of the Strategic Committee of Vale (October 2012 to April 2015 and June 2015 to February 2016). His main professional experiences in the last 5 years include: (i) President of PREVI – Caixa de Previdência dos Funcionários do Banco do Brasil (2012 to 2014), a supplementary pension entity, which holds an indirect interest in the Company through Litel Participações S.A., which, in turn, is a member of the control group of Valepar S.A., controlling shareholder of the Company; (ii) President of the Board of Directors of Valepar S.A. (since October 2012), controlling shareholder of Vale, a closed-capital holding company, where he also held the position of (iii) Chief Executive Officer (October 2012 to April 2015); (iv) Alternate Member of the Board of Directors of Petróleo Brasileiro S.A. – Petrobras (July 2015 to November 2015), a publicly traded company in the oil segment; (v) Full Member of the Board of Directors of BR Distribuidora S.A. (July 2015 to November 2015), a private company specializing in the marketing and distribution of oil products; (vi) Member of the Board of Directors of Fras-Le S.A. (2010 to 2013), a publicly traded company engaged in the production of friction materials; and (vii) Alternate Member of the Board of Directors of Mapfre BBSH2 Participações S.A. (2011 to March 2017), a publicly traded insurance company. He graduated in Law from Dom Bosco University, MS, in December 2001, and holds an MBA from the COPPEAD Foundation/Federal University of Rio de Janeiro, completed in October 1998, and an MBA in Business Management from INEPAD – Administration Education and Research Institute/Federal University of Mato Grosso (UFMT), completed in December 2009. Mr. Dan Antonio Marinho Conrado has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Dan Antonio Marinho Conrado has declared that he is not a politically exposed person, as defined in the applicable regulations.

Marcel Juviniano Barros
029.310.198-10
He serves a Full Member of the Board of Directors of Vale (since October 2012) and Member of the Executive Development Committee (since February 2013). His main professional experiences in the last 5 years include: (i) Insurance Director of PREVI – Caixa de Previdência dos Funcionários do Banco do Brasil (since 2012), a supplementary pension entity, which holds an indirect interest in the Company through Litel Participações S.A., which, in turn, is a member of the control group of Valepar S.A., controlling shareholder of the Company; (ii) Full Member of the Board of Directors of Valepar (since 2012), controlling shareholder of Vale, a closed-capital holding company; and (iii) Full Member of the PRI – Principles for Responsible Investment of the U.N. since March 2015. He graduated in History from FESB – Municipal Foundation of Higher Education of Bragança Paulista, in December 1995. Mr. Marcel Juviniano Barros has declared, has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Marcel Juviniano Barros has declared that he is not a politically exposed person, as defined in the applicable regulations.

Marcelo Amaral Moraes
929.390.077-72
He serves as Full Member of the Audit Committee of Vale (since April 2004), where he also held the position of Alternate Member of the Board of Directors (May to August 2003). His main professional experiences in the last 5 years include: (i) Member of the Audit Committee of Aceco Ti S.A., a private company specializing in data center design, implementation and maintenance (since March 2016); (ii) Member of the Board of Directors of Eternit S.A. (since April 2016), a publicly traded company specializing in various activities, such as exploration of agricultural activities, purchase and sale of gold, and processing of cement products, concrete, gypsum, etc.; (iii) Chief Executive Officer of Capital Dynamics Investimentos Ltda. (January 2012 to April 2015), a private equity management company. He graduated in Economics from the Federal University of Rio de Janeiro (UFRJ), in January 1991, and completed an MBA in Business Administration from COPPEAD at UFRJ, in November 1993, and a postgraduate degree in Corporate Law and Arbitration from Fundação Getúlio Vargas, in November 2003. Mr. Marcelo Amaral Moraes has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Marcelo Amaral Moraes has declared that he is not a politically exposed person, as defined in the applicable regulations.

Sergio Mamede Rosa do Nascimento
650.042.058-68

He serves as Alternate Member of the Audit Committee of Vale (since April 2016). His main professional experiences in the last 5 years include: (i) Member of the Audit Committee of Fibria Celulose S.A. (April 2013 to April 2015), a publicly traded company in the pulp sector; (ii) Member of the Audit Committee of Marisol S.A. (April 2011 to July 2012), a publicly traded company in the apparel sector; and (iii) Managing Partner of Barra Livros e Cursos Editora Ltda. (since March 2011). He graduated in Physics from the University of Franca in 1976, having a postgraduate degree in Economic Engineering from ICAT-UDF, in December 1983, and an MBA in Finance from IBMEC – Brazilian Institute of Capital Markets, in December 1991. Mr. Sergio Mamede Rosa do Nascimento has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Sergio Mamede Rosa do Nascimento has declared that he is not a politically exposed person, as defined in the applicable regulations.

Raphael Manhães Martins
096.952.607-56
He serves as Full Member of the Audit Committee of Vale (since April 2015). His main professional experiences in the last 5 years include: (i) Member of the Board of Directors of Eternit S.A. (since 2015), a publicly traded company in the segment of construction materials; (ii) Full Member of the Audit Committee of Light S.A. (2012 to 2013 and from 2014), a publicly traded company in the electricity segment; (iii) Attorney at Faoro Advogados, a law firm (since 2010); and (iv) Member of the Audit Committee of Embratel Participações S.A. (September to December 2014), a publicly traded holding company. He graduated in Law from the University of the State of Rio de Janeiro (UERJ) in December 2006. Mr. Raphael Manhães Martins has declared, has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Raphael Manhães Martins has declared that he is not a politically exposed person, as defined in the applicable regulations.

Marcus Vinícius Dias Severini
632.856.067-20
He serves as Full Member of the Audit Committee of Vale (since April 2017). His main professional experiences in the last 5 years include: (i) Chief Comptroller of Vale (October 1994 to March 2015); (ii) Member of the Audit Committee of BRF S.A. (since April 2015), a publicly traded company in the food sector; and (iii) Member of the Audit Committee of Mills Estruturas e Serviços de Engenharia S.A. (since April 2015), a publicly traded company operating in the construction sector. He graduated in Electrical Engineering from the Federal Fluminense University (UFF), in December 1979, Accounting Sciences from UniverCidade in December 2003, and Economics from UniSUAW in December 1981. Mr. Marcus Vinícius Dias Severini has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Marcus Vinícius Dias Severini has declared that he is not a politically exposed person, as defined in the applicable regulations.

Robert Juenemann
427.077.100-06
He serves as Full Member of the Audit Committee of Vale (since April 2017). His main professional experiences in the last 5 years include: (i) Founding Partner of Robert Juenemann Advocacia Empresarial e Familiar, operating in the fields of corporate, tax, family, labor relations and corporate governance law, in addition to special attention to family businesses (since 1999); (ii) Conflict Mediator certified by CEDR – Center for Effective Dispute Resolution – London, United Kingdom (since 2011); (iii) Member of the IBGC Corporate Governance Improvement Code revision group for the years 2014/2015; (iv) Member of the Legal Committee, Member of the Cooperatives Committee and Member of the Board of Directors of IBGC – Brazilian Institute of Corporate Governance, a non-profit entity engaged in to the promotion of Corporate Governance (since 2009); (v) Full Member of the Audit Committee of Centrais Elétricas de Santa Catarina S.A. (Celesc), a company operating in the electricity sector (2013); (vi) Full Member of the Audit Committee of Eternit, a company in the sector of processing and marketing of fiber cement products (2015); (vii) Full Member of the Audit Committee of Eletrobrás, a company in the energy sector (2013 to 2016); (viii) Member of the International Committee on Ethical Practices for the Accounting and Auditing Profession (IESBA), a body of the International Federation of Accountants (IFAC); and (ix) Co-author of the Legal Guide for Directors and Officers, published by IBGC. He graduated in Law from the Pontifical Catholic University of Rio Grande do Sul (PUC/RS), in 1988, with a postgraduate degree in Civil Procedural Law at the same institution, in 1995, and a postgraduate in Strategic Planning from ESPM/RS, in 1995.

Mr. Robert Juenemann has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Robert Juenemann has declared that he is not a politically exposed person, as defined in the applicable regulations.

Bernardo Zito Porto

139.715.767-45

He serves as Alternate Member of the Audit Committee of Vale (since April 2017). His main professional experiences in the last 5 years include: (i) Attorney at the law firm Faoro & Fucci Advogados (since July 2014); (ii) Professor and Associate Director of the LL.M. Program at the University of Missouri-Kansas City School of Law (since September 2016); (iii) Alternate Member of the Audit Committee of Eternit S.A. (since April 2017), a company in the fiber cement sector; (iv) Alternate Member of the Audit Committee of Light S.A. (since April 2017), a company in the electricity sector; (v) Law Intern at the Attorney-General's Office of the State of Rio de Janeiro (August 2013 to February 2014); and (vi) Law Intern at the law firm Ferro, Castro Neves, Daltro and Gomide Advogados (January 2011 to July 2013). He graduated in Law from the Federal University of Rio de Janeiro (UFRJ) in June 2014 and completed a Master's Degree from the University of Michigan Law School in May 2016.

Mr. Bernardo Zito Porto has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Bernardo Zito Porto has declared that he is not a politically exposed person, as defined in the applicable regulations.

Gaspar Carreira Júnior

000.459.657-90

He has been an Alternate Member of the Audit Committee of Vale (since April 2017). His main professional experiences in the last 5 years include: OI Group (Telemar, Oi, BrT), a multinational telecommunications company (since 1999) as (i) Member of the Audit Committee (since August 2013); (ii) Director of Administrative and Financial Services (since January 2009). He graduated in Economics from Cândido Mendes University in Rio de Janeiro, in 1989 and holds a postgraduate degree in Finance from the Pontifical Catholic University of Rio de Janeiro, in 1992, an Executive MBA from the Federal University of Rio de Janeiro (COPPEAD), in 1999, and a Specialization in Project Management from the Federal Fluminense University, in 2004.

Mr. Gaspar Carreira Júnior has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Gaspar Carreira Júnior has declared that he is not a politically exposed person, as defined in the applicable regulations.

Eduardo Cesar Pasa

541.035.920-87

Coordinating Member of the Comptrollership Committee (since April 2014). His main professional experiences in the last 5 years include: (i) Director of the Accounting Department of Banco do Brasil S.A. (since April 2015), A financial institution, where he also held the position of (ii) General Accounting Manager (March 2009 to April 2015); (iii) Member of the Decision-Making Board of PREVI – Caixa de Previdência dos Funcionários do Banco do Brasil (since 2010), a supplementary pension entity, which holds an indirect interest in the Company through Litel Participações SA, which, in turn, is a member of the control group of Valepar S.A., the controlling shareholder of the Company; (iv) Full Member of the Audit Committee of Eletrobrás – Centrais Elétricas Brasileiras S.A. (since 2015), a publicly traded company operating in the electricity segment; (v) Full Member of the Audit Committee of Cateno Gestão de Contas de Pagamento S.A. (since 2016), a closed-capital company engaged in the provision of services; (vi) Full Member of the Audit Committee of Cassi – Caixa de Assistência dos Trabalhadores de Banco do Brasil S.A. (2010 to 2014), a closed-capital company that operates in the health segment; (vii) Alternate Member of the Audit Committee of Banco Votorantim S.A. (2009 to 2015), a financial institution; and (viii) Full Member of the Audit Committee of BBTS – BB Tecnologia e Serviços (2008 to 2015), a closed-capital company engaged in the provision of services. He graduated in Accounting Sciences from the University Center of Brasília (UniCeub), in September 1995, with a "Lato Sensu" postgraduate degree in Accounting Sciences from the Graduate School of Economics of Fundação Getúlio Vargas (FGV), in July 1997, and a Master's degree in Accounting Sciences from the School of Economics, Administration and Accounting of the University of São Paulo (USP), in April 2003. Mr. Eduardo Cesar Pasa has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Eduardo Cesar Pasa declared himself to be a politically exposed person, pursuant to CVM Instruction 301 of April 16, 1999, as amended, as he holds the position of Chief Accounting Officer of Banco do Brasil.

Arthur Prado Silva
991.897.047-20
He serves as Alternate Member of the Board of Directors (since July 2015) and Member of the Comptrollership Committee of Vale (since April 2017), where he also served as a Member of the Governance and Sustainability Committee (April 2015 to July 2016). His main professional experiences in the last 5 years include: (i) Member of the Board of Directors of Valepar S.A. (since July 2015), controlling shareholder of Vale, a closed-capital holding company; (ii) Full Member of the Board of Directors of Litel Participações S.A. (since July 2015), indirect shareholder of Vale, a holding company, where he also held the position of (iii) Chief Administrative Officer (2013 to 2015); (iv) Member of the Board of Directors of Litela Participações S.A. (since July 2015) and (v) Member of the Board of Directors of Litel B Participações S.A. (July 2015 to July 2016), publicly traded holding companies controlled by Litel Participações S.A., having also held the positions of (vi) Chief Administrative Officer (2013 to 2015) in said companies; (vii) Executive Manager of PREVI – Caixa de Previdência dos Funcionários do Banco do Brasil (since April 2013), a supplementary pension entity, which holds an indirect interest in the Company through Litel Participações SA, which, in turn, is a member of the control group of Valepar S.A., controlling shareholder of the Company; (viii) Member of the Audit Committee of Tupy S.A. (2011 to 2015), a publicly traded company operating in the metallurgy industry, controlled by PREVI – Caixa de Previdência dos Funcionários do Banco do Brasil; (xi) Full Member of the Board of Directors of Sul 116 Participações S.A. (2011 to 2015), a publicly traded holding company; (x) Full Member of the Board of Directors of 521 Participações S.A. (since 2006), a publicly traded holding company; and (xi) Full Member of the Board of Directors of GTD Participações S.A. (2008 to 2013), a publicly traded holding company. He graduated in Law in December 1999, with a postgraduate degree in Comptrollership and Finance, completed in May 2001, and Tax Law, completed in March 2009, all by Cândido Mendes University, as well as an MBA in Corporate Finance from Fundação Getúlio Vargas, in December 2004. Mr. Arthur Prado has declared, for all legal purposes, that in the last five (5) years, he has not been convicted of any criminal offense, any conviction in an administrative proceeding by the Securities and Exchange Commission of Brazil, or any conviction by a final decision at the judicial or administrative level, which has suspended or disqualified him for the practice of any professional or commercial activity. Mr. Arthur Prado has declared that he is not a politically exposed person, as defined in the applicable regulations.

12.7 / 8 – Composition of statutory committees and audit, financial and compensation committees

Name	Committee type	Elective position occupied	Occupation	Date of election	Term
CPF or passport number	Description of other committees / Description of other positions held	Number of consecutive terms	Date of birth	Data of taking office	Elected by the controlling shareholder
Outros cargos/functions performed at the issuer		Independent member	Criterion used to determine independence		% participation of the member at the meetings held after taking office

Arthur Prado Silva	Comptrollership Committee	Member	Banking Agent	4/26/2017	Until Ordinary General Meeting of 2019
991.897.047-20	N/A	0	4/29/1972	4/26/2017	
Alternate Member of the Board of Directors of Vale		No	N/A		N/A
Clovis Torres Junior	Information Disclosure Committee	Member	Attorney	7/18/2011	Indeterminate
423.522.235-04	Ethics Committee	N/A	9/9/1967	7/18/2011	
Managing Director of Human Resources, Health & Safety, Sustainability, Energy, Mergers & Acquisitions, Governance, Corporate, Legal and Fiscal Integrity, General Advisor, and Chief Compliance Officer of Vale		No	N/A		N/A
Clovis Torres Junior	Ethics Committee	Member	Attorney	11/1/2013	Indeterminate
423.522.235-04	Information Disclosure Committee	N/A	9/9/1967	11/1/2013	
Managing Director of Human Resources, Health & Safety, Sustainability, Energy, Mergers & Acquisitions, Governance, Corporate, Legal and Fiscal Integrity, General Advisor, and Chief Compliance Officer of Vale		No	No		100%
Ana Silvia Corso Matte	Executive Development Committee	Member	Bachelor in Law	4/26/2017	Until Ordinary General Meeting of

					2019
263.636.150-20	N/A	0	5/30/1958	4/26/2017	
N/A		Yes	Pursuant to the Independence Criteria contained in the Committee's internal regulations, as described in the item "Declaration of Independence" below, relating to such Member.		N/A
Eduardo de Oliveira Rodrigues Filho	Financial Committee	Member	Engineer	4/26/2017	Until Ordinary General Meeting of 2019
442.810.487-15	Governance and Sustainability Committee	4	8/20/1954	4/26/2017	
Alternate Member of the Board of Directors of Vale		No	N/A		96%
Eduardo de Oliveira Rodrigues Filho	Governance and Sustainability Committee	Member	Engineer	4/26/2017	Until Ordinary General Meeting of 2019
442.810.487-15	Financial Committee	1	8/20/1954	4/26/2017	
Alternate Member of the Board of Directors of Vale		No	N/A		100%
Fernando Jorge Buso Gomes	Financial Committee	Member	Banking Agent	4/26/2017	Until Ordinary General Meeting of 2019
370.624.177-34	Governance and Sustainability Committee / Executive Development Committee / Strategic Committee	1	6/6/1956	4/26/2017	
He serves as Coordinator of the Governance and Sustainability Committee, Member of the Executive Development Committee, Member of the Strategic Committee and Vice President of the Board of Directors of Vale		No	N/A		100%
Fernando Jorge Buso Gomes	Governance and Sustainability Committee	Coordinator	Banking Agent	4/26/2017	Until Ordinary General Meeting of 2019
370.624.177-34	Financial Committee / Executive Development Committee / Strategic Committee	1	6/6/1956	4/26/2017	

He serves as Member of the Financial Committee, Member of the Strategic Committee, Member of the Executive Development Committee and Vice President of the Board of Directors of Vale		No	N/A		100%
Fernando Jorge Buso Gomes	Executive Development Committee	Member	Banking Agent	4/26/2017	Until Ordinary General Meeting of 2019
370.624.177-34	Financial Committee / Governance and Sustainability Committee / Strategic Committee	1	6/6/1956	4/26/2017	
He serves as Coordinator of the Governance and Sustainability Committee, Member of the Strategic Committee, Member of the Financial Committee and Vice President of the Board of Directors of Vale		No	N/A		88%
Fernando Jorge Buso Gomes	Strategic Committee	Member	Banking Agent	4/26/2017	Until Ordinary General Meeting of 2019
370.624.177-34	Financial Committee / Governance and Sustainability Committee / Executive Development Committee	0	6/6/1956	4/26/2017	
He serves as Coordinator of the Governance and Sustainability Committee, Member of the Strategic Committee, Member of the Financial Committee and Vice President of the Board of Directors of Vale		No	N/A		N/A
Gilmar Dalilo Cezar Wanderley	Financial Committee	Coordinator	Banking Agent	4/26/2017	Until Ordinary General Meeting of 2019
084.489.987-90	N/A	1	8/30/1979	4/26/2017	
N/A		No	N/A		96%
Gueitiro Matsuo Genso	Strategic Committee	Member	Banking Agent	4/26/2017	Until Ordinary General Meeting of 2019
624.201.519-68	Executive Development Committee	N/A	12/12/1971	4/26/2017	
He serves as President of the Board of Directors, it being noted that he was already a member of the Board of Directors since 2015		No	N/A		100%
Luciano Siani Pires	Risk Management Executive Committee	Permanent Participant	Mechanical Engineer	3/27/2013	Indeterminate

013.907.897-56		N/A	2/10/1970	3/27/2013	
Chief Finance and Investor Relations Officer, as well as Head of the Capital Projects Implementation area and Member of the Information Disclosure Committee		No	N/A		100%
Luciano Siani Pires	Information Disclosure Committee	Member	Mechanical Engineer	7/25/2012	5/26/2017
013.907.897-56			2/10/1970	8/1/2012	
Chief Finance and Investor Relations Officer, as well as Head of the Capital Projects Implementation area and Member of the Risk Management Executive Committee		No	N/A		N/A
Gueitiro Matsuo Genso	Executive Development Committee	Member	Banking Agent	4/26/2017	Until Ordinary General Meeting of 2019
624.201.519-68	Strategic Committee	0	12/12/1971	4/26/2017	
He serves Chairman of the Board of Directors, it being noted that he was already a Member of the Board of Directors since 2015.		No	N/A		N/A
Marcel Juviniano Barros	Executive Development Committee	Member	Banking Agent	4/26/2017	Until Ordinary General Meeting of 2019
029.310.198-10	N/A	4	9/5/1962	4/26/2017	
He serves as Full Member of the Board of Directors of Vale		No			75%
Jorge Roberto Manoel	Comptrollership Committee	Member	Auditor	4/26/2017	Until Ordinary General Meeting of 2019
638.490.708.91	N/A	N/A	5/5/1953	4/26/2017	
N/A		Yes	Pursuant to the Independence Criteria contained in the Committee's internal regulations, as described in the item "Declaration of Independence" below, relating to such Member.		N/A
Moacir Nachbar Junior	Comptrollership Committee	Coordinator	Banking Agent	4/26/2017	Until Ordinary General Meeting of

					2019
062.947.708-66	N/A	1	4/5/1965	4/26/2017	
He serves as Alternate Member of the Board of Directors of Vale		No	N/A		80%
Murilo Pinto de Oliveira Ferreira	Information Disclosure Committee	Permanent Participant	Business Administrator	3/27/2013	25/05/2014
212.466.706-82	Strategic Committee		6/22/1953	3/27/2013	
Chief Executive Officer of Vale and Permanent Participant and Coordinator of the Strategic Committee		No			N/A
Murilo Pinto de Oliveira Ferreira	Strategic Committee	Permanent Participant and Coordinator	Business Administrator	4/26/2017	25/05/2017
212.466.706-82 62	Information Disclosure Committee		6/22/1953	4/26/2017	
Chief Executive Officer of Vale and Permanent Participant of the Information Disclosure Committee		No			100%
Eduardo de Salles Bartolomeo	Financial Committee	Member	Engineer	4/26/2017	Until Ordinary General Meeting of 2019
845.567.307-91	N/A		4/12/1964	4/26/2017	
Full Member of the Board of Directors of Vale (since September 2016)		No			N/A
Oscar Augusto Camargo Filho	Strategic Committee	Member	Attorney	4/26/2017	Until Ordinary General Meeting of 2019
030.754.948-87	Executive Development Committee	7	3/9/1938	4/26/2017	
He serves as Full Member of the Board of Directors of Vale and Member of the Executive Development Committee		No			100%
Oscar Augusto Camargo Filho	Executive Development Committee	Coordinator	Attorney	4/26/2017	Until Ordinary General Meeting of 2019
030.754.948-87	Strategic Committee	8	3/9/1938	4/26/2017	

He serves as Full Member of the Board of Directors of Vale and Member of the Strategic Committee		No			100%
Oswaldo Mário Pêgo de Amorim Azevedo	Comptrollership Committee	Member	Engineer Industrial	4/26/2017	Until Ordinary General Meeting of 2019
005.065.327-04	N/A	1	6/23/1941	4/26/2017	
N/A		No			100%
Eduardo Refinetti Guardia	Financial Committee	Member	Economist	4/26/2017	Until Ordinary General Meeting of 2019
088.666.638/40	N/A	N/A	1/19/1966	4/26/2017	
He serves as Full Member of the Board of Directors (since July 2016).		No	N/A		N/A
Denise Pauli Pavarina	Governance and Sustainability Committee	Member	Banking Agent	4/26/2017	Until Ordinary General Meeting of 2019
076.818.858-03	N/A	N/A	4/14/1963	4/26/2017	
He serves as Full Member of the Board of Directors of Vale (since April 2017).		No	N/A		N/A
Roberto Moretzsohn	Risk Management Executive Committee	Member	Engineer Civil	12/7/2015	07/12/2017
691.554.107-15	N/A	1	2/8/1961	12/7/2015	
Chief Commercial Officer of Vale Fertilizantes		No	N/A		100%
Roger Allan Downey	Risk Management Executive Committee	Member	Administrator	5/21/2015	Indeterminate
623.291.626-34	N/A	1	4/1/1967	5/21/2015	
He serves as Managing Director of Fertilizers, Coal and Strategy at Vale		No	N/A		100%

Rogério Tavares Nogueira	Information Disclosure Committee	Member	Engineer	1/1/2014	Indeterminate
882.737.416-72	N/A	N/A	12/3/1968	1/1/2014	
Chief Comptroller of Vale		No	N/A		N/A
Sonia Zagury	Risk Management Executive Committee	Member	Economist	12/7/2015	12/7/2017
934.316.517-04	N/A	1	8/4/1967	12/7/2015	
Director of Treasury and Corporate Finance		No	N/A		100%
Clarissa Lins	Governance and Sustainability Committee	Member	Economist	4/26/2017	Until Ordinary General Meeting of 2019
851.458.317-49	N/A	N/A	4/12/1967	4/26/2017	
N/A		Yes	Pursuant to the Independence Criteria contained in the Committee's internal regulations, as described in the item "Declaration of Independence" below, relating to such Member.		N/A
Dan Antonio Marinho Conrado	Governance and Sustainability Committee	Member	Banking Agent	4/26/2017	Until Ordinary General Meeting of 2019
754.649.427-34	N/A	N/A	7/26/1964	4/26/2017	
He serves as Full Member of the Board of Directors of Vale (since 2012).		No	N/A		N/A
Alexandre de Aquino Pereira	Ethics Committee	Member	Engineer	8/1/2016	Indeterminate
025.867.857-70	N/A	N/A	12/31/1973	8/1/2016	
General Ombudsman of Vale					N/A

Edécio Ribeiro Brasil	Ethics Committee	Member	Business Administrator	6/3/2014	Indeterminate
497.955.626-49	N/A	N/A	7/28/1962	6/3/2014	
Chief Human Resources Officer of Vale		No			100%
Ricardo Henrique Baras	Ethics Committee	Member	Business Administrator	11/1/2013	Indeterminate
103.564.968-30	N/A		6/8/1966	11/1/2013	
Chief Audit Officer		No			100%
Andre Luiz da Rocha Figueiredo	Information Disclosure Committee	Member	Bachelor in Social Commination	5/6/2016	Indeterminate
008.522.637-83	N/A	N/A	1/22/1972	5/6/2016	
Chief Investor Relations Officer		N/A	N/A		N/A

Professional Experience / Declaration of Possible Convictions / Independence Criteria

Arthur Prado Silva
991.897.047-20
Mr. Arthur Prado Silva is not an independent member of the Comptrollership Committee. For more information, considering that Mr. Arthur Prado Silva is a Member of the Board of Directors, please refer to item 12.5 / 6 of this Reference Form.

Ana Silvia Corso Matte
263.636.150-20
Ms. Ana Silvia Corso Matte is an independent member of the Executive Development Committee. The Independence Criteria used is established in the Internal Regulations of the Committee, which considers independent a member who: (i) has no current relationship with Vale, other than the position of Member of the Committee or any non-relevant participation in the capital stock of Vale or investments in securities issued by the Company, without financially relying on remuneration from Vale; (ii) has not been an employee or manager of Vale (or its subsidiaries) or its direct or indirect controlling shareholders, or any representative of any direct or indirect controlling shareholder, for at least three (3) years; (iii) does not supply, buy or offer (trade), directly or indirectly, services and/or products to the Company on a scale relevant to the member of the Committee or to the Company; (iv) is not linked to a controlling shareholder, a member of the control group or another group with a relevant participation, spouse or relative up to the second degree thereof, or linked to entities related to the controlling shareholders; (v) is not a spouse or relative up to the second degree of any director or manager of Vale; (vi) has not been an associate, in the last three (3) years, of an audit firm that audits or has audited Vale in the same period; and (vii) is not a member of a non-profit entity that receives significant financial resources from Vale or its related parties.

Clarissa Lins
851.458.317-49
Ms. Clarissa Lins is an independent member of the Governance and Sustainability Committee. The Independence Criteria used is established in the Internal Regulations of the Committee, which considers independent a member who: (i) has no current relationship with Vale, other than the position of Member of the Committee or any non-relevant participation in the capital stock of Vale or investments in securities issued by the Company, without financially relying on remuneration from Vale; (ii) has not been an employee or manager of Vale (or its subsidiaries) or its direct or indirect controlling shareholders, or any representative of any direct or indirect controlling shareholder, for at least three (3) years; (iii) does not supply, buy or offer (trade), directly or indirectly, services and/or products to the Company on a scale relevant to the member of the Committee or to the

Company; (iv) is not linked to a controlling shareholder, a member of the control group or another group with a relevant participation, spouse or relative up to the second degree thereof, or linked to entities related to the controlling shareholders; (v) is not a spouse or relative up to the second degree of any director or manager of Vale; (vi) has not been an associate, in the last three (3) years, of an audit firm that audits or has audited Vale in the same period; and (vii) is not a member of a non-profit entity that receives significant financial resources from Vale or its related parties.

Clovis Torres Junior

423.522.235-04

Mr. Clovis Torres Junior is not an independent member of the Information Disclosure Committee.

Clovis Torres Junior

423.522.235-04

Mr. Clovis Torres Junior is not an independent member of the Ethics Committee.

Dan Antonio Marinho Conrado

754.649.427-34

Mr. Dan Antonio Marinho Conrado is not an independent member of the Governance and Sustainability Committee. For more information, considering that Mr. Dan Antonio Marinho Conrado is a Member of the Board of Directors, please refer to item 12.5 / 6 of this Reference Form.

Denise Pauli Pavarina

076.818.858-03

Ms. Denise Pauli Pavarina is not an independent member of the Governance and Sustainability Committee. For more information, considering that Ms. Denise Pauli Pavarina is a Member of the Board of Directors, please refer to item 12.5 / 6 of this Reference Form.

Eduardo de Oliveira Rodrigues Filho

442.810.487-15

Mr. Eduardo de Oliveira Rodrigues Filho is not an independent member of the Financial Committee. For more information, considering that Mr. Eduardo de Oliveira Rodrigues Filho is a Member of the Board of Directors, please refer to item 12.5 / 6 of this Reference Form.

Eduardo de Oliveira Rodrigues Filho

442.810.487-15

Mr. Eduardo de Oliveira Rodrigues Filho is not an independent member of the Governance and Sustainability Committee. For more information, considering that Mr. Eduardo de Oliveira Rodrigues Filho is a Member of the Board of Directors, please refer to item 12.5 / 6 of this Reference Form.

Eduardo de Salles Bartolomeo

845.567.307-91

Mr. Eduardo de Salles Bartolomeo is not an independent member of the Financial Committee. For more information, considering that Mr. Eduardo de Salles Bartolomeo is a Member of the Board of Directors, please refer to item 12.5 / 6 of this Reference Form.

Eduardo Refinetti Guardia

088.666.638-40

Mr. Eduardo Refinetti Guardia is not an independent member of the Financial Committee. For more information, considering that Mr. Eduardo Refinetti Guardia is a Member of the Board of Directors, please refer to item 12.5 / 6 of this Reference Form.

Fernando Jorge Buso Gomes

370.624.177-34

Mr. Fernando Jorge Buso Gomes is not an independent member of the Financial Committee. For more information, considering that Mr. Fernando Jorge Buso Gomes is a Member of the Board of Directors, please refer to item 12.5 /6 of this Reference Form.

Fernando Jorge Buso Gomes

370.624.177-34

Mr. Fernando Jorge Buso Gomes is not an independent member of the Governance and Sustainability Committee. For more information, considering that Mr. Fernando Jorge Buso Gomes is a Member of the Board of Directors, please refer to item 12.5 /6 of this Reference Form.

Fernando Jorge Buso Gomes

370.624.177-34

Mr. Fernando Jorge Buso Gomes is not an independent member of the Executive Development Committee. For more information, considering that Mr. Fernando Jorge Buso Gomes is a Member of the Board of Directors, please refer to item 12.5 /6 of this Reference Form.

Fernando Jorge Buso Gomes

370.624.177-34

Mr. Fernando Jorge Buso Gomes is not an independent member of the Strategic Committee. For more information, considering that Mr. Fernando Jorge Buso Gomes is a Member of the Board of Directors, please refer to item 12.5 /6 of this Reference Form.

Gilmar Dalilo Cezar Wanderley

084.489.987-90

Mr. Gilmar Dalilo Cezar Wanderley is not an independent member of the Financial Committee.

Gueitiro Matsuo Genso

624.201.519-68

Mr. Gueitiro Matsuo Genso is not an independent member of the Strategic Committee. For more information, considering that Mr. Gueitiro Matsuo Genso is a Member of the Board of Directors, please refer to item 12.5 / 6 of this Reference Form.

Gueitiro Matsuo Genso

624.201.519-68

Mr. Gueitiro Matsuo Genso is not an independent member of the Executive Development Committee. For more information, considering that Mr. Gueitiro Matsuo Genso is a Member of the Board of Directors, please refer to item 12.5 / 6 of this Reference Form.

Jorge Roberto Manoel

638.490.708.91

Mr. Jorge Roberto Manoel is an independent member of the Governance and Sustainability Committee. The Independence Criteria used is established in the Internal Regulations of the Committee, which considers independent a member who: (i) has no current relationship with Vale, other than the position of Member of the Committee or any non-relevant participation in the capital stock of Vale or investments in securities issued by the Company, without financially relying on remuneration from Vale; (ii) has not been an employee or manager of Vale (or its subsidiaries) or its direct or indirect controlling shareholders, or any representative of any direct or indirect controlling shareholder, for at least three (3) years; (iii) does not supply, buy or offer (trade), directly or indirectly, services and/or products to the Company on a scale relevant to the member of the Committee or to the Company; (iv) is not linked to a controlling shareholder, a member of the control group or another group with a relevant participation, spouse or relative up to the second degree thereof, or linked to entities related to the controlling shareholders; (v) is not a spouse or relative up to the second degree of any director or manager of Vale; (vi) has not been an associate, in the last three (3) years, of an audit firm that audits or has audited Vale in the same period; and (vii) is not a member of a non-profit entity that receives significant financial resources from Vale or its related parties.

Luciano Siani Pires

013.907.897-56

Mr. Luciano Siani Pires is not an independent member of the Risk Management Executive Committee. For more information, considering that Mr. Luciano Siani Pires is a Member of the Board, please refer to item 12.5 / 6 of this Reference Form.

Luciano Siani Pires

013.907.897-56

Mr. Luciano Siani Pires is not an independent member of the Information Disclosure Committee. For more information, considering that Mr. Luciano Siani Pires is a Member of the Board, please refer to item 12.5 / 6 of this Reference Form.

Marcel Juviniano Barros

029.310.198-10

Mr. Marcel Juviniano Barros is not an independent member of the Executive Development Committee. For more information, considering that Mr. Marcel Juviniano Barros is a Member of the Board of Directors, please refer to item 12.5 / 6 of this Reference Form.

Moacir Nachbar Junior

062.947.708-66

Mr. Moacir Nachbar Junior is not an independent member of the Comptrollership Committee. For more information, considering that Mr. Moacir Nachbar Junior is a Member of the Board of Directors, please refer to item 12.5 / 6 of this Reference Form.

Murilo Pinto de Oliveira Ferreira

212.466.706-82

Mr. Murilo Pinto de Oliveira Ferreira is not an independent member of the Information Disclosure Committee. For more information, considering that Mr. Murilo Pinto de Oliveira Ferreira is a Member of the Board, please refer to item 12.5 / 6 of this Reference Form.

Murilo Pinto de Oliveira Ferreira

212.466.706-82

Mr. Murilo Pinto de Oliveira Ferreira is not an independent member of the Strategic Committee. For more information, considering that Mr. Murilo Pinto de Oliveira Ferreira is a Member of the Board, please refer to item 12.5 / 6 of this Reference Form.

Oscar Augusto Camargo Filho

030.754.948-87

Mr. Oscar Augusto Camargo Filho is not an independent member of the Strategic Committee. For more information, considering that Mr. Oscar Augusto Camargo Filho is a Member of the Board of Directors, please refer to item 12.5 / 6 of this Reference Form.

Oscar Augusto Camargo Filho

030.754.948-87

Mr. Oscar Augusto Camargo Filho is not an independent member of the Executive Development Committee. For more information, considering that Mr. Oscar Augusto Camargo Filho is a Member of the Board of Directors, please refer to item 12.5 / 6 of this Reference Form.

Oswaldo Mário Pêgo de Amorim Azevedo

005.065.327-04

Mr. Oswaldo Mário Pêgo de Amorim Azevedo is not an independent member of the Comptrollership Committee.

Roberto Moretzsohn

691.554.107-15

Mr. Roberto Moretzsohn is not an independent member of the Risk Management Executive Committee.

Roger Allan Downey

623.291.626-34

Mr. Roger Allan Downey is not an independent member of the Risk Management Executive Committee. For more information, considering that Mr. Roger Allan Downey is a Member of the Board, please refer to item 12.5 / 6 of this Reference Form.

Rogério Tavares Nogueira

882.737.416-72

Mr. Rogério Tavares Nogueira is not an independent member of the Information Disclosure Committee.

Sonia Zagury

934.316.517-04

Ms. Sonia Zagury is not an independent member of the Risk Management Executive Committee.

Alexandre de Aquino Pereira

025.867.857-70

Mr. Alexandre de Aquino Pereira is not an independent member of the Ethics Committee.

Edécio Ribeiro Brasil

497.955.626-49

Mr. Edécio Ribeiro Brasil is not an independent member of the Ethics Committee.

Ricardo Henrique Baras

103.564.968-30

Mr. Ricardo Henrique Baras is not an independent member of the Ethics Committee.

Andre Luiz da Rocha Figueiredo

008.522.637-83

Mr. Andre Luiz da Rocha Figueiredo is not an independent member of the Information Disclosure Committee.

12.9 – Existence of marital relationship, civil union or kinship up to 2nd degree regarding managers of the issuer, controlled and controlling companies

Justification for not filling the table:

All members of the Vale's Board of Directors, Board of Executive Officers and Audit Committee declare, individually, and for all purposes that there is not a marital relationship, civil union or kinship up to the 2nd degree between them and (i) other Vale's directors; (ii) directors from indirect or directly companies controlled by Vale; (iii) indirect or direct Vale's shareholders; and (iv) the directors of Vale's direct and indirect controlling companies.

Additionally, all the members of the Board of Directors, Executive Officers and Audit Committee of the companies controlled direct or indirectly by Vale declare, individually, and for all purposes that there is not a marital relationship, civil union or kinship up to the 2nd degree between them and the Vale's direct or indirect stockholders.

12.10 – Hierarchical Relationship, rendering of services or control between directors and subsidiaries, shareholders and others

Identification	CPF /CNPJ	Type of relationship between the Director and the person related	Type of person related
Position / Function			
Fiscal Year 31/12/2016			
Issuer's Officer			
Arthur Prado Silva	991.897.047-20	Subordinate	Indirect Controller
Advisor			
Person related			
Caixa de Previdência dos Funcionários do Banco do Brasil - PREVI.	33.754.482/0001-24		
Note Mr. Arthur Prado Silva is the Executive Manager from Caixa de Previdência dos Funcionários do Banco do Brasil - PREVI, which holds an indirect participation in the Company through Litel Participações S.A., which, in turn, is part of the controlling block of shareholders of Valepar S.A., controlling shareholder of the company.			

Identification	CPF /CNPJ	Type of relationship between the Director and the person related	Type of person related
Position / Function			
Fiscal Year 31/12/2015			
Issuer's Officer			
Arthur Prado Silva	991.897.047-20	Subordinate	Indirect Controller
Advisor			
Person related			
Caixa de Previdência dos Funcionários do Banco do Brasil - PREVI.	33.754.482/0001-24		
Note Mr. Arthur Prado Silva is the Executive Manager from Caixa de Previdência dos Funcionários do Banco do Brasil - PREVI, which holds an indirect participation in the Company through Litel Participações S.A., which, in turn, is part of the controlling block of shareholders of Valepar S.A., controlling shareholder of the company.			

Identification	CPF /CNPJ	Type of relationship between the Director and the person related	Type of person related
Position / Function			
Fiscal Year 31/12/2014			
Issuer's Officer			
Arthur Prado Silva	991.897.047-20	Subordinate	Indirect Controller
Advisor			
Person related			
Caixa de Previdência dos Funcionários do Banco do Brasil - PREVI.	33.754.482/0001-24		
Note Mr. Arthur Prado Silva is the Executive Manager from Caixa de Previdência dos Funcionários do Banco do Brasil - PREVI, which holds an indirect participation in the Company through Litel Participações S.A., which, in turn, is part of the controlling block of shareholders of Valepar S.A., controlling shareholder of the company.			

12.11 – Agreements, including insurance policies, for payment or reimbursement of expenses borne by the directors

Vale maintains a Directors and Officers (D&O) Liability Civil Insurance Policy with global coverage, contracted with a group of insurers led by Zurich Insurance Plc, upon payment of a premium amount of USD 1,909,652.36, valid from June 1, 2016 to June 1, 2017, with a total compensation limit corresponding to USD 150 million. This insurance policy extends to the Board of Directors, Executive Board, Audit Committee and any other statutory body, as well as some officials in strategical / managerial levels, both from the Company and its subsidiaries ("Policyholders"). The purpose of the insurance is to pay for financial losses arising from claims against the Policyholders due to wrongful acts and omissions that may occur in performance of their duties. The referred policy, in addition to contemplating repair of damages caused to third parties, to Vale and its subsidiaries by imputations made by government agencies, covers, also, agreements previously authorized by the insurer with the objective of terminating administrative or judicial proceedings. The policy coverage also extends to the payment of the Policyholders' defense, as they are payable and when. In addition to the aforementioned coverages, the insurance provides additional guarantees for the liability cases that may affect spouses, heirs, successors, legal representatives and people appointed by Vale to act as Directors of external entities.

12.12 –Corporate Governance Practices of the Company and Brazilian Institute of Corporate Governance – IBGC

According to the Brazilian Institute of Corporate Governance ("IBGC"), corporate governance is the system by which companies are directed and monitored, involving the relationship between shareholders, board of directors, board of executive officers, independent auditors and audit committee. The main principles that guide this practice are: (i) transparency; (ii) equity; (iii) accountability; and (iv) corporate responsibility.

By transparency principle, it is understood that the managerial sector of the company has to foster the desire to inform, not only the financial-economical performance of the company, but also all the other factors (even the intangible) that guide business action. By equity, it is understood as the fair and equal treatment to all minority groups, employees, users, suppliers or creditors. Accountability, in turn, is characterized by the accountability of actions done by the corporate governance agents to those who elected them, with full responsibility of those for all acts that they practice. Finally, corporate responsibility represents a broader vision of corporate strategy, incorporating social and environmental order considerations into the definition of business and operations.

Among the corporate governance practices recommended by the IBGC in its Corporate Governance Best Practices, the Company adopts among others, the following:

- Non-accumulation of positions of Chairman of the Board of Directors and Chief Executive Officer by the same person;

- clarity of Bylaws regarding the following matters: (i) duties of the Boards of Directors and Board of Executive Officers; and (ii) voting system, election, dismissal and term of office of the members of the do Boards of Directors and Board of Executive Officers;

- transparency in the disclosure of annual management reports;

- an information disclosure policy that regulates the disclosure of information that represents acts or relevant facts about Vale and its subsidiaries and elects our Chief Investor Relations Officer as the main responsible for disclosing information;

- a securities trading policy issued by Vale and approved by our Board of Directors;

- An ethics and conduct code, which must be observed by all of our employees, executive officers, members of the Board of Directors and their Advisory Committees, Audit Committee members, third parties and any other persons acting on behalf of Vale; and

- a Global Anti-Corruption Policy, approved by Vale's Board of Directors and applicable to all employees (temporary or otherwise) and Company directors and its subsidiaries, as well as to all suppliers acting on behalf of Vale and its subsidiaries or in their own interest. This policy establishes the prohibition of certain conduct, as well as procedures for the prevention and reporting of acts of corruption.

12.13 – Other Relevant and Additional Information

Related to the Executive Board

Information on the election of a new Chief Executive Officer

As disclosed by a relevant fact on March 27, 2017, the Company's Board of Directors elected Mr. Fabio Schvartsman on such date, as the Company's Chief Executive Officer for a term of two years, to begin after the end of the management term of the Company's current Chief Executive Officer, Mr. Murilo Ferreira, which is scheduled for May 26, 2017.

Below are the main information regarding Mr. Fabio Schvartsman:

Name	**Fabio Schvartsman**
Birth Date	02-25-1954
Occupation	Production Engineer
CPF/MF or Passport	940.563.318-04
Elective position to be occupied	Chief Executive Officer
Election date	27/03/2017
Date of taking office	The Chief Executive Officer shall only take the office after the term of the current Chief Executive Officer
Term of Office	2 years
Other positions or functions performed at Vale	Not Applicable
Appointed/Elected by controller	No
Is an independent member	Not Applicable
Number of consecutive terms	0

Main professional experiences / Declaration of Eventual Convictions

His main professional experiences include the positions of (i) Chief Executive Officer of Klabin S.A. (since February 2011), a publicly held company active in the pulp and paper industry; (ii) President of SanAntonio Internacional (from March 2008 to March 2010), an oil and gas company; (iii) President of Telemar Participações S.A. (from April 2007 to March 2008), a telecommunications company; At Ultrapar, a company from the fuel distribution sector, has served as (iv) Planning Superintendent, (v) Planning Officer, (vi) Planning and Control Officer, (vii) Investor Relations Officer, (viii) President (Ultraprev), (ix) Managing Partner (Ultra SA - parent company of Ultrapar) and (x) CFO / Chief Financial Officer (Grupo Ultra from May 1985 to April 2007); At Duratex SA, a publicly held company active in the wood industry, acted as (xi) Chief of Economic Studies, (xii) Head of Development Division and (xiii) Head of Planning Department (from February 1976 to April 1985); He graduated in Production Engineering from the Polytechnic School of the University of São Paulo – Poli / USP in 1976, finished his post-graduation program in Production Engineering from the Polytechnic School of the University of São Paulo - Poli / USP, in 1977, and completed his post-graduation program in Business Administration by the School of Business Administration of São Paulo at Getúlio Vargas Foundation - EAESP / FGV, in 1979.

Mr. Fabio Schvartsman has stated, for all legal purposes, that in the last 5 (five) years has not been convicted of any criminal offense, any conviction in an administrative proceeding of the e Securities and Exchange Commission of Brazil, or any conviction by a final decision, in the judicial or administrative sphere, that has suspended or disqualified him to practice any professional or commercial activity.

Marital relationship, civil union or kinship up to 2nd degree.

Mr. Fabio Schvartsman has stated, for all legal purposes, that there is no marital relationship, civil union or kinship up to the second degree between him and (i) the directors of Vale; (ii) subsidiaries managers for companies direct or indirectly controlled by Vale; (iii) Vale's direct or indirect controlling shareholders; and (iv) directors of Vale's direct and indirect controlling companies.

Hierarchical, Accountability or Control Relationships.

Mr. Fabio Schvartsman has stated, for all legal purposes, that there are not hierarchical, accountability or control relationships kept during the last 3 (three) fiscal years, between he and (i) a company controlled, direct or indirectly, by Vale, except those in which Vale has, direct or indirectly, the entire capital stock; (ii) the shareholders, direct or indirect, of Vale; or (iii) Vale's suppliers, clients, debtors or relevant creditors, its subsidiaries or its parent companies or subsidiaries of any of these persons.

Politically Exposed Person Declaration

Mr. Fabio Schvartsman declared, for all legal purposes, that is not a politically exposed person, under the applicable regulation terms."

Information on the conditions of effectiveness for the taking of the office by Ms. Jennifer Anne Maki (item 12.5 / 6)

On May 21, 2015, Ms. Jennifer Anne Maki was appointed by the Company's Board of Directors to the position of Managing Officer in charge of Vale's basic metals area. On September 24, 2015, the election of Mrs. Jennifer Anne Maki was ratified by the Board of Directors, with a view to granting a competent visa and obtaining work authorization by the Ministry of Labor and Employment.

Additional Information on the Board of Directors of the Company

Change in the Members of the Board of Directors of the Company (item 12.5/6)

On February 24, 2016, the Board of Directors approved the appointment of Mr. Gueitiro Matsuo Genso as Chairman of Vale's Board of Directors, replacing Mr. Dan Conrado, who resigned as Chairman of the Board of Directors, but remains as an effective member of the Board of Directors.

In April 2016, Mr. Hiroyuki Kato resigned as a full member of Vale's Board of Directors, which he held since 2014. In view of the position vacancy, pursuant to Paragraph 10 of Article 11 of the Company's Bylaws. On April 27, 2016, the Board of Directors approved the appointment of Mr. Motomu Takahashi as a member of Vale's Board of Directors, which was ratified at the Company's Extraordinary General Meeting held on August 12, 2016.

Mr. Tarcísio José Massote Godoy resigned as a full member of Vale's Board of Directors, which he held since 2015. In view of the position vacancy, pursuant to Paragraph 10 of Article 11 of the Company's Bylaws. On Wednesday, July 27, 2016, the Board of Directors approved the appointment on July 27, 2017 the appointment of Mr. Eduardo Refinetti Guardia as a member of Vale's Board of Directors.

In July 2016, Mr. Luciano Galvão Coutinho resigned as a full member of Vale's Board of Directors and Vale's Strategic Committee, which he held since 2007.

Observing the existence of the vacancy position, pursuant to paragraph 10 of Article 11 of Vale's Bylaws, the Vale's Board of Directors approved, on February 22, 2017, the appointment of Ms. Denise Pauli Pavarina as member of Vale's Board of Directors.

Observing the existence of the vacancy position, were appointed, pursuant to paragraph 10 of Article 11 of Vale's Bylaws, Mr. Alberto Ribeiro Guth (as full member) and Mr. Arthur Prado Silva (as substitute member of Mr. Dan Conrado), at the Board of Directors meetings on June 25, 2015 and July 29, 2015, respectively, to meet the management term until the first General Meeting to be held. Therefore, the appointments of these members were ratified in the Ordinary and Extraordinary General Meetings held, cumulatively, on April 25, 2016, to meet the management term until the Ordinary General Meeting of 2017.

In December 2016, Mr. Sergio Alexandre Figueiredo Clemente resigned as a full member of Vale's Board of Directors.

On April 20, 2017, at the Company's Ordinary General Meeting approved the election or re-election (as applicable) of the members of the Company's Board of Directors and Audit Committee. It should be noted that there was no quorum for the election of a member of the Board of Directors appointed by minority shareholders holding common shares and shareholders holding preferred shares, either in isolation, pursuant to article 141, paragraph 4 of Brazilian Corporate Law, or in aggregate form, pursuant to article 141, paragraph 5 of the Brazilian Corporate Law, thus remaining a vacant position.

Additional information on the board of directors and Company's audit committee members' participation at the meetings held by the respective body (item 12.6)

Board of Directors	Total of Meetings Held in the last fiscal year by the respective body since the Director has taken office	% of members' participation in the meetings held after taking office
Arthur Prado Silva	19	0%
Lúcio Azevedo	19	47%
Raimundo Nonato Alves de Amorim	Not Applicable	Not Applicable
Eduardo de Oliveira Rodrigues Filho	19	21%
Oscar Augusto Camargo Filho	19	79%
Yoshitomo Nishimtsu	19	79%
Shinichiro Omachi	Not Applicable	Not Applicable
Luiz Mauricio Leuzinger	19	21%
Moacir Nachbar Júnior	19	11%
Gilberto Antonio Vieira	19	0%
Gueitiro Matsuo Genso	19	95%
Robson Rocha	19	0%
Francisco Ferreira Alexandre	19	0%
Dan Antonio Marinho Conrado	19	89%
Eduardo Refinetti Guardia	9	78%
Marcel Juviniano Barros	19	89%
Fernando Jorge Buso Gomes	19	79%
Denise Pauli Pavarina	Not Applicable	Not Applicable
Eduardo de Salles Bartolomeo	11	55%

Audit Committee	Total of Meetings Held in the last fiscal year by the respective body since the Advisor has taken office	% of members' participation in the meetings held after taking office
Marcus Vinícius Dias Severini	Not Applicable	Not Applicable
Eduardo Cesar Pasa	Not Applicable	Not Applicable
Marcelo Amaral Moraes	13	100%
Sergio Mamede Rosa do Nascimento	13	0%
Robert Juenemann	Not Applicable	Not Applicable
Gaspar Carreira Júnior	Not Applicable	Not Applicable
Raphael Manhães Martins	13	92%
Bernardo Zito Porto	Not Applicable	Not Applicable

Additional information on the Company's committee members' participation at the meetings held by the respective body (item 12.8)

	Total of Meetings Held in the last fiscal year by the	% of members' participation in the

Strategic Committee	respective body since the Committee's member has taken office	meetings held after taking office.
Murilo Pinto de Oliveira Ferreira	1	100%
Gueitiro Matsuo Genso	1	100%
Fernando Jorge Buso Gomes	0	Not Applicable
Oscar Augusto Camargo Filho	1	100%

Financial Committee	Total of Meetings Held in the last fiscal year by the respective body since the Committee's member has taken office	% of members' participation in the meetings held after taking office.
Gilmar Dalilo Cezar Wanderley	24	96%
Fernando Jorge Buso Gomes	24	100%
Eduardo de Oliveira Rodrigues Filho	24	96%
Eduardo de Salles Bartolomeo	0	Not Applicable
Eduardo Refinetti Guardia	0	Not Applicable

Governance and Sustainability Committee	Total of Meetings Held in the last fiscal year by the respective body since the Committee's member has taken office	% of members' participation in the meetings held after taking office.
Fernando Jorge Buso Gomes	13	100%
Eduardo de Oliveira Rodrigues Filho	13	100%
Dan Antonio Marinho Conrado	0	Not Applicable
Denise Pauli Pavarina	0	Not Applicable
Clarissa Lins	0	Not Applicable

Executive Development Committee	Total of Meetings Held in the last fiscal year by the respective body since the Committee's member has taken office	% of members' participation in the meetings held after taking office.
Oscar Augusto Camargo Filho	8	100%
Gueitiro Matsuo Genso	0	Not Applicable
Marcel Juviniano Barros	8	75%
Fernando Jorge Buso Gomes	8	88%
Ana Silvia Corso Matte	0	Not Applicable

Accountability Committee	Total of Meetings Held in the last fiscal year by the respective body since the Committee's member has taken office	% of members' participation in the meetings held after taking office.
Moacir Nachbar Junior	5	100%
Oswaldo Mário Pêgo de Amorim Azevedo	5	100%
Arthur Prado Silva	0	Not Applicable
Jorge Roberto Manoel	0	Not Applicable

Information Disclosure Committee	Total of Meetings Held in the last fiscal year by the respective body since the Committee's member has taken office	% of members' participation in the meetings held after taking office.
Luciano Siani Pires	0	Not Applicable
Murilo Pinto de Oliveira Ferreira	0	Not Applicable
Clovis Torres Junior	0	Not Applicable

Rogério Tavares Nogueira	0	Not Applicable
Andre Luiz da Rocha Figueiredo	0	Not Applicable

Risk Management Executive Committee	Total of Meetings Held in the last fiscal year by the respective body since the Committee's member has taken office	% of members' participation in the meetings held after taking office.
Luciano Siani Pires	1	100%
Roger Allan Downey	1	100%
Roberto Moretzsohn	1	100%
Sonia Zagury	1	100%

Ethics Committee	Total of Meetings Held in the last fiscal year by the respective body since the Committee's member has taken office	% of members' participation in the meetings held after taking office.
Clovis Torres Junior	2	100%
Alexandre de Aquino Pereira	0	Not Applicable
Edécio Ribeiro Brasil	2	100%
Ricardo Henrique Baras	2	100%

Additional Information to item 12.10

Mr. Lucio Azevedo and Mr. Raimundo Nonato Alves de Amorim, effective and alternate member of the Board of Directors, respectively, informed that, although they are Vale's employees, they were transferred to the Union of Workers in Railway Companies from the States of Maranhão, Pará and Tocantins, and to the Union of Workers in the Iron and Basic Metals Extraction Industry from Marabá, Parauapebas, Curionópolis and Canaã dos Carajás – PA, respectively, under the terms of the legislation in force, and hereby declare, individually and for all legal purposes, That there are no accountability or services relationships between them and (i) a Vale's direct or indirect subsidiary company; (ii) Vale's direct or indirect controlling shareholders; or (iii) Vale's suppliers, customers, debtors or relevant creditors, its subsidiaries or its parent companies.

Additional information about the quorum for holding general meetings

The following is information on the holding of our general shareholders' meetings that were held in the last three fiscal years and in the current fiscal year up to the filing date of this Reference Form:

Date	20/04/2017
Type of General Meeting	Ordinary
Held in a second call	No
Quorum for the meeting	The meeting was held on a first call with the presence of shareholders representing 71% of our voting capital.

Date	12/08/2016
Type of General Meeting	Extraordinary
Held in a second call	No
Quorum for the meeting	The meeting was held on a first call with the presence of shareholders representing 51.06% of our voting capital.

Date	25/04/2016
Type of General Meeting	Ordinary and Extraordinary
Held in a second call	No

Quorum for the meeting	The meeting was held on a first call with the presence of shareholders representing 51.52% of our voting capital.

Date	13/05/2015
Type of General Meeting	Extraordinary
Held in a second call	Yes
Quorum for the meeting	The meeting was held on a second call with the presence of shareholders representing 54.68% of our voting capital.

Date	17/04/2015
Type of General Meeting	Ordinary
Held in a second call	No
Quorum for the meeting	The meeting was held with the presence of shareholders representing 55.08% of our voting capital.

Date	23/12/2014
Type of General Meeting	Extraordinary
Held in a second call	No
Quorum for the meeting	The meeting was held with the presence of shareholders representing 55.2% of our voting capital.

Date	09/05/2014
Type of General Meeting	Extraordinary
Held in a second call	Yes
Quorum for the meeting	The meeting was held with the presence of shareholders representing 52% of our voting capital.

Date	17/04/2014
Type of General Meeting	Ordinary
Held in a second call	No
Quorum for the meeting	The meeting was held with the presence of shareholders representing 56% of our voting capital.

Executive Positions held in other Companies or Entities by the Members of the Company's Board of Directors

As set forth in item 4.4.1 of the BM & FBOVESPA S.A. – Bolsa de Valores, Mercadorias e Futuros, Corporate Governance Level 1 Listing Regulation, the following is a list of positions currently held by Vale S.A.'s members of the Board of Directors on the Board of Directors, Audit Committee, Committees and executive bodies of other companies or entities:

Advisor: Gueitiro Matsuo Genso (Chairman)

COMPANY	POSITION HELD
Valepar S.A.	Chief Executive Officer
PREVI – Caixa de Previdência dos Funcionários do Banco do Brasil	Chief Executive Officer

Advisor: Fernando Jorge Buso Gomes (Vice-President)

COMPANY	POSITION HELD
Valepar S.A.	Vice-President of the Board of Directors
	Director
Bradespar S.A.	Chief Executive Officer and Investor Relations Officer
2b Capital S.A.	Member of the Board of Directors and Director
Millennium Security Holdings Corp	Director

Advisor: Denise Pauli Pavarina (Effective)

COMPANY	POSITION HELD
Bram - Bradesco Asset Management S.A. Distribuidora de Títulos e Valores Mobiliários	Managing Director
Banco Bradesco S.A.	Chief Executive Officer, Member of the Ethical Conduct Committee and Member of the Sustainability Committee
Kirton Gestão de Recursos Ltda.	Managing Director
Kirton Bank S.A.	Director
Fundação Bradesco	Member of the Governing Board
2b Capital S.A.	Vice-President of the Board of Directors
NEO Capital Mezanino Fundo de Investimento em Participações	Member of the Investment Committee
Instituto BRAIN - Brasil Investimentos & Negócios	Member of the Board of Directors
BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	Member of the Board of Directors, Coordinator of the Advisory Committee for the Intermediation Sector, Member of the IT Committee and Member of the Integration Monitoring Committee.
Fundação Instituto de Moléstias do Aparelho Digestivo e da Nutrição	Member of the Board of Directors

Advisor: Dan Antonio Marinho Conrado (Effective)

COMPANY	POSITION HELD
Valepar S.A.	Chairman of the Board of Directors

Advisor: Marcel Juviniano Barros (Effective)

COMPANY	POSITION HELD
PREVI – Caixa de Previdência dos Funcionários do Banco do Brasil	Director of Security
Valepar S.A.	Effective Member of the Board of Directors
PRI - *Principles for Responsible Investment* of ONU	*Statutory Member*

Advisor: Oscar Augusto Camargo Filho (Effective)

COMPANY	POSITION HELD
CWH Consultoria Empresarial	Managing Partner

Advisor: Lucio Azevedo (Effective)

ENTITY	POSITION HELD
Union of Workers in Railway Companies from the States of Maranhão, Pará and Tocantins	President

Advisor: Raimundo Nonato Alves de Amorim (Alternate Member)

COMPANY	POSITION HELD
Union of Workers in the Iron and Basic Metals Extraction Industry from Marabá, Parauapebas, Curionópolis and Canaã dos Carajás – PA	President

Advisor: Eduardo de Salles Bartolomeo (Effective)

COMPANY	POSITION HELD
Nova Transportadora do Sudeste -NTS	President
Login Logística Intermodal	Member of the Board of Directors

Advisor: Francisco Ferreira Alexandre (Alternate Member)

COMPANY	POSITION HELD
BRF Previdência	Managing Director
Valepar S.A.	Alternate Member of the Board of Directors

Advisor: Robson Rocha (Alternate Member)

COMPANY	POSITION HELD
Valepar S.A.	Alternate Member of the Board of Directors

Advisor: Moacir Nachbar Junior (Alternate Member)

COMPANY	POSITION HELD
2b Capital S.A.	Chief Executive Officer
Kirton Bank S.A.	Director
Banco Bradesco S.A.	Executive Manager
Fundação Bradesco	Member of the Governing Board
Fundação Instituto de Moléstias do Aparelho Digestivo e da Nutrição	Member of the Board of Directors
Fundo Garantidor de Créditos – FGC	Alternate Member of the Advisory Board
Valepar S.A.	Full Member of the Board of Directors
Banco Bradesco S.A.	Member of the Disclosure Executive Committee
Banco Bradesco S.A.	Member of the Sustainability Committee
Banco Bradesco S.A.	Member of the Internal Controls and Compliance Committee
Banco Bradesco S.A.	Member of the Integrated Risk Management and Capital Allocation Committee
Banco Bradesco S.A.	Member of the Ethical Conduct Committee
FEBRABAN - Federação Brasileira de Bancos	Member of the Self-Regulating Banking Council

Advisor: Gilberto Antonio Vieira (Alternate Member)

COMPANY	POSITION HELD
Confederação Nacional dos Trabalhadores nas Empresas de Crédito	General Secretary
Cooperativa Habitacional ANABB Ltda.	Member of the Board of Delegates
Valepar S.A.	Alternate Member of the Board of Directors

Advisor: Yoshitomo Nishimitsu (Alternate Member)

COMPANY	POSITION HELD
Valepar S.A.	Alternate Member of the Board of Directors
Mitsui & Co. (Brasil) S.A.	General Managing Director of the Mineral Resources Division

Advisor: Eduardo de Oliveira Rodrigues Filho (Alternate Member)

COMPANY	POSITION HELD
CWH Consultoria Empresarial	Managing Partner
Valepar S.A.	Effective Member of the Board of Directors

Advisor: Luiz Mauricio Leuzinger (Alternate Member)

COMPANY	POSITION HELD
Valepar S.A.	Alternate Member of the Board of Directors
Valid Soluções e Serviços de Segurança em Meios de Pagamento e Identificação S.A.	Member of the Board of Directors

Advisor: Arthur Prado Silva (Alternate Member)

COMPANY	POSITION HELD
Valepar S.A.	Member of the Board of Directors
Litel Participações S.A.	Full Member of the Board of Directors
Litel Participações S.A.	Full Member of the Board of Directors
521 Participações S.A.	Full Member of the Board of Directors
PREVI – Caixa de Previdência dos Funcionários do Banco do Brasil	Executive Manager

Information about the Head of Internal Audit

Name	Ricardo Henrique Baras
CPF	103.564.968-30
Age	50
Occupation	Business Manager
Position Held	Internal Audit non-statutory director
Election date	08/12/2013
Appointment date	08/12/2013
Term of office	Indefinite
Other positions / functions performed at the issuer	N/A
Professional Experience	Chief Audit Executive for Suzano Papel e Celulose S.A. (from 2009 to 2010) and Chief Audit Executive for Alcoa Alumínio S.A. (since 2010).

For information on non-statutory Board of Directors' advisory committees, see the item 12.1 of this Reference Form.

Information about the employee training under the Code of Ethics and Conduct

From the beginning of 2013, when Vale's Code of Ethics and Conduct was reviewed, Vale began to train employees on the content of the Code of Ethics and Conduct annually.

In 2014, the training was conducted by the leadership representatives, starting from the Executive Board, which presented the Code of Ethics and Conduct to its direct hierarchical subordinates, thus continuing through each level of the hierarchy until reaching the operational level. At the end of the training, the employees received a Printed Version of the Code of Ethics and Conduct and signed the agreement term with the code. This action reached 90% of the employees, globally.

In 2015, Vale, in turn:

(i) carried out the "Movement for Integrity" - an event that aims to convey to all employees the message of how important is to act "Correctly", focused on the Code of Ethics and Conduct and on the Global Anti-Corruption Program. The movement opening was attended by the Vale's Chief Executive Officer, general advisor and the general ombudsman, who sent the message to the leaders, who were in charge of transmitting the information to all employees. With the support of the Movement for Integrity, more than 70% of employees worldwide have ratified their agreement to the terms of the Code of Ethics and Conduct and the commitment to comply with them.

(ii) launched other initiatives that led employees to become aware of Vale's rules of ethical conduct,

such as: "Ethics on the Agenda," which discussed bimonthly controversial issues on ethics to be discussed at team meetings; and the video that presents the Code of Ethics and Conduct for new employees and new outsourced workforce.

(iii) promoted specific on-site trainings on the Global Anti-Corruption Program to members of priority areas in order to mitigate the corruption risk (e.g. those responsible for relations with government officials, hiring third parties and intermediaries, donations, sponsorships, community investment actions, business acquisition, legal, internal audits and corporate security), which involved more than 2,700 participants in several countries where Vale operates (Australia, Brazil, Canada, China, Singapore, South Korea, United Arab Emirates , India, Indonesia, Japan, Malawi, Malaysia, Mozambique, New Caledonia, Oman, and Taiwan);

(iv) developed on-line training on the Global Anti-Corruption Program and the Code of Ethics and Conduct, which are mandatory for all employees; and

(v) reinforced the importance of compliance with the Global Anti-Corruption Program through a global message on the International Anti-Corruption Day (December 9).

In 2016, the communication actions on Ethics and Integrity continued, with a new edition of the Movement for Integrity, a new global message on the International Anti-Corruption Day, continuity of n-site trainings on the Global Anti-Corruption Program, new editions of Ethics on the Agenda and the implementation of on-line training by employees on the Ethics and Global Anti-Corruption Programs. Each of these trainings reached more than 40,000 employees trained in Brazil.

In 2017, in addition to the ongoing actions, the Company will further strengthen the use of (and participate in) the Ethics training and the Global Anti-Corruption Program in Brazil, as well as expanding such training for all Vale operations outside Brazil.

13.1 - Description of the policy or practice of remuneration, including the non-statutory board

a. objectives of the policy or practice of remuneration

In accordance with the provisions of article 10, Paragraph 4 of the Company's Bylaws, the global and annual remuneration of the Company's directors shall be fixed by the Ordinary General Meeting, taking into account their responsibilities, the time dedicated to their duties, their competence and professional reputation and the market value of their services.

Vale is one of the largest diversified mining companies in the world and one of the largest privately held companies in Latin America. It is present in more than 25 countries, with shareholders in all of the continents, and approximately 73,062 own employees and approximately 33,465 hired to work on its operations on December 31, 2016.

It is, therefore, a global company, of great complexity and size and that requires, for its administration, in-depth knowledge of its business and its market, as well as unlimited dedication.

As a global company, Vale knows that to retain and engage the professionals occupying strategic positions, especially the Executive Directors, is a critical challenge for the success of the Company, in the present and in the medium and long term. To this end, the market is always the reference, within a perspective of global competition, and, in this way, Vale considers for purposes of determining the remuneration of its directors, the remuneration policies practiced by the top mining companies, as well as other major global companies from other segments.

In this way, the remuneration policy of Vale aims to attract, motivate and retain talents, and also considers market practices in the locations in which it operates, its alignment to the company's strategy in the short and long term, its return to the shareholders and sustainability of its business.

b. composition of the remuneration, indicating:

i. Description of the elements of remuneration and the objectives of each one of them

BOARD OF DIRECTORS

Fixed Remuneration

Directors' fees. For members of the Board of Directors the remuneration considers, exclusively, the payment of a fixed monthly payment (fees). The fixed remuneration hired aims to remunerate the services of each member, within the scope of responsibility assigned to the Board of Directors of the Company. The annual global value of the remuneration of directors, comprising the members of the Board of Directors, of the Statutory Board, of the members of the Audit Committee and of the Advisory Committees, is fixed in the Ordinary General Meeting and distributed by the Board of Directors.

Direct and Indirect Benefits. The members of the Board of Directors are not entitled to direct and indirect benefits.

Participation in Committees. The members of the Board of Directors are not entitled to remuneration for participation in committees.

Variable Remuneration

The members of the Board of Directors are not entitled to variable remuneration, including bonus, profit sharing, remuneration for participation in meetings, and commissions.

Post-Employment Benefits

The members of the Board of Directors are not entitled to post-employment benefits.

Benefits Motivated by Termination of Office

The members of the Board of Directors are not entitled to benefits motivated by termination of office.

Remuneration Based on Shares

The members of the Board of Directors are not entitled to remuneration based on shares.

AUDIT COMMITTEE

Fixed Remuneration

Directors' fees. For members of the Audit Committee, the remuneration only considers the payment of a fixed monthly fee (fees), not considering the benefits, representation allowances and profit sharing. The members of the Audit Committee also have the right to reimbursement of expenses for travel and accommodation necessary for the performance of their duties. Alternate members shall only be remunerated in cases in which they replace effective members as a result of a vacancy, impediment or absence of the respective effective member. The fixed remuneration hired aims to remunerate the services of each member, within the scope of responsibility assigned to the Audit Committee of the Company. The determination of the remuneration of the Audit Committee is made on the basis of the percentage of average remuneration assigned to the Executive Directors.

Direct and Indirect Benefits. The members of the Audit Committee are not entitled to direct and indirect benefits.

Participation in Committees. The members of the Audit Committee are not entitled to remuneration for participation in committees.

Variable Remuneration

The members of the Audit Committee are not entitled to variable remuneration, including bonus, profit sharing, remuneration for participation in meetings, and commissions.

Post-Employment Benefits

The members of the Audit Committee are not entitled to post-employment benefits.

Benefits Motivated by Termination of Office

The members of the Audit Committee are not entitled to benefits motivated by termination of office.

Remuneration Based on Shares

The members of the Audit Committee are not entitled to remuneration based on shares.

ADVISORY COMMITTEES

Fixed Remuneration

Directors' fees. For members of the Advisory Committees to the Board of Directors – Strategic Committee, Finance Committee, the Executive Development Committee, the Comptroller Committee and the Governance and Sustainability Committee, the remuneration considers, exclusively, the payment of a fixed monthly fee (fees), except for members of the committees that are directors of Vale, who will not be entitled to receive remuneration for participation in the committees, in accordance with paragraph 2, Article 15, of Vale's Bylaws. The remuneration hired aims to remunerate the services of each member, within the scope of responsibility assigned to each Advisory Committee of the Company. The remuneration of the members of Advisory Committees is defined by the Board of Directors.

Direct and Indirect Benefits. The members of the Advisory Committees are not entitled to direct and indirect benefits.

Variable Remuneration

The members of the Advisory Committees are not entitled to variable remuneration, including bonus, profit sharing, remuneration for participation in meetings, and commissions.

Post-Employment Benefits

The members of the Advisory Committees are not entitled to post-employment benefits.

Benefits Motivated by Termination of Office

The members of the Advisory Committee are not entitled to benefits motivated by termination of office.

Remuneration Based on Shares

The members of the Advisory Committee are not entitled to remuneration based on shares.

STATUTORY DIRECTORS (EXECUTIVE BOARD)

Fixed Remuneration

Directors' fees. The Statutory Directors are entitled to receive a fixed monthly fee that has the objective of remunerating the services rendered by them within the scope of responsibility assigned to each one in the management of the Company.

Direct and Indirect Benefits. The Statutory Directors are entitled to a package of benefits also compatible with market practices that includes Medical-Hospital Assistance and Dental Plans, Supplementary Pension and Life Insurance. The benefits, besides being aligned with market practices, are intended to give peace of mind to executives and their dependents on fundamental issues, such as health for example.

Participation in Committees. The Statutory Directors are not entitled to remuneration for participation in committees.

Variable Remuneration

Bonus. The Statutory Directors are entitled to the variable annual bonus based on the Company's results and defined by means of indicators and objective targets, derived from the strategic planning and the annual budget approved by the Board of Directors. The bonus has as main objective, in addition to ensuring competitiveness with the market, to recognize the participation of the executive in the performance of the Company.

Other. The Statutory Directors are not entitled to profit sharing, remuneration for participation in meetings, and commissions.

Post-Employment Benefits

The Statutory Directors can make use of Medical-Hospital-Dental Assistance paid by the Company for up to 24 months after their dismissal, so they can seek alternatives outside the corporate plan.

Benefits Motivated by Termination of Office

The members of the Statutory Board are not entitled to benefits motivated by termination of office, except, however, as described in item 13.12 of this Reference Form, for any damages arising out of the termination or non-renewal of the employment contract of those Directors with the Company, provided that these events occur by initiative of the Company. For more information, see item 13.12 of this Reference Form.

Remuneration Based on Shares

Long Term Incentive – ILP (until 2013, inclusive) and Virtual Shares Program – PAV (from 2014)

The Long Term Incentive ("ILP") represents a variable long term fee based on the Company's expected performance and in order to retain and engage the executives, aligning them to the Company's vision of the future. The program was instituted in 2007, with its first payment made in January 2010. In 2014, the ILP was replaced by the Virtual Shares Program ("PAV"), which has as basis of calculation the base remuneration received by beneficiaries of the related Program, whereby the parameters are pre-established in this calculation for each hierarchical level and each country in which the Company operates. The Program now has duration of 4 years, and no longer of 3 years. In addition, the PAV allows, from the cycle that began in 2014, the anticipation of payment, in a gradual manner. Thus, the payment may occur on accrued fees of 20% (at the end of the second year), 30% (at the end of the third year) and 50% (at the end of fourth year), as long as the condition of performance is achieved every year, established under the scope of the PAV, which is, the placement of Vale in the scope of a group composed of 12 other companies with characteristics similar to those of Vale (*peer group*). The metric for payment consists in the *Total Shareholder Return* (TSR) related to the *peer group*, taking into account the businesses and regions in which Vale operates and the influence of oscillations of the Brazilian market. If Vale remains first in this *ranking*, the amount is increased by 50%. This percentage is decreasing, such that, in 3rd position the value remains unaltered, and, from the 10th position and below, no payment is due.

For more details, see items 13.1 (b) (iii), (c) and (d) and 13.4 of this Reference Form.

Matching

As well as the PAV (and the ILP, which was replaced by the PAV in 2014), the *Matching* represents a variable long term remuneration fee based on the expected performance for the Company. This plan has as its main objective to encourage the "sense of ownership" and, at the same time, serve as leverage for the retention of executives and to reinforce the culture of sustainable performance. The plan was instituted in 2008, having been changed in 2014 with the primary goal of changing the calculation methodology for participation in the plan, which was to be used for the purposes of this calculation (i) the fixed remuneration fee received by beneficiaries of this plan, and (ii) pre-established parameters for each hierarchical level and each country in which the Company operates.

Some adjustments were made to the *Matching* for the fiscal year of 2016 with the aim of facilitating the participation of the executive in the program in the years in which the net bonus is not sufficient for investment in the program. In these years, the executive may acquire shares of the Company over 12 months for use in the program, in windows of pre-established purchase, according to the criteria and conditions established in the manual of the 2016 Matching program. In addition, it is important to highlight that the adherence to the current program is voluntary for all executives of Vale, except with respect to the CEO and the Executive Directors, whose adherence and permanence in the program became mandatory only when the payment of the net bonus is sufficient for the investment.

It is important to note that, for the fiscal year of 2017, new changes were implemented to the Matching, and the participation of the Statutory Board became mandatory for the investment value of 50% of the net bonus (limited to the reference value for each individual), in such a way that the investment balance to achieve the reference value (if any) shall be optional.

For more details, including the calculation methodology used to establish the value of the remuneration of beneficiaries in the scope of this Plan, see the items 13.1 (b) (iii), (c) and (d) and 13.4 of this Reference Form.

NON-STATUTORY BOARD

The non-statutory directors are employees of the Company, with permanent employment. These directors may be responsible for global corporate functions or business units, or for regional or local corporate functions, or even by areas or operating systems in the various businesses of the Company.

Fixed Remuneration

Directors' fees. The Non-Statutory Directors are entitled to receive a fixed monthly fee, defined based on the business positions of the Company, which are aligned with the market practices. The fixed salary hired aims, according to the employment contract signed by each executive, to pay for the services provided within the scope of responsibility assigned to each one in the different activities of the Company.

Direct and Indirect Benefits. Non-Statutory Directors are entitled to a package of benefits compatible with market practices that includes Medical-Hospital Assistance and Dental Plans, Supplementary Pension (Valia) and Life Insurance. The benefits, besides being aligned with market practices, are intended to give peace of mind to executives and their dependents on fundamental issues, such as health for example.

For more information about the Supplementary Pension (Valia) plan, see item 13.10 of this Reference Form.

Participation in Committees. The Non-Statutory Directors are not entitled to remuneration for participation in committees.

Variable Remuneration

Profit sharing (PLR). Variable annual fee based on the Company's results and performance of the teams, defined by means of indicators and objective and measurable targets derived from the strategic plan and the annual budget approved by the Board of Directors. This program has as main objective, in addition to ensuring competitiveness in the market, to recognize the participation of the executive and other employees in the results and performance of the Company. The calculation methodology used to establish the value of the variable remuneration of the Non-Statutory Board, as mentioned above, is described in detail in item 13.1 (d) below.

Other. Non-Statutory Directors are not entitled to bonus, remuneration for participation in meetings and commissions.

Post-Employment Benefits

The Non-Statutory Directors can make use of Medical-Hospital-Dental Assistance paid by the Company after their dismissal, so they can seek alternatives outside the corporate plan.

Benefits Motivated by Termination of Office

The members of the Non-Statutory Board can receive individualized services of guidance for career transition (outplacement) with the specialized company recommended by Vale.

Remuneration Based on Shares

Long Term Incentive – ILP (until 2013, inclusive) and Virtual Shares Program – PAV (from 2014)

The Long Term Incentive ("ILP") represents a variable long term fee based on the Company's expected performance and in order to retain and engage the executives, aligning them to the Company's vision of the future. The program was instituted in 2007, with its first payment made in January 2010. In 2014, the ILP was replaced by the PAV, which has as basis of calculation the base remuneration received by beneficiaries of the related Program, whereby the parameters are pre-established in this calculation for each hierarchical level and each country in which the Company operates. The Program now has duration of 4 years, and no longer of 3 years. In addition, the PAV allows, from the cycle that began in 2014, the anticipation of payment, in a gradual manner. Thus, the payment may occur on accrued fees of 20% (at the end of the second year), 30% (at the end of the third year) and 50% (at the end of fourth year), as long as the condition of performance is achieved every year, established under the scope of the PAV, which is, the placement of Vale in the scope of a group composed of 12 other companies with characteristics similar to those of Vale (*peer group*). The metric for payment consists in *Total Shareholder Return* (TSR) related to the *peer group*, taking into account the businesses and regions in which Vale operates and the influence of oscillations of the Brazilian market. If Vale remains first in this *ranking*, the amount is increased by 50%. This percentage is decreasing, such that, in 3rd position the value remains unaltered, and, from the 10th position and below, no payment is due.

For more details, see items 13.1 (b) (iii), (c) and (d) and 13.4 of this Reference Form.

Matching

Like the PAV (and the ILP, which was replaced by the PAV in 2014), the *Matching* represents a variable long term remuneration fee based on the expected performance for the Company. This plan has as its main objective to encourage the "sense of ownership" and, at the same time, serve as leverage for the retention of executives and to reinforce the culture of sustainable performance. The plan was instituted in 2008, having been changed in 2014 with the primary objective of changing the calculation methodology for participation in the plan, which was to be used for the purposes of this calculation (i) the fixed remuneration fee received by beneficiaries of this plan, and (ii) pre-established parameters for each hierarchical level and each country in which the Company operates.

Some adjustments were made to the *Matching* for the fiscal year of 2016 with the aim of facilitating the participation of the executive in the program in the years in which the net bonus is not sufficient for investment in the program. In these years, the executive may acquire shares of the Company over 12 months for use in the program, in windows of pre-established purchase, according to the criteria and conditions established in the manual of the 2016 Matching program. In addition, it is important to highlight that the adherence to the current program is voluntary for all executives of Vale, except with respect to the CEO and the Executive Directors, whose adherence and permanence in the program became mandatory only when the payment of the net bonus is sufficient for the investment.

It is important to note that, for the fiscal year of 2017, new changes were implemented to the Matching, and the participation of the Statutory Board became mandatory for the investment value of 50% of the net bonus (limited to the reference value for each individual), in such a way that the investment balance to achieve the reference value (if any) shall be optional.

For more details, including the calculation methodology used to establish the value of the remuneration of beneficiaries in the scope of this Plan, see the items 13.1 (b) (iii), (c) and (d) and 13.4 of this Reference Form.

NON-STATUTORY COMMITTEES

The Company also has three non-statutory committees, the Risk Committee, the Information Disclosure Committee and the Ethics Committee. All positions of the non-statutory committees are occupied by statutory, non-statutory directors and other leaders of the Company, which do not receive any additional remuneration for this role, if it is fixed or variable.

ii. In relation to the last 3 fiscal years, the proportion of each element in the total remuneration

According to the tables below, the proportions of each element in the total remuneration for the fiscal years of 2014, 2015 and 2016 were of, approximately:

Fiscal year of 2014

Composition of the Remuneration	Board of Directors	Audit Committee	Statutory Board	Non-Statutory Board	Committees(1)
Monthly Fixed Remuneration					
Salary or directors' fees	89.26%	83.33%	31.19%	33.38%	83.33%
Direct or Indirect Benefits	-	-	12.62%	17.41%	-
Participation in committees.	-	-	-	-	-
Other (2)	10.74%	16.67%	6.18%	10.16%	16.67%
Variable Remuneration					
Bonus	-	-	39.12%	-	-
Profit Sharing	-	-	-	25.03%	-
Participation in Meetings	-	-	-	-	-
Commissions	-	-	-	-	-
Other (2)	-	-	8.34%	6.51%	-
Post-Employment Benefits	-	-	-	-	-
Termination of Office	-	-	-	-	-
Remuneration Based on Shares	-	-	2.55%	7.51%	-
TOTAL	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

(1) Excludes the members of such committees that are board members of the Company.
(2) Payments related to the social contributions liable to Vale-INSS.

Fiscal year of 2015

Composition of the Remuneration	Board of Directors	Audit Committee	Statutory Board	Non-Statutory Board	Committees(1)
Monthly Fixed Remuneration					
Salary or directors' fees	87.95%	83.33%	23.88%	42.00%	85.77%
Direct or Indirect Benefits	-	-	10.29%	10.00%	-
Participation in committees	-	-	-	-	-
Other (2)	12.05%	16.67%	4.76%	-	14.23%
Variable Remuneration					
Bonus	-	-	28.79%	-	-
Profit Sharing	-	-	-	42.00%	-
Participation in Meetings	-	-	-	-	-
Commissions	-	-	-	-	-

Composition of the Remuneration	Board of Directors	Audit Committee	Statutory Board	Non-Statutory Board	Committees[1]
Other [2]	-	-	10.03%	-	-
Post-Employment Benefits	-	-	-	-	-
Termination of Office	-	-	20.55%	-	-
Remuneration Based on Shares			1.71%	6.00%	
TOTAL	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

(1) Excludes the members of such committees that are board members of the Company.
(2) Payments related to the social contributions liable to Vale-INSS.

Fiscal year of 2016

Composition of the Remuneration	Board of Directors	Audit Committee	Statutory Board	Non-Statutory Board	Committees[1]
Monthly Fixed Remuneration					
Salary or directors' fees	92.83%	90.44%	41.55%	67.81%	95.24%
Direct or Indirect Benefits	-	-	11.03%	8.26%	-
Participation in committees	-	-	-	-	-
Other [2]	7.17%	9.56%	8.53%	15.21%	4.76%
Variable Remuneration					
Bonus	-	-	-	-	-
Profit Sharing	-	-	-	-	-
Participation in Meetings	-	-	-	-	-
Commissions	-	-	-	-	-
Other [2]	-	-	4.95%	1.45%	-
Post-Employment Benefits	-	-	-	-	-
Termination of Office	-	-	28.04%	-	-
Remuneration Based on Shares	-	-	5.91%	7.27%	-
TOTAL	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

(1) Excludes the members of such committees that are board members of the Company.
(2) Payments related to the social contributions liable to Vale-INSS.

iii. Methodology of calculation and readjustment of each of the elements of the remuneration

The global annual value of the remuneration of members of the Board of Directors, of the Statutory Board, of the members of the Audit Committee and of members of the Advisory Committees, is fixed in the Ordinary General Meeting and distributed by the Board of Directors.

Board of Directors

The fixed remuneration of effective members of the Board of Directors is represented by the payment of a fixed monthly fee (fees), observing that the fixed monthly remuneration of alternates corresponds to 50% of the value received by the members of the Board of Directors. The definition of values occurs annually in accordance with the market practice, verified by means of reference services conducted by specialized companies, in which the behavior of the remuneration for similar mid-sized businesses is observed. There is no variable remuneration for the members of the Board of Directors.

Audit Committee

The fixed remuneration of members of the Audit Committee is represented by the payment of a fixed monthly fee (fees), taking as reference the value of 10% of the remuneration which, on average, is assigned to the Statutory Directors, not considering the benefits, representation allowances and profit sharing. The members of the Audit Committee also have the right to reimbursement of expenses for travel and accommodation necessary for the performance of their duties, ensuring that alternate members are only be paid in cases in which they replace effective members as a result of a vacancy, impediment or absence of the respective effective member. There is no variable remuneration for the members of the Board of Directors.

Advisory Committees

For the members of the Advisory Committees to the Board of Directors – Strategic Committee, Finance Committee, the Executive Development Committee, the Comptroller Committee and the Governance and Sustainability Committee, the remuneration considers, exclusively, the payment of a fixed monthly fee (fees), except for members of the committees that are directors of Vale, who will not be entitled to receive remuneration for participation in the committees, in accordance with paragraph 2, Article 15, of Vale's Bylaws. The members of the Advisory Committee are not entitled to any other type of fixed remuneration. The remuneration hired aims to remunerate the services of each member, within the scope of responsibility

assigned to each Advisory Committee of the Company, which is defined by the Board of Directors. The determination and readjustment of the remuneration of the members of Advisory Committees are made according to the fixed remunerations for the Board of Directors.

Statutory Directors (Executives)

The fixed remuneration of the Statutory Directors is represented by the payment of a fixed monthly fee, defined on the basis of the market practice, verified through surveys of reference conducted by specialized companies, in which we can observe the behavior of the remuneration for similar mid-sized businesses, readjusted annually by the National Consumer Price Index- IPCA, as well as evaluated by the Executive Development and approved by the Board of Directors.

The direct and indirect benefits (medical-hospital-dental assistance, supplementary pension and life insurance) to which they are entitled shall be calculated in accordance with the market practice, verified by means of surveys of reference conducted by specialized companies, in which we can observe the behavior of the benefits granted by similar sized companies, as well as evaluated by the Executive Development Committee and approved by the Board of Directors.

The bonus component of the Statutory Directors is calculated based on the results of the Company, which may vary between 0% and 200% of the target established with reference on the market, depending on the targets established and cash generation of the Company for each fiscal year. The readjustment of fees resulting from the IPCA or other forms of merit directly reflects on other elements of remuneration, since they are based on fees.

Until 2013 (inclusive), the methodology of calculating remuneration based on shares of the Statutory Directors in the scope of the ILP took into account the percentage of the bonus, of 75% for Executive Directors and 125% for the CEO, of the value effectively paid for this purpose, and transformed, as reference, into a number of common shares issued by Vale (virtual shares), considering the average price of common shares issued by the Company for the last 60 trading sessions in the previous year. If the executive remains in the Company, at the end of three years the number of virtual shares is transformed into monetary value by the average price of common shares issued by the Company for the last 60 trading sessions of the third year. Additionally, the program also considered the performance of the Company (*Total Shareholder Return* (TSR) in relation to a group of 20 companies with characteristics similar to those of Vale (*peer group*). If Vale remains first in this *ranking*, the amount is increased by 50%. This percentage is decreasing, such that, in 5th place the value remains unaltered, and, from the 15th place, no payment is due. The terms and conditions described above are applicable to beneficiaries of the cycles initiated in 2011, 2012 and 2013 in the scope of the related program, noted that such cycles are already closed, whereby the cycle that began in 2013 was closed in December 2015.

From 2014, the ILP was replaced by the PAV, which has as basis for calculation the base remuneration received by beneficiaries of the related program, whereby the parameters of this calculation are pre-established for each hierarchical level and each country in which the Company operates. The program now has duration of 4 years, and no longer of 3 years, as described in the paragraph above. In addition, the PAV allows, from the cycle that began in 2014, the anticipation of payment, in a gradual manner. Thus, the payment may occur on accrued fees of 20% (at the end of the second year), 30% (at the end of the third year) and 50% (at the end of fourth year), as long as the condition of performance is achieved every year, established under the scope of the PAV, which is, the placement of Vale in the scope of a group composed of 12 other companies with characteristics similar to those of Vale (*peer group*). The metric for payment consists in *Total Shareholder Return* (TSR) related to the *peer group*, taking into account the businesses and regions in which Vale operates and the influence of oscillations of the Brazilian market. If Vale remains first in this *ranking*, the amount is increased by 50%. This percentage is decreasing, such that, in 3rd position the value remains unaltered, and, from the 10th position and below, no payment is due.

Until 2013 (inclusive), the calculation methodology for the *Matching* stipulated that the executive would allocate 30% or 50% of their short term variable bonus fee to purchase Class A preferred shares issued by Vale, through a financial institution that has been previously defined, at market conditions and without any benefit offered by Vale, in the days established in the plan. The percentage of the bonus that could be assigned by each executive for participation in the *Matching* Plan was defined based on the evaluation of their performance and potential. The executives who purchased shares on such terms and on the dates established in the *Matching* Plan and that, after three years of acquisition, remain associated to Vale and have maintained the ownership of all the shares acquired are entitled to the award. At the end of the period of three years the cycle is closed and the determination of the effective fulfillment, by the directors, of the conditions established in the manual of this plan. If the terms of the plan have been met, the Company shall pay to the executive a net value, as award, equivalent to the amount purchased by him in

shares at the beginning of the program. After the incentive payment, the executives can freely negotiate the preferred shares issued by Vale they purchased to become eligible to the Matching Plan, observing the current legislation. The terms and conditions described above are applicable to the beneficiaries of the cycles initiated in 2011, 2012 and 2013 under the related program.
From 2014, the base of calculation of the *Matching* program became the fixed remuneration received by beneficiaries of the related Plan, whereby the parameters of this calculation are pre-established for each hierarchical level and each country in which the Company operates.

Some adjustments were made to the *Matching* for the fiscal year of 2016 with the aim of facilitating the participation of the executive in the program in the years in which the net bonus is not sufficient for investment in the program. In these years, the executive may acquire shares of the Company over 12 months for use in the program, in windows of pre-established purchase, according to the criteria and conditions established in the manual of the 2016 Matching program. In addition, it is important to highlight that the adherence to the current program is voluntary for all executives of Vale, except with respect to the CEO and the Executive Directors, whose adherence and permanence in the program became mandatory only when the payment of the net bonus is sufficient for the investment.

It is important to note that, for the fiscal year of 2017, new changes were implemented to the Matching, and the participation of the Statutory Board became mandatory for the investment value of 50% of the net bonus (limited to the reference value for each individual), in such a way that the investment balance to achieve the reference value (if any) shall be optional.

Non-Statutory Board

The fixed remuneration of Non-Statutory Directors, with permanent employment, is represented by the payment of fixed monthly fee. Each year, the area of Human Resources of Vale acquires surveys of remuneration conducted by companies specialized on the subject, in order to assess the competitiveness of our remuneration against that of our competitive market for manual labor. The comparison is made with national and multinational companies from various sectors, whereby the equalization of the comparison is given through a scoring system. This rating system is known as a the "*Hay System"*, a points system created by *The Hay Group*, which evaluates the weight of positions based on their complexity, allowing the global *ranking* of positions. This system is one of the most used worldwide for this purpose. There is no predefined index or periodicity to readjust the fixed salary and, when the readjustments occur, they are based on market development and on the merit of the executive.

There is no predefined percentage or periodicity to readjust the fixed salary and, when the salary reviews occur, they are based on the movement of the market and on the performance of the Non-Statutory Director (meritocracy).

The direct and indirect benefits (medical-hospital-dental assistance, supplementary pension and life insurance) to which they are entitled shall be calculated in accordance with the market practice, verified through surveys of reference conducted by specialized companies, in which we can observe the behavior of the benefits granted by similar sized and from various segments.

The PLR component of the Non-Statutory Directors is calculated based on the results of the Company, which may vary between 0% and 200% of the target established with reference on the market, depending on the targets established and cash generation of the company for each fiscal year. The readjustment of the fixed remuneration resulting from the IPCA or other forms of merit directly reflect on other elements of remuneration, since they are based on fixed remuneration.

Until 2013 (inclusive), the methodology of calculating remuneration based on shares of the Non-Statutory Directors in the scope of the ILP took into account the percentage of the bonus, 75% for the directors responsible for global corporate functions or business units and 50% for directors responsible for regional or local corporate functions, of the value effectively paid for this purpose, and transformed, as reference, into a number of common shares issued by Vale (virtual shares), considering the average price of common shares issued by the Company for the last 60 trading sessions in the previous year. If the executive remains in the Company, at the end of three years the number of virtual shares is transformed into monetary value by the average price of common shares issued by the Company for the last 60 trading sessions of the third year. Additionally, the program also considered the performance of the Company (*Total Shareholder Return* (TSR) in relation to a group of 20 companies with characteristics similar to those of Vale (*peer group*). If Vale remains first in this *ranking*, the amount is increased by 50%. This percentage is decreasing, such that, in 5th place the value remains unaltered, and, from the 15th place, no payment is due. The terms and conditions described above are applicable to beneficiaries of the cycles initiated in 2011, 2012 and 2013 in the scope of the related program, noted that such cycles are already closed, whereby the cycle that began in 2013 was closed in December 2015.

From 2014, the ILP was replaced by the PAV, which has as basis for calculation the base remuneration received by beneficiaries of the related program, whereby the parameters of this calculation are pre-established for each hierarchical level and each country in which the Company operates. The program now has duration of 4 years, and no longer of 3 years, as described in the paragraph above. In addition, the PAV allows, from the cycle that began in 2014, the anticipation of payment, in a gradual manner. Thus, the payment may occur on accrued fees of 20% (at the end of the second year), 30% (at the end of the third year) and 50% (at the end of fourth year), as long as the condition of performance is achieved every year, no matter what, the placement of Vale in the scope of a group composed of 12 other companies with characteristics similar to those of Vale (*peer group*). The metric for payment consists in the *Total Shareholder Return* (TSR) related to the *peer group*, taking into account the businesses and regions in which Vale operates and the influence of oscillations of the Brazilian market. If Vale remains first in this *ranking*, the amount is increased by 50%. This percentage is decreasing, such that, in 3rd position the value remains unaltered, and, from the 10th position and below, no payment is due.

Until 2013 (inclusive), the calculation methodology for the *Matching* stipulated that the executive would allocate 30% or 50% of their short term variable bonus fee (PLR) to purchase class A preferred shares issued by Vale, through a financial institution that has been previously defined, at market conditions and without any benefit offered by Vale, in the days established in the plan. The percentage of the bonus that could be assigned by each executive for participation in the *Matching* Plan was defined based on the evaluation of their performance and potential. The executives who purchased shares on such terms and on the dates established in the *Matching* Plan and that, after three years of acquisition, remain associated to Vale and have maintained the ownership of all the shares acquired are entitled to the award. At the end of the period of three years the cycle is closed and the determination of the effective fulfillment, by the directors, of the conditions established in the manual of this plan. If the terms of the plan have been met, the Company shall pay to the executive a net value, as award, equivalent to the amount purchased by him in shares at the beginning of the program. After the incentive payment, the executives can freely negotiate the preferred shares issued by Vale they purchased to become eligible to the Matching Plan, observing the current legislation. The terms and conditions described above are applicable to the beneficiaries of the cycles initiated in 2011, 2012 and 2013 under the related program.

From 2014, the base of calculation of the *Matching* program became the fixed remuneration received by beneficiaries of the related Plan, whereby the parameters of this calculation are pre-established for each hierarchical level and each country in which the Company operates.

Some adjustments were made to the *Matching* for the fiscal year of 2016 with the aim of facilitating the participation of the executive in the program in the years in which the net bonus is not sufficient for investment in the program. In these years, the executive may acquire shares of the Company over 12 months for use in the program, in windows of pre-established purchase, according to the criteria and conditions established in the manual of the 2016 Matching program. In addition, it is important to highlight that the adherence to the current program is voluntary for all executives of Vale, except with respect to the CEO and the Executive Directors, whose adherence and permanence in the program became mandatory only when the payment of the net bonus is sufficient for the investment.

It is important to note that, for the fiscal year of 2017, new changes were implemented to the Matching, and the participation of the Statutory Board becomes mandatory for the investment value of 50% of the net bonus (limited to the reference value for each individual), in such a way that the investment balance to achieve the reference value (if any) shall be optional.

iv. Reasons that justify the composition of the remuneration

The reasons that justify the composition of remuneration are the incentive to improve the management, the best performances, and the retention of executives of the Company, aiming to profit by the commitment to the long-term results and with the short-term performance of the company. In relation to the directors, Vale adopts a model of composition of the remuneration which focuses a significant portion of the total remuneration in the variable components (both of short and long term), as part of the policy of sharing risks and results with top executives of the Company.

v. Existence of members not remunerated by the issuer and the reason for this fact

On the date of this Reference Form, the Company did not have any non-remunerated members, except (i) for 1 (one) member of the Board of Directors who resigned in full upon receipt of the remuneration, (ii) by the members of the Advisory Committees of the Company that are also directors of Vale, which will not be entitled to receive remuneration for participation in the committees and (iii) by members of the Non-

Statutory Committees, which do not receive for the exercise of that function, since they already receive remuneration as executives or employees of the Company.

For purposes of determining the global value of the annual remuneration of the current fiscal year the values due to all the members of the Board of Directors are considered, since, in the future, there may not be the possibility to waiver the remuneration.

c. Key performance indicators that are taken into account in the determination of each element of the remuneration

All the definitions in relation to the remuneration are supported by market research, with support from one or more specialized consultancies. With respect to the Statutory Directors, such definitions are also evaluated by the Executive Development Committee and approved by the Board of Directors.

The key performance indicators taken into account in the determination of the remuneration are those related to the Company's performance, such as, for example, the EBITDA and *Free Cash Flow*, as well as broad indicators of productivity and sustainability.

The performance indicators taken into account in determining the remuneration resulting from the ICL (which was replaced by the PAV in 2014), the PAV and the *Matching* consist in the price of the Company's shares on the market and, in the case of the ILP (which was replaced by the PAV) and the PAV, the positioning of the company against a group of companies with characteristics similar to those of Vale (*peer group*).

d. How the remuneration is structured to reflect the evolution of the performance indicators

The definition of the targets of performance of the executives for structuring the payment of profit sharing and bonus derives from the strategic planning and budget, approved by the Board of Directors, which is reviewed every year to support the targets and results expected for the Company.

The performance indicators taken into account in determining the remuneration resulting from the long term incentive plans, which are the ILP (which remained in force until 2013), the PAV (effective from 2014) and *Matching* are: for the three, the price of the Company's shares in the market, and for the PAV, its positioning against a group of 12 other companies with characteristics similar to those of Vale (*peer group*). The *peer group* applicable to the ILP, which was replaced in 2014 by the PAV, was composed of 20 companies with similar characteristics.

e. How the policy or practice of remuneration is aligned to the interests of the issuer in the short, medium and long term

The remuneration policy of the Company is based on its performance and financial sustainability, in accordance with the strategic planning established in the short, medium and long term, and aligned with the return to shareholders.

For such, the ILP (which has been replaced by the PAV in 2014) and the *Matching* were defined with grace periods for the payment of remuneration in the scope of the same three years, and the PAV, with a grace period of four years. These terms are established so that such programs are aligned with the evolution of the performance indicators of the Company itself.

f. Existence of remuneration supported by direct or indirectly controlled subsidiaries

One of the Executive Directors of the Company has accumulated the functions of *President* and *Chief Executive Officer* of *Vale Canada Limited*, a subsidiary by Vale. In this way, a portion of the fixed, variable remuneration and benefits is supported by *Vale Canada Limited*. For more information, please check item 13.15 of this Reference Form.

g. Existence of any remuneration or benefit linked to the occurrence of a certain corporate event, such as divestiture of corporate control of the issuer

There is no remuneration or benefit for members of the Board of Directors and Audit Committee, of the Statutory and Non-Statutory Committees and of the Executive and Non-Executive Board linked to the occurrence of a certain corporate event.

13.2 - Total remuneration of the board of directors, statutory board and audit committee

Total remuneration expected for the current fiscal year 12/31/2017 – Annual Values				
	Board of Directors	**Statutory Board**	**Audit Committee**	**Total**
Total no. of members	24.00	7.00	5.00	**36.00**
No. of members remunerated	24.00	7.00	5.00	**36.00**
Fixed annual remuneration				
Salary or directors' fees	6,760,044.00	24,876,840.00	1,776,917.00	**33,413,801.00**
Direct and indirect benefits	0.00	7,480,560.00	0.00	**7,480,560.00**
Participation in committees	0.00	0.00	0.00	**0.00**
Other	1,352,009.00	5,700,565.00	355,384.00	**7,407,958.00**
Description of other fixed remuneration	Social Contributions liable to Vale – INSS	Social Contributions liable to Vale – INSS	Social Contributions liable to Vale – INSS	
Variable remuneration				
Bonus	0.00	22,427,354.00	0.00	**22,427,354.00**
Profit Sharing	0.00	0.00	0.00	0.00
Participation in meetings	0.00	0.00	0.00	0.00
Commissions	0.00	0.00	0.00	0.00
Other	0.00	17,713,078.00	0.00	**17,713,078.00**
Description of other variable remuneration		Social Contributions liable to Vale – INSS		
Post-employment	0.00	0.00	0.00	**0.00**
Termination of employment	0.00	55,367,657.00	0.00	**55,367,657.00**
Based on shares, including options	0.00	13,853,280.00	0.00	**13,853,280.00**

Observations	1. The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, as established in the Official Circular CVM/SEP 01/17. 2. The field for "Total number of Members" considers the effective members (12 members) and alternate members (12 members) of the Board of Directors. 3. The total number of members remunerated corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, to which remunerations recognized in the results for the fiscal year are assigned, as established in the Official Circular CVM/SEP 01/17.	1. The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, as established in the Official Circular CVM/SEP 01/17. 2. The field for "Remuneration based on shares" considers the amounts paid in the scope of the PAV program (cycles of 2014 and 2015) as well as the values relating to *Matching* (cycle of 2014). 3. The total number of members remunerated corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, to which remunerations recognized in the results for the fiscal year are assigned, as established in the Official Circular CVM/SEP 01/17. 4. The value informed in the field for "Bonus" refers to the amount paid in the fiscal year of 2017 related to the targets of the fiscal year of 2016. 5. The field for "Termination of employment" considers severance payments of two Executive Directors who left the company in 2016, as well as two other Executive Directors expected to leave in 2017 and the corresponding payment of severance pay.	1. The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, as established in the Official Circular CVM/SEP 01/17. 2. The field for "Total number of Members" considers the effective members (5 members) of the Board of Directors. 3. The total number of members remunerated corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, to which remunerations recognized in the results for the fiscal year are assigned, as established in the Official Circular CVM/SEP 01/17.	
Total remuneration	**8,112,053.00**	**147,419,334.00**	**2,132,301.00**	**157,663,688.00**

Remuneration for the fiscal year ending on 12/31/2016 – Annual Values

	Board of Directors	**Statutory Board**	**Audit Committee**	**Total**
Total no. of members	20.50	7.55	5.00	**33.05**
No. of members remunerated	19.75	7.55	5.00	**32.30**

Fixed annual remuneration				
Salary or directors' fees	4,899,124.00	24,093,174.00	1,594,955.00	**30,587,253.00**
Direct and indirect benefits	0.00	6,393,270.00	0.00	**6,393,270.00**
Participation in committees	0.00	0.00	0.00	**0.00**
Other	378,587.00	4,945,845.00	168,505.00	**5,492,937.00**
Description of other fixed remuneration	Social Contributions liable to Vale – INSS	Social Contributions liable to Vale – INSS	Social Contributions liable to Vale – INSS	
Variable remuneration				
Bonus	0.00	0.00	0.00	0.00
Profit Sharing	0.00	0.00	0.00	0.00
Participation in meetings	0.00	0.00	0.00	0.00
Commissions	0.00	0.00	0.00	0.00
Other	0.00	2,870,936.00	0.00	**2,870,936.00**
Description of other variable remuneration		Social Contributions liable to Vale – INSS		
Post-employment	0.00	0.00	0.00	0.00
Termination of employment	0.00	16,256,451.00	0.00	**16,256,451.00**
Based on shares, including options	0.00	3,424,314.00	0.0	**3,424,314.00**
Observations	1. The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, as established in the Official Circular CVM/SEP 01/17. 2. The field for "Total number of Members" considers the effective members and alternate members of the Board of Directors. 3. The total number of members remunerated corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, to which remunerations recognized in the results for the fiscal year are assigned, as established in the	1. The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, as established in the Official Circular CVM/SEP 01/17. 2. The field for "Remuneration based on shares" considers the amounts paid in the scope of the PAV program (cycle of 2014) as well as the values relating to *Matching* (cycle of 2013). 3. The value informed in the field for "Bonus" refers to the amount paid in the fiscal year of 2016 related to the targets of the fiscal year of 2015. 4. The total number of members remunerated corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, to which remunerations recognized in the results for the fiscal year are assigned, as established in the Official Circular CVM/SEP 01/17.	1. The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, as established in the Official Circular CVM/SEP 01/17. 2. The field for "Total number of Members" considers the effective members of the Board of Directors. 3. The total number of members remunerated corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, to which remunerations recognized in the results for the fiscal year are assigned, as established in the Official Circular CVM/SEP 01/17.	

	Official Circular CVM/SEP 01/17.			
Total remuneration	**5,277,711.00**	**57,983,990.00**	**1,763,460.00**	**65.025.616.00**

Remuneration for the fiscal year ending on 12/31/2015 – Annual Values				
	Board of Directors	**Statutory Board**	**Audit Committee**	**Total**
Total no. of members	21.00	8.0	4.75	33.75
No. of members remunerated	19.00	8.0	4.75	31.75
Fixed annual remuneration				
Salary or directors' fees	4,115,016.26	22,278,939.57	1,250,589.68	27,644,545.51
Direct and indirect benefits	0.00	9,596,806.72	0.00	9,596,806.72
Participation in committees	0.00	0.00	0.00	0.00
Other	563,539.45	4,440,137.09	250,117.94	5,253,794.48
Description of other fixed remuneration	Social Contributions liable to Vale – INSS	Social Contributions liable to Vale – INSS	Social Contributions liable to Vale – INSS	
Variable remuneration				
Bonus	0.00	26,860,815.72	0.00	26,860,815.72
Profit Sharing	0.00	0.00	0.00	0.00
Participation in meetings	0.00	0.00	0.00	0.00
Commissions	0.00	0.00	0.00	0.00
Other	0.00	9,361,109.14	0.00	9,361,109.14
Description of other variable remuneration	0.00	Social Contributions liable to Vale – INSS	0.00	
Post-employment	0.00	0.00	0.00	0.00
Termination of employment	0.00	19,170,196.17	0.00	19,170,196.17
Based on shares, including options	0.00	1,596,622.42	0.00	1,596,622.42
Observations	1. The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a	1. The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, as established in the Official Circular CVM/SEP 01/17.	1. The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a	

	monthly basis, as established in the Official Circular CVM/SEP 01/17. 2. The field for "Total number of Members" considers the effective members and alternate members of the Board of Directors. 3. The total number of members remunerated corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, to which remunerations recognized in the results for the fiscal year are assigned, as established in the Official Circular CVM/SEP 01/17.	2. The field for "Remuneration based on shares" considers the amounts paid in the scope of the Long Term Incentive program (cycle of 2013) as well as the values relating to *Matching*. 3. The value informed in the field for "Bonus" refers to the amount paid in the fiscal year of 2015 related to the targets of the fiscal year of 2014. 4. The total number of members remunerated corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, to which remunerations recognized in the results for the fiscal year are assigned, as established in the Official Circular CVM/SEP 01/17.	monthly basis, as established in the Official Circular CVM/SEP 01/17. 2. The field for "Total number of Members" considers the effective members of the Board of Directors. 3. The total number of members remunerated corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, to which remunerations recognized in the results for the fiscal year are assigned, as established in the Official Circular CVM/SEP 01/17.	
Total remuneration	**4,678,555.71**	**93,304,626.83**	**1,500,707.62**	**99,483,890.16**

Remuneration for the fiscal year ending on 12/31/2014 – Annual Values				
	Board of Directors	**Statutory Board**	**Audit Committee**	**Total**
Total no. of members	21.00	8.00	4.00	33.00
No. of members remunerated	18.75	8.00	4.00	30.75
Fixed annual remuneration				
Salary or directors' fees	4,067,493.34	22,681,831.09	1,098,276.19	27,847,600.62
Direct and indirect benefits	0.00	9,174,933.52	0.00	9,174,933.52
Participation in committees	0.00	0.00	0.00	0.00
Other	489,548.16	4,495,819.46	219,655.24	5,205,022.86
Description of other fixed remuneration	Social Contributions liable to Vale – INSS	Social Contributions liable to Vale – INSS	Social Contributions liable to Vale – INSS	
Variable remuneration				
Bonus	0.00	28,450,477.47	0.00	28,450,477.47
Profit Sharing	0.00	0.00	0.00	0.00
Participation in meetings	0.00	0.00	0.00	0.00
Commissions	0.00	0.00	0.00	0.00
Other	0.00	6,061,536.03	0.00	6,061,536.03
Description of other variable remuneration		Social Contributions liable to Vale – INSS		
Post-employment	0.00	0.00	0.00	0.00
Termination of employment	0.00	0.00	0.00	0.00

Based on shares, including options	-	1,857,202.70	-	1,857,202.70
Observations	1. The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, as established in the Official Circular CVM/SEP 01/17. 2. The field for "Total number of Members" considers the effective members and alternate members of the Board of Directors. 3. The total number of members remunerated corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, to which remunerations recognized in the results for the fiscal year are assigned, as established in the Official Circular CVM/SEP 01/17.	1. The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, as established in the Official Circular CVM/SEP 01/17. 2. The field for "Remuneration based on shares" considers the amounts paid in the scope of 2012 cycle of the Long Term Incentive program - ILP and the values relating to *Matching*. 3. The value informed in the field for "Bonus" refers to the amount paid in the fiscal year of 2014 related to the targets of the fiscal year of 2013. 4. The total number of members remunerated corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, to which remunerations recognized in the results for the fiscal year are assigned, as established in the Official Circular CVM/SEP 01/17.	1. The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, as established in the Official Circular CVM/SEP 01/17. 2. The field for "Total number of Members" considers the effective members (4 members) of the Board of Directors. 3. The total number of members remunerated corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, to which remunerations recognized in the results for the fiscal year are assigned, as established in the Official Circular CVM/SEP 01/17.	
Total remuneration	**4,557,041.50**	**72,721,800.27**	**1,317,931.43**	**78,596,773.20**

13.3 - Variable remuneration of the board of directors, statutory board and audit committee

Variable remuneration expected for the current fiscal year (2017)

Item / Year	Board of Directors	Statutory Board	Audit Committee	Total
Total number of members (1)	24.00	7.00	5.00	**36.00**
No. of members remunerated(2)	0.00	7.00	0.00	**7.00**
Bonus				
Minimum Value Expected in the remuneration plan	-	-	-	**-**
Maximum Value Expected in the remuneration plan(3)	-	46,537,239.00	-	**46,537,239.00**
Expected Value in the remuneration plan, if the targets are met (*"Target"*) (4)(5)	-	23,268,620.00	-	**23,268,620.00**
Profit Sharing				
Minimum Value Expected in the remuneration plan	-	-	-	**-**
Maximum Value Expected in the remuneration plan	-	-	-	**-**
Value Expected value in the remuneration plan, if the targets are met	-	-	-	**-**

(1) The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, as established in the terms of item 13.2.
(2) Corresponds to the estimated number of directors and members, as applicable, to whom variable remuneration is expected to be assigned, recognized in the result of the issuer in the fiscal year, as established in Official Circular CVM/SEP 01/2017.
(3) Value corresponding to 200% of the target established with reference to the market.
(4) Value corresponding to 100% of the target established with reference to the market.
(5) The value highlighted above considers the expected value if the targets related to the fiscal year of 2016 are met.

Variable Remuneration – Fiscal year ended on 12/31/2016

Item / Year	Board of Directors	Statutory Board	Audit Committee	Total
Total number of members (1)	20.50	7.55	5.00	33.05
No. of members remunerated(2)	0.00	7.55	0.00	7.55
Bonus				
Minimum Value Expected in the remuneration plan	-	-	-	-
Maximum Value Expected in the remuneration plan(3)	-	46,743,031.00	-	46,743,031.00
Expected value in the remuneration plan, if the targets are met (*"Target"*) (4)	-	23,371,515.00	-	23,371,515.00
Value effectively recognized in the results for the fiscal year(5)	-	-	-	-
Profit Sharing				
Minimum Value Expected in the remuneration plan	-	-	-	-
Maximum Value Expected in the remuneration plan	-	-	-	-
Expected value in the remuneration plan, if the targets are met (*"Target"*)	-	-	-	-
Value effectively recognized in the results for the fiscal year	-	-	-	-

(1) The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, as established in the terms of item 13.2.
(2) Corresponds to the estimated number of directors and members, as applicable, to whom variable remuneration is expected to be assigned, recognized in the result of the issuer in the fiscal year, as established in Official Circular CVM/SEP 01/2017.
(3) Value corresponding to 200% of the target established with reference to the market.
(4) Value corresponding to 100% of the target established with reference to the market.
(5) If the targets have not been met, there was no bonus payment in 2016 for the fiscal year ended on December 31, 2015.

Variable Remuneration – Fiscal year ended on 12/31/2015

Item / Year	Board of Directors	Statutory Board	Audit Committee	Total
Total number of members (1)	21.00	8.00	4.75	33.75
No. of members remunerated(2)	0.00	8.00	0.00	8.00
Bonus				
Minimum Value Expected in the remuneration plan	-	-	-	-
Maximum Value Expected in the remuneration plan(3)	-	46,576,742.04	-	46,576,742.04
Expected value in the remuneration plan, if the targets are met (*"Target"*) (4)	-	23,288,371.02	-	23,288,371.02

Value effectively recognized in the results for the fiscal year[5]	-	26,860,815.72	-	26,860,815.72
Profit Sharing				
Minimum Value Expected in the remuneration plan	-	-	-	-
Maximum Value Expected in the remuneration plan	-	-	-	-
Expected value in the remuneration plan, if the targets are met (*"Target"*)	-	-	-	-
Value effectively recognized in the results for the fiscal year	-	-	-	-

(1) The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, as established in the terms of item 13.2.
(2) Corresponds to the estimated number of directors and members, as applicable, to whom variable remuneration is expected to be assigned, recognized in the result of the issuer in the fiscal year, as established in Official Circular CVM/SEP 01/2017.
(3) Value corresponding to 200% of the target established with reference to the market.
(4) Value corresponding to 100% of the target established with reference to the market.
(5) The value informed in the field for "Bonus" refers to the amount effectively paid in the fiscal year of 2015 related to the targets for the fiscal year of 2014.

Variable Remuneration – Fiscal year ended on 12/31/2014

Item / Year	Board of Directors	Statutory Board	Audit Committee	Total
Total number of members [1]	21.00	8.00	4.00	33.00
No. of members remunerated[2]	0.00	8.00	0.00	8.00
Bonus				
Minimum Value Expected in the remuneration plan	-	-	-	-
Maximum Value Expected in the remuneration plan[3]	-	45,363,662.18	-	45,363,662.18
Expected value in the remuneration plan, if the targets are met (*"Target"*) [4]	-	22,681,831.09	-	22,681,831.09
Value effectively recognized in the results for the fiscal year[5]	-	28,450,477.47	-	28,450,477.47
Profit Sharing				
Minimum Value Expected in the remuneration plan	-	-	-	-
Maximum Value Expected in the remuneration plan	-	-	-	-
Expected value in the remuneration plan, if the targets are met (*"Target"*)	-	-	-	-
Value effectively recognized in the results for the fiscal year	-	-	-	-

(1) The total number of members corresponds to the estimate of the annual average of the number of members of that body of administration determined on a monthly basis, as established in the terms of item 13.2.
(2) Corresponds to the estimated number of directors and members, as applicable, to whom variable remuneration is expected to be assigned, recognized in the result of the issuer in the fiscal year, as established in Official Circular CVM/SEP 01/2017.
(3) Value corresponding to 200% of the target established with reference to the market.
(4) Value corresponding to 100% of the target established with reference to the market.
(5) The value informed in the field for "Bonus" refers to the amount effectively paid in the fiscal year of 2014 related to the targets for the fiscal year of 2013.

13.4 - Remuneration plan based on shares of the board of directors and the statutory board

The Company has two remuneration plans based on shares for the Statutory Board, not extended to the members of the Board of Directors. None of these plans include the concession of stock options of the Company, but only the payment of bonuses, referenced on the market price of the Company's shares.

a. General Terms and Conditions

Long Term Incentive ("ILP") (until 2013) and Virtual Shares Program ("PAV") (from 2014)

The ILP is a long term incentive, instituted in 2007, based on the Company's expected performance. The amount to be paid to the Statutory Board in the scope of the ILP was defined based on the percentage of the short term variable fee (Bonus), of 125%, for the CEO, and of 75% for the other executive directors, from the value effectively paid for this purpose. This amount was transformed, as reference, into a number of common shares issued by Vale (virtual shares), considering the average price of common shares of the Company for the last 60 trading sessions in the previous year. If the executive remains in the Company, at the end of three years the number of virtual shares is transformed into monetary value by the average price of common shares issued by the Company for the last 60 trading sessions of the third year. The program also considered the performance of the Company in relation to a group of 20 companies with characteristics similar to those of Vale (*peer group*). If Vale remains first in this *ranking*, the amount is increased by 50%. This percentage is decreasing, such that, in 5th place the value remains unaltered, and, from the 15th place, no payment is due. The terms and conditions described above are applicable to beneficiaries of the cycles initiated in 2011, 2012 and 2013 in the scope of the related program, noted that such cycles are already closed, whereby the cycle that began in 2013 was closed in December 2015.

From 2014, the ILP was replaced by the PAV, which has as basis for calculation the base remuneration received by the Statutory Board, whereby the parameters of this calculation are pre-established for each hierarchical level and each country in which the Company operates. The program now has duration of 4 years, and no longer of 3 years, as described in the paragraph above. The program allows, from the cycle that began in 2014, the anticipation of payment, in a gradual manner. Thus, the payment may occur on accrued fees of 20% (at the end of the second year), 30% (at the end of the third year) and 50% (at the end of fourth year), as long as the condition of performance is achieved every year, established under the scope of the PAV, which is, the placement of Vale in the scope of a group composed of 12 other companies with characteristics similar to those of Vale (peer group). The metric for payment consists in the *Total Shareholder Return* (TSR) related to the *peer group*, taking into account the businesses and regions in which Vale operates and the influence of oscillations of the Brazilian market. If Vale remains first in this *ranking*, the amount is increased by 50%. This percentage is decreasing, such that, in 3rd position the value remains unaltered, and, from the 10th position and below, no payment is due.

Matching

This is a long term incentive, instituted in 2008, based on the Company's expected performance. This plan has as its main objective to encourage the "sense of ownership" and, at the same time, serve as leverage for the retention of executives and to reinforce the culture of sustainable performance. To be eligible to *Matching,* the executive may allocate 30.0% or 50.0% of their short term variable bonus fee to purchase class A preferred shares issued by Vale, through a financial institution that has been previously defined, at market conditions and without any benefit offered by Vale, in the days established in the plan.

The executives who purchased shares on such terms and on the dates established in the *Matching* Plan and that, after three years of acquisition, remain associated to Vale and have maintained the ownership of all the shares acquired are entitled to the award. At the end of the period of three years the cycle is closed and the determination of the effective fulfillment, by the directors, of the conditions established in the manual of this plan. If the terms of the plan have been completed, the Company shall pay to the executive a net value, as award, with reference to the market value of the Company's shares held by the executive in the scope of the program. After the incentive payment, the executives can freely negotiate the preferred shares issued by Vale they purchased to become eligible to the *Matching* Plan, observing the current legislation. Until 2013 (inclusive), the percentage of the bonus that could be assigned by each executive for participation in the *Matching* Plan was defined based on the evaluation of their performance and potential. The terms and conditions described above are applicable to the beneficiaries of the cycles initiated in 2011, 2012 and 2013 under the related program.

From 2014, the base of calculation of the *Matching* program became the fixed remuneration received by the Statutory Board of the Company, whereby the parameters of this calculation are pre-established for each hierarchical level and each country in which the Company operates.

Some adjustments were made to the *Matching* for the fiscal year of 2016 with the aim of facilitating the participation of the executive in the program in the years in which the net bonus is not sufficient for investment in the program. In these years, the executive may acquire shares of the Company over 12 months for use in the program, in windows of pre-established purchase, according to the criteria and conditions established in the manual of the 2016 Matching program. In addition, it is important to highlight that the adherence to the current program is voluntary for all executives of Vale, except with respect to the CEO and the Executive Directors, whose adherence and permanence in the program became mandatory only when the payment of the net bonus is sufficient for the investment.

It is important to note that, for the fiscal year of 2017, new changes were implemented to the Matching, and the participation of the Statutory Board becomes mandatory for the investment value of 50% of the net bonus (limited to the reference value for each individual), in such a way that the investment balance to achieve the reference value (if any) shall be optional.

b. Main objectives of the Plan

The main objectives of the remuneration plans based on shares, mentioned above, are: retain key executives, keep them engaged and encourage the "sense of ownership", committing them to the medium and long term results.

c. How the plan contributes towards these objectives

The remuneration plans based on shares, mentioned above, align the interests of the shareholders and Statutory Directors to the extent that they ensure that there are only gains for executives when there are also gains for the Company.

d. How the plan is part of the remuneration policy of the issuer

The remuneration plans based on shares, mentioned above, are part of the remuneration policy of Vale since they are responsible for the long term alignment of executives to the interests of the Company and of its shareholders, contributing to sustainability and maintaining a level of competitiveness for the Company's businesses and the retention of skilled professionals. They are designed with the support of a specialized consultancy and take into account the movements of the national and international market.

e. How the plan aligns the interests of directors and of the issuer in the short, medium and long term

The design of plans based on shares mentioned above incorporate the factor of performance of the Company, by the variation of its shares over the period of three (for ILP and *Matching*) or four years (for the PAV) and, even, in the case of the ILP or PAV, which replaced it from the cycle initiated in 2014, the relative performance of the Company in relation to a group of companies with characteristics similar to those of Vale, in the same period, which is a group equivalent to 20 companies, in the case of the ILP, and 12 companies, in the PAV, currently in force for cycles initiated from 2014. In this way, the plans align the interests of the directors and the interests of the Company in the short and long term. For information about the changes made to these plans, see item (a) above.

f. Maximum number of shares covered

Not applicable. There are no stock options in the scope of the ILP or PAV (which replaced the ILP) programs as well as in the *Matching.*

The number of common virtual shares assigned as reference in the scope of the ILP varied according to the short term variable remuneration of each executive and with the average price of common shares issued by Vale in a certain number of trading sessions before the allocation. In the case of the PAV, which replaced the ILP, the number of virtual shares assigned as reference in the scope of the related plan varies according to the base remuneration of each executive and with the average price of common shares issued by Vale in a certain number of trading sessions before the allocation.

In the scope of the *Matching* Plan, until 2013 (inclusive) the executive had the option of allocating 30% or 50% of their bonus to purchase class A preferred shares of the Company and become eligible for the

plan, based on the evaluation of their performance and potential. From 2014, the base of calculation of the *Matching* program became the fixed remuneration received by the Statutory Board of the Company, whereby the parameters of this calculation are pre-established for each hierarchical level and each country in which the Company operates.

Some adjustments were made to the *Matching* for the fiscal year of 2016 with the aim of facilitating the participation of the executive in the program in the years in which the net bonus is not sufficient for the investment in the program. In these years, the executive may acquire shares of the Company over 12 months for use in the program, in windows of pre-established purchase, according to the criteria and conditions established in the manual of the 2016 Matching program. In addition, it is important to highlight that the adherence to the current program is voluntary for all executives of Vale, except with respect to the CEO and the Executive Directors, whose adherence and permanence in the program became mandatory only when the payment of the net bonus is sufficient for the investment.

It is important to note that, for the fiscal year of 2017, new changes were implemented to the Matching, and the participation of the Statutory Board becomes mandatory for the investment value of 50% of the net bonus (limited to the reference value for each individual), in such a way that the investment balance to achieve the reference value (if any) shall be optional.

g. Maximum number of options to be assigned

Not applicable. There are no stock options in the scope of the remuneration plans based on the shares mentioned above.

h. Conditions for acquisition of shares

Not applicable. The remuneration plans based on the shares listed above do not allow stock options of the Company to the executives. Once established, the value due to executives in the scope of the related plans is paid in kind.

i. Criteria for fixing the price of acquisition or exercise

Not applicable. As the plans do not include stock options, there is no need to talk about fixing the price of acquisition or exercise of the option.

In the ILP, which was replaced by the PAV, the value due to the executives was calculated by the appreciation of a certain number of virtual shares of Vale in the period of three years, considering the average price of common shares of Vale of the 60 last trading sessions before the date of concession of the incentive, and the average price of common shares of Vale of the 60 last trading sessions of the third year. This value is then multiplied by a factor of performance in relation to a *peer group* of 20 global companies with characteristics similar to those of Vale. In the face of the positioning of the Company in relation to this group of global companies, the ILP can have its value increased by up to 50% or may even be zero.

By the PAV, applicable from 2014, the base of calculation is the base remuneration received by the Statutory Board, whereby the parameters of this calculation are pre-established for each hierarchical level and each country in which the Company operates. The program now has duration of 4 years, and no longer of 3 years, as described in the paragraph above. The program allows, from the cycle that began in 2014, the anticipation of payment, in a gradual manner. Thus, the payment may occur on accrued fees of 20% (at the end of the second year), 30% (at the end of the third year) and 50% (at the end of fourth year), as long as the condition of performance is achieved every year, established in the scope of the PAV, which is, the placement of Vale in the scope of a group composed of 12 other companies with characteristics similar to those of Vale (*peer group*). The metric for payment consists in the *Total Shareholder Return* (TSR) related to the *peer group*, taking into account the businesses and regions in which Vale operates and the influence of oscillations of the Brazilian market. This percentage is decreasing, such that, in 3rd position the value remains unaltered, and, from the 10th position and below, no payment is due.

In the *Matching*, the net amount to be paid to executives, by way of an incentive, is calculated according to the number of Class A preferred shares issued by the Company, acquired by the executives to become eligible for the Plan.

j. Criteria for fixing the term of exercise

Not applicable. As already mentioned, the remuneration plans based on shares mentioned above do not include stock options, consequently there is no deadline for the exercise. However, these plans expect that the incentive payment will be made after a grace period of three years (for ILP and *Matching*) or four years (for the PAV, which replaced the ILP from 2014). In the case of the PAV, the payment may occur on accrued fees of 20% (at the end of the second year), 30% (at the end of the third year) and 50% (at the end of fourth year), as long as the condition of performance is achieved every year, established in the scope of the PAV, which is, the placement of Vale in the scope of a group composed of 12 other companies with characteristics similar to those of Vale (*peer group*). The metrics for payment consists in the *Total Shareholder Return* (TSR) related to the *peer group*.

k. Form of Liquidation

The remuneration plans based on the shares mentioned above include the payment of award in kind.

l. Restrictions on the transfer of shares

In the *Matching* Plan, if the participant transfers, in the period of three years, any preferred share of the Company linked to the Plan, the executive loses the right to the award.

Also, in the scope of the Plan, transactions involving derivatives are not allowed, which represent positions sold in shares of Vale, as well as the rent to third parties of shares owned by the participant, considering that the *Matching* has as one of its purposes the exposure and alignment of the executive to the shares listed by the Company during the period of the Plan. The operations described above (involving derivatives and share rental) are also forbidden related to any share of Vale that the executive holds, even if they have been acquired outside the scope of the Plan, as long as he is an active participant of it.

Not applicable to the ILP or PAV Plan (which replaced the ILP), once the participants of the Plan are not required to keep the stock position in the Company, nor receive shares in the scope of the Plan.

m. Criteria and events that, when checked, will lead to the suspension, amendment or termination of the plan

In the *Matching* Plan, any transfer by the participant of preferred shares issued by Vale linked to the plan, before the grace period of three years or their dismissal from the Company, generates the extinction of any rights they would be entitled to in the scope of the Plan.

In the ILP or PAC Plan (which replaced the ILP), the dismissal of the executive of the Company generates the extinction of any rights they would be entitled to in the scope of the Plan.

n. Effects of the dismissal of the director from the bodies of the issuer on their rights provisioned in the remuneration plan based on shares

As this is a mechanism of retention, in the event of dismissal by own initiative, the participant loses the right to the remuneration plans based on shares. In the event of termination or non-renewal of the contract by the Company, the participant receives the values to which they have already acquired rights to at the time of termination or expiration of the contract.

13.5 - Remuneration based on shares of the board of directors and of the statutory board

The Long Term Incentive Plan (ILP), the Virtual Shares Program (PAV) (which replaced the ILP) and the *Matching*, described in detail in item 13.4, do not include stock options, because they are based on the prices of the common and preferred shares of the Company, as applicable, to define the value in kind to be paid as incentive to executive directors.

In this way, most of the information is not applicable, like for example, the information related to the weighted average price exercised (a) of the open options at the beginning of each fiscal year, (b) of the options lost during each fiscal year, (c) of the options exercised during each fiscal year, (d) of the options expired during each fiscal year and to the potential dilution in case of exercise of all options assigned are not applicable to the Company. Considering the above, the information relating to the incentive, including the amounts paid in each period is disclosed in the tables below, for reference purposes.

Remuneration based on shares expected for the current fiscal year (2017)

	Board of Directors	Statutory Board	Total
No. of members[1]	24.00	7.00	31.00
No. of members remunerated[2]	0.00	7.00	7.00
Weighted average price exercised:			
(a) of the options open at the beginning of the fiscal year	n/a	n/a	n/a
(b) of the options lost during the fiscal year	n/a	n/a	n/a
(c) of the options exercised during the fiscal year	n/a	n/a	n/a
(d) of the options expired during the fiscal year	n/a	n/a	n/a
Potential dilution in case of exercise of all options assigned	n/a	n/a	n/a

[1] The total number of members corresponds to the annual average of the number of members of that body of administration determined on a monthly basis, as established in the terms of item 13.2.

[2] Corresponds to the number of directors and members, as applicable, to whom variable remuneration was assigned based on shares recognized in the result of the issuer in the fiscal year, as established in Official Circular CVM/SEP 01/2017.

Remuneration based on shares - Fiscal Year ended on December 31, 2016

	Board of Directors	Statutory Board	Total
No. of members[1]	20.50	7.55	28.05
No. of members remunerated[2]	0.00	7.55	7.55
Weighted average price exercised:			
(a) of the options open at the beginning of the fiscal year	n/a	n/a	n/a
(b) of the options lost during the fiscal year	n/a	n/a	n/a
(c) of the options exercised during the fiscal year	n/a	n/a	n/a
(d) of the options expired during the fiscal year	n/a	n/a	n/a
Potential dilution in case of exercise of all options assigned	n/a	n/a	n/a

[1] The total number of members corresponds to the annual average of the number of members of that body of administration determined on a monthly basis, as established in the terms of item 13.2.

[2] Corresponds to the number of directors and members, as applicable, to whom variable remuneration was assigned based on shares recognized in the result of the issuer in the fiscal year, as established in Official Circular CVM/SEP 01/2017.

Remuneration based on shares - Fiscal Year ended on December 31, 2015

	Board of Directors	Statutory Board	Total
No. of members[1]	21.00	8.00	29.00
No. of members remunerated[2]	0.00	8.00	8.00
Weighted average price exercised:			
(a) of the options open at the beginning of the fiscal year	n/a	n/a	n/a

(b) of the options lost during the fiscal year	n/a	n/a	n/a
(c) of the options exercised during the fiscal year	n/a	n/a	n/a
(d) of the options expired during the fiscal year	n/a	n/a	n/a
Potential dilution in case of exercise of all options assigned	n/a	n/a	n/a

(1) The total number of members corresponds to the annual average of the number of members of that body of administration determined on a monthly basis, as established in the terms of item 13.2.
(2) Corresponds to the number of directors and members, as applicable, to whom variable remuneration was assigned based on shares recognized in the result of the issuer in the fiscal year, as established in Official Circular CVM/SEP 01/2017.

Remuneration based on shares - Fiscal Year ended on December 31, 2014

	Board of Directors	**Statutory Board**	**Total**
No. of members(1)	21.00	8.00	29.00
No. of members remunerated(2)	0.00	8.00	8.00
Weighted average price exercised:			
(a) of the options open at the beginning of the fiscal year	n/a	n/a	n/a
(b) of the options lost during the fiscal year	n/a	n/a	n/a
(c) of the options exercised during the fiscal year	n/a	n/a	n/a
(d) of the options expired during the fiscal year	n/a	n/a	n/a
Potential dilution in case of exercise of all options assigned	n/a	n/a	n/a

(1) The total number of members corresponds to the annual average of the number of members of that body of administration determined on a monthly basis, as established in the terms of item 13.2.
(2) Corresponds to the number of directors and members, as applicable, to whom variable remuneration was assigned based on shares recognized in the result of the issuer in the fiscal year, as established in Official Circular CVM/SEP 01/2017.

Remuneration based on shares expected for the current fiscal year (2017)

	Board of Directors	**Statutory Board**	**Total**
Stock options (Concession of the Incentive)			
Date of concession (Date of concession of the incentive)	-	January 2014 and 2015 and March 2014 (1)	-
Number of options granted	n/a	n/a	n/a
Term for the options become exercisable (Deadline for receipt of the incentive)	-	December 2016 and March 2017 (2)	-
Maximum term for exercise of the options	n/a	n/a	n/a
Term of restriction on the transfer of shares	n/a	n/a	n/a
Fair value of the options on the date of each concession **(Amount of the Incentive Paid)**	-	13,853,280.00	13,853,280.00

(1) In January 2014 and 2015 the cycles of PAV began and in March 2014 the *Matching* cycle began.
(2) On December 31, 2016 the 2nd and 1st windows of anticipation of the cycles of VAP initiated were closed, respectively, in 2014 and 2015, and in March 2017 the cycle of *Matching* initiated in 2014 ended.

Remuneration based on shares - fiscal year ended on 12/31/2016

	Board of Directors	**Statutory Board**	**Total**
Stock options (Concession of the Incentive)			
Date of concession (Date of concession of the incentive)	-	January 2014 and March 2013 (1)	-
Number of options assigned	n/a	n/a	n/a

Term for the options become exercisable (Deadline for receipt of the incentive)	-	December 2015 and March 2016 (2)	-
Maximum term for exercise of the options	n/a	n/a	n/a
Term of restriction on the transfer of shares	n/a	n/a	n/a
Fair value of the options on the date of each concession (Amount of the Incentive Paid)	-	3,424,314.00	3,424,314.00

(1) In January 2014 the cycles of PAV began and March 2013 the *Matching* cycle began.
(2) On December 31, 2015 the 1st window of anticipation of the PAV cycle initiated in 2014 were closed, and in March 2016 the cycle of *Matching* initiated in 2013 ended.

Remuneration based on shares - Fiscal year ended on 12/31/2015

	Board of Directors	**Statutory Board**	**Total**
Stock options (Concession of the Incentive)			
Date of concession (Date of concession of the incentive)	-	January and March 2012 (1)	-
Number of options granted	n/a	n/a	n/a
Term for the options become exercisable (Deadline for receipt of the incentive)	-	December 2014 and March 2015 (2)	-
Maximum term for exercise of the options	n/a	n/a	n/a
Term of restriction on the transfer of shares	n/a	n/a	n/a
Fair value of the options on the date of each concession (Amount of the Incentive Paid)	-	1,596,622.42	1,596,622.42

(1) In January 2012 the ILP cycle began and March 2012 the *Matching* cycle began.
(2) On December 31, 2014 the ILP cycle ended and in March 2015 the *Matching* cycle ended.

Remuneration based on shares - Fiscal Year ended on 12/31/2014

	Board of Directors	**Statutory Board**	**Total**
Stock options (Concession of the Incentive)			
Date of concession (Date of concession of the incentive)	-	January and March 2011 (1)	-
Number of options granted	n/a	n/a	n/a
Term for the options become exercisable (Deadline for receipt of the incentive)	-	December 2013 and March 2014 (2)	-
Maximum term for exercise of the options	n/a	n/a	n/a
Term of restriction on the transfer of shares	n/a	n/a	n/a
Fair value of the options on the date of each concession (Amount of the Incentive Paid)	-	1,857,202.70	1,857,202.70

(1) In January 2011 the ILP cycle began and March 2011 the *Matching* cycle began.
(2) On December 31, 2013 the ILP cycle ended and in March 2014 the *Matching* cycle ended.

13.6 - Information on the open options held by the board of directors and the statutory board

Not applicable, since the remuneration plans based on Company's shares do not include stock options, because they are based on share prices or on the remuneration received by the directors of the Company to define the value in kind to be paid as incentive to executive directors. For more information, please check items 13.4 and 13.5 of this Reference Form.

13.7 - Options exercised and shares delivered related to the remuneration based on shares of the board of directors and the statutory board

Not applicable, since the remuneration plans based on Company's shares do not include stock options, because they are based on share prices or on the remuneration received by the directors of the Company to define the value in kind to be paid as incentive to executive directors, whereby no shares issued by the Company in treasury will be delivered to the executives. For more information, please check items 13.4 and 13.6 of this Reference Form.

13.8 - Information necessary for understanding the data published in items 13.5 to 13.7 - Method of pricing of the value of shares and options

Not applicable. Please check items 13.4 and 13.7 of this Reference Form.

13.9 - Interests in shares, quotas and other convertible securities, held by directors and tax advisers – by body

a. Number of shares or quotas directly or indirectly held, in Brazil or abroad, and other convertible securities into shares or quotas, issued by the Company, by members of the board of directors, of the statutory board or of the audit committee, grouped by body, on the closing date of the last fiscal year:

Shares issued by VALE S.A.

Shareholders On 12/31/2016	**ON (Common shares)**	**PN (Preferred shares)**
Board of Directors	6,700	15,600
Executive Board	9,300	1,645,064 (*)
Audit Committee	0	3,006
Total	**16,000**	**1,663,670**

(*) Includes 101,065 shares VALE.P in the form of *American Depositary Receipts* (ADRs), on the New York Stock Exchange.

b. Number of shares or quotas directly or indirectly held, in Brazil or abroad, and other convertible securities into shares or quotas, issued by direct and indirect controllers of the Company, by members of the board of directors, of the statutory board or of the audit committee, grouped by body, on the closing date of the last fiscal year:

Shares issued by VALEPAR S.A.

Shareholders On 12/31/2016	ON (Common shares)	PN (Preferred shares)
Board of Directors	0	0
Executive Board	0	0
Audit Committee	0	0
Total	**0**	**0**

Shares issued by BNDES Participações S.A.

Shareholders On 12/31/2016	ON (Common shares)	PN (Preferred shares)
Board of Directors	0	0
Executive Board	0	0
Audit Committee	0	0
Total	**0**	**0**

Shares issued by LITEL PARTICIPAÇÕES S.A.

Shareholders On 12/31/2016	ON (Common shares)	PN (Preferred shares)
Board of Directors	0	0
Executive Board	0	0
Audit Committee	0	0
Total	**0**	**0**

Shares issued by BRADESPAR S.A.

Shareholders On 12/31/2016	ON (Common shares)	PN (Preferred shares)
Board of Directors	300	135,818
Executive Board	0	0
Audit Committee	0	0
Total	**300**	**135,818**

Shares issued by MITSUI & CO., LTD

Shareholders On 12/31/2016	ON (Common shares)	PN (Preferred shares)
Board of Directors	66,503	0
Executive Board	0	0
Audit Committee	0	0
Total	**66,503**	**0**

Shares issued by ELETRON S.A.

Shareholders On 12/31/2016	ON (Common shares)	PN (Preferred shares)
Board of Directors	0	0
Executive Board	0	0
Audit Committee	0	0
Total	**0**	**0**

Shares issued by OPPORTUNITY ANAFI PARTICIPAÇÕES S.A.

Shareholders On 12/31/2016	ON (Common shares)	PN (Preferred shares)
Board of Directors	0	0
Executive Board	0	0
Audit Committee	0	0
Total	**0**	**0**

Shares issued by BELAPART S.A.

Shareholders On 12/31/2016	ON (Common shares)	PN (Preferred shares)
Board of Directors	0	0
Executive Board	0	0
Audit Committee	0	0
Total	**0**	**0**

Shares issued by VALETRON S.A.

Shareholders On 12/31/2016	ON (Common shares)	PN (Preferred shares)
Board of Directors	0	0
Executive Board	0	0
Audit Committee	0	0
Total	**0**	**0**

c. Number of shares or quotas directly or indirectly held, in Brazil or abroad, and other convertible securities into shares or quotas, issued by subsidiaries or joint-control companies of the Company, by members of the board of directors, of the statutory board or of the audit committee, grouped by body, on the closing date of the last fiscal year:

Shares issued by MRS LOGÍSTICA S.A.

Shareholders On 12/31/2016	ON (Common shares)	PN (Preferred shares)
Board of Directors	0	0
Executive Board	0	0
Audit Committee	0	0
Total	**0**	**0**

Shares issued by PT VALE INDONESIA TBK

Shareholders On 12/31/2016	ON (Common shares)	PN (Preferred shares)
Board of Directors	0	0
Executive Board	0	0
Audit Committee	0	0
Total	**0**	**0**

13.10 - Information about pension plans assigned to members of the board of directors and to statutory directors

According to the contractual clause, the Company pays the part of the employer and of the executive, up to 9% of the fixed remuneration, in Valia – Vale do Rio Doce de Seguridade Social, or in another supplementary pension plan chosen by the statutory director.

In Valia, the minimum age required for retirement income is 45 years, after a minimum period of five years of grace period with contributions.

Valia – Fundação Vale do Rio Doce de Seguridade Social

	Board of Directors	**Statutory Board**	**Total**
Total no. of members (1)	20.50	7.55	28.05
No. of members remunerated (2)	0.00	6.00	6.00
Name of the Plan	Vale Mais Benefits Plan		
Number of directors who meet the requirements to retire	-	4, in which (i) 2 by Normal Retirement Income; (ii) 2 by Anticipated Retirement Income; and (iii) and 1 by Benefit Income Deferred through Dismissal(3)	-
Terms for early retirement	-	▪ be at least 45 years of age; ▪ have at least 5 years of uninterrupted affiliation to VALIA, counted from the date of the last adherence of the participant of the Vale Mais Plan (except for participants migrated from the Defined Benefit Plan (Pension Plan already extinct) for the Vale Mais Plan); ▪ have terminated the employment contract with the sponsor or have lost the status of director.	-
Updated value of the accrued contributions in the pension plan until the end of the last fiscal year, minus the portion related to contributions made directly by the directors	-	R$ 12,354,897.14 (4)	-
Total accrued value of the contributions made during the last fiscal year, minus the portion related to contributions made directly by the directors	-	R$ 1,516,839.27 (5)	
Possibility of early redemption and conditions	-	The active participant who, on the date of termination of their employment contract with the sponsor or the date of loss of the status as director, do not choose to become a self-sponsored or associated taxpayer, nor choose the institute of portability and is not receiving the benefit under the Vale Mais Plan, will be able to receive the Redemption. The value of the Redemption shall be equal to: 100% of the Participant's Account + 1% of the Sponsor's Account per month of normal ordinary contribution converted by the participant to the Vale Mais Plan, up to	-

		a maximum of 80% of the Account.	

(1) The total number of members corresponds to the annual average of the number of members of that body of administration determined on a monthly basis, as established in the terms of item 13.2.
(2) Corresponds to the number of directors and members, as applicable, associated to the pension plan, as established in Official Circular CVM/SEP 01/2017.
(3) One of the directors has the right to 2 (two) benefits, in which 1 (one) Normal Retirement Income and 1 (one) Benefit Income Deferred through Dismissal.
(4) Amount corresponding to the sum of the Sponsor Accounts of the participants, positioned on 12/31/2016.
(5) Amount corresponding to the sum of the normal contributions held by the sponsor on behalf of each of the participants in the fiscal year of 2016.

	Board of Directors	**Statutory Board**	**Total**
Total no. of members (1)	20.50	7.55	28.05
No. of members remunerated (2)	0.00	1.00	1.00
Name of the Plan	Valiaprev Benefit Plan		
Number of directors who meet the requirements to retire	-	1 through Anticipated Retirement Income	0.00
Conditions to retire early	-	• be at least 45 years of age; • have at least 5 years of uninterrupted affiliation to VALIA, counted from the date of the last adherence of the participant to the Valiaprev Plan; • have terminated the employment contract with the sponsor or have lost the status of director.	-
Updated value of the accrued contributions in the pension plan until the end of the last fiscal year, minus the portion related to contributions made directly by the directors	-	R$ 1,177,588.02 (3)	-
Total accrued value of the contributions made during the last fiscal year, minus the portion related to contributions made directly by the directors	-	R$ 244,027.81 (4)	-
Possibility of early redemption and conditions	-	▪ The active participant that, on the date of termination of their employment contract with the sponsor or on the date of loss of the status as director, do not choose to become a self-sponsored or associated taxpayer, nor choose to institute the portability and are not receiving benefit under the Valiaprev Plan, will be able to receive the Redemption ▪ The value of the Redemption shall be equal to: 100% of the Participant's Account + 1% of the Sponsor's Account per month of normal contribution converted by the participant to the Valiaprev Plan, up to the	-

		maximum of 80% of this Account.	

(1) The total number of members corresponds to the annual average of the number of members of that body of administration determined on a monthly basis, as established in the terms of item 13.2.
(2) Corresponds to the number of directors and members, as applicable, associated to the pension plan, as established in Official Circular CVM/SEP 01/2017.
(4) Amount corresponding to the sum of the Sponsor Accounts of the participants, positioned on 12/31/2016.
(5) Amount corresponding to the sum of the normal contributions held by the sponsor on behalf of each of the participants in the fiscal year of 2016.

13.11 - Maximum, minimum and average individual remuneration of the board of directors, statutory board and audit committee

Justification for non-completion of the table:

Item not disclosed on the grounds of judicial decision, which is to say, the sentence pronounced in the ordinary proceeding no. 0002888-21.2010.4.02.5101, in progress before the 5th Federal Court of Rio de Janeiro, which became the final injunction verdict granted previously to the IBEF/RJ (to which Vale and executives linked to Vale are associated), determining that the CVM refrains from (a) implementing the requirement contained in sub item 13.11 of Annex 24 of CVM Instruction 480, and (b) applying any penalty related to non-compliance with the requirement to the associates of IBEF. The CVM submitted an appeal against the sentence. On February 06, 2014, the lawsuit was sent to the Region 2 Federal Court for trial of the appeal, which does not have a suspensive effect. Therefore, at least until the appeal is on trial by the CVM, the sentence continues to product the effects mentioned above.

13.12 - Mechanisms of remuneration or compensation for directors in case of removal from office or retirement

The contracts with the statutory directors of the Company contain provisions for compensation in the event of termination, non-renewal of the contract and retirement, provided that these events occur on the initiative of the Company, in the following values: (I) an indemnity of compensatory nature for all and any money that is due, corresponding to 6 times the value of the last fixed remuneration paid monthly to the Executive Directors and 12 times for the CEO, in addition to the payment of compensation equivalent to 2 times the fixed annual remuneration, to be paid in 8 equal quarterly installments, which is subject to a period of unavailability of 24 months.

We did not make any other contractual arrangements with the members of the Board of Directors and the members of the Audit Committee, insurance policies or other instruments that structure mechanisms of remuneration or compensation in the event of removal from office.

For details regarding the insurance policies involving the payment or reimbursement of expenses incurred by the Company's directors, see the item 12.11 of this Reference Form of the Company.

13.13 - Percentage in the total remuneration held by the directors and members of the board of directors who are parties related to the controllers.

Body	2016	2015	2014
Board of Directors	81.65%	72.00%	66.00%
Statutory Board	0.00%	0.00%	0.00%
Audit Committee	0.00%	0.00%	0.00%

13.14 - Remuneration of directors and members of the audit committee, grouped by body, received for any reason other than the role they occupy

No payment has been made of remuneration to members of the Board of Directors, the Statutory Board or of the Audit Committee for any reason other than the role they occupy, in the past three years.

13.15 - Remuneration of directors and members of the audit committee recognized in the result of controllers, direct or indirect, of companies under joint control and of subsidiaries of the issuer

Fiscal year of 2016 - remuneration due to the role exercised in the Company				
	Board of Directors	**Statutory Board**	**Audit Committee**	**Total**
Direct and Indirect Controllers	0	0	0	0
Subsidiaries of the Company	0	Total: R$ 2,160,397,00 Annual remuneration: R$ 1,584,599,00 Direct and indirect benefits: R$ 575,798.00	0	R$ 2,160,397.00
Companies under Joint Control	0	0	0	0

Fiscal year of 2015 - remuneration due to the role exercised in the Company				
	Board of Directors	**Statutory Board**	**Audit Committee**	**Total**
Direct and Indirect Controllers	0	0	0	0
Subsidiaries of the Company	0	Total: R$ 4,830,798.06 Annual remuneration: R$ 4,453,137.18 Direct and indirect benefits: R$ 377,660.88	0	R$ 4,830.798.06
Companies under Joint Control	0	0	0	0

Fiscal year of 2014 - remuneration due to the role exercised in the Company				
	Board of Directors	**Statutory Board**	**Audit Committee**	**Total**
Direct and Indirect Controllers	0	0	0	0
Subsidiaries of the Company	0	Total: R$2,271,308.13 Fixed annual remuneration: R$1,293,162.00 Direct and indirect benefits: R$978,146.13	0	R$2,271,308.13
Companies under Joint Control	0	0	0	0

13.16 - Other relevant information

Proposal of Total Remuneration

The proposal of total remuneration of directors for the fiscal year 2017 was submitted to the Ordinary General Meeting in order to establish as a global value the sum of **up to R$ 161,134,088.00 (one hundred and sixty-one million, one hundred and thirty-four thousand and eighty-eight reais)**, to be distributed by the Board of Directors, subject to the provisions of the legislation in force and Vale's Bylaws. It should be pointed out that the amount proposed and approved considers the responsibilities of the directors, of the time devoted to functions, competence, professional reputation and the value of their services on the market. It is important to note that the global proposal for approved remuneration, shown above, considers the remuneration of the members of the advisory committees and roles related to them, the amount of which is not shown in item 13.2 above.

Also, there was the approval in the scope of the proposal that the monthly remuneration of each member participating in the Audit Committee, from May 1, 2017 until the Ordinary General Meeting to be held in 2018, corresponds to 10% (10 per cent) of the remuneration which, on average, is assigned to each Executive Director, not considering the benefits, representation allowances and profit sharing. In addition to the remuneration established above, the members participating in the Audit Committee will have the right to reimbursement of expenses for travel and accommodation necessary for the performance of their duties, ensuring that alternate members are only be paid in cases in which they replace effective members as a result of a vacancy, impediment or absence of the respective effective member.

The above amount highlighted comprises: (I) the proposed remuneration of members of the Board of Directors, Statutory Board and members of the Audit Committee of up to R$ 157,663,688 (one hundred and fifty-seven million, six hundred and sixty-three thousand, six hundred and eighty-eight reais), which is composed of (a) R$ 8,536,961 (eight million five hundred and thirty-six thousand, nine hundred and sixty-one reais) corresponding to the fixed remuneration of members of the Board of Directors and members of the Audit Committee, pursuant to article 163 of Law no. 6404/76, net of social contributions liable to Vale; (b) up to R$61,157,475 (sixty one million, one hundred and fifty-seven thousand, four hundred and seventy-five reais), related to the fixed and variable remuneration of Executive Directors, which takes into account an Executive Board composed of 7 Executive Directors, net of social contributions liable to Vale and excluding the direct and indirect benefits. The fixed individual remuneration is consistent with the values paid to executives of companies of the same size, while the variable remuneration, corresponding to the bonus and the long term incentive, have their payment based on the achievement of pre-established targets, based on the performance of the Company. Thus, the payment of the variable remuneration is equivalent to the partial or total fulfillment of pre-established targets, and may even, not be due, if these targets have not been met; (c) up to R$87,969,253 (eighty-seven million, nine hundred and sixty-nine thousand, two hundred and fifty and three reais) corresponding to the taxes and contributions levied on the remuneration and liable to Vale, and also benefits of any kind and the severance payments of two Executive Directors who left the company in 2016, as well as two other Executive Directors who are expected to leave in 2017 and the corresponding severance payments and (II) the proposed remuneration of the members of Advisory Committees and contributions related to them of up to R$3,470,400 (three million, four hundred and seventy thousand, four hundred reais).

Below is additional information relating to the proposed global remuneration of the Company approved at the O/EGM, stated above:

a) Period referred to in the present remuneration proposal: The proposal of the Board refers to the period from January 1 to December 31, 2017, which is the current fiscal year.

b) Comments on the values approved in the Board's Proposal in 2016 and the values for the remuneration of Directors effectively made: In the Ordinary and Extraordinary General Meetings held on April 25, 2016 the amount of up to R$90,372,853.00 (ninety million, three hundred and seventy-two thousand, eight hundred and fifty-three dollars) was approved, which consisted of the remuneration to be distributed to members of the Board of Directors, of the Audit Committee, of the Board, as well as members of the Advisory Committees. Vale clarifies that, with respect to the fiscal year of 2016, the value related to the remuneration was effectively paid to the members of the Board of Directors, of the Audit Committee, of the Executive Board, as well as members of Advisory Committees corresponding to R$65,377,961.00 (sixty-five million, three hundred and seventy-seven thousand, nine hundred and sixty-one reais). The difference between the value originally proposed and the value effectively paid resulted

mainly due to the value paid as indemnity to members of the Statutory Board, which was below the budgeted amount.

c) Comments on possible differences between the values of the current proposal and the previous proposal and those contained in item 13 of Vale's Reference Form: The value of the global remuneration of the members of the Board of Directors, of the Audit Committee, of the Executive Board, as well as members of Advisory Committees for the fiscal year ending in 2017, corresponds to R$ 161,134,088.00 (one hundred and sixty-one million, one hundred and thirty-four thousand and eighty-eight reais). This value is 78% higher than the amount proposed for the fiscal year of 2016 of R$ 90,372,853.00 (ninety million, three hundred and seventy-two thousand, eight hundred and fifty-three dollars) due to the Bonus that was paid once again in 2017 and the increase in the value of the shares of the Company that, consequently, increased the remuneration of programs pegged to the shares. Both payments also caused an increase in the INSS payments. In addition, the change budgeted for the structure of the Company's Board of Directors and the board as a whole also contributed to the increase in the budget for 2017.

Clarification

The total value approved at the Ordinary General Meeting mentioned above is greater than the values included in item 13.2 of this Reference Form, since it also covers, in addition to the remuneration to be assigned to members of the Board of Directors, of the Audit Committee and of the Executive Board, the remuneration of the members of Advisory Committees, while the values included in item 13.2 of the Reference Form include only the values of the remuneration of members of the Board of Directors, of the Audit Committee and of the Executive Board.

14.1 - Description of human resources

a. number of employees (total, by groups based on the activity performed and by geographic location)

The table below shows the number of employees of the Company and its subsidiaries as of December 31, 2014, 2015 and 2016:

	2014	2015	2016
Total number of own employees	**76,531**	**74,098**	**73,062**
By business area			
Ferrous metals	30,314	28,134	27,394
Non-ferrous metals	15,618	15,736	15,420
Coal	2,137	2,203	2,039
Logistics	14,345	13,758	14,079
Fertilizers(1)	6,773	9,181	8,935
Other (2)	7,344	5,086	5,195
By geographical location			
Brazil	59,765	57,850	56,576
Canada	6,666	6,767	6,626
Indonesia	3,138	3,167	3,186
New Caledonia	1,342	1,336	1,306
Australia	364	318	215
United States	7	6	4
China	155	137	140
Mozambique	2,341	1,938	2,492
Peru	801	788	782
Colombia	0	0	0
Chile	10	7	7
Other (3)	1,942	1,784	1,728

(1) Discontinued operations.
(2) Includes the following: Exploration, Energy, Engineering, Institutes and Foundations, Project Management, General Services and Corporate Services.
(3) Includes the following: Argentina, Austria, India, Japan, Malawi, Korea, Malaysia, Oman, Paraguay, Singapore, Switzerland, United Arab Emirates and United Kingdom.

b. number of third parties (total, by groups based on the activity performed and by geographic location)

The table below shows the number of sub-contractors of the Company and its subsidiaries in the fiscal years ended December 31, 2014, 2015 and 2016 by activity performed and by geographical location:

	2014	2015	2016
Number of sub-contractors	**129,920**	**92,242**	**66,659**
By business area			
Ferrous metals	21,041	12,606	13,607
Non-ferrous metals	13,937	12,421	10,576
Coal	15,338	6,998	2,561
Logistics	8,889	7,350	6,446

Fertilizers	10,076	7,479	8,296
Other [1]	60,639	45,388	25,173
By geographical location			
Brazil	98,308	72,403	52,968
Canada	7,385	3,783	3,275
Indonesia	2,429	4,262	3,235
New Caledonia	1,784	1,576	1,276
Australia	249	106	0
United States	0	0	0
China	20	19	1
Mozambique	13,634	7,243	3,524
Peru	1,009	1,150	1,128
Colombia	0	0	0
Chile	21	12	31
Other [2]	5,081	1,688	1,221

[1] Includes the following: Exploration, Energy, Engineering, Institutes and Foundations, Project Management and Corporate Services.

[2] Includes the following: Argentina, Cook Islands, Japan, Liberia, Malawi, Malaysia, Oman, Paraguay, Singapore and Switzerland.

c. rate of turnover

The rate of turnover of employees of the Company and its subsidiaries in the fiscal years ending in 2014, 2015 and 2016 was of 8.1%, 8.7% and 7.2%, respectively. The rate of turnover is calculated based on the data of Vale S.A. and its subsidiaries in the following countries: Brazil, Canada, Indonesia, New Caledonia, Australia, United States of America, China, Mozambique, Peru, Colombia, Chile, Argentina, Austria, Dubai, India, Japan, Korea, Malawi, Malaysia, Oman, Paraguay, Philippines, Singapore, Switzerland, UK and Zambia.

14.2 - Relevant alterations - Human resources

Due to the reduction of the stake of Vale in companies of General Cargo in 2014, the effective of these companies ceased to be consolidated in the total number of employees, both own and of third parties.

In the fiscal year of 2015, there was a reduction of approximately 29% of the number of sub-contractors of Vale, which resulted mainly from (i) demobilizations, (ii) optimization of processes, as well as productivity in the area of Ferrous metals, (iii) reduction in the number of sub-contractors in projects in Africa, and (iv) insourcing of 2,389 own employees at Vale Fertilizantes in 2015. The insourcing highlighted above was the main factor responsible for the increase in the number of employees in the fiscal year ended 31 December 2015.

For the fiscal year of 2016, the reduction in the number of sub-contractors occurred, almost entirely, by the demobilization of projects.

14.3 - Description of the policy of remuneration of employees

The salaries and benefits paid by Vale and its subsidiaries are generally established considering practices of remuneration and benefits of each locality in which the Company operates.

a. policy of salaries and variable remuneration

Vale follows the practice, already adopted in recent years, of performing comparative surveys of remuneration, offering all of its own employees, a salary equal to or greater than the legal minimum practiced in each locality. In addition, by means of their remuneration, Vale promotes the engagement of its employees and encourages the performance increasingly higher through differentiated awards, strengthening the culture of constantly seeking constant. The remuneration package also allows the alignment of objectives and individual results to those of Vale.

In Vale's own units, the assessment of performance for the short term variable remuneration (annual) is based on annual targets aligned to the Company's strategy and to the budget defined by the Board of Directors. This assessment is carried out by means of an interactive process between employees and their managers, in addition to relying on a computerized system, in which results are recorded. In this program, employees are awarded for achieving and/or exceeding their targets, and also according to the results obtained by the main indicator of the company (Operating Cash Flow deducted from the Current Investments). The panel targets of each employee is composed by categories, including sustainability, economic-financial, operational excellence and specific targets of the areas, and at the beginning of each year there is the verification of the results of the targets of the previous year. Each result achieved in the targets represents a quantity of points and the sum of points is one of the factors that, together with the results of Vale, defines the variable short term remuneration of the employee.

In the last two negotiations, Vale firmed collective bargaining agreements with duration of one year with all the workers' unions, representatives of 100% of the Company's employees in Brazil. As a result of the agreement for the period of 2016/2017, there was an increase of 8.5%, granted from November 2016. The Company has collective agreements with unionized employees at our operations in Australia, Brazil, Canada, Indonesia, Malawi, Mozambique, New Caledonia, Peru and the United Kingdom.

The Company establishes the salary and benefits programs for Vale S.A. and its subsidiaries, except for Vale Canada. In March 2016, Vale Newfoundland & Labrador Limited, a subsidiary of Vale Canada Limited, firmed a three-year agreement with the union that represents the employees of production and maintenance of Voisey's Bay. With regard to employees not unionized, Vale Canada conducts an annual review of salaries.

Certain employees who are part of the management framework of Vale may, according to the eligibility of each plan, also participate in long term incentives, such as:

(i) *Matching*: program based on shares, with the aim of encouraging the "sense of ownership" of the Company and raise the capacity for attraction and retention of managers, by means of which the eligible employee can purchase, with their own resources, preferred shares of Vale (moment 0), and if the shares are maintained, as well as their employment relationship with Vale for a period of three (3) years, in addition to meeting the requirements defined in the annual manual of the program, they shall have the right to receive from Vale the equivalent number of shares purchased at moment 0. For more information on *Matching*, see item 13.4 of this Reference Form;

(ii) Long Term Incentive – ILP: program that assigns virtual shares of Vale to top management and takes into consideration the relative performance of the *Total Shareholder Return* - TSR) compared to that of a defined group of comparable companies (*peer group*), during the cycle of 3 years. The last year of concession of the ILP initiated in 2013, but the terms and conditions of the ILP are still applicable to their beneficiaries. From 2014, the ILP was replaced by the Virtual Shares Program – PAV in 2014, a program also based on common virtual shares of Vale, with operation and limitations that are very similar to the ILP, in which the participants have the opportunity to receive, along a cycle of 4 (four years), an amount equivalent to the market value of a certain number of common shares of Vale. For more information on ILP, PAV, see item 13.4 of this Reference Form;

(i) Project bonus: long-term program geared to capital project leaders based on the performance and sustainability of the projects.

The policy of salaries and variable remuneration assigned to non-statutory Directors is described in item 13 of this Reference Form.

b. benefits policy

One of the guidelines of Vale is to ensure that the benefits are offered consistently in various locations where Vale is present, noting the objectives of each business, the philosophy and the corporate strategy of human resources, in addition to respecting the legal requirements of the country and considering the local market conditions. Vale offers its employees a remuneration and benefits package that contributes to the strategy of attraction, retention and engagement.

Vale assigns to 100% of its employees the benefits of medical assistance and life insurance and to most employees, Vale offers personal accident insurance, private pensions, public transport allowance, educational training, a meal at work, meals allowance and Assistance program for the employee.

In relation to pension plans, Vale recommends that in localities where the financial market allows the administration of long-term resources in a sustainable manner, a model of defined contribution should be offered.

The Brazilian employees of Vale and of the majority of its Brazilian subsidiaries can participate in retirement plans managed by Valia.

The majority of participants of the Valia plans are participants of a plan called "Vale Mais", which Valia implemented in 2000. This plan is mainly a defined contribution plan with a defined benefit defined in relation to the service prior to 2000 and other benefits defined to cover temporary or permanent disability, retirement and financial protection for dependents in the event of death. Valia also operates a defined benefit plan, closed to new participants since May 2000, with benefits based on years of service, salary and social security benefits. This plan covers participant retirees and their beneficiaries, as well as a relatively small number of employees who did not want to transfer from the former plan to the "Vale Mais" plan, when it was established in May 2000.

The employees of the operations of Base Metals of Vale, mainly in Canada and the United Kingdom, participate in defined benefit pension plans and defined contribution pension plans. All new employees of its operations for Base Metals participate in defined benefit pension plans. Employees in Japan and Taiwan participate in a defined benefit pension plan. Employees from other jurisdictions, including China, Indonesia, Malawi, Switzerland, United States and Zambia, participate in defined benefit pension plans.

c. characteristics of remuneration plans based on shares of non-management employees

The remuneration plans based on shares described in item 13.4 of this Reference Form are extended to Non-Statutory Directors of the Company, as well as at other levels of leadership, according to the rules of eligibility of each plan. The characteristics of these plans are described in item 13.4 of this Reference Form.

14.4 - Description of the relationship between the issuer and unions, indicating that there has been no downtime or strikes in the last three years

Vale is building a harmonious relationship with the trade unions throughout the world (on the date of this Reference Form, there are approximately 40 trade unions in Brazil and 12 unions in the rest of the world). Today collective agreements are negotiated in Brazil, Canada, United Kingdom, Peru, Mozambique, Australia, New Caledonia, Indonesia and Oman. Until the date of this Reference Form, all collective agreements initiated after 2010 have reached an agreement, without reaching an impasse and/or strike.

There have not been, in the past three years, strikes or downtime in the activities of the Company or of its subsidiaries, in accordance with the discretion of the Global Reporting Initiative - GRI, establishing as strike or stoppage movements of over 7 days.

Notwithstanding the foregoing, in Mozambique, on the occasion of the negative results of Vale, in 2016, there was no payment of PLR for the year 2015, and, for this reason, employees promoted a stoppage lasting 5 days. It should be emphasized that there was no payment of PLR in any operation of Vale for 2015.

Since 2005 the employees elect through the process of direct vote an effective member of the Board of Directors and their respective alternate. The elections are conducted jointly by the company and by the trade unions.

In Brazil, since 2010 Vale holds semiannual meetings of social dialog with the trade unions focused on the theme: "Health and Safety at Work". Brazilian Trade Union Confederations also, possibly, participate in these meetings related to unions representing the employees of Vale.

14.5 – Other relevant information – Human Resources

There is no other relevant information which has not been disclosed on the items above.

15.1/ 15.2 Shareholding position

Vale S.A.

Shareholder	Nationality	Federal Unit	Legal Representative / Proxy	CPF / CNPJ (Brazilian taxpayer no.) of the Proxy	CPF/ CNPJ	Common Shares		Preferred Class-A Shares		Preferred Special Class Shares		Total Preferred Shares		Total		Member of shareholders' agreement	Majority shareholder	Date of last change
						Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%			
Valepar S.A.	Brazilian	RJ	N/A	N/A	01.772.413/0001-57	1,716,435,045	53.352021	20,340,000	1.003390	0	0	20,340,000	1.003390	1,736,775,045	33.117284	Yes	Yes	04/30/2017
BNDES Participações S.A.	Brazilian	RJ	N/A	N/A	00.383.281/0001-09	206,378,882	6.414883	66,185,272	3.264978	0	0	66,185,272	3.264978	272,564,154	5.197325	No	No	04/30/2017
Capital Research Global Investors	North American		JP Morgan DTVM	33.851.205/0001-30		0	0.000000	220,422,309	10.873627	0	0	220,422,309	10.873627	220,422,309	4.203071	No	No	September 05, 2016
Capital Group International Inc.	North American		JP Morgan DTVM	33.851.205/0001-30		0	0.000000	201,779,703	9.953971	0	0	201,779,703	9.953971	201,779,703	3.847588	No	No	September 05, 2016
BlackRock, Inc.	North American		HSBC Bank Brasil S.A.	1.701.201/0001-89		0	0.000000	101,655,903	5.014775	0	0	101,655,903	5.014775	101,655,903	1.938402	No	No	06/16/2016
Treasury			N/A	N/A		31,535,402	0.980216	59,405,792	2.930540	0	0	59,405,792	2.930540	90,941,194	1.734091	No	N/A	04/30/2017
Others			N/A	N/A		1,262,839,073	39.252880	1,357,338,727	66.958718	12	100	1,357,338,739	66.958718	2,620,177,812	49.962240	N/A	No	04/30/2017
Total						**3,217,188,402**	**100.00**	**2,027,127,706**	**100.00**	**12**	**100.00**	**2,027,127,718**	**100.00**	**5,244,316,120**	**100.00**			

Valepar S.A.

Shareholder	Nationality	Federal Unit	CPF/CNPJ	Common Shares		Total Preferred Shares		Total		Member of shareholders' agreement	Majority shareholder	Date of last change
				Quantity	%	Quantity	%	Quantity	%			
Litel Participações S.A.	Brazilian	RJ	00.743.065/0001-27	637,443,857	49.01%	200,864,272	71.41%	838,308,129	52.99%	Yes	Yes	03/31/2017
Litela Participações S.A.	Brazilian	RJ	05.495.546/0001-84	0	0	80,416,931	28.59%	80,416,931	5.08%	Yes	Yes	03/31/2017
Bradespar S.A.	Brazilian	SP	03.847.461/0001-92	275,965,821	21.21%	0	0.00%	275,965,821	17.44%	Yes	Yes	03/31/2017

Shareholder	Nationality	Federal Unit	CPF/CNPJ	Common Shares		Total Preferred Shares		Total		Member of shareholders' agreement	Majority shareholder	Date of last change
				Quantity	%	Quantity	%	Quantity	%			
Mitsui & Co., Ltd	Japanese		05.466.338/0001-57	237,328,059	18.24%	0	0.00%	237,328,059	15.00%	Yes	Yes	03/31/2017
BNDES Participações S.A.	Brazilian	RJ	00.383.281/0001-09	149,787,385	11.51%	0	0.00%	149,787,385	9.46%	Yes	Yes	03/31/2017
Eletron S.A.	Brazilian		00.514.998/0001-42	380,708	0.03%	0	0.00%	380,708	0.03%	No	No	03/31/2017
Total				**1,300,905,830**	**100.00%**	**281,281,203**	**100.00%**	**1,582,187,033**	**100.00%**			

Litel Participações S.A. – CNPJ: 00.743.065/0001-27

Shareholder	Nationality	Federal Unit	CPF/CNPJ	Common Shares		Total Preferred Shares		Total		Member of shareholders' agreement	Majority shareholder	Date of last change
				Quantity	%	Quantity	%	Quantity	%			
BB Carteira Ativa	Brazilian		01.578.476/0001-77	193,740,121	78.40	28,385,377	100.00	222,125,498	80.62	No	Yes	03/31/2017
Others				**53,388,224**	21.60	627	0.00	**53,388,851**	19.38			
Total				**247,128,345**	**100.00**	**28,386,004**	**100.00**	**275,514,349**	**100.00**			

Litela Participações S.A. – CNPJ: 05.495.546/0001-84

Shareholder	Nationality	Federal Unit	CPF/CNPJ	Common Shares		Total Preferred Shares		Total		Member of shareholders' agreement	Majority shareholder	Date of last change
				Quantity	%	Quantity	%	Quantity	%			
Litel Participações S.A	Brazilian		00.743.065/0001-27	28,386,273	100.00	0	0	28,386,273	100.00	No	Yes	03/31/2017
Others				1	0.00	0	0.00	1	0.00			
Total				28,386,274	100.00	0	0	28,386,274	100.00			

Bradespar S.A. – CNPJ: 03.847.461/0001-92

Shareholder	Nationality	Federal Unit	CPF/CNPJ	Common Shares		Preferred Shares		Total		Member of shareholders' agreement	Majority shareholder	Date of last change
				Quantity	%	Quantity	%	Quantity	%			
NCF Participações S.A.	Brazilian	SP	04.233.319/0001-18	30,388,376	24.80	2,235,627	0.98	32,624,003	9.33	No	Yes	03/31/2017
Cidade de Deus Cia. Cial. de Participações S.A.	Brazilian	SP	61.529.343/0001-32	44,883,224	36.63	300,960	0.13	45,184,184	12.93	No	Yes	03/31/2017
Fundação Bradesco	Brazilian	SP	60.701.521/0001-06	18,179,304	14.84	-	-	18,179,304	5.20	No	Yes	03/31/2017
Others	-		-	29,072,145	23.73	224,488,309	98.89	253,560,454	72.54	-	-	03/31/2017
Total				**122,523,049**	**100.00**	**227,024,896**	**100.00**	**349,547,945**	**100.00**			

Cidade de Deus Cia. Cial. de Participações S.A. – CNPJ: 61.529.343/0001-32

Shareholder	Nationality	Federal Unit	CPF/CNPJ	Common Shares		Preferred Shares		Total		Member of shareholders' agreement	Majority shareholder	Date of last change
				Quantity	%	Quantity	%	Quantity	%			
Nova Cidade de Deus Participações S.A.	Brazilian	SP	04.866.462/0001-47	3.471.82.0356	45.18	0	0,0	3.471.82.0356	45.18	No	Yes	03/31/2017
Fundação Bradesco	Brazilian	SP	60.701.521/0001-06	2.566,968,222	33.41	0	0.0	2,566,968,222	33.41	No	Yes	03/31/2017
Lia Maria Aguiar	Brazilian	SP	003.692.768-68	496,778,330	6.46	0	0.0	496,778,330	6.46	No	Yes	03/31/2017
Others	-	-	-	1,148,802,124	14.95	0	0.0	1,148,802,124	14.95	-	-	03/31/2017
Total	**-**	**-**	**-**	**7.684,369,032**	**100.00**	**0**	**0.0**	**7.684,369,032**	**100.00**	**-**	**-**	

Nova Cidade de Deus Participações S.A. – CNPJ: 04.866.462/0001-47

Shareholder	Nationality	Federal Unit	CPF/CNPJ	Common Shares		Preferred Shares		Total		Member of shareholders' agreement	Majority shareholder	Date of last change
				Quantity	%	Quantity	%	Quantity	%			
Fundação Bradesco	Brazilian	SP	60.701.521/0001-06	138,036,211	46.30	315,902,805	100.00	453,939,016	73.93	No	Yes	03/31/2017

BDD Participações S.A.	Brazilian	SP	07.838.611/0001-52	160,087,583	53.70	0	0.0	160,087,583	26.07	No	Yes	03/31/2017
Total	**-**	**-**	**-**	**298,123,794**	**100.00**	**315,902,805**	**100.00**	**614,026,599**	**100.00**	**-**	**-**	31/03/2017

BBD Participações S.A. – CNPJ: 07.838.611/0001-52

Shareholder	Nationality	FEDERAL UNIT	CPF/CNPJ	Common Shares		Preferred Shares		Total		Member of shareholders' agreement	Majority shareholder	Date of last change
				Quantity	%	Quantity	%	Quantity	%			
Lázaro de Mello Brandão	Brazilian	SP	004.637.528-72	12,821,000	7.28	0	0	12,821,000	4.15	Yes	No	03/31/2017
NCD Participações Ltda	Brazilian	SP	48.594.139/0001-37	0	0	71,514,058	53.82	71,514,058	23.14	Yes	No	03/31/2017
Treasury	-	-	-	81,642,850	46.33	16,042,503	12.07	97,685,353	31.61	No	No	03/31/2017
Others	-	-	-	81,742,449	46.39	45,314,050	34.11	127,056,499	41.10	-	-	03/31/2017
Total	**-**	**-**	**-**	**176,206,299**	**100.00**	**132,870,611**	**100.00**	**309,076,910**	**100.00**	**-**	**-**	

NCF Participações S.A. – CNPJ: 04.233.319/0001-18

Shareholder	Nationality	Federal Unit	c) CPF/CNPJ	Common Shares		Preferred Shares		Total		Member of shareholders' agreement	Majority shareholder	Date of last change
				Quantity	%	Quantity	%	Quantity	%			
Fundação Bradesco	Brazilian	SP	60.701.521/0001-06	284,607,387	25.13	1,009,413,289	100.00	1.294,020,676	60.42	No	Yes	03/31/2017
Cidade de Deus Cia. Cial. de Participações S.A.	Brazilian	SP	61.529.343/0001-32	846,292,071	74.72	0	0	846,292,071	39.50	No	Yes	03/31/2017
Nova Cidade de Deus Participações S.A.	Brazilian	SP	04.866.462/0001-47	1,694,413	0.15	0	0	1,694,413	0.08	No	Yes	03/31/2017
Total	**-**	**-**	**-**	**1,132,593,871**	**100.00**	**1,005,739,284**	**100.00**	**2,142,007,160**	**100.00**	-	-	

BNDES Participações S.A. - 00.383.281/0001-09

Shareholder	Nationality	CPF/CNPJ	Common Shares		Total Shares		Shareholders' Agreement	Majority Shareholder	Last Change
			Quantity	%	Quantity	%			
Banco Nacional de Desenvolvimento Econômico e Social – BNDES	Brazilian	33.657.248/0001-89	1	100.00	1	100.00	No	Yes	03/31/2017
Total			**1**	**100.00**	**1**	**100.00**			

15.3 - Distribution of capital

Date of last change	April 20, 2017
Number of individual shareholders (Units)	111,613
Number of legal entity shareholders (Units)	1,271
Number of institutional investors (Units)	1,129

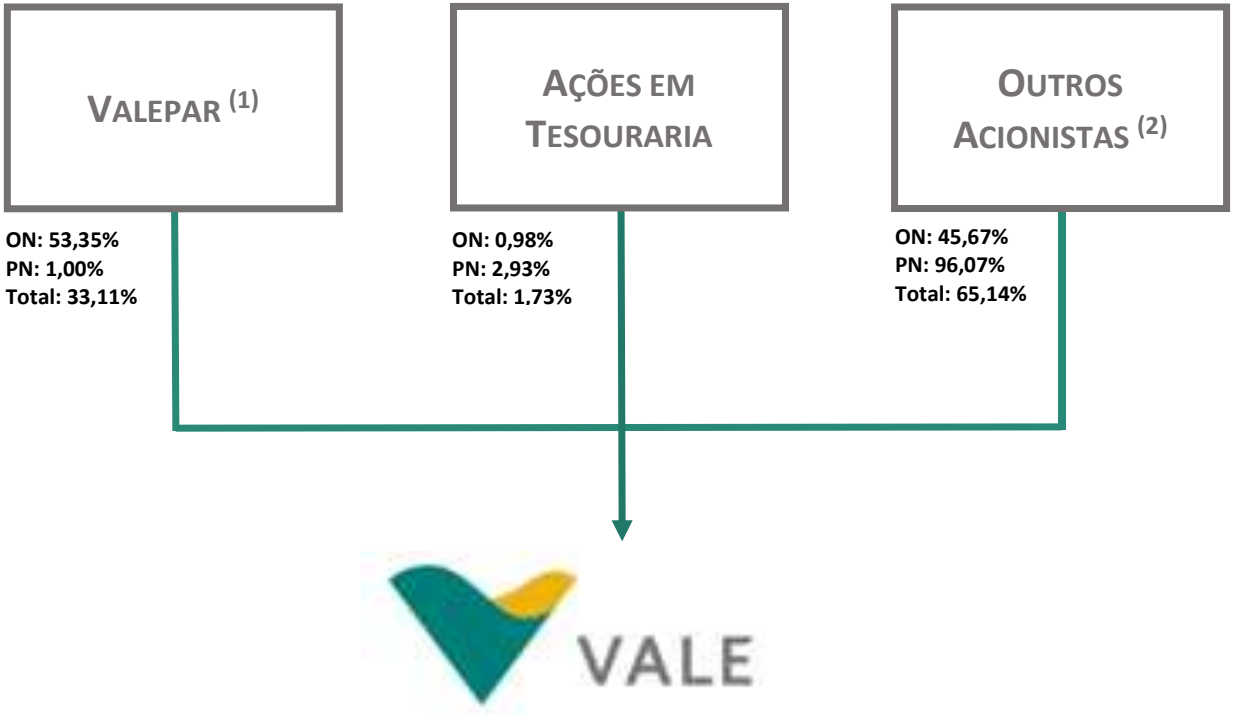
Outstanding Shares

Outstanding shares corresponding to all shares of the issuer, except those held by the controlling shareholder, the persons related to it, the managers of the issuer, and the shares held in treasury.

Quantity common shares (Units)	1,469,195,191	45.67%
Quantity preferred shares (Units)	1,945,373,882	95.97%
Number of class A preferred shares (Units)	1,945,373,882	95.97%
Total	3,414,569,073	65.11%

15.4 Organization chart of the issuer's shareholders and the economic group in which it is inserted, indicating:

a. all direct and indirect controlling parties and, in case the issuer so wishes, the shareholders with interest equal to or grater than 5% of one class or type of shares



1. PARA INFORMAÇÕES SOBRE OS ACIONISTAS CONTROLADORES DA VALEPAR, VIDE O TEXTO ABAIXO.
2. CONSIDERA TODOS OS DEMAIS ACIONISTAS, EXCLUÍDAS AS PARTICIPAÇÕES DETIDAS PELA VALEPAR E AS AÇÕES MANTIDAS EM TESOURARIA.

Valepar S.A. is a holding that holds direct control of Vale, with interest, on April 30, 2017, of 33.12% of the Company's capital stock. Valepar is controlled by (i) Litel Participações S.A., a holding (52.99%); (ii) Litela Participações S.A. (5.08%); (iii) Bradespar S.A., a holding (17.44%); (iv) Mitsui & Co., Ltd, a trading company (15.00%); and (v) BNDES Participações S.A., a holding (9.46%).

Litel Participações S.A. is a holding controlled by BB Carteira Ativa (80.62%), an investment fund managed by BB Gestão de Recursos – Distribuidora de Títulos e Valores Mobiliários S.A., quotas of which are 100% held by Previ – Caixa de Previdência dos Funcionários do Banco do Brasil ("Previ"). Previ is a closely-held private pension plan entity and its participants are Banco do Brasil employees and Previ employees. The referred to fund is managed by BB Gestão de Recursos - Distribuidora de Títulos e Valores Mobiliários S.A.. For information on Previ management, see item 15.8 of this Reference Form.

Litela Participações S.A. is a holding wholly owned by Litel Participações S.A.

Bradespar S.A. is a holding controlled by (i) Cidade de Deus Cia. Cial. de Participações S.A., a holding (12.93%), (ii) NCF Participações S.A., a holding (9.33%); and (iii) Fundação Bradesco, a nonprofit entity with the purpose of providing education and professionalization to children, youngsters and adults (5.20%). For more information on Fundação Bradesco, see item 15.8 of this Reference Form. Cidade de Deus Cia. Cial. de Participações S.A. is controlled by Nova Cidade de Deus Participações S.A., a holding (45.18%), Fundação Bradesco (33.41%) and Mrs. Lia Maria Aguiar (6.46%). NCF Participações S.A. is controlled by Fundação Bradesco (60.42%), Cidade de Deus Companhia Comercial de Participações S.A. (39.51%) and Nova Cidade de Deus Participações S.A. (0.07%). Nova Cidade de Deus Participações S.A. is controlled by Fundação Bradesco (73.93%) and BBD Participações S.A. (26.07%). BBD Participações S.A. has its capital stock broken down among its various shareholders, with NCD Participações Ltda. being the largest of them, with 23.14% of the total capital stock.

Mitsui & Co., Ltd is a trading company headquartered in Japan, with its capital stock highly pulverized. For information on the main shareholders of Mitsui, see item 15.8 of this Reference Form.

BNDES Participações S.A. is a holding wholly owned by Banco Nacional de Desenvolvimento Econômico e Social – BNDES ("BNDES"), which holds (i) direct interest of 5.20% in the capital stock of the Company, and (ii) indirect interest in the capital stock of the Company, in the capacity of shareholder of Valepar, as shown above. BNDES is a public enterprise, shares of which are 100% held by the Federal Government.

b. main subsidiaries and affiliates of the Company:

On March 31, 2017, Vale controlled or held interest in the following companies (for a detailed description of the subsidiaries and affiliates of the Company engaged in activities relevant to Vale's business, see item 9 of this Reference Form):

Aceros Del Orinoco S.A
Aços Laminados do Pará S.A.
ACWA Power Moatize Limited
ACWA Power Moatize Termoeléctrica S.A.
Aliança Eólica Santo Inácio Participações S.A.
Aliança Geração de Energia S.A
Aliança Norte Energia Participações S.A
Anyang Yu Vale Yongtong Pellet Co., Ltd.
Associação Centro Cultural Vale Maranhão
Associação Casa de Cultura Canaã dos Carajás
Associação de Terminais Portuários Privados - ATP
Associação Instituto Tecnologico Vale
Associação Memorial Minas Gerais Vale
Associação Museu Vale
Associação Vale para Desenvolvimento Sustentável
Australian Coal Inter Holding (NL) I B.V
Balderton Trading Corporate
Baovale Mineração S.A.
Beijing Iron Ore Trading Center Corporation
Belcoal Pty Ltd
Belvedere Australia (BP) PTY Ltd

Belvedere Coal Management Pty Ltd
Belvedere JV (Unincorporate)
Biopalma da Amazônia S.A - Reflorestamento, Indústria e Comércio
Bowen Central Coal JV (Unincorporate)
Bowen Central Coal Pty Ltd. - (ACN107 198 676)
Bowen Central Coal Sales Pty Ltd. - (ACN 107 201 230)
Caemi Holding GmbH
California Steel Industries, Inc.
Camberwell Coal Pty Ltd. - (ACN 003 825 018)
Central Eólica Garrote S.A
Central Eólica Santo Inácio IV S.A
Central Eólica São Raimundo S.A
Central Santo Inácio III S.A
CMM Overseas S.A
Companhia Coreano-Brasileira de Pelotização
Companhia Hispano-Brasileira de Pelotização
Companhia Italo-Brasileira de Pelotização
Companhia Nipo-Brasileira de Pelotização
Companhia Paulista de Ferro-Ligas
Companhia Portuaria Baia de Sepetiba
Companhia Siderúrgica Ubu
Companhia Usina Tecpar
Compañia Minera Miski Mayo S.Ac.
Consórcio AHE Porto Estrela
Consórcio BM-ES-27
Consórcio BM-PAMA-10
Consórcio BM-PAMA-11
Consórcio BM-PAMA-12
Consórcio Capim Branco Energia
Consórcio da Usina Hidrelétrica de Igarapava
Consórcio de Rebocadores da Baia de São Marcos
Consórcio de Rebocadores da Barra dos Coqueiros
Consórcio Estreito Energia - CESTE
Consórcio Gesai - Geração Santa Isabel
Consórcio Machadinho
Consórcio Railnet
Consórcio SF-T-81
Consórcio UHE Candonga
Copperbelt (B) Inc.
Corredor do Desenvolvimento do Norte S.a.r.L
Corredor Logistico Integrado de Nacala, S.A
CPP Participações S.A
CSI Tubular Products Inc
CSP - Companhia Siderúrgica do Pecem
Cubatão Fertilizer B.V
Cubatão Nitrogenados S.A
Docepar S.A.
Eagle Downs Coal Management PTY Ltd
Eastern Star Resources Pty
Empreendimentos Brasileiros de Mineração S.A.
Exide Group Incorporated
Ferrovia Centro-Atlântica S.A.
Ferrovia Norte Sul S.A
Ferteco Europa S.à.r.l
Florestas Rio Doce S.A
Fortlee Investments Ltd
Fundação Caemi de Previdência Social
Fundação Estação do Conhecimento Moçambique
Fundação Jussor
Fundação Renova
Fundação Vale
Fundação Zoobotânica de Carajás
Glennies Creek Coal Management Pty Ltd. - (ACN 097 768 093)
Globalore PTE LTD.
Henan Longyu Energy Resources Co. Ltd.

IFC - Indústria de Fosfatados Catarinense Ltda
Instituto Ambiental Vale
Integra Coal Operations Pty Ltd. - (ACN 118 030 998)
Integra Coal Sales Pty Ltd. - (ACN 080 537 033)
Integrated Logistics Company Pty Ltd
Internacional Iron Company. Inc
Isaac Plains Coal Sales Pty Ltd. - (ACN 114 276 701)
Kaolin Overseas Ltd.
Kaserge Serviços Gerais Ltda.
Kasonta - Lupoto Mines s.p.r.l
Kasonta (B) Inc.
Katanga (B) Inc.
Konnoco (B) Inc.
Korea Nickel Corporation
Lubambe Copper Mine Ltd.
Lukali Holdings (B) Inc.
Maitland Main Collieries Pty Ltd. - (ACN 000 021 652)
MBR Overseas Ltd.
Minas da Serra Geral S.A.
Mineração Corumbaense Reunida S.A
Mineração Dobrados S.A. Indústria e Comércio
Mineração Guanhães Ltda.
Mineração Guariba Ltda
Mineração Manati LTDA
Mineração Mato Grosso S.A
Mineração Ocirema Indústria e Comércio Ltda
Mineração Rio do Norte S.A
Minerações BR Holding GmbH
Minerações Brasileiras Reunidas S.A.
Moatize Coal Investment (PTY) LTD
Monticello Insurance Ltd.
MRS Logística S.A
MS Empreendimentos e Participações Ltda
MSE - Serviços de Operação, Manutenção e Montagem Ltda
MV Fertilizer Netherlands B.V.
MVM Resources International B.V
Nacala Corridor (DIFC) Limited
Nacala Corridor Holding Netherlands B.V
Norte Energia S.A.
Pangea (Emirates) Limited
Pineland Timber Company Ltd
Ponta Ubu Agropecuaria Ltda
Potássio Rio Colorado S.A.
Prairie Potash Mines Limited
PT Sumbawa Timur Mining
PT Vale Eksplorasi Indonesia
PT Vale Indonesia Tbk
Qld Coal Holdings Pty Ltd - (ACN 081 724 129)
Railvest Investments Inc
Retiro Novo Reflorestamento Ltda
Rio Doce Australia Pty Ltd
Rio Doce International S.A
Salobo Metais S.A
Samarco Mineração S.A.
SDCN - Sociedade de Desenvolvimento do Corredor de Nacala
Seamar Shipping Corporation
Sociedade de Desenvolvimento Estudo e Implantação do Corredor de Nacala-(SDEICN (SPE))
Société d'exploration minière Vior Inc.
Société Industrielle et Commerciale Brasilo-Luxembourgeoise - Brasilux
SRV Corporate S.A.
Startec Iron LLC
TEAL (Zambia) Ltd
TEAL Bazaruto (B) Incorporate
TEAL Etolie (B) Incorporated
TEAL Holdings (B) Incorporated

TEAL Lubumbashi (B) Inc.
TEAL Management Corporation
Teal Metals (DRC) Ltd s.p.r.l
Teal Minerals (Barbados) Incorporated
Teal Minerals (Barbados) Incorporated (Switzerland Branch)
Teal Mining (DRC) s.p.r.l
Teal Mining Moçambique
Tecnored Desenvolvimentos Tecnológicos S.A.
Tecnored Tecnologia de Auto-Redução S.A.
The Central East African Railway
Tiebaghi Nickel S.A.S (Branch)
Tiebaghi Nickel S.A.S.
Transbarge Navegacion S.A.
Transporte Ferroviário Concesionária S.A
Transporte Ferroviário Inversora Argentina S.A
Troy Resources Limited
TUF Empreendimentos e Participações S.A
Ultrafértil S.A
Vale Americas Inc
Vale Ásia Kabushiki Kaisha
Vale Australia (EA) Pty Ltd - (ACN 081 724 101)
Vale Australia (GC) Pty Ltd - (ACN 097 238 349)
Vale Australia (IP) Pty Ltd - (ACN 114 276 694)
Vale Australia Holdings Pty Ltd (ACN 075 176 386)
Vale Australia Pty Ltd (ACN 062 536 270)
Vale Base Metals Americas, Inc
Vale Base Metals Asia Pacific Pte. Ltd
Vale Belvedere (BC) PTY
Vale Belvedere (SEQ) Pty Ltd
Vale Belvedere Pty Ltd (ACN 128 403 645)
Vale Canada Ltd
Vale China Holdings (Barbados) Ltd.
Vale Colombia SAS en Liquidación
Vale Comércio Internacional SE
Vale Cubatão Fertilizantes Ltda
Vale Emirates Ltd.
Vale Energia S.A
Vale Europa SE
Vale Europe Limited
Vale Europe Pension Trustees Ltd.
Vale Evate Moçambique, Ltda
Vale Exploracion Argentina S.A.
Vale Exploraciones Chile Ltda
Vale Exploraciones Mexico S.A. de C.V.
Vale Exploration Peru SAC
Vale Exploration Philippines Inc
Vale Exploration Pty Ltd (ACN 127 080 219)
Vale Fertilizantes S.A.
Vale Fertilizer International Holding B.V
Vale Fertilizer Netherlands B.V
Vale Holdings & Services AG
Vale Inco Europe Holdings
Vale Inco Management Advisory Services (Shangai) Co., Ltd.
Vale India Private Limited
Vale International Holdings GmbH
Vale International Korea
Vale International S.A
Vale International S.A - Singapore Branch
Vale International S.A-DIFC
Vale Investments Ltd.
Vale Japan Ltd.
Vale Limited
Vale Logística Africa, LDA
Vale Logística de Argentina S.A
Vale Logística de Uruguay S.A

Vale Logistics Limited
Vale Malaysia Minerals Sdn. Bhd.
Vale Malaysia Sdn. Bhd.
Vale Manganês S.A
Vale Mauritius Ltd.
Vale Metais Basicos S.A
Vale Metals (Shanghai) Co.,Ltd
Vale Minerals China Co. Ltd
Vale Moçambique S.A
Vale Newfoundland & Labrador Ltd.
Vale Nickel (Dalian) Co. Ltd
Vale Nouvelle-Calédonie Branch
Vale Nouvelle-Calédonie S.A.S.
Vale Oil & Gas Peru S.A.C
Vale Óleo e Gás S.A
Vale Oman Distribution Center LLC
Vale Oman Pelletizing Company LLC
Vale Overseas Ltd.
Vale Pecém S.A
Vale Potash Canada Ltd
Vale Projectos e Desenvolvimento Moçambique, Limitada
Vale Shipping Company Pte Ltd
Vale Shipping Enterprise Pte. Ltd
Vale Shipping Holding Pte. Ltd
Vale Slabs S.A
Vale Soluções em Energia S.A
Vale South Africa (Proprietary) Ltd.
Vale Switzerland S.A
Vale Taiwan Limited
Vale Technology Development (Canada) Limited
Vale Trading (Shanghai) Co., Ltd
Vale Zambia Limited
ValeServe Malaysia Sdn. Bhd.
Valesul Alumínio S.A.
VLI Multimodal S.A
VLI Operação Ferroviária Independente S.A.
VLI Operações Portuárias S.A
VLI Participações S.A
VLI S.A
VLI Soluções S.A
Wiggins Island Coal Export Terminal Pty Ltd
Yayasan Mokora Husada (Foundation)
Zhuhai YPM Pellet Co. Ltd

c. Company's interests in group companies

On March 31, 2017, Vale had no interest in other companies in the group other than its subsidiaries and affiliates.

d. group companies' interests in the Company

On March 31, 2017, none of the companies in the group, which is not a direct or indirect controlling shareholder of Vale, held direct or indirect interests in the Company.

e. companies under common control

On March 31, 2017, there were no companies under common control of Valepar and its controlling shareholders, in a joint manner, other than Vale and its subsidiaries.

15.5 Shareholders' agreement filed at the issuer's headquarters or of which the controller is a party

Vale has no shareholders' agreement. However, Litel Participações S.A. ("Litel"), Litela Participações S.A. ("Litela"), Bradespar S.A. ("Bradespar"), Mitsui & Co. ("Mitsui"), Ltd., BNDES Participações S.A. ("BNDESPAR"), shareholders of Valepar S.A. ("Valepar"), entered into a new Shareholders' Agreement of Valepar S.A. ("Valepar Shareholders' Agreement") on February 19, 2017, which got into effect on May 10, 2017 and shall be valid for 6 months or until the date of approval of Valepar's merger into the Company at Valepar's General Meeting, whichever occurs first. On the effective date of the merger of Valepar into the Company, if approved, Litel, Bradespar, Mitsui and BNDESPAR will enter into a new shareholders' agreement ("Vale Agreement"), with a view to providing the Company with stability and adjusting its corporate governance structure during the period of transition to its new corporate structure without defined control. The Vale Agreement, draft of which constitutes an appendix to the Valepar Shareholders' Agreement will only bind 20% of total common shares issued by Vale, and it will remain in effect until November 9, 2020, without projection of renewal.

a. Parties

The Valepar Shareholders' Agreement: Litel Participações S.A., Litela Participações S.A., Bradespar S.A., Mitsui & Co. Ltd. and BNDES Participações S.A.. (collectively, "Signatory Parties")

b. Date of execution

The Valepar Shareholders' Agreement: February 19, 2017.

c. Term of Effectiveness

The Valepar Shareholders' Agreement: 6 (six) months after May 10, 2017 or until the date of approval of Valepar's merger into Valepar at Valepar's General Meeting, whichever occurs first.

d. Description of clauses regarding exercise of voting rights and power of control

The Valepar Shareholders' Agreement determines that the Signatory Parties to the Agreement undertake to instruct their representatives at Vale's General Shareholders' Meetings and Board of Directors Meetings to vote as decided at a Prior Meeting at Valepar.

Except in the case of the higher quorums mentioned below, the decisions at the Prior Meetings will be made by majority voting of the common shares bound to the Valepar Shareholders' Agreement held by the Signatory Parties to the Agreement in attendance.

In accordance with the Valepar Shareholders' Agreement, approval is required from the holders of at least 75% of the bound common shares in order to make the following kinds of decisions:

1. Changes to Vale's articles of incorporation, except in the case of a legal requirement;

2. Changes in the capital stock of Vale or its subsidiaries, including, but not limited to, the issuance of additional shares, the creation of a new class of shares, changes to the characteristics of existing shares, or a reduction in the equity capital of these companies;

3. Bond issues by Vale, whether or not they are convertible into shares, subscription rights, options to buy shares or any other security;

4. Determination of the price of issuance of new Vale shares and any bonds or securities;

5. Merger, incorporation, share incorporation and spin-off operations to which Vale is a party, and its transformation;

6. Requests by Vale to carry out or suspend liquidation, dissolution, judicial or extrajudicial reorganization, or bankruptcy processes, or voluntary financial reorganization acts;

7. Removal of members from the Board of Directors and Executive Board, including their respective chairmen;

8. Removal of members from Vale's Board of Directors, including its chairman, and the election and removal of Vale's executive board;

9. Acquisition of Vale shares to be held in treasury, cancelled or subsequently disposed of;

10. Vale's participation in groups of companies or consortia of any kind;

11. Signing of agreements involving distribution, investments, sales, exports, technology transfer, brand licensing, the use of patents, authorization of use and leasing to which Vale is a party;

12. Establishment of overall annual compensation of Vale's officers;

13. Decisions on the distribution of the total sum of Vale officers' compensation among the members of its Board of Directors, Executive Board, Audit Committee and their committees;

14. Assignment of profit shares to Vale's officers;

15. Decisions on policies for the selection, evaluation, development and compensation of members of Vale's Executive Board;

16. Establishment of the Executive Board's duties, as well as those of Vale's Executive Board;

17. Modification to Vale's business purpose;

18. Distribution of dividends and/or interest on shareholders' equity by Vale or its non-distribution;

19. Selection and removal of Vale's independent auditor;

20. Constitution by Vale of collateral or provision of guarantees, including sureties, to guarantee obligations of third parties, including Vale's affiliates and subsidiaries;

21. Decisions on any subjects that, by law, give shareholders the right to withdraw from Vale in exchange for reimbursement for their shares;

22. Election and removal, by Vale's Executive Board, of Vale's representatives at its subsidiaries or affiliates, or other companies at which Vale is entitled to appoint officers;

23. Establishment of maximum limit for Vale's indebtedness;

24. Taking out of loans, funding or leasing operations by Vale, or the performance of other operations that have a similar or equivalent economic nature, which are not provided for in its fundraising plan;

25. Approval of Vale's strategic guidelines and strategic plan;

26. Approval of Vale's annual and multi-year budgets and fundraising plan;

27. Approval of investments and/or divestments by Vale;

28. Establishment of companies by Vale or the transformation of existing companies into another kind of company, the direct or indirect acquisition or disposal of equity stakes in other companies, consortia, foundations and other entities, including through exercising the right to withdraw, exercising or renouncing preemptive rights in subscriptions, and the direct or indirect acquisition of equity stakes, or any other method permitted by law, including, but not limited to, merger, spin-off, incorporation and share incorporation operations at companies in which Vale participates;

29. Approval of Vale's annual report and financial statements;

30. Reformulations, changes or amendments to shareholders' agreements, or consortium contracts, or agreements between shareholders or between consortia of companies or consortia in which Vale participates, and the signing of new consortium agreements and/or contracts that involve subjects of this nature;

31. Approval of Vale's Policy on Transactions with Related Parties;

32. Signing or change of contracts of any kind or value concerning any situations that, pursuant to Vale's Policy on Transactions with Related Parties, constitute a transaction with a related party;

33. Disposal by Vale of fixed assets that, considered alone or cumulatively, over a period of 12 (twelve) months, are worth more than 1% (one percent) of total assets, calculated based on the latest Quarterly Information (ITR) disclosed by Valepar or Vale, as applicable.

Furthermore, the Valepar Shareholders' Agreement specifies that certain subjects may only be approved at a Prior Meeting if votes are received from at least 95% of total bound common shares, including: (i) mergers, spin-offs, incorporations or share incorporations involving Valepar and its participation in a group of companies; and (ii) disposal, by any right, of shares issued by Vale belonging to Valepar.

e. Description of clauses regarding the appointment of officers or members of statutory committees

Vale's business management will be carried out by experienced, independent and qualified professionals who meet the necessary qualifications for the positions they hold.

According to the Valepar Shareholders' Agreement, for the purpose of electing the Directors of Vale's Board of Directors at the respective general shareholders' meetings, the Signatory Parties will appoint all the Directors, appointment of which falls on Valepar, in proportion to its share of total common shares bound to the Valepar Shareholders' Agreement, not including posts assigned to directors elected by a multiple vote procedure, by minority shareholders or by employees, pursuant to articles 140 and 141 of Law 6,404 of 1976. Vale's Chief Executive Officer will be selected from among three candidates proposed by an international head hunter firm and elected at a meeting of Vale's Board of Directors called for this purpose. Vale's Chief Executive Officer will be tasked with proposing the names of the other officers to the Vale's Board of Directors.

Each Signatory Party may, during the respective term of office, replace the Director it has appointed. In this situation, all Signatory Parties will vote in favor of the name thereby proposed at the general shareholders' meeting called for this purpose.

f. Description of clauses regarding transfers of shares and preemptive rights to acquire them

The Valepar Shareholders' Agreement prohibits the direct acquisition of shares issued by Vale by the Signatory Parties, unless authorized by the other signatory parties, to be taken at the Prior Meeting of Shareholders, in which the issue must be approved by quorum 75% of the total common shares issued by Valepar linked to the Valepar Shareholders' Agreement.

Furthermore, according to the Valepar Shareholders' Agreement, approval is required from the holders of 95% (ninety-five percent) of the common shares bound to this agreement in order to divest, by any right, shares issued by Vale that belong to Valepar.

g. Description of clauses restricting or binding the right to vote of members of the board of directors

See item "d" above.

15.6 – Significant changes to stakes held by members of the issuer's control group and officers

There were no significant changes to stakes held by members of the Company's control group and officers, in the latest 3 (three) years.

15.7 – Main corporate events occurred at the issuer, subsidiaries or affiliates

2014

Sale of share in Vale Moçambique and the Logistic Corridor of Nacala

In December 2014, Vale entered into an investment agreement with Mitsui, under which Mitsui would hold, subject to compliance with precedent conditions, 15% of Vale's 95% share in Vale Moçambique (concessionaire of the Moatize mine) and 50% of Vale's share in the Logistic Corridor of Nacala ("Nacala Corridor"). In September 2016, the Company negotiated with Mitsui the new terms and conditions for the transaction, which were approved by its Board of Directors. These new terms and conditions were made formal in November 2016 and the conclusion of the transaction occurred in March 2017.

This transaction had no effect on Vale's shareholding structure.

The mechanism used to ensure fair treatment among shareholders consisted in submitting the matter to the approval of Vale's Board of Directors, and the directors appointed by Mitsui did not receive material or participate in the process of analysis and discussion in the respective transaction within the scope of the decision-making process of Vale, and in compliance with the procedures set forth in the Related Party Transaction Policy adopted by the Company.

Sale of interest in Vale Florestar

On June 4, 2014, Vale announced the execution with a subsidiary of Suzano Papel e Celulose S.A. ("Suzano Subsidiary"), company that produces eucalyptus cellulose, an agreement to sell its entire interest in Vale Florestar Fundo de Investimento em Participações ("FIP Vale Florestar"), in the amount of R$ 205 million. The usual precedent conditions and approvals, including by Conselho Administrativo de Defesa Econômica ("CADE") were complied with and, thus, the transaction was effective on August 8, 2014.

BNDESPar, Petros and FUNCEF, other shareholders of FIP Vale Florestar also sold their respective shares to the Suzano Subsidiary that now holds 100% of the FIP Vale Florestar.

This transaction had no effect on Vale's shareholding structure. Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

Sale of maritime transportation assets and cooperation agreements

Vale and China Cosco Bulk Shipping (Group) Co. Ltd.

On September 12, 2014, Vale and China Cosco Bulk Shipping (Group) Co. Ltd. ("Cosco") entered into a strategic cooperation agreement for maritime iron ore transportation. Under this agreement, four 400 thousand tons VLOCs (Very Large Ore Carriers), currently owned and operated by Vale Internacional, would be sold to Cosco, and Cosco would be responsible for building additional 10 ships to be used for iron ore transportation. On May 19, 2015, Vale and China Ore Shipping Pte. Ltd., a Cosco subsidiary, entered into a charter agreement for the transportation of 6.4 million tons of ore per year. On June 2, 2015, the referred to sale was completed, together with the delivery of the ships, with the transaction totaling US$ 445 million.

This transaction had no effect on Vale's shareholding structure. Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

Vale International S.A and Hong Kong Ming Wah Shipping Co. Ltd.

On September 26, 2014, Vale International S.A. ("Vale International") and Hong Kong Ming Wah Shipping Co. Ltd (a subsidiary of China Merchants Energy Shipping Co. Ltd.) entered into an agreement that covers a strategic cooperation between both maritime iron ore transportation companies ("Cooperation Agreement"). The referred to Cooperation Agreement provided for the construction by China Merchants Energy Shipping Co. Ltd ("CMES") of 10 vessels to be used in the transportation of iron ore. On May 19, 2015, Vale International and CMES entered into an amendment to the Cooperation Agreement, under which Vale International would sell four VLOCs to CMES.

On September 25, 2015, Vale International and Hong Kong Ming Wah Shipping Co. Ltd entered into a 20-year transportation agreement, with Vale International's option to extend for a further five years. The agreement provided for the sale of four VLOCs and the transport of 6.4 million tons to CMES. The referred to sale was concluded on September 29, 2015, and the transaction summed US$ 448 million.

This transaction had no effect on Vale's shareholding structure. Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

Vale International and ICBC Financial Leasing and Millenia Resources

On December 15, 2014, Vale International SA and ICBC Financial Leasing and Millenia Resources entered into a cooperation agreement for maritime iron ore transportation. Initially, under the agreement, two VLOC vessels, with 400,000 tons capacity, owned and operated by Vale, would be sold to a consortium of investors led by ICBC Financial Leasing and Millenia Resources.

On December 8, 2015, Vale Shipping Singapore, a subsidiary of Vale International, and VLOC Maritime HK., Ltd., a subsidiary of ICBC Financial Leasing and of Millenia Resources, concluded a purchase and sale transaction of four VLOCs, which amounted to US$423 million. The amount was received by Vale, concurrently with the delivery of the vessels to the new owners on December 8, 2015.

This transaction had no effect on Vale's shareholding structure. Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

2015

Review of the Simandou iron ore project in the Republic of Guinea

Vale acquired from BSG Resources Ltd. ("BSGR") on April 30, 2010 a 51% stake in BSG Resources (Guinea) Ltd., now known as VBG - Vale BSGR Limited ("VBG"), which held at the time iron ore concessions in Southern Simandou (Zogota) and exploration licenses in Northern Simandou (blocks 1 and 2) in the Republic of Guinea. On March 13, 2015, Vale transferred its shareholding in VBG back to BSGR, due to the revocation by the Government of Guinea of the mining rights to the concession areas Simandou and Zogota held by VBG.

This transaction had no effect on Vale's shareholding structure. Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

Sale of Interest in MBR

On July 29, 2015, Vale has executed the Purchase and Sale Agreement of Shares and Other Covenants, with the Fundo de Investimento em Participações Multisetorial Plus II ("FIP Plus II"), which shares are held on this date by Banco Bradesco BBI S.A., under which it promised to sell the class A preferred shares representing 36.4% of the capital stock of Minerações Brasileiras Reunidas S.A. – MBR ("MBR"), for R$ 4.0 billion, subject to precedent conditions usually applicable, including prior approval of the operation by CADE.

On September 1, 2015, the sale was concluded for the agreed price, which was transferred in one single installment on that date, and Vale now holds directly and indirectly 61.9% of the capital stock and 98.3% of the common capital of MBR. Vale also holds a purchase option of shares issued by MBR currently held by BBI, successor of FIP Plus II.

This transaction had no effect on Vale's shareholding structure. The mechanism used to ensure fair treatment among shareholders consists in submitting all transactions with related parties to the approval of Vale's Board of Directors, after the favorable opinion of the Governance and Sustainability Committee, and the director appointed by the controlling shareholder did not receive material or participate in the process of analysis and discussion of the respective transaction within the scope of the decision-making process of Vale, in compliance with the procedures set forth in the Related Party Transaction Policy adopted by the Company.

Return and assignment of exploratory blocks

On July 27, 2015, an application for the return of the exploratory rights of the blocks related to the BM-ES-27 concession agreement was filed with the National Agency of Petroleum, Gas and Biofuels - ANP.

On September 24, 2015, Supreme Decree no. 030-2015-EM approved the assignment of exploratory rights to the Contract of Block XXI in Peru, from Vale Oleo & Gas Peru S.A.C to Gold Oil Peru S.A.C.

On October 28, 2015, it was approved the extinction of the Board of Directors, replacement of the Chief Executive Officer and Officer, and incorporation of Vale Oleo e Gas to the group company.

This transaction had no effect on Vale's shareholding structure. Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

Sale of the Isaac Plains mine

In November 2015, Vale completed the sale of its 50% stake in the joint venture Isaac Plains and all assets associated to Stanmore Coal Limited ("Stanmore"). Under this agreement, Vale will pay A$21.6 million in 12 installments per month to Stanmore, which will assume Vale's liabilities under the joint venture agreement. Stanmore has agreed to pay royalties to Vale in the amount of A$2.0 per ton on the coal produced and sold at the Isaac Plains coal mine for a period of ten years, subject to a certain price thresholds, up to an aggregate amount of A$21.6 million.

This transaction had no effect on Vale's shareholding structure. Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

Sale of Integra coal operations

In December 2015, Vale completed the sale of its 68.4% stake in the Integra Coal Joint Venture ("ICJV") and all the assets associated to Glencore Plc ("Glencore"). As consideration, Glencore has agreed to pay royalties to Vale in the amount of A$1.50 per ton on the coal produced and sold by ICJV, based on mineral rights currently held by ICJV, proportional to Vale's stake in ICJV prior to the sale and limited to an annual volume of two million metric tons for ten years. As part of the transaction, Glencore has assumed some, but not all, ICJV liabilities, including certain "take or pay" logistics agreements.

This transaction had no effect on Vale's shareholding structure. Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

Restructuring power generation assets

On December 19, 2013, Vale signed agreements with CEMIG Geração e Transmissão S.A. ("CEMIG GT") for the creation of two joint ventures: (i) Aliança Geração de Energia S.A., consisting of power generation projects and assets of the two companies; and (ii) Aliança Norte Energia Participações S.A., formed by the sale to CEMIG GT of 49% of Vale's 9% stake in Norte Energia S.A. ("NESA"), the company responsible for the construction, operation and exploration of the Belo Monte hydroelectric plant, for approximately R$ 310 million.

On February 27, 2015, Vale completed the transaction started in December 2013 with CEMIG GT to create the joint venture Aliança Geração de Energia S.A., through the contribution of its stakes in some projects (Central Eólica Garrote Ltda., Central Eólica São Raimundo Ltda., Central Eólica Santo Inácio III Ltda., and Central Eólica Santo Inácio IV Ltda.) and assets in operation (Consortium of the Igarapava Hydroelectric Power Plant, Consortium AHE Porto Estrela, Consortium AHE Funil, Consortium UHE Candonga, Consortium of the Aimorés Hydroelectric Power Plant and Consortium Capim Branco Energia to Aliança Geração).

On February 31, 2015, Vale completed the transaction started in 2013 with Cemig GT to create the joint venture Aliança Norte Energia Participações S.A. through the sale of 49% of its 9% stake in the Belo Monte hydroelectric power plant project for approximately R$ 310 million.

This transaction had no effect on Vale's shareholding structure. Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

Divestiture of Shandong Yankuang International Coking Co., Ltd. ("Yankuang")

The Company concluded the sale of its total participation in Yankuang, producer of coke, methanol and other products on April 8, 2015, for an insignificant amount.

This transaction had no effect on Vale's shareholding structure. Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

2016

Minas da Serra Geral S.A. ("MSG")

In March 2016, the Company performed the purchase option of an additional stake of 50% in MSG, which was held by JFE Steel Corporation ("JFE") for the sum of R$ 65 million. With this, Vale holds 100% of the capital of MSG.

This transaction had no effect on Vale's shareholding structure. Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

Thyssenkrupp Companhia Siderúrgica do Atlântico Ltd ("CSA")

In 2016, the Company sold 100% of its interest in CSA (26.87%) for an insignificant amount. With the completion of the transaction, Thyssenkrupp now holds 100% of CSA's share capital.

This transaction had no effect on Vale's shareholding structure. Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

Sale of very large ore carriers

In June 2016, Vale Shipping Enterprise and Vale Shipping Holding, subsidiaries of Vale International, completed the sale of three very large ore carriers (400,000 deadweight), for an aggregate value of US$ 269 million for a subsidiary of ICBC International Finance Limited. In September 2016, the sale of four capesize vessels to Polaris Shipping Co. Ltd., was agreed, at US$ 35 million each. It is worth stressing that two of these four vessels were delivered in December 2016, while the the two remaining ones were delivered in January 2017. The amounts were received in parallel with the respective deliveries of the vessels to the new owners.

This transaction had no effect on Vale's shareholding structure. Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

Partnership in coal assets in Mozambique

In September 2016, the Company negotiated, with Mitsui, the new terms and conditions for the partnership in coal assets, in Mozambique, which were approved by its Board of Directors. As per the new terms and conditions, formalized in November 2016, Mitsui agreed to pay Vale an amount of up to US$ 450 million, consisting of: (i) a fixed payment of US$ 255 million for 15% of 95% of Vale's stake in the Moatize's coal mine, and (ii) an additional amount of up to US$ 195 million, subject to certain conditions, including the mine performance. Mitsui will also make a contribution of approximately US$ 348 million for a 50% stake in Vale's 70% stake in the Nacala Logistics Corridor, and extend long-term financing of US$ 165 million to the Nacala Logistics Corridor. Vale completed the equity transaction with Mitsui on March 27, 2017. The total value of the transaction will be approximately US$ 770 million, including all amounts mentioned above, except for the additional amount of up to US$ 195 million, which is subject to certain conditions, such as mining performance, yet to be met. Of the US$ 770 million, the Company received US$ 733 million upon the completion of the capital equity transaction on March 27, 2017, and it expects to receive the remaining amount upon the completion of the project financing, expected to occur in 2017. Should the project financing not be signed before the end of 2017, Mitsui has certain rights to transfer to Vale its stake in the Moatize coal mine and Nacala Logistics Corridor.

This transaction had no effect on Vale's shareholding structure. The mechanism adopted to ensure fair treatment among shareholders consisted in submitting all transactions with related parties to the Vale's Board of Directors for approval, and the board member appointed by the controlling shareholder involved

neither received material nor participated in the process of analysis and discussion on the respective Transaction in the context of Vale's decision-making process, and in compliance with the procedures set forth in the Related Party's Transaction Policy adopted by the Company.

Sale of coal assets in Australia

In November 2016, Vale sold, to one of the subsidiaries of AMCI Euro-Holdings BV ("AMCI") its interests in certain coal assets in Australia, including operations in Carborough Downs, the currently suspended operation in Broadlea, and the ore deposits for development in Ellensfield and Red Hill. AMCI will assume all existing rights and obligations in relation to the assets, including all existing take-or-pay agreements, associated employment obligations and any future claim environmental damages. The transaction does not provide for prepayments, except for possible future payments of up to A30 million Australian dollars in production bonuses on the first coal production in mining rights, as well as royalties of up to US$ 5.00 per ton of coal sold from these assets. As part of the same transaction, the Company has also agreed to sell certain additional, superficial and servient mining rights around these assets, with the closing of such additional sale being subject to regulatory approvals in Australia..

This transaction had no effect on Vale's shareholding structure. Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

Sale of Fertilizer Business

In December 2016, Vale entered into a contract with Mosaic to sell a significant part of its fertilizer business, which includes (i) its phosphate assets in Brazil; (ii) its participation in the joint venture that operates the phosphate rock mine in Bayóvar, Peru; (iii) its potash assets located in Brazil; and (iv) its potash project located in Canada (Kronau). Only the nitrogen and phosphate assets located in Cubatão were not included in this sales agreement.

Vale expects to receive from Mosaic, in consideration, a total of approximately US$ 2.5 billion, of which US$ 1.25 billion in cash and approximately 42.3 million in Mosaic common shares, corresponding to approximately 11% (on a post-issuance basis) of the outstanding common shares of Mosaic. Subject to limited exceptions, Mosaic's shares to be issued to Vale shall not be transferred for two years after the closing of the transaction, after which Vale will be entitled to registration. Upon closing of the transaction, Vale will also have the right to appoint two members to Mosaic's Board of Directors, provided that it has at least 90% of Mosaic's shares received at closing, or a member of Mosaic's board, provided it has at least 50% of Mosaic's shares received at closing.

Mosaic also agreed to pay additional amounts of up to US$ 260 million, if the market price of certain products and the exchange rate between the real and the US dollar exceeds certain levels during each of the two 12-month periods after the completion of the transaction. The conclusion of the sale is subject to certain conditions precedent, including approvals of the Brazilian authorities and other competition authorities, certain regulatory and operational frameworks and the conclusion of a break-up of Vale Fertilizantes assets, located in Cubatão. Vale expects to conclude the sale to Mosaic in late 2017. The Colorado River potash project, in Argentina, may also be sold to Mosaic, subject to acceptance of Mosaic after due diligence is finished. Vale intends to seek buyers for the assets of Cubatão in 2017..

This transaction had no effect on Vale's shareholding structure. Through the transaction, Vale will no longer hold any direct interest in Vale Fertilizantes, and will hold only indirect interest in said company, since it will become a shareholder of Mosaic as a result of the receipt of shares of such company as part of the acquisition price.

Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

Sale of Mineração Paragominas

In December 2016, Vale completed the sale of the remaining 13.63% indirect interest in Mineração Paragominas S.A., a bauxite mining company located in Brazil, to Hydro Paragominas B.V., a subsidiary of Norsk Hydro ASA ("Hydro"), for US$ 113 million. The transaction is the final step in the sale of Vale's aluminum businesses to Hydro, which had been initially announced in February 2011..

This transaction had no effect on Vale's shareholding structure. Considering the nature of the transaction above, and for not involving a company directly or indirectly controlling Vale, there is no sense in implementing mechanisms to guarantee equitable treatment among the shareholders of the Company.

15.8 - Other relevant information

Shareholder Information

Further clarifications to item 15.1

The following are further clarifications regarding the shareholders mentioned in item 15.1 of this Reference Form:

(i) Banco do Brasil Employees' Pension Fund – PREVI ("Previ").

On December 31, 2016, Previ's management was divided between the Deliberative Council, the Executive Board and the Audit Committee. The Executive Board is composed of six members: Chairman, Managing Officer, Investments Officer, Security Officer, Equity Officer and Planning Officer. The Deliberative Council is composed of six members and their respective alternates. Three are elected by the participants and original parties, and three others are appointed by the Sponsor. The Audit Committee has four full members and their respective alternates, two of whom are elected by participants and original parties, and two are appointed by the Sponsor.

On December 31, 2016, the Deliberative Council was composed of the following members: Paulo Roberto Lopes Ricci (Chairman), Walter Malieni Júnior and Eduardo César Pasa, appointed by Banco do Brasil and Antônio José de Carvalho, Carlos Alberto Guimarães de Sousa and Wagner de Sousa Nascimento, representatives elected by the participants and original parties. On the same date, Messrs. (i) Carlos Alberto Araújo Netto and Carlos Célio de Andrade Santos were present as alternates to the members appointed by the Sponsor, with the position of alternate member of Mr. Eduardo César Pasa remaining vacant, and (ii) Messrs. José Bernardo de Medeiros Neto, Odali Dias Cardoso and Rafael Zanon Guerra de Araújo were present as alternates to the members appointed by the participants.

The Executive Board was composed of the following members: Gueitiro Matsuo Genso (Chairman), Cecília Mendes Garcez Siqueira (Managing Officer), Marcus Moreira de Almeida (Investments Officer), Renato Proença Lopes (Equity Officer), Jose Carlos Reis da Silva (Planning Officer) and Marcel Juviniano Barros (Security Officer).

The Audit Committee was composed of the following members: Williams Francisco da Silva (Chairman), Rudinei dos Santos, Rosalina do Socorro Ferreira Amorin and Adriano Meira Ricci (Secretary); and by the alternates: Iris Carvalho Silva, Fabio Santana Santos Ledo and Eslei José de Morais

The Equity Executive Board is responsible for monitoring the companies that make up the securities portfolio and real estate portfolio, particularly with regard to corporate relations and Previ's interest and representation in the administrative and supervisory bodies of companies or enterprises, aiming at the adoption of the necessary measures for good corporate governance practices in the investees.

(ii) Fundação Bradesco

Fundação Bradesco is a non-profit organization, which for 60 years has been fostering the development of the potential of children, youth and adults, through its own schools preferentially installed in regions where education and care needs are considerable. Basic and vocational education is offered to students free of charge, in addition to teaching materials, uniforms, food and medical-dental assistance. The financial resources to maintain Fundação Bradesco's structure derive substantially from the income generated by its financial assets and its equity interests. Its resources are totally applied in the development of its educational projects, directed entirely to gratuity.

Pursuant to the terms of Fundação Bradesco's Bylaws, it is the responsibility of the "Governing Board" to: (i) ensure the Foundation's objectives, (ii) guide its activities, (iii) preserve its assets, (iv) elect, dismiss and monitor the members of the Executive Board. The Governing Board is composed of (a) Members of the Board of Directors of Banco Bradesco S.A., who are or have been members of its Executive Board; (b) Executive Officers, CEO and Vice-Presidents of Banco Bradesco S.A.; (c) Executive Officers, Managers and Deputy Officers, Departmental Directors and Officers of Banco Bradesco S.A., with at least ten (10) years of services rendered to Bradesco Organization; (D) Members of the Board of Directors and Officers of Cidade de Deus - Companhia Comercial de Participações.

(iii) Mitsui & Co. Ltd.

Mitsui & Co. Ltd. is a widely-held stock company, under no defined control. The following table sets forth information regarding Mitsui & Co. Ltd. as of March 31, 2017:

Shareholder	Common Shares[1]	
	Quantity[2] (In thousands)	%[2]
The Master Trust Bank of Japan, Ltd. (trust account)	134,968	7.65%
Japan Trustee Services Bank, Ltd. (trust account)	96,733	5.48%
Nippon Life Insurance Company	35,070	1.98%
Japan Trustee Services Bank, Ltd. (trust account 9)	33,198	1.88%
Japan Trustee Services Bank, Ltd. (trust account 5)	32,787	1.85%
Mitsui Sumitomo Insurance Company, Limited	25,667	1.45%
Japan Trustee Services Bank, Ltd. (trust account 7)	24,424	1.38%
Japan Trustee Services Bank, Ltd. (trust account 1)	24,236	1.37%
Japan Trustee Services Bank, Ltd. (trust account 2)	24,025	1.36%
State Street Bank West Client - Treaty 505234	23,739	1.34%
Outros	1,309,210	74.22%
Total	**1,764,057**	**100.00**

(1) It has no common shares.
(2) Treasury stock is not considered.

Further clarifications to item 15.2

The following are further clarifications to item 15.2 regarding the shareholders that hold a relevant interest in the Company:

(i) Capital Research Global Investors and Capital Group International Inc.

1) As informed to the Company, Capital Group International, Inc. ("CGII") holds 220,422,309 Vale's class A preferred shares. CGRI is an independent investment division of Capital Research and Management Company ("CRMC");

2) As informed to the Company, Capital Group International, Inc. ("CGII") holds 201,779,703 Vale's class A preferred shares. CGII is an independent investment division of CRMC.

CRMC and CGII belong to the same group and are companies incorporated and existing under the laws of the United States of America, with headquarters at 333, South Hope Street, Los Angeles, California 90071, United States of America, having as its legal representative, in Brazil, J.P. Morgan S.A. Distribuidora de Títulos e Valores Mobiliários, enrolled with CNPJ/MF under number 33.851.205/0001-30, and Citibank DTVM S.A., enrolled with the CNPJ/MF under No. 33.868.597/0001-40.

In addition to the aforementioned interests, which are described in item 15.2, as informed to the Company, Capital World Investors, as an independent division of CRMC, manages 5,620,000 class A preferred shares issued by Vale, corresponding to 0.28% of this kind of share. These shares were included in item 15.2 under the line "Others."

(ii) BlackRock, Inc.

As informed to the Company, BlackRock, Inc. ("BlackRock") holds 101,655,903 class A preferred shares issued by Vale. In addition, BlackRock had a total of 2,265,600 derivative contracts referenced to Vale's preferred shares, representing 0.11% of this type of share.

BlackRock is a corporation incorporated and existing under the laws of the United States of America, with headquarters at 55 East, 52 Street, New York, New York 10022-0002, United States of America, having as its legal representative, in Brazil, HSBC Bank Brasil S.A., enrolled with CNPJ/MF under number 1.701.201/0001-89; Citibank DTVM S.A., enrolled with the CNPJ/MF under No. 33.868.597/0001-40; JP

Morgan, enrolled with the CNPJ/MF under No 33.851.205/0001-30 and Deutsche Bank São Paulo, enrolled with the CNPJ/MF under No 62.331.228/0001-11.

(iii) Brazilian Government

The Brazilian government holds 12 preferred golden shares of Vale, which are included in the "Others" category of item 15.1/15/2. These shares give Brazilian Government veto power over certain matters involving the Company, such as changes in the corporate name, location of its headquarters and its corporate purpose, regarding mineral exploration. For further information, refer to item 18.1 of this Reference Form.

16.1 Description of rules, policies, and practices by the issuer on transactions with related parties, indicating, if any, a formal policy adopted by the issuer and where it can be consulted

Vale is amongst the largest private Brazilian companies, and operates in various segments of the economy, with cash flow and wealth consistent with its size. For this reason, in view of the constant search for better trading conditions for the achievement of its activities and the investment of its resources, the Company often negotiates the terms of the transactions inherent in its businesses, which inevitably leads to agreeing on transactions with related parties whenever its best interests and those of its shareholders are served.

Thus, transactions with related parties are made by the Company in a strictly exchanged based manner, observing usual price and market conditions, and therefore do not generate any undue advantage to their counterparts nor damage to the Company.

As provided in the Bylaws, it is Vale's Board of Directors' responsibility to discuss any business between the Company and (i) its shareholders, directly or through interposed companies, (ii) companies that participate, directly or indirectly, in the capital of a controlling shareholder or are controlled by or under common control of entities that participate in the capital of the controlling shareholder, and/or (iii) companies in which the controlling shareholder of the Company is involved. Accordingly, the Board of Directors may delegate responsibilities with limits and procedures that meet the peculiarities and nature of operations, without withholding due information on all the Company's transactions with related parties.

In December 2013, Vale also has a Policy for Transactions with Related Parties ("Policy"), which establishes guidelines and principles to ensure that the transfer, free of charge or onerous, of funds, services or obligations involving people and/or companies with whom Vale has the possibility of contracting under conditions that are not independent conditions that characterize transactions with third parties ("Related Parties" and "Transactions with Related Parties", respectively), being conducted under market standards, including the best practices in corporate governance, with due transparency, prioritizing Vale's best interests, avoiding abuses and misuses of company assets, as well as preventing the granting of loans in favor of Related Parties, except in favor of subsidiaries and affiliates of Vale.

Note that the Policy prohibit the granting of loans by the Company in favor of related parties, except in favor of subsidiaries or affiliates of Vale.

This Policy may be consulted at the Company website (www.vale.com), in the section Investor Relations (http://www.vale.com/brasil/pt/investors/company/corporate-governance/policies/Paginas/default.aspx).

For more information on the Policy for Transactions with Related Parties, see items 12.2 (d) and 12.3 (c) in this Reference Form.

Any violation against the terms in this Policy will be considered a violation against the Code of Ethics and Conduct and is subject to procedures and penalties set forth therein. Additionally, the infringing party will also be responsible for losses and damages caused to Vale and third parties.

Additionally, Vale has Governance and Sustainability Committee committed to reviewing and proposing improvements to its Code of Ethics and Conduct and to the management system to avoid conflicts of interest, advising on potential conflicts of interest between the Company, its shareholders, and managers, as well as under the Policy, evaluating the selection process and conditions of transactions to be appreciated by the Board of Directors. In addition, as soon as the conflict of interest is identified regarding a specific issue, the shareholder or representative of the shareholder of Vale will have access only to documents or information on the matter as disclosed to the market, under the terms in current laws, and will not be present, including physically, in discussions at the Shareholders' Meeting, never failing to comply with legal obligations. The manifestation of conflict of interests, absence and temporary leave should be recorded in the minutes.

16.2 – Except for operations between issuer and companies where the issuer directly or indirectly holds the entirety of the share capital, the disclosure of information on transactions with related parties that, according to accounting rules, should be disclosed in the individual or consolidated financial statements of the issuer and that have occurred in the last fiscal year or are in force in the current fiscal year:

Name of related party	Banco Bradesco S.A.
Date of transaction	June 2, 2015
Amount (R$)	108,827,650.31
Current balance (R$)	67,378,882.19
Amount of related party	Not applicable
Duration	Due by February 19, 2018
Loan or other type of debt	No
Interest rate	0.0000
Relationship with the Issuer	Bradespar S.A., indirect controller of Vale, and Banco Bradesco S.A. are under common control
Purpose of the contract	13 applications on Bank Deposit Certificates acquired by Vale and its subsidiaries. The rate applicable on the Contract is 90.87% CDI.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None
Conditions of termination or expiration	None
Nature and reasons for the operation / other relevant information	

Name of related party	Banco Bradesco S.A., New York Branch
Date of transaction	April 22, 2015
Amount (R$)	1,466,595,000.00
Current balance (R$)	1,466,891,351.79
Amount of related party	Not applicable
Duration	Due by March 1, 2017
Loan or other type of debt	No
Interest rate	0.0000
Relationship with the Issuer	Bradespar S.A., indirect controller of Vale, and Banco Bradesco S.A. are under common control
Purpose of the contract	4 applications on Time Deposit contracted by Vale and its subsidiaries. The rate applicable on the Contract is 1.394444% per annum
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None
Conditions of termination or expiration	None
Nature and reasons for the operation / other relevant information	

Name of related party	Banco do Brasil S.A.
Date of transaction	October 3, 2012
Amount (R$)	7,750,000.00
Current balance (R$)	8,384,261.58
Amount of related party	Not applicable
Duration	Due by August 27, 2021
Loan or other type of debt	No
Interest rate	0.0000
Relationship with the Issuer	Banco do Brasil sponsors the private pension fund of bank employees, Previ - *Caixa de Previdência dos Funcionários do Banco do Brasil*, which, in turn, is the parent company of Litel Participações S.A. (Litel") holding that holds controlling interests in Valepar.
Purpose of the contract	3 applications on Bank Deposit Certificates acquired by Vale and its subsidiaries. The rate applicable on the Contract is 96.404779% CDI.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None
Conditions of termination or expiration	None
Nature and reasons for the operation / other relevant information	

Name of related party	Mineração Brasileiras Reunidas S.A.- MBR
Date of transaction	August 19, 2015
Amount (R$)	3,000,000,000.00
Current balance (R$)	3,131,254,045.20
Amount of related party	Not applicable
Duration	August 19, 2021
Loan or other type of debt	Yes

Interest rate	0.0000
Relationship with the Issuer	Subsidiary
Purpose of the contract	4th private issuance of simple debentures, non-convertible into shares, unsecured, in single series issued by Vale The purpose of issuing funds was to reinforce cash flow and working capital. Debentures fully subscribed by Minerações Brasileiras Reunidas – MBR
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None.
Conditions of termination or expiration	For information on obligation termination or extinction conditions under this Issuance, see item 18 in this Reference Form.
Nature and reasons for the operation / other relevant information	Rate 101% CDI

Name of related party	Banco do Brasil S.A.
Date of transaction	December 20, 2013
Amount (R$)	340,000,000.00
Current balance (R$)	341,556,458.71
Amount of related party	Not applicable
Duration	December 20, 2023
Loan or other type of debt	Yes
Interest rate	0.0000
Relationship with the Issuer	Banco do Brasil sponsors the private pension fund of bank employees, Previ - Caixa de Previdência dos Funcionários do Banco do Brasil, which, in turn, is the parent company of Litel Participações S.A. (Litel") holding that holds controlling interests in Valepar.
Purpose of the contract	Export Credit Note (NCE) used to reinforce working capital, aiming to support production of assets to be exported, as well as supporting and complementing activities essential to exporting.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None.
Conditions of termination or expiration	Conditions for early termination: a) the Company fails to pay Financial Fees or the Principal on the respective due dates; b) the Company files for bankruptcy, judicial or extrajudicial recovery or bankruptcy is filed judicially by third parties and is not solved by the Company within 45 days, from the notice day; c) in case of Company liquidation, extinction or dissolution, or end of activities, for any reason; d) directly or through agents or proxies, if the Company provides Banco do Brasil S.A., within execution of obligations provided for under the Contract, with incomplete or untrue information, including by means of private or public document of any nature, provided that acting with evident guilt, willingness or bad faith; e) in case of contractual non-compliance by the Company, there is early maturity of other financing by the Company with Banco do Brasil S.A. which outstanding amount, severally or jointly, is equal or higher than US$50,000,000.00, or equivalent in other currency; f) change to the Company corporate purpose, as set forth in the bylaws current on the Contract date, provided that, as consequence, the Company is no longer engaged in mining activities; g) the Company fails to comply with any judicial final decision and/or any arbitral award that is not subject to appeal, against the Company, provided that this has relevant adverse effects on its status (financial or of any nature) on its businesses, assets operational results and/or perspectives, preventing the Company from complying with any obligation set forth in the Contract.
Nature and reasons for the operation / other relevant information	The applicable interest rate is: 112.6% CDI per annum /in reais

Name of related party	Banco do Brasil S.A.
Date of transaction	November 11, 2015
Amount (R$)	R$1,500,000,000.00
Current balance (R$)	R$1,548,213,293.25
Amount of related party	Not applicable
Duration	October 10, 2022
Loan or other type of debt	Yes
Interest rate	0.0000
Relationship with the Issuer	Banco do Brasil sponsors the private pension fund of bank employees, Previ - Caixa de Previdência dos Funcionários do Banco do Brasil, which, in turn, is the parent company of Litel Participações S.A. ("Litel") holding that holds controlling interests in Valepar.
Purpose of the contract	Export Credit Note ("NCE") used to reinforce working capital, aiming to support production of assets to be exported, as well as supporting and complementing activities essential to exporting.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None.
Conditions of termination or expiration	Circumstances for early termination: a) the Company fails to pay Financial Fees or the Principal on the respective due dates; b) the Company files for bankruptcy, judicial or extrajudicial recovery or bankruptcy is filed judicially by third parties and is not solved by the Company within 45 days, from the notice day; c) in case of Company liquidation, extinction or dissolution, or

	end of activities, for any reason; d) directly or through agents or proxies, if the Company provides Banco do Brasil S.A., within execution of obligations provided for under the Contract, with incomplete or untrue information, including by means of private or public document of any nature, provided that acting with evident guilt, willingness or bad faith; e) in case of contractual non-compliance by the Company, there is early maturity of other financing by the Company with Banco do Brasil S.A. which outstanding amount, severally or jointly, is equal or higher than US$50,000,000.00, or equivalent in other currency; f) change to the Company corporate purpose, as set forth in the bylaws current on the Contract date, provided that, as consequence, the Company is no longer engaged in mining activities; g) the Company fails to comply with any judicial final decision and/or any arbitral award that is not subject to appeal, against the Company, provided that this has relevant adverse effects on its status (financial or of any nature) on its businesses, assets operational results and/or perspectives, preventing the Company from complying with any obligation set forth in the NCE.
Nature and reasons for the operation / other relevant information	The applicable interest rate is 110% CDI per annum in reais

Name of related party	Banco do Brasil S.A., New York Branch
Date of transaction	June 30, 2010
Amount (R$)	1,952,400,000.00
Current balance (R$)	1,629,824,986.53
Amount of related party	Not applicable
Duration	October 30, 2020
Loan or other type of debt	Yes
Interest rate	2.100000
Relationship with the Issuer	Banco do Brasil sponsors the private pension fund of bank employees, Previ - Caixa de Previdência dos Funcionários do Banco do Brasil, which, in turn, is the parent company of Litel Participações S.A. ("Litel") holding that holds controlling interests in Valepar.
Purpose of the contract	Pre-Payment Exportation
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None.
Conditions of termination or expiration	Circumstances for early termination: a) the Company fails to pay Financial Fees or the Principal on the respective due dates; b) the Company files for bankruptcy, judicial or extrajudicial recovery or bankruptcy is filed judicially by third parties and is not solved by the Company within 45 days, from the notice day; c) in case of Company liquidation, extinction or dissolution, or end of activities, for any reason; d) directly or through agents or proxies, if the Company provides Banco do Brasil S.A., within execution of obligations provided for under the Contract, with incomplete or untrue information, including by means of private or public document of any nature, provided that acting with evident guilt, willingness or bad faith; e) in case of contractual non-compliance by the Company, there is early maturity of other financing by the Company with Banco do Brasil S.A. which outstanding amount, severally or jointly, is equal or higher than US$50,000,000.00, or equivalent in other currency; f) breach of any term, condition, or material provision in this contract that is not solved within 20 working days.
Nature and reasons for the operation / other relevant information	The applicable interest rate is Libor + 2.10% per annum

Name of related party	Banco do Brasil S.A.
Date of transaction	January 28, 2008
Amount (R$)	2,000,000,000.00
Current balance (R$)	2,120,568,825.82
Amount of related party	Not applicable
Duration	January 26, 2018
Loan or other type of debt	Yes
Interest rate	0.0000
Relationship with the Issuer	Banco do Brasil sponsors the private pension fund of bank employees, Previ - Caixa de Previdência dos Funcionários do Banco do Brasil, which, in turn, is the parent company of Litel Participações S.A. ("Litel") holding that holds controlling interests in Valepar.
Purpose of the contract	Export Credit Note (NCE) used to reinforce working capital, aiming to support production of assets to be exported, as well as supporting and complementing activities essential to exporting
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None.
Conditions of termination or expiration	Circumstances for early termination: a) the Company fails to pay Financial Fees or the Principal on the respective due dates; b) the Company files for bankruptcy, judicial or extrajudicial recovery or bankruptcy is filed judicially by third parties and is not solved by the Company within 45 days, from the notice day; c) in case of Company liquidation, extinction or dissolution, or

	end of activities, for any reason; d) directly or through agents or proxies, if the Company provides Banco do Brasil S.A., within execution of obligations provided for under the Contract, with incomplete or untrue information, including by means of private or public document of any nature, provided that acting with evident guilt, willingness or bad faith; e) in case of contractual non-compliance by the Company, there is early maturity of other financing by the Company with Banco do Brasil S.A. which outstanding amount, severally or jointly, is equal or higher than US$50,000,000.00, updated monthly, from this date, according to the General Market Price Index – IGPM published by Fundação Getúlio Vargas.
Nature and reasons for the operation / other relevant information	The applicable interest rate is 103.50% CDI per annum in reais.

Name of related party	Banco do Brasil S.A.
Date of transaction	October 16, 2012
Amount (R$)	2,500,000,000.00
Current balance (R$)	2,575,780,656.69
Amount of related party	Not applicable
Duration	October 16, 2022
Loan or other type of debt	Yes
Interest rate	0.0000
Relationship with the Issuer	Banco do Brasil sponsors the private pension fund of bank employees, Previ - Caixa de Previdência dos Funcionários do Banco do Brasil, which, in turn, is the parent company of Litel Participações S.A. ("Litel") holding that holds controlling interests in Valepar.
Purpose of the contract	Export Credit Note ("NCE") used to reinforce working capital, aiming to support production of assets to be exported, as well as supporting and complementing activities essential to exporting
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None.
Conditions of termination or expiration	Circumstances for early termination: a) the Company fails to pay Financial Fees or the Principal on the respective due dates; b) the Company files for bankruptcy, judicial or extrajudicial recovery or bankruptcy is filed judicially by third parties and is not solved by the Company within 45 days, from the notice day; c) in case of Company liquidation, extinction or dissolution, or end of activities, for any reason; d) directly or through agents or proxies, if the Company provides Banco do Brasil S.A., within execution of obligations provided for under the Contract, with incomplete or untrue information, including by means of private or public document of any nature, provided that acting with evident guilt, willingness or bad faith; e) in case of contractual non-compliance by the Company, there is early maturity of (i) other financing contract(s) by the Company with Banco do Brasil S.A. which outstanding amount, severally or jointly, is equal or higher than US$100,000,000.00, or equivalent in domestic currency, obtained from the application of foreign exchange rate in the PTAX 800 report, option 5, from SISBACEN, on the maturity date, which amount on the operation date was equal to R$203,690,000.00; and (ii) the Pre-Export Financing Agreement Contract, executed on June 30, 2010 between the issuer and Banco do Brasil S.A., due to event provided for in clause 11, line "d" in the contract in the amount of US$50,000,000,00, or equivalent in domestic currency, obtained from the application of foreign exchange rate in the PTAX 800 report, option 5, from SISBACEN.
Nature and reasons for the operation / other relevant information	The applicable interest rate is 112.00% CDI per annum in reais.

Name of related party	Banco do Brasil S.A.
Date of transaction	June 30, 2010
Amount (R$)	57,201,535.99
Current balance (R$)	21,539,444.94
Amount of related party	Not applicable
Duration	July 15, 2020
Loan or other type of debt	Yes
Interest rate	4.500000
Relationship with the Issuer	Banco do Brasil succeeded Banco Votorantim S/A in this operation and sponsors the private pension fund of bank employees, Previ - Caixa de Previdência dos Funcionários do Banco do Brasil, which, in turn, is the parent company of Litel Participações S.A. ("Litel") holding that holds controlling interests in Valepar.
Purpose of the contract	Financing acquisition of 4 coal, coking, and ore handling systems and 1 recovery equipment, initially executed with Banco Votorantim S/A and later granted to Banco do Brasil S.A. on October 28, 2011.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None.
Conditions of termination or expiration	Circumstances for early termination: a) non-compliance with the terms in articles 39 and 40 in "Terms applicable to BNDES Contracts"; b) in case of false statement, information or document provided by Vale; c) if Vale has any executed bond, and the execution is unjustified for 60 days and

	materially affects Vale's capacity to pay for this contract, start any judicial or extrajudicial recovery procedure or files for bankruptcy or bankruptcy is claimed by third parties; d) in case of incorporation, merger, or division of Vale, unless that (i) the resulting company is Vale itself; or (ii) the resulting company complies with financial rates established in the contract; e) if Vale ceases its activities; f) as the case may be, if Vale is subject to intervention by the Central Bank of Brazil; g) if asset(s) object of financial collaboration is(are) subject to attachment, seizure, possession, collection under bankruptcy procedure, or any other judicial or administrative measure; h) if Vale fails to comply with any clause or condition in the Contract; i) if there is a final conviction due to engagement in acts, by Vale, that consist crime against the environment or non-compliance with the legislation related to child or forced labor.
Nature and reasons for the operation / other relevant information	The applicable interest rate is 4.5% per annum

Name of related party	Banco do Brasil S.A.
Date of transaction	June 30, 2010
Amount (R$)	59,786,258.47
Current balance (R$)	26,874,067.27
Amount of related party	Not applicable
Duration	July 15, 2020
Loan or other type of debt	Yes
Interest rate	4.500000
Relationship with the Issuer	Banco do Brasil sponsors the private pension fund of bank employees, Previ - Caixa de Previdência dos Funcionários do Banco do Brasil, which, in turn, is the parent company of Litel Participações S.A. ("Litel") holding that holds controlling interests in Valepar.
Purpose of the contract	Funding acquisition of Long Distance Belt Carrier System
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None.
Conditions of termination or expiration	Circumstances for early termination: a) non-compliance with the terms in articles 39 and 40 in "Terms applicable to BNDES Contracts"; b) in case of false statement, information or document provided by Vale; c) if Vale has any executed bond, and the execution is unjustified for 60 days and materially affects Vale's capacity to pay for this contract, start any judicial or extrajudicial recovery procedure or files for bankruptcy or bankruptcy is claimed by third parties; d) in case of incorporation, merger, or division of Vale, unless that (i) the resulting company is Vale itself; or (ii) the resulting company complies with financial rates established in the contract; e) if Vale ceases its activities; f) as the case may be, if Vale is subject to intervention by the Central Bank of Brazil; g) if asset(s) object of financial collaboration is(are) subject to attachment, seizure, possession, collection under bankruptcy procedure, or any other judicial or administrative measure; h) if Vale fails to comply with any clause or condition in the Contract; i) if there is a final conviction due to engagement in acts, by Vale, that consist crime against the environment or non-compliance with the legislation related to child or forced labor.
Nature and reasons for the operation / other relevant information	The applicable interest rate is 4.5% per annum

Name of related party	Banco do Brasil S.A.
Date of transaction	June 30, 2010
Amount (R$)	17,840,262.66
Current balance (R$)	6,313,560.26
Amount of related party	Not applicable
Duration	July 15, 2020
Loan or other type of debt	Yes
Interest rate	4.500000
Relationship with the Issuer	Banco do Brasil sponsors the private pension fund of bank employees, Previ - Caixa de Previdência dos Funcionários do Banco do Brasil, which, in turn, is the parent company of Litel Participações S.A. ("Litel") holding that holds controlling interests in Valepar.
Purpose of the contract	Funding acquisition of car-dumper
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None.
Conditions of termination or expiration	Circumstances for early termination: a) non-compliance with the terms in articles 39 and 40 in "Terms applicable to BNDES Contracts"; b) in case of false statement, information or document provided by Vale; c) if Vale has any executed bond, and the execution is unjustified for 60 days and materially affects Vale's capacity to pay for this contract, start any judicial or extrajudicial recovery procedure or files for bankruptcy or bankruptcy is claimed by third parties; d) in case of incorporation, merger, or division of Vale, unless that (i) the resulting company is Vale itself; or (ii) the resulting company complies with financial rates established in the contract; e) if Vale ceases its activities; f) as the case may be, if Vale is subject to intervention by the Central Bank of Brazil; g) if asset(s) object of financial collaboration

	is(are) subject to attachment, seizure, possession, collection under bankruptcy procedure, or any other judicial or administrative measure; h) if Vale fails to comply with any clause or condition in the Contract; i) if there is a final conviction due to engagement in acts, by Vale, that consist crime against the environment or non-compliance with the legislation related to child or forced labor.
Nature and reasons for the operation / other relevant information	The applicable interest rate is 4.5% per annum

Name of related party	Banco do Brasil S.A.
Date of transaction	June 30, 2010
Amount (R$)	175,882,585.50
Current balance (R$)	90,211,441.79
Amount of related party	Not applicable
Duration	July 15, 2020
Loan or other type of debt	Yes
Interest rate	4.500000
Relationship with the Issuer	Banco do Brasil sponsors the private pension fund of bank employees, Previ - Caixa de Previdência dos Funcionários do Banco do Brasil, which, in turn, is the parent company of Litel Participações S.A. ("Litel") holding that holds controlling interests in Valepar.
Purpose of the contract	Funding acquisition of 2,558 railroad wagons to carry iron ore
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None.
Conditions of termination or expiration	Circumstances for early termination: a) non-compliance with the terms in articles 39 and 40 in "Terms applicable to BNDES Contracts"; b) in case of false statement, information or document provided by Vale; c) if Vale has any executed bond, and the execution is unjustified for 60 days and materially affects Vale's capacity to pay for this contract, start any judicial or extrajudicial recovery procedure or files for bankruptcy or bankruptcy is claimed by third parties; d) in case of incorporation, merger, or division of Vale, unless that (i) the resulting company is Vale itself; or (ii) the resulting company complies with financial rates established in the contract; e) if Vale ceases its activities; f) as the case may be, if Vale is subject to intervention by the Central Bank of Brazil; g) if asset(s) object of financial collaboration is(are) subject to attachment, seizure, possession, collection under bankruptcy procedure, or any other judicial or administrative measure; h) if Vale fails to comply with any clause or condition in the Contract; i) if there is a final conviction due to engagement in acts, by Vale, that consist crime against the environment or non-compliance with the legislation related to child or forced labor; j) application of financing funds for purposes other than the purpose in the contract; k) inclusion in corporate agreement, bylaws, or acts of association of Vale, of a term under which a special quorum is requested to deliberate or approve matters that limit its control by the respective controllers, or, also, inclusion in those documents of term that cause: (i) restrictions to the growth capacity of Vale or its technological development; (ii) restrictions to access new markets; or (iii) restrictions or prejudice to the statute of limitations applicable to the payment of financial obligations arising out of this operation.
Nature and reasons for the operation / other relevant information	The applicable interest rate is 4.5% per annum

Name of related party	Fundo de Investimento em Participações Multisetorial Plus II ("FIP Plus II")
Date of transaction	July 29, 2015
Amount (R$)	R$4,000,000,000.00
Current balance (R$)	Not applicable
Amount of related party	R$4,000,000,000.00
Duration	Indeterminate period.
Loan or other type of debt	No
Interest rate	Not applicable
Relationship with the Issuer	The current shareholder of FIP Plus II, Banco Bradesco BBI S.A., is part of the same economic group as Bradespar S.A., which holds controlling interest at Valepar S.A. ("Valepar"), holding and parent company of Vale.
Purpose of the contract	Purchase and sale of preferred shares class A issued by Minerações Brasileiras Reunidas S.A. – MBR ("MBR") and held by Vale, representing 36.4% of the total capital stock of MBR.
If issuer is Creditor or Debtor	Not applicable.
Guaranties and insurance	None.
Conditions of termination or expiration	Vale has executed on July 29, 201, a Contract for Purchase and Sale of Shares and other issues, with Fundo de Investimento em Participações Multisetorial Plus II ("FIP Plus II"), which shares are held on this date by Banco Bradesco BBI S.A. ("BBI"), under which Vale promised to sell preferred shares class A, representing 36.4% of the capital stock of Minerações Brasileiras Reunidas S.A. – MBR ("MBR"), for R$4.0 billion, subject to suspension conditions usually applicable, including prior approval by CADE. On September 1, 2015, the sale was concluded for the agreed

	price, which was transferred as a lump sum on that date, and Vale, directly and indirectly, holds 61.9% of the total capital stock and 98.3% of the common capital of MBR. Vale also holds a buy-out option of shares issued by MBR currently held by BBI, successor of FIP Plus II.
Nature and reasons for the operation / other relevant information	

Name of related party	Banco Nacional de Desenvolvimento Econômico e Social – BNDES
Date of transaction	June 19, 2015
Amount (R$)	Not applicable
Current balance (R$)	Not applicable
Amount of related party	BNDES is entitled to one third (1/3) of the economic rights arising out of *Projeto Alemão*.
Duration	The contract shall remain in force (i) during the term of the obligation to indemnify the Parties; or (ii) until termination of Vale's royalty payment obligation; or (iii) upon agreement in this sense, in writing, by the Parties.
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Issuer	BNDES Participações S.A. - BNDESPAR, wholly-owned subsidiary of BNDES, holds interest at Valepar S.A., which is the parent company of Vale.
Purpose of the contract	Regulate the right to economic rights held by BNDES in case of development by Vale of Projeto Alemão, as provided for under the terms in the "Advancement Contract for Future Interest", executed on March 5, 1985, by the payment of royalties by Vale to BNDES. *Projeto Alemão* is a Vale project in the area of Carajás, in the State of Pará, which has not been approved, that aims production of copper concentrate. According to the "Advancement Contract for Future Interest", BNDES is entitled to one third (1/3) of the economic rights arising out of *Projeto Alemão*. Therefore, BNDES share in this project was regulated by the payment of royalties, determined by using the economic model with market premises. The royalties should be paid annually by Vale upon beginning to sell the copper concentrate from *Projeto Alemão*. The royalties correspond to 2.5% on annual net income of *Projeto Alemão*, and years when the annual average of copper prices, as disclosed by LME, reaches US$8,000.00/ton ("Trigger Price"), royalties for these years should be added with 2.25%. The Trigger Price will be annually adjusted according to the Consumer Price Index (CPI).
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None.
Conditions of termination or expiration	The payment of royalties will end: (i) upon termination of exploration activities in *Projeto Alemão*, at Vale's discretion; (ii) loss of title by Vale or any assignee, allowed under the terms in the Contract, in process DNPM No. 851,431/82; or (iii) depletion of mineral reserves in the area covered by Process DNPM No. 851,431/82.
Nature and reasons for the operation / other relevant information	

Name of related party	Banco Nacional de Desenvolvimento Econômico e Social – BNDES
Date of transaction	October 8, 2007
Amount (R$)	774,568,410.00
Current balance (R$)	201,380,091.21
Amount of related party	Not applicable
Duration	September 15, 2019
Loan or other type of debt	Yes
Interest rate	1.800000
Relationship with the Issuer	Indirect controller
Purpose of the contract	Funding for expansion of transport capacity of Carajás Railroad
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	BNDES may terminate this contract in advance, with the enforceability of the debt and immediate suspension of any disbursement, if in addition to the cases set forth in Articles 39 and 40 of "PROVISIONS APPLICABLE TO BNDES CONTRACTS", the following are certified by BNDES: a) reducing Vale's staff without providing training programs and/or replacement programs for workers in other companies; b) inclusion in Vale bylaws, statute or contract, of a provision by which a special quorum is required for deliberation or approval of matters limiting or restricting Vale or its controlling shareholders, or even the inclusion therein, of conditions leading to: i) restrictions on Vale's ability to grow or its technological development; ii) restrictions on Vale's access to new markets, or

	iii) restrictions or loss of ability to pay financial obligations resulting from this operation; c) the use of proceeds to finance any purpose other than the expansion of Carajás railroad's transport capacity to 103 million tons transported annually; d) give, without prior authorization from BNDES, guaranties of any kind in operations with other creditors without the same quality of guaranties provided to BNDES, with equal priority of payment; e) non-compliance, during the term of the agreement, with the following rates: - Adjusted EBITDA debt ratio less than or equal to 4.5 (provided only that regarding calculations to be made based on financial results for fiscal years 2015 and 2016, the 5.5 rate shall prevail), and - Adjusted EBITDA ratio of Interest Expense greater than or equal to 2.0. And, in case these ratios are not observed, failure to provide guarantees an amount equivalent to at least 130% of the debt, as stipulated by BNDES, and within 60 days from the date of written communication. In case the proceeds granted under this Contract are used for any purpose other than the expansion of the Carajás railroad's annual transport capacity to 103 million tons, BNDES, without prejudice to the provisions, will inform the Federal Public Prosecutor, pursuant to the terms of Law No. 7,492 of June 16, 1986. This contract will also expire, with the enforceability of the debt and immediate suspension of any disbursement, at the date of installing as a Federal Deputy or Senator or any person remunerated by Vale, or any owner, controller or director of Vale, or any person listed in the prohibitions provided by the Federal Constitution, article 54, paragraphs I and II. There will be no impact on charges of default, provided that the debt payment occurs within five (5) business days as of the date of installing, under risk of, if in default, assuming all charges related to the assumptions set forth above for early expiration by default. The change in indirect control of Vale, during the term of the Contract, is excluded from the possibility of early expiration by default.
Nature and reasons for the operation / other relevant information	Available interest rate: TJLP (long-term interest rate) +1.8% per annum.

Name of related party	Banco Nacional de Desenvolvimento Econômico e Social – BNDES
Date of transaction	March 28, 2008
Amount (R$)	808,350,800.00
Current balance (R$)	682,915,250.87
Amount of related party	Not applicable
Duration	September 15, 2029
Loan or other type of debt	Yes
Interest rate	1.460000
Relationship with the Company	Indirect controller
Purpose of the contract	Financing for installation of the Estreito Hydroelectric Power Plant (UHE)
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	BNDES may terminate this contract in advance, with the enforceability of the debt and immediate suspension of any disbursement, if in addition to the cases set forth in Articles 39 and 40 of "PROVISIONS APPLICABLE TO BNDES CONTRACTS", the following are certified by BNDES: a) reducing Vale's staff without providing training programs and/or replacement programs for workers in other companies; b) inclusion in Vale bylaws, statute, or contract, of a provision by which a special quorum is required for deliberation or approval of matters limiting or restricting control of any of these companies by the respective controlling shareholders, or even the inclusion therein, of conditions leading to: i) restrictions on Vale's ability to grow or its technological development; ii) restrictions on Vale's access to new markets; or iii) restrictions or loss of ability to pay financial obligations resulting from this operation; c) give, without prior authorization from BNDES, guaranties of any kind in operations with other creditors without the same quality of guaranties provided to BNDES, with equal priority of payment; d) Non-compliance, during the term of the agreement, with the following rates: - Adjusted EBITDA debt ratio less than or equal to 4.5 (provided only that regarding calculations to be made based on financial results for fiscal years 2015 and 2016, the 5.5 rate shall prevail); and - Adjusted EBITDA ratio of Interest Expense greater than or equal to 2.0. And, in case these ratios are not observed, failure to provide guarantees an amount equivalent to at least 130% of the debt, as stipulated by BNDES, and within 60 days from the date of written communication. In case the proceeds granted under this Contract are used for any purpose other than the installment of the Estreito Hydroelectric Power Plant (UHE) and its transmission system, BNDES, without prejudice to the

	terms set forth above in this Clause, will inform the Federal Public Prosecutor, pursuant to the terms of Law No. 7,492 of June 16, 1986. This contract will also expire, with the enforceability of the debt and immediate suspension of any disbursement, at the date of installing as a Federal Deputy or Senator or any person remunerated by Vale, or any owner, controller or director of Vale, or any person listed in the prohibitions provided by the Federal Constitution, article 54, paragraphs I and II. There will be no impact on charges of default, provided that the debt payment occurs within five (5) business days as of the date of installing, under risk of, if in default, assuming all charges related to the assumptions set forth above for early expiration by default. The change in indirect control of Vale, during the term of the Contract, is excluded from the possibility of early expiration by default.
Nature and reasons for the operation / other relevant information	Applicable interest rate: TJLP (long-term interest rate) +1.46% per annum (subcredits A and B), and TJLP (subcredit C).

Name of related party	Banco Nacional de Desenvolvimento Econômico e Social – BNDES
Date of transaction	December 26, 2008
Amount (R$)	7,300,000,000.00
Current balance (R$)	4,947,859,008.32
Amount of related party	Not applicable
Duration	February 15, 2023
Loan or other type of debt	Yes
Interest rate	1.500000
Relationship with the Company	Indirect controller
Purpose of the contract	Credit facility
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	BNDES may terminate this contract in advance, with the enforceability of the debt and immediate suspension of any disbursement, if in addition to the cases set forth in Articles 39 and 40 of "PROVISIONS APPLICABLE TO BNDES CONTRACTS", the following are certified by BNDES: a) reducing Vale's staff without offering training programs and/or replacement programs for workers in other companies; b) the existence of a definitive legal judgment on the performance of acts by Vale consisting of an infringement of legislation which deals with combating discrimination based on race or gender, child labor and forced labor; c) inclusion in the bylaws, statute or contract of Vale or of the other controlling companies, of a provision by which a special quorum is required for deliberation or approval of matters limiting or restricting its controlling shareholders, or even the inclusion therein, of conditions leading to: i) restrictions on Vale's ability to grow or its technological development; ii) restrictions on Vale's access to new markets; or iii) restrictions or loss of ability to pay financial obligations resulting from this operation; d) in case of failure to meet established levels in 60 days from the date of written notice by BNDES, failure to provide guarantees accepted by BNDES in amount corresponding at least to 130% of the debt, unless when in that term, levels described below are reestablished: - Adjusted EBITDA debt ratio less than or equal to 4.5 (provided only that regarding calculations to be made based on financial results for fiscal years 2015 and 2016, the 5.5 rate shall prevail); and - Adjusted EBITDA ratio of Interest Expense greater than or equal to 2.0. In case of change of indirect control of VALE, without prior authorization from BNDES, does not submit a letter of guaranty issued according to the BNDES model. In the event proceeds granted under this contract are used for a purpose different from that provided for in Clause First: revolving credit limit, BNDES, notwithstanding above provisions, will notify the fact to the Federal Public Prosecutor pursuant to the terms of Law No. 7,492 of June 16, 1986. This contract will also expire, with the enforceability of the debt and immediate suspension of any disbursement, at the date of installing as a Federal Deputy or Senator or any person remunerated by Vale, or any owner, controller or director of Vale, or any person listed in the prohibitions provided by the Federal Constitution, article 54, paragraphs I and II. There will be no impact on charges of default, provided that the debt payment occurs within five (5) business days as of the date of installing, under risk of, if in default, assuming all charges related to the assumptions set forth above for early expiration by default.

Nature and reasons for the operation / other relevant information	Applicable interest rate: Libor 3M+1.5% per annum (subcredit A1, A2, A3, A4, A5, A6, A7, A8), Libor 3M + 2.0% per annum (subcredits A9 and A10), TJLP (subcredits B4, B11, B15 and B18), TJLP + 1.30% per annum (subcredit B17), TJLP + 1.36% per annum (subcredits B2, B3, B6, B7, B9, B10, B13 and B14.). TJLP + 1.70% per annum (subcredits B16). TJLP + 1.76% per annum (subcredits B1, B5, B8 and B12). This is a Credit facility for financing Salobo I and II, Mineração Onça Puma, and Usina VIII and Itabira Capital Projects.

Name of related party	Banco Nacional de Desenvolvimento Econômico e Social – BNDES
Date of transaction	September 24, 2012
Amount (R$)	3,882,956,000.00
Current balance (R$)	2,571,042,207.48
Amount of related party	Not applicable
Duration	September 15, 2022
Loan or other type of debt	Yes
Interest rate	1.300000
Relationship with the Company	Indirect controller
Purpose of the contract	Financing to deploy the Programa de Capacitação do Sistema Logístico Norte (CLN), aiming to increase the ore transportation capacity from 115 million tons per annum (Mtpa) to 150 Mtpa, approximately
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	BNDES may terminate this contract in advance, with the enforceability of the debt and immediate suspension of any disbursement, if in addition to the cases set forth in Articles 39 and 40 of "PROVISIONS APPLICABLE TO BNDES CONTRACTS", the following are certified by BNDES: a) reducing Vale's staff without offering training programs and/or replacement programs for workers in other companies; b) the existence of a definitive legal judgment on the performance of acts by Vale consisting of an infringement of legislation which deals with combating discrimination based on race or gender, child labor and forced labor; c) inclusion in the bylaws, statute or contract of Vale or of the other controlling companies, of a provision by which a special quorum is required for deliberation or approval of matters limiting or restricting its controlling shareholders, or even the inclusion therein, of conditions leading to: i) restrictions on Vale's ability to grow or its technological development; ii) restrictions on Vale's access to new markets; or iii) restrictions or loss of ability to pay financial obligations resulting from this operation; d) in case of failure to meet established levels in 60 days from the date of written notice by BNDES, failure to provide guarantees accepted by BNDES in amount corresponding at least to 130% of the debt, unless when in that term, levels described below are reestablished: - Adjusted EBITDA debt ratio less than or equal to 4.5 (provided only that regarding calculations to be made based on financial results for fiscal years 2015 and 2016, the 5.5 rate shall prevail); and - Adjusted EBITDA ratio of Interest Expense greater than or equal to 2.0. In case of change of indirect control of Vale, without prior authorization from BNDES, does not submit a letter of guaranty issued according to the BNDES model. In the event proceeds granted under this contract are used for a purpose different from that provided for in Clause First: deployment of the Programa de Capacitação do Sistema Logístico Norte (CLN), aiming to increase the ore transportation capacity from 115 million tons per annum (Mtpa) to 150 Mtpa, approximately This contract will also expire, with the enforceability of the debt and immediate suspension of any disbursement, at the date of installing as a Federal Deputy or Senator or any person remunerated by Vale, or any owner, controller or director of Vale, or any person listed in the prohibitions provided by the Federal Constitution, article 54, paragraphs I and II. There will be no impact on charges of default, provided that the debt payment occurs within five (5) business days as of the date of installing, under risk of, if in default, assuming all charges related to the assumptions set forth above for early expiration by default.
Nature and reasons for the operation / other relevant information	Applicable interest rate: TJPL + 1.30% per annum (subcredits A, B, C, D, and E), 2.50% per annum (subcredits F and G) and TJPL (subcredits H).

Name of related party	Banco Nacional de Desenvolvimento Econômico e Social – BNDES
Date of transaction	December 27, 2013
Amount (R$)	136,700,000.00
Current balance (R$)	115,992,489.26
Amount of related party	Not applicable
Duration	January 15, 2022
Loan or other type of debt	Yes
Interest rate	3.500000

Relationship with the Company	Indirect controller
Purpose of the contract	Funding to support the 2013-2015 investment plan for technological development of the Tecnored process.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	Vale's corporate guarantee
Conditions of termination or expiration	BNDES may terminate this contract in advance, with the enforceability of the debt and immediate suspension of any disbursement, if in addition to the cases set forth in Articles 39 and 40 of "PROVISIONS APPLICABLE TO BNDES CONTRACTS", the following are certified by BNDES: a) reducing Vale's staff without offering training programs and/or replacement programs for workers in other companies; b) the existence of a definitive legal judgment on the performance of acts by Tecnored consisting of an infringement of legislation which deals with child labor, forced labor, or crime against the environment; c) inclusion in Tecnored bylaws, statute or contract, of a provision by which a special quorum is required for deliberation or approval of matters limiting or restricting the control of any of these companies by the respective controlling shareholders, or even the inclusion therein, of conditions leading to: i) restrictions on Tecnored's ability to grow or its technological development; ii) restrictions on Tecnored's access to new markets; or iii) restrictions or loss of ability to pay financial obligations resulting from this operation; (d) Non-compliance by Vale with following ratios during the term of the contract: - Adjusted EBITDA debt ratio less than or equal to 4.5 (provided only that regarding calculations to be made based on financial results for fiscal years 2015 and 2016, the 5.5 rate shall prevail); and - Adjusted EBITDA ratio of Interest Expense greater than or equal to 2.0. And, in case these ratios are not observed, failure to provide guarantees an amount equivalent to at least 130% of the debt, as stipulated by BNDES, and within 60 days from the date of written communication. (e) In case of change of indirect control of Tecnored, without prior authorization from BNDES, and Tecnored does not submit a letter of guaranty issued according to the BNDES model. (f) In case the proceeds granted under this Contract are used for any purpose other than the one set forth in Clause One: 2013-2015 investment plan for technological development in the Tecnored process, BNDES, without prejudice to the provisions, will inform the Federal Public Prosecutor, pursuant to the terms of Law No. 7492 of June 16, 1986. This contract will also expire, with the enforceability of the debt and suspension of any immediate disbursement, at the date of installing as a Federal Deputy or Senator or any person remunerated by Tecnored, or any owner, shareholder, or director of Vale, or any person listed in the prohibitions provided by the Federal Constitution, article 54, paragraphs I and II. There will be no impact on charges of default, provided that the debt payment occurs within five (5) business days as of the date of installing, under risk of, if in default, assuming all charges related to the assumptions set forth above for early expiration by default.
Nature and reasons for the operation / other relevant information	Available interest rate: 3.5% per annum fixed in reais

Name of related party	Banco Nacional de Desenvolvimento Econômico e Social – BNDES
Date of transaction	May 19, 2014
Amount (R$)	3.636.571.000,00
Current balance (R$)	2.333.181.044,75
Amount of related party	Not applicable
Duration	June 15, 2024
Loan or other type of debt	Yes
Interest rate	1.460000
Relationship with the Company	Indirect controller
Purpose of the contract	Financing to deploy the Programa de Capacitação do Sistema Logístico Norte (CLN), aiming to increase the ore transportation capacity from 150 million tons per annum (Mtpa) to 230 Mtpa, approximately
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	BNDES may terminate this contract in advance, with the enforceability of the debt and immediate suspension of any disbursement, if in addition to the cases set forth in Articles 39 and 40 of "PROVISIONS APPLICABLE TO BNDES CONTRACTS", the following are certified by BNDES: a) reducing Vale's staff without offering training programs and/or replacement programs for workers in other companies; b) the existence of a definitive legal judgment on the performance of acts by Vale consisting of crime against the environment or an infringement of legislation which deals with combating discrimination based on race or

	gender, child labor and forced labor, except when there is imposed repair or during compliance with the penalty imposed to Vale, according to due process of law; c) inclusion in Vale bylaws, statute or contract, of a provision by which a special quorum is required for deliberation or approval of matters limiting or restricting its control, or even the inclusion therein, of conditions leading to: i) restrictions on Vale's ability to grow or its technological development; ii) restrictions on Vale's access to new markets, or iii) restrictions or loss of ability to pay financial obligations resulting from this operation; d) in case of failure to meet established levels in 60 days from the date of written notice by BNDES, failure to provide guarantees accepted by BNDES in amount corresponding at least to 130% of the debt, unless when in that term, levels described below are reestablished: - Adjusted EBITDA debt ratio less than or equal to 4.5 (provided only that regarding calculations to be made based on financial results for fiscal years 2015 and 2016, the 5.5 rate shall prevail); and - Adjusted EBITDA ratio of Interest Expense greater than or equal to 2.0. In case of change of indirect control of Vale, without prior authorization from BNDES, does not submit a letter of guaranty issued according to the BNDES model. In the event proceeds granted under this contract are used for a purpose different from that provided for: deployment of the *Programa de Capacitação do Sistema Logístico Norte* (CLN), aiming to increase the ore transportation capacity from 150 million tons per annum (Mtpa) to 230 Mtpa, approximately This contract will also expire, with the enforceability of the debt and immediate suspension of any disbursement, at the date of installing as a Federal Deputy or Senator or any person remunerated by Vale, or any owner, controller or director of Vale, or any person listed in the prohibitions provided by the Federal Constitution, article 54, paragraphs I and II. There will be no impact on charges of default, provided that the debt payment occurs within five (5) business days as of the date of installing, under risk of, if in default, assuming all charges related to the assumptions set forth above for early expiration by default.
Nature and reasons for the operation / other relevant information	Applicable interest rate: TJLP + 1.46% per annum (subcredits A, B and C), and TJLP (subcredit D).

Name of related party	Banco Nacional de Desenvolvimento Econômico e Social – BNDES
Date of transaction	May 19, 2014
Amount (R$)	2,527,103,000.00
Current balance (R$)	1,924,364,911.08
Amount of related party	Not applicable
Duration	July 15, 2024
Loan or other type of debt	Yes
Interest rate	1.960000
Relationship with the Company	Indirect controller
Purpose of the contract	Financing to deploy a mining plant and an iron ore processing plant, with capacity of 90 million tons per annum, to explore field S11D, in the city of Canaã dos Carajás (PA)
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	BNDES may terminate this contract in advance, with the enforceability of the debt and immediate suspension of any disbursement, if in addition to the cases set forth in Articles 39 and 40 of "PROVISIONS APPLICABLE TO BNDES CONTRACTS", the following are certified by BNDES: a) reducing Vale's staff without offering training programs and/or replacement programs for workers in other companies; b) the existence of a definitive legal judgment on the performance of acts by Vale consisting of crime against the environment or an infringement of legislation which deals with combating discrimination based on race or gender, child labor and forced labor, except when there is imposed repair or during compliance with the penalty imposed to Vale, according to due process of law; c) inclusion in Vale bylaws, statute or contract, of a provision by which a special quorum is required for deliberation or approval of matters limiting or restricting its control, or even the inclusion therein, of conditions leading to: i) restrictions on Vale's ability to grow or its technological development; ii) restrictions on Vale's access to new markets; or iii) restrictions or loss of ability to pay financial obligations resulting from this operation; d) in case of failure to meet established levels in 60 days from the date of written notice by BNDES, failure to provide guarantees accepted by

	BNDES in amount corresponding at least to 130% of the debt, unless when in that term, levels described below are reestablished: - Adjusted EBITDA debt ratio less than or equal to 4.5 (provided only that regarding calculations to be made based on financial results for fiscal years 2015 and 2016, the 5.5 rate shall prevail); and - Adjusted EBITDA ratio of Interest Expense greater than or equal to 2.0. In case of change of indirect control of Vale, without prior authorization from BNDES, does not submit a letter of guaranty issued according to the BNDES model. In the event proceeds granted under this contract are used for a purpose different from that provided for. This contract will also expire, with the enforceability of the debt and immediate suspension of any disbursement, at the date of installing as a Federal Deputy or Senator or any person remunerated by Vale, or any owner, controller or director of Vale, or any person listed in the prohibitions provided by the Federal Constitution, article 54, paragraphs I and II. There will be no impact on charges of default, provided that the debt payment occurs within five (5) business days as of the date of installing, under risk of, if in default, assuming all charges related to the assumptions set forth above for early expiration by default. Change to Vale's indirect control, during the effectiveness of this Agreement, is excluded from early maturity circumstances.
Nature and reasons for the operation / other relevant information	Applicable interest rate: TJLP + 1.96% per annum (subcredit A), Currency Basket + 1.96% (subcredit B) and TJLP (subcredit C).

Name of related party	Banco Nacional de Desenvolvimento Econômico e Social – BNDES
Date of transaction	November 23, 2010
Amount (R$)	208,026,000.00
Current balance (R$)	173,242,190.11
Amount of related party	Not applicable
Duration	September 15, 2029
Loan or other type of debt	Yes
Interest rate	1.460000
Relationship with the Issuer	Indirect controller
Purpose of the contract	Financing for supplementation of resources relative to installation of Estreito Hydroelectric Power Plant (UHE)
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	BNDES may terminate this contract in advance, with the enforceability of the debt and immediate suspension of any disbursement, if in addition to the cases set forth in Articles 39 and 40 of "PROVISIONS APPLICABLE TO BNDES CONTRACTS", the following are certified by BNDES: a) reducing Vale's staff without offering training programs and/or replacement programs for workers in other companies; b) the existence of a definitive legal judgment on the performance of acts by the Beneficiary consisting of a crime against the environment or an infringement of legislation which deals with combating discrimination based on child labor and forced labor, in accordance with following provision; c) inclusion in the bylaws, statute or contract of Vale or of the other controlling companies, of a provision by which a special quorum is required for deliberation or approval of matters limiting or restricting its controlling shareholders, or even the inclusion therein, of conditions leading to: i) restrictions on Vale's ability to grow or its technological development; ii) restrictions on Vale's access to new markets; or iii) restrictions or loss of ability to pay financial obligations resulting from this operation; d) give, without prior authorization from BNDES, guaranties of any kind in operations with other creditors without the same quality of guaranties provided to BNDES, with equal priority of payment; e) not observing the following ratios during the term of the contract: - Adjusted EBITDA debt ratio less than or equal to 4.5 (provided only that regarding calculations to be made based on financial results for fiscal years 2015 and 2016, the 5.5 rate shall prevail); and - Adjusted EBITDA ratio of Interest Expense greater than or equal to 2.0. And, in case these ratios are not observed, failure to provide guarantees an amount equivalent to at least 130% of the debt, as stipulated by BNDES, and within 60 days from the date of written communication. Termination of the contract in advance based on provisions of Paragraph "b" above will not occur provided the remedy imposed has been fulfilled or while the penalty imposed to the Beneficiary is being fulfilled following the due legal procedure. In the event of any of the situations provided for in Paragraph "b" above, observing the provisions of above paragraph, BNDES may only declare the expiration in advance of the debt resulting from the Contract within 60 days after giving notice to the Beneficiary. In case proceeds granted under this Contract are used for any purpose other than general investments for installation of Estreito Hydroelectric

	Power Plant (UHE) and its transmission system, BNDES, without prejudice to the terms set forth above in this clause, will inform the Federal Public Prosecutor, pursuant to the terms of Law No. 7,492 of June 16, 1986. This contract will also expire, with the enforceability of the debt and immediate suspension of any disbursement, at the date of installing as a Federal Deputy or Senator or any person remunerated by Vale, or any owner, controller or director of Vale, or any person listed in the prohibitions provided by the Federal Constitution, article 54, paragraphs I and II. There will be no impact on charges of default, provided that the debt payment occurs within five (5) business days as of the date of installing, under risk of, if in default, assuming all charges related to the assumptions set forth above for early expiration by default. The change in indirect control of Vale, during the term of the Contract, is excluded from the possibility of early expiration by default.
Nature and reasons for the operation / other relevant information	Available interest rate: TJLP + 1.46% per annum This is financing for supplementation of resources relative to installation of the Estreito Hydroelectric Power Plant (UHE).

Name of related party	Banco Nacional de Desenvolvimento Econômico e Social – BNDES
Date of transaction	June 30, 2010
Amount (R$)	R$135,127,397.00
Current balance (R$)	51,545,441.80
Amount of related party	Not applicable
Duration	July 15, 2020
Loan or other type of debt	Yes
Interest rate	4.500000
Relationship with the Issuer	Indirect controller
Purpose of the contract	Financing to purchase national machinery and equipment for Project Pier IV, and for installation of a simple mobile waste material crushing, transportation and deposit system located in at the Carajás Complex, in Parauapebas (PA).
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	Early maturity: a) cases provided for in articles 333 and 1425 of the Civil Code or non- compliance with articles 39 and 40 in the "Terms Applicable to BNDES Contracts"; b) false Statement or document signed or provided by Vale; c) collection of deed which remains uncured for over 60 days and that materially affects Vale's capacity to pay for the Contract, start judicial or extrajudicial recovery, or requests bankruptcy or is declared bankrupt; d) change in Vale's indirect shareholding control, without prior authorization by the BNDES, during the term of the Agreement, considering: d.1) for purposes of the terms in item d, change in Vale's indirect shareholding control means change that represents the entrance of a new shareholder in Valepar's shareholding structure, with interest higher than 20%; e) Vale interrupt its activities; f) Vale fail to comply with terms in the Agreement; g) existence of final decision for engagement in acts classified as non-compliance with children's labor and slavery legislation, or environmental crime, unless the imposed repair is complied with or while the penalty imposed to Vale is being complied with. Eventual early redemption may be declared within 60 days from notification to Vale; h) inclusion in the bylaws, statute or contract of Vale of a provision by which a special quorum is required for deliberation or approval of matters limiting or restricting its controlling shareholders, or even the inclusion therein, of conditions leading to: h.1) restrictions on Vale's ability to grow or its technological development; h.2) restrictions on Vale's access to new markets; or h.3) restrictions or loss of ability to pay financial obligations resulting from this operation; i) if there is any change to Vale's personnel with no training program aiming to offer work opportunities in the area and/or relocation program for workers in other companies; j) not maintain during the term of the contract, the following rates: (i) Adjusted EBITDA debt ratio less than or equal to 4.5 (provided only that regarding calculations to be made based on financial results for fiscal years 2015 and 2016, the 5.5 rate shall prevail), and (ii) Adjusted EBITDA ratio of Interest Expense greater than or equal to 2.0. And in case of non-compliance with these rates, fail to establish, within sixty (60) days from the date of receipt of written notice, guaranties in amount corresponding to, at least, 130% of the debt value; k) installing as a Federal Deputy or Senator or any person remunerated by Vale, or any owner, controller or director of Vale, or any person listed in the prohibitions provided by the Federal Constitution, article 54, I and II. In case of using the funds granted for purposes other than the one defined in the agreement, there should be early maturity and immediate termination of any disbursement and Vale will be subject, on the day following judicial or extrajudicial notice, to a 50% fine on the value released and not proved, added with appropriate fees.
Nature and reasons for the operation / other relevant information	Available interest rate: 4.50% per annum fixed in reais. This is financing to purchase national machinery and equipment for Project Pier IV, and for installation of a simple mobile waste material crushing, transportation and deposit system located at the Carajás Complex, in Parauapebas (PA).

Name of related party	Banco Nacional de Desenvolvimento Econômico e Social – BNDES
Date of transaction	March 31, 1997
Amount (R$)	Not applicable
Current balance (R$)	Not applicable
Amount of related party	Not applicable
Duration	Undetermined – Until full execution of its purpose. Contract was changed and consolidated on June 28, 2007.
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Indirect controller
Purpose of the contract	Regulate the relationship between Vale and BNDES to determine mineral rights for deposits which existence, size and economic validity are undefined in the Carajás mineral province, there being, therefore, no record of the asset's worth when privatized. The Contract stipulates bilateral rules with the purpose of regulating: survey tasks by Vale; the cases and manner for BNDES to provide financial resources to Vale for reimbursement of additional expenses resulting from survey tasks and payment of the respective administration fee; BNDES participatory rights; abandonment or assignment of exploratory targets or mining rights to third parties; payment of the finder's fee owed by BNDES to Vale.
If issuer is Creditor or Debtor	Not applicable
Guaranties and insurance	Not applicable
Conditions of termination or expiration	Not applicable
Nature and reasons for the operation / other relevant information	

Name of related party	Banco Nacional de Desenvolvimento Econômico e Social – BNDES
Date of transaction	March 25, 2011
Amount (R$)	102,536,220.00
Current balance (R$)	63,626,026.66
Amount of related party	Not applicable
Duration	April 15, 2021
Loan or other type of debt	Yes
Interest rate	5.500000
Relationship with the Company	Indirect controller
Purpose of the contract	Funding for the acquisition of Handling and Transportation System, named *5ª Linha de Embarque* to be installed at Terminal Marítimo Ponta da Madeira in São Luís (MA) to serve Pier IV project
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	BNDES may terminate this contract in advance, with the enforceability of the debt and immediate suspension of any disbursement, if in addition to the cases set forth in Articles 39 and 40 of "PROVISIONS APPLICABLE TO BNDES CONTRACTS", the following are certified by BNDES: a) reducing Vale's staff without offering training programs and/or replacement programs for workers in other companies; b) existence of final decision condemning the Beneficiary for engagement in acts classified as environmental crimes or non-compliance with children's labor and slavery legislation, under the terms below; c) inclusion in the bylaws, statute or contract of Vale or of the other controlling companies, of a provision by which a special quorum is required for deliberation or approval of matters limiting or restricting its controlling shareholders, or even the inclusion therein, of conditions leading to: i) restrictions on Vale's ability to grow or its technological development; ii) restrictions on Vale's access to new markets; or iii) restrictions or loss of ability to pay financial obligations resulting from this operation; d) if required levels are not met within 60 days from the date of written notification by BNDES, not provide actual guarantees, accepted by BNDES, in value corresponding to at least 130% of the debt, except when in such period, levels described below are met: - Adjusted EBITDA debt ratio less than or equal to 4.5 (provided only that regarding calculations to be made based on financial results for fiscal years 2015 and 2016, the 5.5 rate shall prevail); and - Adjusted EBITDA ratio of Interest Expense greater than or equal to 2.0. In case proceeds granted under this Contract are used for any purpose other than general investments for purchase of machinery and equipment, BNDES, without prejudice to the terms set forth above in this clause, will inform the Federal Public Prosecutor, pursuant to the terms of Law No. 7,492 of June 16, 1986. This contract will also expire, with the enforceability of the debt and immediate suspension of any disbursement, at the date of installing as a Federal Deputy or Senator or any person remunerated by Vale, or any owner, controller or director of Vale, or any person listed in the prohibitions provided

	by the Federal Constitution, article 54, paragraphs I and II. There will be no impact on charges of default, provided that the debt payment occurs within five (5) business days as of the date of installing, under risk of, if in default, assuming all charges related to the assumptions set forth above for early expiration by default. Early termination based on the terms in item "b" above will not be in effect upon appropriate repair or during compliance with penalty imposed to the Beneficiary, according to due legal process. In case of any of the circumstances provided for in "b", under the terms above, the BNDES may only be entitled to represent early termination of the debt upon sixty (60) day prior written notice to the Beneficiary.
Nature and reasons for the operation / other relevant information	Available interest rate: 5.5% per annum fixed in reais. Funding for the acquisition of Handling and Transportation System, named *5ª Linha de Embarque* to be installed at Terminal Marítimo Ponta da Madeira in São Luís (MA) to serve Pier IV project.

Name of related party	Banco Nacional de Desenvolvimento Econômico e Social – BNDES
Date of transaction	June 30, 2010
Amount (R$)	175,882,585.50
Current balance (R$)	90,211,441.78
Amount of related party	Not applicable
Duration	July 15, 2020
Loan or other type of debt	Yes
Interest rate	4.500000
Relationship with the Company	Indirect controller
Purpose of the contract	Funding for the acquisition of 2,558 railroad wagons to transport iron ore
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	Early maturity, regardless of judicial or extrajudicial notification: a) non-compliance with Vale obligations; b) application of funds from funding operations in purposes other than the one specified in the agreement; c) inclusion in the bylaws, or statutes of Vale of a special quorum for approval of matters limiting its controlling shareholders, or inclusion of conditions leading to: 1) restrictions on Vale's ability to grow or its technological development; 2) restrictions on Vale's access to new markets; or 3) restrictions or loss of ability to pay financial obligations resulting from this operation; d) if there is any change to Vale's personnel with no training program aiming to offer work opportunities in the area and/or relocation program for workers in other companies; e) existence of final decision for engagement in acts classified as non-compliance with children's labor and slavery legislation, or environmental crime, and: 1) there will not be early maturity if there is repair or while the penalty imposed to Vale is being complied with; 2) early maturity will be determined only upon notice to Vale, 60 days in advance; f) installing as a Federal Deputy or Senator or any person remunerated by Vale, or any owner, controller or director of Vale, or any person listed in the prohibitions provided by the Federal Constitution, article 54, paragraphs I and II, when there will be immediate termination of disbursements. There will be no impact on charges of default, provided that the debt payment occurs within five (5) business days as of the date of installing, under risk of, if in default, assuming all charges related to the assumptions set forth above for early expiration by default; g) any of the cases provided for in articles 333 and 1425 of the Civil Code or non-compliance with articles 39 and 40 in the "Terms Applicable to BNDES Contracts"; h) false Statement or document signed or provided by Vale; i) collection of deed which remains uncured for over 60 days and that materially affects Vale's capacity to pay for the Contract, start judicial or extrajudicial recovery, or requests bankruptcy or is declared bankrupt; j) Vale's incorporation, merger or acquisition, unless: (1) the resulting company is Vale; (2) the resulting company maintains the financial rates described below; k) interruption of Vale's activities; l) pledge, attachment, seizure, in bankruptcy process, or any other judicial or administrative measure, of assets object of financial collaboration; m) non-compliance with any of the terms in the agreement Financial ratios to be complied with by Vale: Adjusted EBITDA debt ratio less than or equal to 4.5 (provided only that regarding calculations to be made based on financial results for fiscal years 2015 and 2016, the 5.5 rate shall prevail), and - rate: Adjusted EBITDA ratio of Interest Expense greater than or equal to 2.0. In case these ratios are not observed, guarantees an amount equivalent to at least 130% of the debt, as stipulated by BNDES, and within 60 days from the date of written communication. The article 39, I, in the "Terms Applicable to BNDES Contracts" should be interpreted in a restrictive fashion, being applicable solely to eventual default of Vale obligations under this Agreement.
Nature and reasons for the operation / other relevant information	Available interest rate: 4.5% per annum fixed in reais.

Name of related party	BNDES Participações S.A. – BNDESPAR

Date of transaction	December 17, 2007
Amount (R$)	1,407,420,000.00
Current balance (R$)	1,348,200,104.59
Amount of related party	Not applicable
Duration	December 17, 2027
Loan or other type of debt	Yes
Interest rate	0.800000
Relationship with the Company	Indirect controller
Purpose of the contract	Private issuances of debentures for financing of the expansion project of the Norte-Sul Railroad FNS. There have been three issuances of debentures: December 17, 2007 (1st issuance), October 15, 2009 (2nd issuance) and June 9, 2011 (3rd issuance). The amount informed above corresponds to the sum of the amount of all three issuances.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	For information on obligation termination or extinction conditions under these Issuances, see item 18 in this Reference Form.
Nature and reasons for the operation / other relevant information	Operation aims funding the expansion project of Ferrovia Norte Sul. Available interest rate: TJLP + 0.8% per annum. VALE and BNDESPAR have executed on June 23, 2015 an amendment to the deeds of these issuances, excluding (i) the possibility to exchange Debentures for shares issued by VLI, and the entirety of obligations of VLI and FNS from these deeds, granting, free of charge, to BNDESPAR purchase options of a specific number of common shares issued by VLI held by Vale.

Name of related party	BNDES Participações S.A. – BNDESPAR
Date of transaction	June 23, 2015
Amount (R$)	0.00
Current balance (R$)	Not applicable
Amount of related party	Not applicable
Duration	December 15, 2027
Loan or other type of debt	No
Interest rate	
Relationship with the Company	Indirect controller
Purpose of the contract	Contract for Purchase of Shares issued by VLI S.A. ("Agreement") held by Vale S.A. executed with BNDESPAR. Under this contract, granted to BNDES 140,239 buyout options of shares of VLI S.A., which may be exercised starting on December 18, 2017 until December 15, 2027. This contract arises out of understanding between VALE and BNDESPAR which resulted in the execution on June 23, 2015 of amendment to the deed of the Private Issuance of Debentures to fund the project to expand Ferrovia Norte Sul - FNS. Under this amendment, there has been exclusion of (i) the possibility to exchange Debentures for shares issued by VLI, and the entirety of obligations of VLI and FNS from these deeds, granting, free of charge, to BNDESPAR purchase options of a specific number of common shares issued by VLI held by Vale.
If issuer is Creditor or Debtor	Not applicable
Guaranties and insurance	None.
Conditions of termination or expiration	In case of non-compliance with any financial or non-financial obligation assumed by Vale, VLI or FNS in the Contract, the terms in articles 39 to 47-A in "Terms Applicable to BNDES Contracts" should apply.
Nature and reasons for the operation / other relevant information	

Name of related party	Banco Bradesco S.A.
Date of transaction	June 30, 2010
Amount (R$)	135,127,397.00
Current balance (R$)	18,751,805.05
Amount of related party	Not applicable
Duration	July 15, 2020
Loan or other type of debt	Yes
Interest rate	4.500000
Relationship with the Company	Bradespar S.A., indirect controller of Vale, and Banco Bradesco S.A. are under common control
Purpose of the contract	Funding for the acquisition of national machinery and equipment to be used in Pier IV Project and deployment of a Mobile Cracking System, Transport and Sterile Disposal (SME).
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	Early maturity: cases provided for in articles 333 and 1425 of the Civil Code or non-compliance with articles 39 and 40 in the "Terms Applicable to BNDES Contracts"; b) false Statement or document signed or provided by Vale; c) collection of deed which remains uncured for over 60 days and that materially

	affects Vale's capacity to pay for the Contract, start judicial or extrajudicial recovery, or requests bankruptcy or is declared bankrupt; d) change in Vale's indirect shareholding control, without prior authorization by the BNDES, during the term of the Agreement, considering: d.1) for purposes of the terms in item d, change in Vale's indirect shareholding control means change that represents the entrance of a new shareholder in Valepar's shareholding structure, with interest higher than 20%; e) Vale interrupt its activities; f) Vale fail to comply with terms in the Agreement; g) existence of final decision for engagement in acts classified as non-compliance with children's labor and slavery legislation, or environmental crime, unless the imposed repair is complied with or while the penalty imposed to Vale is being complied with. Eventual early redemption may be declared within 60 days from notification to Vale; h) inclusion in the bylaws, statute or contract of Vale of a provision by which a special quorum is required for deliberation or approval of matters limiting or restricting its controlling shareholders, or even the inclusion therein, of conditions leading to: h.1) restrictions on Vale's ability to grow or its technological development; h.2) restrictions on Vale's access to new markets; or h.3) restrictions or loss of ability to pay financial obligations resulting from this operation; i) if there is any change to Vale's personnel with no training program aiming to offer work opportunities in the area and/or relocation program for workers in other companies; j) not maintain during the term of the contract, the following rates: (i) Adjusted EBITDA debt ratio less than or equal to 4.5 (provided only that regarding calculations to be made based on financial results for fiscal years 2015 and 2016, the 5.5 rate shall prevail), and (ii) Adjusted EBITDA ratio of Interest Expense greater than or equal to 2.0. And in case of non-compliance with these rates, fail to establish, within 60 days from the date of receipt of written notice, guaranties in amount corresponding to, at least, 130% of the debt value; k) installing as a Federal Deputy or Senator or any person remunerated by Vale, or any owner, controller or director of Vale, or any person listed in the prohibitions provided by the Federal Constitution, article 54, paragraphs I and II. In case of using the funds granted for purposes other than the one defined in the agreement, there should be early maturity and immediate termination of any disbursement and Vale will be subject, on the day following judicial or extrajudicial notice, to a 50% fine on the value released and not proved, added with appropriate fees.
Nature and reasons for the operation / other relevant information	Available interest rate: 4.5% per annum fixed in reais.

Name of related party	Banco Bradesco S.A., succeeded by CIBRASEC – Companhia Brasileira de Securitização
Date of transaction	March 24, 2015
Amount (R$)	700,000,000.00
Current balance (R$)	835,285,354.07
Amount of related party	Not applicable
Duration	April 20, 2022
Loan or other type of debt	Yes
Interest rate	8.80000
Relationship with the Issuer	Bradespar S.A., indirect controller of Vale, and Banco Bradesco S.A. are under common control
Purpose of the contract	CCB used as support for CRI, to fund projects under S11D Logística, at *Complexo Portuário de Ponta Madeira*
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	Sale of 0.0623% (94,319.31 m²) of the property under registry No. 13,521 at *Cartório de Registro de Imóveis da Comarca de Itabira/MG*. Endorsement by Docepar S.A.
Conditions of termination or expiration	EARLY MATURITY a) non-payment by Issuer for two (2) Working Days upon the date when the amount is payable of the Principal, of the Compensation or Mandatory Anticipated Liquidation; b) non-compliance with any pecuniary obligation that is not mentioned in item "a" above within fifteen (15) days following the date when the amount is payable; c) non-compliance by the Issuer of any pecuniary, principal or ancillary, amount, assumed in this Sale Contract, that is not solved within sixty (60) days from the date of non-compliance (should no other cure term is set forth and specifically provided), provided that the non-compliance causes relevant Adverse Effect; d) should the Sale become effective or its effects are extinct or materially limited prior to the full payment of obligations arising out of this Term, whether due to being void, annulled, terminated, denounced, distract, or any other reason attributable solely to the Issuer, or should the sale become illegal and/or insufficient to ensure payment of obligations hereunder and provided that the Sale is not replaced, reinforced or complemented as provided for in the Contract; e) should the Issuer or the Endorser engages or perpetrates any acts or judicial or extrajudicial measures that aim to annul, question, review, cancel, repudiate, suspend, or invalidate the Endorsement and/or any of the obligations of the Endorser hereunder, as the case may be; f) statement of early maturity regarding Issuer obligations arising out any contract or term that is subject to, with evidence of outstanding financing, in local or international market, in amount that is equal or higher than two hundred and fifty million reais (R$250,000,000.00) jointly or severally, adjusted annually

	from the Date of Disbursement, according to positive changes to the General Market Price Index published by Fundação Getúlio Vargas ("IGPM"), or equivalent in other currencies, provided that it is recognized judicially or not contested/defended by the Issuer; g) liquidation, dissolution or extinction of the Issuer; h) (h.1) bankruptcy of the Issuer; (h.2) file for bankruptcy by the Issuer; (h.3) request of Issuer bankruptcy filed by third parties, that is not justified under the legal term; or (h.4) file for judicial or extrajudicial recovery by the Issuer; i) change to the corporate purpose of the Issuer, as set forth in the bylaws in effect on the Disbursement Date, provided that as result the Issuer is no longer engaged in mining activities; and j) evidence that any information given by the Issuer hereunder is false or incorrect in any relevant aspect. OPTIONAL EARLY REDEMPTION The Bill may be redeemed early after three (3) years from the Issuing Date, according to the adjusted debt balance of the Bill, under the following circumstances:
Nature and reasons for the operation / other relevant information	The applicable interest rate is TR + 8.8% per annum in reais. Financing for civil works in logistic projects in *Complexo Portuário de Ponta Madeira*. Contract assigned on the issuing date to CIBRASEC – *Companhia Brasileira de Securitização*.

Name of related party	Banco Bradesco Cartões S.A. and Banco Bankpar S.A.
Date of transaction	December 19, 2013
Amount (R$)	2,079,396,954.10
Current balance (R$)	1,539,075,885.74
Amount of related party	Not applicable
Duration	December 31, 2018
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Bradespar S.A., indirect controller of Vale, and Banco Bradesco S.A. are under common control.
Purpose of the contract	Service to issue and manage corporate credit cards to be used in Brazil and abroad. The payment of this contract is according to consumption (on demand), there is no use commitment/obligation assumed by Vale.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	Not applicable
Conditions of termination or expiration	The Agreement may be terminated at any time and by either Party by written notice with at least one hundred eighty (180) days in advance, with no right to claim, indemnity, or compensation, for the benefit of the Party receiving the termination notice. Additionally to circumstances provided for in the law, the Agreement may be terminated immediately and with no prior notice, under the following circumstances: **a) if either Party files for bankruptcy, judicial or extrajudicial recovery, is subject to a claim of bankruptcy or liquidation; and b) if permits granted to Suppliers to provide/perform contracted services are revoked.** Without prejudice to other conditions applicable to the termination and fine payment, when applicable, the Agreement may be terminated, upon prior notice at least sixty (60) days in advance, under the following circumstances: a) payment delays for over sixty (60) days; b) delay to make available information that prejudice regular compliance with obligations assumed in the Agreement, that fails to be solved within thirty (30) days after receipt of the notice by the other Party in this sense; and c) breach of any of the obligations in this Agreement by the Parties, that results directly in impediment for regular compliance with obligations assumed in the Agreement, that fails to be solved within thirty (30) days after receipt of the notice by Suppliers the other Party in this sense. The agreement is only in effect after January 1, 2014. The contracted amount takes into account several Vale Group companies, and of this amount, R$1,996,341,245.20 refers to Vale.
Nature and reasons for the operation / other relevant information	

Name of related party	CBSS - Companhia Brasileira de Soluções e Serviços
Date of transaction	January 16, 2014
Amount (R$)	2,711,977,547.43
Current balance (R$)	1,201,973,994.04
Amount of related party	Not applicable
Duration	December 31, 2019
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	CBSS is an entity controlled by Banco Bradesco S.A. Bradespar S.A., indirect

	controlling company of Vale, and Banco Bradesco S.A. are under common control.
Purpose of the contract	Provision of issuance and management of legitimation documents known as "*refeição-convênio*" and/or "*alimentação-convênio*" (meal voucher and food voucher), Card to purchase Christmas basket and Culture Card and credit cards with pre-defined limit, as magnetic or chip cards, according to the available technology, hereinafter severally referred to, regardless of the type, as "ALELO CARD(S)", by SUPPLIER to VALE ("SERVICES") in Brazil, as well as availability, in such Cards, of the respective benefits, according to amounts in real predetermined by Vale. The payment of this contract is according to consumption (on demand), there is no use commitment/obligation assumed by Vale.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	In case of unreasoned termination of the Agreement by Vale prior to the termination of the minimum five (5) year effective period, Vale will owe to Supplier, fine to be calculated as follows: i. up to 12 months: fine equivalent to 75% of the accrued value for commercial discount granted to Vale; ii. 13th to 24th month: fine equivalent to 50% of the accrued value for commercial discount granted to Vale; iii. 25th to 36th month: fine equivalent to 30% of the accrued value for commercial discount granted to Vale; iv. 37th to 48th month: fine equivalent to 10% of the accrued value for commercial discount granted to Vale; v. starting on the 49th month: exempt. Without prejudice to the satisfaction of other rights, Supplier may terminate this agreement with no reason prior to the effectiveness set forth in Clause 4.1 in the Agreement by means of 12-month prior notice, with no right to claims, indemnity, or compensation of benefits by VALE. If Supplier fails to comply with conditions set forth herein, it will be subject to a R$1,000,000.00 fine. Without prejudice to the satisfaction of other rights, either Party may terminate this Agreement by means of written notice to the other Party, with no right to claims, indemnity, or compensation for the benefit of the Party receiving the termination notice, under the following circumstances: (i) request of claim of bankruptcy, dissolution, liquidation, or judicial or extrajudicial recovery of the other Party; (ii) under the terms in Clause Twelve in the Agreement, in case of act of God or force majeure duly evidenced, that prevents performance of the object of the Agreement for more than thirty (30) days or, if evidenced, as being able to delay for undetermined time compliance with the Agreement, either party may choose to terminate, upon compliance with reciprocals outstanding obligations, to the date of the impediment; (iii) breach of any provision of the instrument or the laws and regulations under which it is subject to, if not remedied within thirty (30) days from the date of notification receipt sent by the non-defaulting party to the infringing party, or within a time as agreed by the parties at the time; (iv) by Vale, if the Supplier fails to comply with the terms in the Vendors' Code of Conduct, when applicable, and fail to share principles and values in Vale's Sustainable Development Policy and Human Rights Policy, which documents are part of this agreement; (v) in case of proven fraud or willingness by the infringing Party. In case of termination motivated by either Party, under item (iii) above, the Party giving cause to it will not be subject to the payment of fine for whatever title, without prejudice to satisfying the other Parties' rights. In the event of termination of the Contract for any reason, ALELO CARDS following Meal, Food, and Christmas models, delivered to Vale and the respective current balances of benefits, will be valid for use during the period of the card equal to ninety (90) calendar days after the effective termination of the Agreement and, after that period, the ALELO CARDS will automatically be canceled, and any respective benefits will be returned to Vale within sixty days. Additionally, balances available in the ALELO CARDS in the Culture Card model will undetermined validity. The agreement is only in effect after January 1, 2014. The contracted amount takes into account several Vale Group companies, and of this amount, R$2,531,819,097.71 refers to Vale.
Nature and reasons for the operation / other relevant information	

Name of related party	CBSS - Companhia Brasileira de Soluções e Serviços
Date of transaction	July 28, 2014
Amount (R$)	52,868,847.14
Current balance (R$)	38,548,075.58

Amount of related party	Not applicable
Duration	July 27, 2019
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	CBSS is an entity controlled by Banco Bradesco S.A. Bradespar S.A., indirect controlling company of Vale, and Banco Bradesco S.A. are under common control.
Purpose of the contract	Issuing, management, and distribution of transportation voucher to be used by employees of Vale and the group in Brazil. The payment of this contract is according to consumption (on demand), there is no use commitment/obligation assumed by Vale.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	The agreement may be terminated by either party, by means of formal notice at least one hundred and twenty (120) days in advance of the estimated date of early termination. In this case, neither party is entitled to indemnity or compensation, except for obligations of the parties regarding performance of services and payment for services provided until termination of the agreement. If either party fails to comply with the one hundred and twenty (120) days term set forth in the agreement, this party will be subject to the payment of fine of R$90,000.00. The contract is for R$52,868,847.14 related to all companies of Vale Group, and from that amount, R$47,550,484.77 refer to Vale.
Nature and reasons for the operation / other relevant information	

Name of related party	Ferrovia Centro Atlântica S.A.
Date of transaction	December 30, 2002
Amount (R$)	65,915,510.25
Current balance (R$)	771,708.54
Amount of related party	Not applicable
Duration	December 31, 2017
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Issuer	Related party
Purpose of the contract	Cargo railroad transportation service provision
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	Take or Pay for annual contracted volumes.
Conditions of termination or expiration	The Contract may be terminated, regardless of warning, judicial or extrajudicial notice, under the following circumstances: a) bankruptcy and composition with creditors, judicial or extrajudicial dissolution of either party; b) suspension/revocation of the concession to the SUPPLIER, at any time, to explore the cargo railroad public transportation services; c) non-compliance with any of the conditions and/or obligations set forth in the contract, when the infringing or non-compliant party fails to solve or fully comply with within thirty (30) days upon the notice by the compliant party, to be preceded by written notice.
Nature and reasons for the operation / other relevant information	

Name of related party	Ferrovia Centro Atlântica S.A.
Date of transaction	January 1, 2015
Amount (R$)	20,880,000.00
Current balance (R$)	18,273,736.08
Amount of related party	Not applicable
Duration	By the end of the concession of any of the railroads
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Subsidiary
Purpose of the contract	Agreement for Mutual Operating Use of Railroad Facilities, as Mutual Traffic Model and exchange of material between the parties.
If issuer is Creditor or Debtor	FCA – Debtor EFVM – Debtor and Creditor
Guaranties and insurance	Not applicable

Conditions of termination or expiration	The Operational Contract may be terminated by either Party, by means of written notice to the other Party, and the Party that have been requested termination shall not be entitled to any claim, indemnity or compensation, because of termination, under the following circumstances: (i) non-compliance by the other Party with any obligation provided for in the Operational Contract, except when the non-compliant Party solves the non-compliance within ninety (90) calendar days upon receipt of the written notice sent by the Compliant Party; (ii) files for insolvency, bankruptcy or judicial or extrajudicial recovery of the other Party; and (iii) government/authority fact, fact of Administration, act of God, or force majeure, that suspends performance of the Contract for over one hundred and eighty (180) calendar days or in case of early termination of concession contracts of EFVM or FCA.
Nature and reasons for the operation / other relevant information	

Name of related party	Vale S.A., VLI Multimodal S.A., FCA S.A. and FNS S.A.
Date of transaction	August 9, 2013
Amount (R$)	0.00
Current balance (R$)	Not applicable
Amount of related party	Not applicable
Duration	July 29, 2027
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Subsidiary
Purpose of the contract	Buy-out option subject to future event: Vale will pay VLI Multimodal (in case of exercise of buy-out), prices determined by the residual value booked by VLI Multimodal, considering maintenance and improvements, compliant with the appropriate depreciation. In case of characterization of one or more assets as revertible assets: 1- the price to be paid for the assets will be the indemnity paid by the Granting Authority to Vale, safeguarding FCA and FNS, is entitled to receive a value that is not lower than the nominal value originally paid for each asset; 2- should the indemnity paid by the granting authority be lower than the price paid by Vale to FCA and FNS, this should return the difference to Vale, under the terms in item "i" above.
If issuer is Creditor or Debtor	Not applicable
Guaranties and insurance	Not applicable
Conditions of termination or expiration	No fine is provided for in case of termination. Note: Option linked to the effectiveness of the Cargo Railroad Transportation Services and Related Services Agreement entered by and between Vale S.A e VLI Multimodal S.A on December 7, 2010. FCA and FNS are the owners of wagons and locomotives ("Assets"), required for the provision of services under the Transportation Agreement, reason why FCA and FNS granted the Assets to Vale, exclusively and irretrievably, for the entire effectiveness of the Transportation Agreement. Vale may acquire part or all the Assets, upon one of the following circumstances: a) Determination by the Granting Authority in this sense; b) Termination of Concession Agreements for any reason; c) Termination of the Transportation Agreement for any reason; d) File or order of insolvency, bankruptcy, or judicial or extrajudicial recovery for FCA and/or FNS, by VLI Multimodal; e) Non-compliance by VLI Multimodal, FCA and/or FNS with any obligation set forth in the AGREEMENT, except when it solve the non-compliance within 15 calendar days upon receipt of written notice in this sense provided by VALE; f) Existence of third-party claim, in judicial or administrative procedure, incurring on one or more Assets or creating any encumbrance, that is not cured by VLI Multimodal, FCA, and FNS in 20 days; and g) If VLI Multimodal, FCA, and FNS, for any reason, remove one or more Assets from Vale's possession, without its express written agreement by Vale and ANTT, if that is not cured by VLI Multimodal, FCA, and FNS in 20 days.
Nature and reasons for the operation / other relevant information	

Name of related party	VLI Multimodal S.A. and Vale S.A.
Date of transaction	August 9, 2013
Amount (R$)	14,044,277,674.07
Current balance (R$)	794,477,904.85
Amount of related party	Not applicable
Duration	June 29, 2027
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Issuer	Subsidiary
Purpose of the contract	Providing railway transportation services
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	Contract specifies compensations for theft, loss, or damage of the goods that will be handled in a specific process and, in the case of any debt, they will be settled within 60 days after receipt of the compensation request. The price to be considered will be that declared in the fiscal note at the time of carriage.
Conditions of termination or expiration	Contract may be terminated by any party by giving written notice to the other, without there being any right of claim, indemnification or compensation for the benefit of the party receiving the notice of termination, in following cases: (i) non-compliance of any contractual obligations by the other Party, except when non-compliance is solved within ninety (90) days after receipt of the relevant notice by the non-default party; (ii) petition or declaration of bankruptcy or liquidation, or judicial or extrajudicial recovery by the other party; (iii) in the event of an act of God or force majeure regularly proved, that comes to stop the execution of this Contract for more than one hundred eight (180) calendar days; and (iv) change in shareholding control, direct or indirect, of either party, under the terms in item 16.2.1 in the agreement. There is no fixed amount determined for this service agreement. Thus, the amount related to this agreement in fiscal year ending on December 31, 2016 is R$794,477,904.85, while the estimated value for the agreement on the termination date on July 29, 2027, carried to today's value is R$14,044,277,674.07.
Nature and reasons for the operation / other relevant information	

Name of related party	Ferrovia Norte Sul S.A. (through the Carajás Railroad - EFC)
Date of transaction	January 1, 2015
Amount (R$)	1,230,550,000.00
Current balance (R$)	1,141,459,206.89
Amount of related party	None
Duration	By the end of the concession of any of the railroads
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Subsidiary
Purpose of the contract	Specific Contractual Transaction, with the objective (i) to carry out specific transactions relating to mutual traffic and/or the right of passage; (ii) to refine global operational efficiency for railroad transportation and better conditions in general for passengers, in order to allow for increased railroad transportation between parties; (iii) to maintain a heightened relationship between parties, in order to increase service of the demands of transportation of cargo in its areas of influence, producing economic development in the regions it attends, all in accordance with our contracts, as well as in observance of the applicable technical norms and regulations; and (iv) to consider the junction between the two railroads and the Açailândia station, in the State of Maranhão, operated by Vale, where we will make the exchange between railroad stations with dispatched cargo in mutual traffic.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None
Conditions of termination or expiration	This Contract may be terminated by either party by giving notice, communication or judicial summons or extrajudicial communication within 30 days, only in the event of non-compliance by either Party with any clause, provided it is not remedied within 90 days by the non-complying Party, after receiving prior written notice identifying the non-compliance, with acknowledgement of receipt. In case of termination, the Parties will proceed according to current laws.
Nature and reasons for the operation / other relevant information	

Name of related party	Ferrovia Norte Sul S.A. (through the Carajás Railroad - EFC)
Date of transaction	January 1, 2015
Amount (R$)	27,070,000.00
Current balance (R$)	23,390,778.05
Amount of related party	None
Duration	By the end of the concession of any of the railroads

Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Subsidiary
Purpose of the contract	Specific Contractual Transaction, with the objective (i) to carry out specific transactions relating to mutual traffic and/or the right of passage; (ii) to refine global operational efficiency for railroad transportation and better conditions in general for passengers, in order to allow for increased railroad transportation between parties; (iii) to maintain a heightened relationship between parties, in order to increase service of the demands of transportation of cargo in its areas of influence, producing economic development in the regions it attends, all in accordance with our contracts, as well as in observance of the applicable technical norms and regulations; and (iv) to consider the junction between the two railroads and the Açailândia station, in the State of Maranhão, operated by Vale, where we will make the exchange between railroad stations with dispatched cargo in mutual traffic.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	This Contract may be terminated by either party by giving notice, communication or judicial summons or extrajudicial communication within 30 days, only in the event of non-compliance by either Party with any clause, provided it is not remedied within 90 days by the non-complying Party, after receiving prior written notice identifying the non-compliance, with acknowledgement of receipt. In case of termination, the Parties will proceed according to current laws.
Nature and reasons for the operation / other relevant information	

Name of related party	Baovale Mineração S.A.
Date of transaction	October 10, 2001
Amount (R$)	731,178,777.62
Current balance (R$)	145,729,944.21
Amount of related party	Not applicable
Duration	20 years (until October 18, 2021)
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Subsidiary, joint control
Purpose of the contract	Leasing
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	The contract may be terminated: - due to act of God or force majeure under the terms in article 1058 and sole paragraph in the Civil Code; - upon mutual agreement; - upon termination by either party due to non-compliance by the other party; - due to bankruptcy or composition with creditors by either party.
Nature and reasons for the operation / other relevant information	

Name of related party	Companhia Hispano Brasileira de Pelotização - Hispanobras
Date of transaction	May 16, 2012
Amount (R$)	170,286,370.22
Current balance (R$)	138,755,787.86
Amount of related party	Not applicable
Duration	Three years with automatic renewal
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Affiliate
Purpose of the contract	Contract for leasing assets. Vale leased Hispanobras' pellet plant for one fixed payment plus another payment variable with assets performance. Contract term is for 3 years, renewable successively for the same period. Lease of industrial assets is part of the new business model chosen by the shareholders as it allows enjoying synergies and reducing non-efficiencies, ensuring better profitability and return to shareholders.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	Either party will have the right to terminate the lease after the initial period of three years, provided that they send to the other party written notice at least a year before the lease expires.
Nature and reasons for the operation / other relevant information	

Name of related party	Companhia Nipo Brasileira de Pelotização - Nibrasco
Date of transaction	April 30, 2008
Amount (R$)	451,802,797.06
Current balance (R$)	8,265,245.30

Amount of related party	Not applicable
Duration	Three years with automatic renewal
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Affiliate
Purpose of the contract	Contract for leasing assets. Vale leased 2 pellet plants of Nibrasco, upon payment of a fixed portion and variable portion depending on the performance of the assets. Contract term is for 3 years, renewable successively for the same period. Lease of industrial assets is part of the new business model chosen by the shareholders as it allows enjoying synergies and reducing non-efficiencies, ensuring better profitability and return to shareholders.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	Either party will have the right to terminate the lease after the initial period of three years, provided that they send to the other party written notice at least a year before the lease expires.
Nature and reasons for the operation / other relevant information	

Name of related party	Companhia Ítalo Brasileira de Pelotização - Itabrasco
Date of transaction	September 30, 2008
Amount (R$)	197,270,457.76
Current balance (R$)	3,729,080.80
Amount of related party	Not applicable
Duration	December 31, 2018
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Affiliate
Purpose of the contract	Contract for leasing assets. Vale leased the pellet plant of Itabrasco, upon payment of a fixed portion and variable portion depending on the performance of the assets.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	Lease of industrial assets is part of the new business model chosen by the shareholders as it allows enjoying synergies and reducing non-efficiencies, ensuring better profitability and return to shareholders. Either party will have the right to terminate the lease after the initial period of three years, provided that they send to the other party written notice at least a year before the lease expires. The parties may also, during the eighth year, review the conditions agreed in this contract in order to decide whether or not this will be renewed.
Nature and reasons for the operation / other relevant information	

Name of related party	VLI Multimodal S.A.
Date of transaction	July 1, 2012
Amount (R$)	8,385,616,086.23
Current balance (R$)	7,266,016,692.47
Amount of related party	Not applicable
Duration	September 23, 2039
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Subsidiary
Purpose of the contract	Provision of Cargo Port Transportation Services and Related Services at the Private Terminal of Mixed Use in Praia Mole, at the *Terminal de Produtos Diversos* and the *Terminal de Graneis Líquidos*. On November 29, 2013, the Parties executed the first contractual amendment in order to guarantee improvements in the contractual management and control of compliance with contractual obligations
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	Not applicable
Conditions of termination or expiration	Non-compliance by the other party with any of the contractual obligations, except if the Infringing Party fails to resolve the non-compliance within sixty (60) days upon receipt of notice by the Non-Infringing Party in this sense. If the other Party files for insolvency, bankruptcy of judicial or extrajudicial recovery. Evidence of government authority act, administration act, as defined in the contract, act of God or force majeure that prevents performance of the Agreement for more than one hundred eighty (180) days.

	Change in direct or indirect shareholding control of either Party. Termination Fine R$80,615,659.69. Note: Provision of services by Vale to VLI Multimodal to move general cargo to allow VLI Multimodal customers to be served by port terminals, aiming for efficiency, excellency, and relationship and service improvement offered continuously, with increased volume of traffic at the terminals and consequent improvement of results.
Nature and reasons for the operation / other relevant information	

Name of related party	Companhia Coreano Brasileira de Pelotização - Kobrasco
Date of transaction	May 6, 2008
Amount (R$)	238,533,551.78
Current balance (R$)	10,586,097.57
Amount of related party	Not applicable
Duration	Five years with automatic renewal.
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Affiliate
Purpose of the contract	Contract for leasing assets. Vale leased the Kobrasco pellet plant, upon payment of a fixed portion and variable portion depending on the performance of the assets. Term of the contract is five (5) years, renewable successively for an equal period. Lease of industrial assets is part of the new business model chosen by the shareholders as it allows enjoying synergies and reducing non-efficiencies, ensuring better profitability and return to shareholders.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	Written notice to the other party at least one year in advance of its termination.
Nature and reasons for the operation / other relevant information	

Name of related party	Samarco Mineração S.A.
Date of transaction	April 12, 2004
Amount (US$)	R$11,037,037,794.27
Current balance (US$)	R$0.00
Amount of related party (US$)	US$3,385,594,415.42
Duration	20 years valid until December 31, 2026
Loan or other type of debt	Not applicable
Interest rate	0.0000
Relationship with the Company	Shareholder 50%
Purpose of the contract	Sale, by Vale, of material that is currently non-usable, as run-of-mine (ROM) to Samarco. The amount involved corresponds to the amount in Reais on December 31, 2016, corresponding to US$3,385,594,415.42. The Contract sets forth the annual amounts to be provided and prices vary during the contract term, as they are defined and impacted by market conditions and pricing specificities agreed upon with the client. As of the date of this Reference Form, the contract is in effect, but balance equals to zero because of the Force Majeure due to breakage of the Samarco's dam, being impossible to estimate amounts receivable under the Contract.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None.
Conditions of termination or expiration	In case of non-compliance for over 90 days, bankruptcy, composition with creditors, insolvency, or judicial or extrajudicial dissolution, stoppage of supplies or receipts for more than 90 days, by order of competent authority, act of God or force majeure for more than 90 days, non-compliance with any contractual clause that is not solved within 30 days.
Nature and reasons for the operation / other relevant information	

Name of related party	Samarco Mineração S.A.
Date of transaction	December 31, 2014
Amount (R$)	4,137,757.39
Current balance (R$)	0.00
Amount of related party	4,137,757.39
Duration	Until registration of the agreement with the Property Registrar.
Loan or other type of debt	No
Interest rate	0.0000
Relationship with the Company	Shareholder 50%
Purpose of the contract	Usage and later sale of properties between Vale and Samarco, for purposes

	of ensuring feasibility of deployment of the project at Vale do Brumado. As of the date of this Reference Form, the contract is in effect, but balance equals to zero because of the Force Majeure due to breakage of the Samarco's dam, being impossible to estimate amounts receivable under the Contract.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None.
Conditions of termination or expiration	None.
Nature and reasons for the operation / other relevant information	

Name of related party	Samarco Mineração S.A.
Date of transaction	December 30, 2009
Amount (R$)	20,370,000.00
Current balance (R$)	0.00
Amount of related party	20,370,000.00
Duration	11 years, terminating on December 21, 2020 or until supply of the agreed upon volume.
Loan or other type of debt	No
Interest rate	Not applicable
Relationship with the Company	Shareholder - 50%
Purpose of the contract	Purchase and sale, in metallic mass, of ore that is not usable by either company. The Contract sets forth the annual amounts to be provided and prices vary during the contract term, as they are defined and impacted by market conditions and pricing specificities agreed upon with the client. As of the date of this Reference Form, the contract is in effect, but balance equals to zero because of the Force Majeure due to breakage of the Samarco's dam, being impossible to estimate amounts receivable under the Contract.
If issuer is Creditor or Debtor	Creditor and/or Debtor. As this is a contract for the purchase and sale of metallic mass, the Company may undertake the position of creditor and debtor within the scope of said contract.
Guaranties and insurance	None
Conditions of termination or expiration	In case of default that remains unsolved for 60 days, extrajudicial bankruptcy, suspension of supply or receipts for over 30 days, by means of order by the competent authority.
Nature and reasons for the operation / other relevant information	

Name of related party	MRS Logística S.A.
Date of transaction	January 1, 2011
Amount (R$)	21,534,464,000.00
Current balance (R$)	13,535,968,940.44
Amount of related party	Not applicable
Duration	November 30, 2026
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Affiliate
Purpose of the contract	Regulate the provision by MRS to VALE, of rail transportation services of iron ore loading from iron ore terminals named *Terminal do Andaime*, *Terminal do Córrego do Feijão, Terminal Água Santa, Terminal Olhos D'Agua, Terminal Sarzedo Novo* – TCS (*Terminal de Carga de Sarzedo*), *Terminal Sarzedo, Terminal Alberto Flores, Terminal Souza Noschese, Terminal de Juiz de Fora*, located in the State of Minas Gerais, and certain other terminals for shipping – while transportation conditions will be agreed upon at the time – to unloading terminals Guaíba, CPBS, CSA, and Patrag, the first three in the State of Rio de Janeiro and the last one in the State of Minas Gerais (Ouro Branco).
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	During the validity of the contract, Vale will guarantee MRS the minimum payment of eighty percent (80%) of MRS' Scheduled Annual Revenue, based on annually adjusted volumes. MRS must contract the Optional Liability Insurance for personal injury and damage caused to third parties, and is responsible for payment of the corresponding values of the policies, copies of which should be sent to Vale with the general terms of the respective insurance; the same applies for insurances and attributions under Vale responsibility.

Conditions of termination or expiration	The contract may be terminated by operation of law, by written notice to the other party, without prior notice, in any of the following cases: 1. Default, by either party of any term, condition or provision of this contract, provided that the breach is not remedied within sixty (60) calendar days of the notices provided for above; 2. Bankruptcy, judicial or extrajudicial recovery, dissolution or, judicial or extrajudicial liquidation, declared or approved; 3. By determination of the Grantor, suspension by relevant authorities of the execution of the service, or by the termination of the MRS concession; 4. If MRS suspends the Service, in whole or in part, without express prior notice or written consent by Vale, for more than ten (10) consecutive days or 30 (thirty) alternating days; 5. Suspension of service due to the occurrence of force majeure or unforeseeable circumstances for a period exceeding sixty (60) days; 6. If a party assigns this contract without prior knowledge and written consent of the other party, compliant with clause eighteen.
Nature and reasons for the operation / other relevant information	

Name of related party	Minerações Brasileiras Reunidas S.A. – MBR
Date of transaction	June 1, 2007
Amount (R$)	7,169,971,746.74
Current balance (R$)	45,009,795,420.15
Amount of related party	It is not possible to assess
Duration	May 31, 2037
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Subsidiary
Purpose of the contract	Lease of facilities variable according to production of MBR operating units, multiplied by factor that varies according to Platts IODEX Iron Ore fines 62% Fe CFR North China (factors provided for in the lease agreement for the Platts range). The counterpart is due quarterly by Vale to MBR, and payments should be made by the 15th day following the end of the corresponding quarter, in national currency. Vale makes available to MBR reports with the production measured in the period and the method used in the measurement, as well as daily information on the value of iron ore in the international market to allow that MBR checks conformity of the counterpart value. The value in subitem "Due amount" refers to the value paid from September 2007 to December 2016.
If issuer is Creditor or Debtor	Debtor.
Guaranties and insurance	None
Conditions of termination or expiration	Through dissolution or if the contract of usufruct of shares of Empreendimentos Brasileiros de Mineração S.A. – EBM ends.
Nature and reasons for the operation / other relevant information	

Name of related party	MRC Serviços Ferroviários CBRJ-AL Ltda.
Date of transaction	February 24, 2010
Amount (R$)	R$8,128,190.40
Current balance (R$)	0.00
Amount of related party	Not applicable
Duration	December 31, 2017
Loan or other type of debt	No
Interest rate	0.00
Relationship with the Issuer	A company member of the Mitsui group, Vale controlling group
Purpose of the contract	Lease of 300 new HPE type wagons. The purpose of the contract is to guarantee operational continuity of plants with sulfur supply.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	None
Conditions of termination or expiration	Provided that (i) no breach has occurred or persists at the time of the notice foreseen in item (ii) below, and at the time of return of all wagons as specified under item (iii) below; (ii) written notice has been given to MRC by the LESSEES one hundred and eighty (180) days in advance to inform on their intention to terminate the Contract; and (iii) all the wagons have been returned by the LESSEES as provided for in Clause 20, the LESSEES will have the right, upon payment of the consideration provided for in Clause 23.2 of the Contract, to irrevocably terminate the Contract with respect to all (and not less than all) wagons.

	If the LESSEES terminate this Contract pursuant to Clause 23.1, they will pay MRC: i) a fine per leased wagon for the LESSEES for a value in Reais equivalent to the remaining balance in the Contract; and ii) a compensation for any other costs, fines, expenses, damages or disbursement incurred as a result of termination of the contract and other operational documents. Above mentioned value, including that resulting from the established formula in Clause 23.2 of the contract, will be corrected based on the IGP-M (General Market Price Index) within the least time slot allowed by the applicable law. Except in the event of non-compliance by MRC, the values mentioned in clause 23 of the Contract will be owed by the LESSEES to MRC, regardless of the reason which caused termination by the LESSEES.
Nature and reasons for the operation / other relevant information	

Name of related party	MRC Equipamentos Ferroviários DZOT FC Ltda.
Date of transaction	November 8, 2011
Amount (R$)	24,859,077.82
Current balance (R$)	0.00
Amount of related party	Not applicable
Duration	December 31, 2017
Loan or other type of debt	No
Interest rate	0.00
Relationship with the Issuer	A company member of the Mitsui group, Vale controlling group.
Purpose of the contract	Lease of 520 new HPE type wagons. The purpose of the contract is to guarantee operational continuity of plants with sulfur supply.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	Maintain insurance under the following minimum terms: - property insurance "all risks"; - civil liability against physical integrity damages, death, and property damages resulting out of the use, operation, maintenance, and property of wagons.
Conditions of termination or expiration	23. - TERMINATION 23.1 - Provided that (i) no Breach has occurred or persists at the time of the notice foreseen in item (ii) below, and at the time of return of all wagons as specified under para. (iii) below; (ii) written notice has been given to MRC by the LESSEES one hundred and eighty (180) days in advance to inform on their intention to terminate the Contract; and (iii) all the Wagons have been returned by the LESSEES as provided for in Clause 20, the LESSEES will have the right, upon payment of the consideration provided for in Clause 23.2 of the Contract, to irrevocably terminate the Contract with respect to all (and not less than all) Wagons. 23.2 - If the LESSEES terminate the Contract pursuant to Clause 23.1, they will pay MRC: (i) a fine per leased Wagon for the LESSEES for a value in Reais equivalent to the remaining balance in this Contract; and (ii) a compensation for any other costs, fines, expenses, damages or disbursement incurred as a result of termination of the contract and other operational documents. 23.3 - The value mentioned in Clause 23, including the value resulting from the formula set forth in Clause 23.2 above, will be corrected based on the IGP-M (General Market Price Index) within the least time slot allowed by the applicable law. 23.4 - Except in the event of non-compliance by MRC, the values mentioned in clause 23 of the Contract will be owed by the LESSEES to MRC, regardless of the reason which caused termination by the LESSEES.
Nature and reasons for the operation / other relevant information	

Name of related party	Biopalma da Amazônia S.A. Reflorestamento, Indústria e Comércio
Date of transaction	March 17, 2011
Amount (R$)	552,000,000.00
Current balance (R$)	964,665,668.63

Amount of related party	Not applicable
Duration	July 16, 2022
Loan or other type of debt	Yes
Interest rate	4.500000
Relationship with the Company	Subsidiary
Purpose of the contract	Financing of investments
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None
Conditions of termination or expiration	EARLY REDEMPTION: Biopalma may redeem the debentures early, as a whole or in part, with no fine. b) If it intends to exercise the early redemption of Debentures, Biopalma should notify VALE in writing. c) In case of early redemption of Debentures, under the terms in clause 5.6.2 of the deed, Biopalma should pay VALE, in up to thirty (30) days from date of the notice of early redemption, in full, the remaining balance of the Debentures. EARLY MATURITY: VALE may determine the early maturity regardless of notice, communication, judicial or extrajudicial notification, in the event of any of the events below: 1. Non-payment by Biopalma on the due date of the principal, of Compensation or any other obligation; 2. Non-compliance of any obligation in the Deed, failing to be solved within ten (10) days; 3. If Biopalma present any guaranty assume, as a whole or in part, any financial obligation, or of any nature, from any party or authorize any Subsidiary, direct or indirect, to offer any guaranty or assume any obligation in this agreement, except with VALE's prior written approval;4. Non-compliance by Biopalma or any of its Affiliates or Subsidiaries with any obligation or condition in any other agreement they are parties in, unresolved within thirty (30) calendar days, except those in lines (a) and (b) above which shall not be subject to any resolution term; 5. Failure to renew, cancel, revoke, or suspend for a period exceeding thirty (30) days from the date of the event, authorizations and licenses, including environmental and those granted by regulation entities, required to build, operate and maintain its Project and those of its Affiliates and Subsidiaries; 6. Amendment, suspension, cancellation, termination or representation of nullity or unenforceability, as a whole or in part of the Deed, without VALE's prior written consent; 7. File for judicial recovery or composition with creditors of the request for extrajudicial recovery filed by Biopalma, or any of its Affiliates or Subsidiaries; 8. Request of termination, liquidation, dissolution, insolvency, bankruptcy, bankruptcy out of legal terms or Biopalma's bankruptcy filed by third parties, or its Affiliates or Subsidiaries; 9. Failure to obtain or renew any approval, permit, registration, or governmental authorization required to have Biopalma comply with obligations set forth in the Deed; 10. Any Relevant Adverse Impact; 11. Any action, arbitration or administrative procedure against Biopalma or its Affiliates or Subsidiaries which, at Vale's discretion, is likely to cause a Relevant Adverse Impact as well as pledge of any of Biopalma's assets in amount exceeding R$500,000.00; 12. Any action, arbitration or administrative or judicial procedure related to environmental issues; 13. Reduction of the capital stock of Biopalma, without VALE's prior approval; 14. Early termination of any financial obligation to which Biopalma, its Affiliates or Subsidiaries are subject to, in domestic or international market, individually or jointly, exceeding R$500,000.00; 15. Legitimate protest of titles against Biopalma or its Affiliates or Subsidiaries, individually or jointly, exceeding R$200,000.00, except when within thirty (30) calendar days from said protest, (i) it is validly proven by Biopalma that the protest was based on mistake or bad faith; (ii) the protest was cancelled or suspended, or (iii) sufficient guaranties were presented in court; 16. If VALE or its Controller is no longer a shareholder of Biopalma; and 17. Any corporate reorganization of Biopalma, or any of its Affiliates or Subsidiaries.
Nature and reasons for the operation / other relevant information	Available interest rate: Libor 6M + 4.5% per annum The purpose of the operation is to finance investments related to cultivation, production, and trading of palm oil. Four (4) debentures were issued: March 17, 2011 (1st series of 1st issue), August 3, 2011 (2nd series of 1st issue), and October 31, 2011 (2nd issue), February 23, 2012 (3rd issue), and June 15, 2012 (4th issue). The amount reported above corresponds to the sum of the 4 issues.

Name of related party	Norte Energia S.A
Date of transaction	December 10, 2012
Amount (R$)	15,616,171,098.59
Current balance (R$)	15,524,834,757.87
Amount of related party	Not applicable
Duration	30 years, until August 26, 2045
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Issuer	Subsidiary
Purpose of the contract	Power supply agreement to be supplied by Norte Energia S.A. to Vale S.A., with

	annual adjustment according to the IPCA
If issuer is Creditor or Debtor	Not applicable
Guaranties and insurance	None
Conditions of termination or expiration	Not applicable

Name of related party	Aliança Geração de Energia S.A
Date of transaction	February 27, 2015
Amount (R$)	8,956,006,893.10
Current balance (R$)	8,074,403,119.36
Amount of related party	Not applicable
Duration	21 years, until August 28, 2036
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Issuer	Subsidiary
Purpose of the contract	Power supply agreement to be supplied by Aliança Energia S.A. to Vale S.A., with annual adjustment according to the IPCA.
If issuer is Creditor or Debtor	Not applicable
Guaranties and insurance	None.
Conditions of termination or expiration	Not applicable

Name of related party	FCA S.A.
Date of transaction	August 26, 2014
Amount (R$)	1,076,040.00
Current balance (R$)	1,076,040.00
Amount of related party	Not applicable
Duration	August 26, 2017
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Subsidiary
Purpose of the contract	Sale of cargo railway transportation services by FCA to Vale, of tires, equipment and vehicle and machinery accessories, flowing from Sabará/MG to Contagem/MG.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	Not applicable
Conditions of termination or expiration	The agreement may be terminated by either party by means of written notice to the other party with no right to claims, indemnity, or compensation for the notified party, under the following circumstances: a) Petition or declaration of bankruptcy or liquidation, or judicial or extrajudicial recovery by the other party; b) In the event of an act of God or force majeure that comes to stop the execution of this Contract for more than 90 days; c) Fraud or misconduct. Without prejudice to the satisfaction of other rights, FCA, at its sole discretion, may terminate this Agreement by means of written notice to Vale, at least 30 days in advance, with no right to claims, indemnity, or compensation for Vale, under the following circumstances: a) noncompliance with any obligation of the contract by Vale that is not remedied within 30 days of receiving a notice from FCA in this regard; b) assignment, subcontracting, and/or partial or full transfer to third parties of the obligations undertaken in the contract without the prior and express authorization of FCA. Without prejudice to the satisfaction of other rights, Vale, at its sole discretion, may terminate this Agreement by means of written notice to FCA, at least 30 days in advance, with no right to claims, indemnity, or compensation for FCA, under the following circumstances: a) delays in releasing information that compromises the fulfillment of the obligations undertaken under the agreement, after notifying FCA, which in turn does not provide such information within 10 working days; b) noncompliance with any obligation of the contract by FCA that is not remedied within 30 days of receiving a notice from Vale in this regard. Upon termination of this contract, under any circumstance, pending issues must be settled within 60 days.
Nature and reasons for the operation / other relevant information	

Name of related party	FCA S.A.
Date of transaction	October 11, 2016
Amount (R$)	5,000,000.00
Current balance (R$)	4,473,051.28

Amount of related party	
Duration	October 11, 2018
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Subsidiary
Purpose of the contract	Provision of railway transportation for own cargo by Vale to FCA, of railway operation equipment (locomotives, road equipment, wagons etc.) and tracks, and Vale is responsible for transportation through the Railway Vitória a Minas, excluding any type of service related to the loading of wagons at the terminals of origin and unloading of wagons at the destination terminal, which are sole responsibility of FCA.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	Not applicable
Conditions of termination or expiration	This agreement may be terminated by either party by means of written notice to the other party with no right to claims, indemnity, or compensation for the notified party, under the following circumstances: a) Petition or declaration of bankruptcy or liquidation, or judicial or extrajudicial recovery by the other party; b) In the event of an act of God or force majeure that comes to stop the execution of this Contract for more than 30 days; c) Fraud or misconduct. Without prejudice to the satisfaction of other rights, Vale, at its sole discretion, may terminate this Agreement by means of written notice to FCA, at least 30 days in advance, with no right to claims, indemnity, or compensation for FCA, under the following circumstances: a) non-compliance by FCA of any contractual obligation; b) assignment, subcontracting and/or partial or total transfer of contractual obligations to third parties; c) delays in payment for a period exceeding 30 days. Without prejudice to the satisfaction of other rights, FCA, at its sole discretion, may terminate this Agreement by means of written notice to Vale, at least 30 days in advance, with no right to claims, indemnity, or compensation for Vale, under the following circumstances: delay to provide information that affect contract performance and non-compliance with any contractual obligation. Upon termination of this contract, under any circumstance, pending issues must be settled within 60 days. If the Resolution of the Order occurs due to a breach of a contractual obligation, the defaulting Party shall pay the other Party a non-compensatory termination fine in the amount corresponding to 10% of the total value of the approved contract, adjusted for inflation based on the variation of the IPG-M/FGV – General Market Price Index.
Nature and reasons for the operation / other relevant information	

Name of related party	FCA S.A.
Date of transaction	May 1, 2014
Amount (R$)	164,945,104.36
Current balance (R$)	50,320,350.50
Amount of related party	Not applicable
Duration	April 30, 2019
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Subsidiary
Purpose of the contract	Sale of load railway transportation services, by FCA to Vale, of Anthracite, calcite limestone, dolomite limestone, lime, mill ball, through the flow of the respective routes Tubarão x Prudente de Moraes, Matosinhos and/or Nova Granja x Tubarão, Morro Grande x Tubarão, Matosinhos and/or Nova Granja x Tubarão and lastly Parque Industrial x Tubarão.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	Take or pay for annual contracted volumes
Conditions of termination or expiration	The agreement may be terminated by either party by means of written notice to the other party with no right to claims, indemnity, or compensation for the notified party, under the following circumstances: a) Petition or declaration of bankruptcy or liquidation, or judicial or extrajudicial recovery by the other party; b) In the event of an act of God or force majeure that comes to stop the execution of this Contract for more than 90 days; c) Fraud or misconduct.

	Without prejudice to the satisfaction of its other rights, the FCA may, at its sole discretion, terminate the contract, through prior and express notice to Vale, at least 30 days in advance, without Vale being entitled to any claim, indemnity, or compensation, in the following cases: a) noncompliance with any obligation of the contract by Vale that is not remedied within 30 days of receiving a notice from FCA in this regard; b) assignment, subcontracting, and/or partial or full transfer to third parties of the obligations undertaken in the contract without the prior and express authorization of FCA. Without prejudice to the satisfaction of other rights, Vale, at its sole discretion, may terminate this Agreement by means of written notice to FCA, at least 30 days in advance, with no right to claims, indemnity, or compensation for FCA, under the following circumstances: a) delays in releasing information that compromises the fulfillment of the obligations undertaken under the agreement, after notifying FCA, which in turn does not provide such information within 10 working days; and b) noncompliance with any obligation of the contract by FCA that is not remedied within 30 days of receiving a notice from VALE in this regard Upon termination of this contract, under any circumstance, pending issues must be settled within 60 days. The party that has given rise to the resolution shall pay the other party a non-compensatory cancellation fine in an amount corresponding to 10% of the estimated value of the contract, which totals R$136,220,643.98, updated for inflation based on the variation of the IGP-M/FGV – General Market Price Index, or any other index that replaces it from the date of signature of the agreement to the date of payment of the penalty. The amount of the cancellation fine shall be reduced in proportion to the number of months in which the contract was fulfilled in relation to the total contract period provided for in item 8.1 of the agreement, counted from the date of signature and the date of resolution, in an amount never lower than R$2,724,412.88.
Nature and reasons for the operation / other relevant information	

Name of related party	FCA S.A.
Date of transaction	May 13, 2016
Amount (R$)	949,440.00
Current balance (R$)	602,526.90
Amount of related party	Not applicable
Duration	June 13, 2017
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Subsidiary
Purpose of the contract	Rail transport by FCA to Vale of ball mills ("Products") in the respective transportation flow from Rio das Velhas Quarries (EPW) to the Industrial Park (EPI) and Eldorado (EEL), with FCA responsible for the transportation stage in the Centro Atlântica Railroad's network, with loading at the terminal of origin and unloading at the destination terminal Vale is responsible for.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	There is no guarantee of volume, contract without take or pay
Conditions of termination or expiration	Without prejudice to the other obligations established herein, the Commercial Agreement may be terminated by operation of law in the event of failure to comply with any of its conditions, provided that such failure has not been remedied within 10 days of a written notification by the compliant party, as well as in case of bankruptcy or judicial or extrajudicial recovery of any of the contracting parties, under the terms of Law No. 11,101, of February 9, 2005, without the need for any judicial or extrajudicial notification for this purpose.
Nature and reasons for the operation / other relevant information	

Name of related party	FCA S.A.
Date of transaction	January 31, 2014
Amount (R$)	6,480,356.94
Current balance (R$)	2,979,943.74
Amount of related party	Not applicable
Duration	January 31, 2020
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Subsidiary
Purpose of the contract	Provision of cargo railway transportation services by FCA to VALE, to carry diesel from Pool de Embiruçu (EYU) to Drumond (VDD).
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	Not applicable

Conditions of termination or expiration	This agreement may be terminated by either party by means of written notice to the other party with no right to claims, indemnity, or compensation for the notified party, under the following circumstances: a) Petition or declaration of bankruptcy or liquidation, or judicial or extrajudicial recovery by the other party; b) In the event of an act of God or force majeure that comes to stop the execution of this Contract for more than 30 days; c) Fraud or misconduct. Without prejudice to the satisfaction of other rights, Vale, at its sole discretion, may terminate this Agreement by means of written notice to FCA, at least 30 days in advance, with no right to claims, indemnity, or compensation for FCA, under the following circumstances: a) non-compliance by FCA of any contractual obligation; b) assignment, subcontracting and/or partial or total transfer of contractual obligations to third parties. Without prejudice to the satisfaction of other rights, FCA, at its sole discretion, may terminate this Agreement by means of written notice to Vale, at least 30 days in advance, with no right to claims, indemnity, or compensation for Vale, under the following circumstances: delay to provide information that affect contract performance and non-compliance with any contractual obligation. Upon termination of this contract, under any circumstance, pending issues must be settled within 60 days. The party that gave rise to contract termination shall pay to the other party a termination fine in amount equal to the average income in the last three months of this contract. On January 31, 2017, the first Addendum to the Contract was signed, in the amount of R$2,988,528.24, totaling a new contractual value of R$6,480,356.94. The deadline was also amended, making the contract between the parties effective until January 31, 2020.
Nature and reasons for the operation / other relevant information	

Name of related party	Banco Nacional de Desenvolvimento Econômico e Social – BNDES
Date of transaction	January 6, 1997
Amount (R$)	76,251,999.65
Current balance (R$)	1,289,286,227.59
Amount of related party	Not applicable
Duration	March 31, 2021
Loan or other type of debt	Yes
Interest rate	6.500000
Relationship with the Issuer	Indirect controller
Purpose of the contract	Feasibility of development and deployment of the project aiming to use mineral reserves of Salobo Metais S.A.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	Vale's corporate guarantee
Conditions of termination or expiration	Not applicable
Nature and reasons for the operation / other relevant information	Available interest rate: IGP-DI + 6.50% p.a. Debentures issued by Salobo Metais S.A., privately, which have been fully subscribed by Banco Nacional de Desenvolvimento Econômico e Social (BNDES). BNDES holds debentures issued by Salobo Metais S.A., with the right to subscribe to preferred shares issued by Salobo, in exchange of part of outstanding debentures, and this right terminates two years after Salobo achieves accrued income equivalent to 200,000 tons of copper. For further information, see item 18 of this Reference Form.

Name of related party	Ultrafertil S.A. to Vale Fertilizantes S.A.
Date of transaction	January 1, 2016
Amount (R$)	134,937,267.16
Current balance (R$)	7,775,625.40
Amount of related party	Not applicable
Duration	December 31, 2016
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Issuer	Related party
Purpose of the contract	Guaranty operating continuity of plants with the use of the port terminal to import input for fertilizers.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None.
Conditions of termination or expiration	Not applicable.

Nature and reasons for the operation / other relevant information	

Name of related party	Companhia Mineira Miski Mayo ("Miski Mayo") and Komatsu-Mitsui Maquinarias Peru S.A. ("KMMP")
Date of transaction	February 11, 2015
Amount (R$)	1,053,848,454.00
Current balance (R$)	172,268,810.00
Amount of related party	1,053,848,454.00
Duration	January 31, 2017
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Issuer	Mitsui holds interest in Valepar S.A., holding and parent company of Vale and relevant interest in KMMP. Miski Mayo, in turn, is a Joint Venture between Vale, Mitsui and Mosaic Company.
Purpose of the contract	Supply of parts and provision of maintenance services for the Komatsu fleet at the mining unit Bayóvar (in Peru). This is a MARC contract (Maintenance and Repair Contract), where the supplier provides maintenance services for the fleet of Komatsu equipment of Miski Mayo.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	Insurance: KMMP and its subsidiaries will contract and maintain current, at their own cost, during the term of the agreement, the following insurance policies: (a) civil liability with coverage of up to US$5 million; (b) compulsory traffic accident insurance for vehicles running from and to the mine; (c) additional insurance for hazardous jobs for maintenance work; and (d) life insurance and health care assistance, as determined by local laws. For further information on guarantees, please see item "Cessation or termination conditions".
Conditions of termination or expiration	In case of: (a) non-compliance for over 60 days; (b) bankruptcy, composition with creditors, insolvency, or judicial or extrajudicial dissolution; (c) stoppage of supplies for over 15 consecutive days; (d) act of God or force majeure for more than 90 days; (e) if there is any fatal accident as consequence of direct negligence by KMMP; or (f) by means of written notice to the other party at least six months prior to termination. Guaranty: KMMP offers technical warranty for maintenance services, ensuring the resumption of operating conditions of equipment prior to failures.
Nature and reasons for the operation / other relevant information	

Name of related party	Banco do Brasil S.A.
Date of transaction	January 5, 2016
Amount (R$)	200,570,000.00
Current balance (R$)	0.00
Amount of related party	Not applicable
Duration	February 3, 2017
Loan or other type of debt	Yes
Interest rate	4.120000
Relationship with the Issuer	Banco do Brasil S.A. sponsors PREVI – Caixa de Previdência dos Funcionários do Banco do Brasil, entity that deals with the private pension funds of employees of Banco do Brasil that holds interest in Valepar S.A. (holding and parent company of Vale) through Litel Participações ("Litel")
Purpose of the contract	Financing exportation
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	Not applicable
Conditions of termination or expiration	Not applicable
Nature and reasons for the operation / other relevant information	Interest rate is 4.12% per annum

Name of related party	Banco Bradesco S.A.
Date of transaction	January 6, 2016
Amount (R$)	201,515,000.00
Current balance (R$)	0.00
Amount of related party	Not applicable
Duration	February 3, 2017

Loan or other type of debt	Yes
Interest rate	6.000000
Relationship with the Issuer	Bradespar S.A., shareholder of Valepar S.A. (holding and parent company of Vale), and Banco Bradesco are under common control.
Purpose of the contract	Financing exportation
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	Not applicable
Conditions of termination or expiration	Not applicable
Nature and reasons for the operation / other relevant information	Interest rate is 6.00% per annum

Name of related party	Banco Bradesco S.A.
Date of transaction	January 6, 2016
Amount (R$)	80,606,000.00
Current balance (R$)	0.00
Amount of related party	Not applicable
Duration	December 2, 2016
Loan or other type of debt	Yes
Interest rate	5.770000
Relationship with the Issuer	Bradespar S.A., shareholder of Valepar S.A. (holding and parent company of Vale), and Banco Bradesco S.A. are under common control.
Purpose of the contract	Financing exportation
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	Not applicable
Conditions of termination or expiration	Not applicable
Nature and reasons for the operation / other relevant information	Interest rate is 5.77% per annum

Name of related party	Samarco Mineração S.A.
Date of transaction	October 6, 2016
Amount (R$)	8,864,560.00
Current balance (R$)	0.00
Amount of related party	8,864,560.00
Duration	May 31, 2016
Loan or other type of debt	No
Interest rate	0.0000
Relationship with the Company	Shareholder 50%
Purpose of the contract	Purchase by Samarco and sale by Vale of material from the "Mina de Fazendão", owned by Vale, to be made available for removal by Samarco. (221.614 t). This agreement was entered into on an emergency basis on October 6, 2016 to formalize the emergency supply of blocks for containment works on Samarco's existing structures.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None.
Conditions of termination or expiration	Termination may occur: - upon mutual agreement; - due to noncompliance; - interruption of activities for more than 90 days; - violation of anticorruption laws.
Nature and reasons for the operation / other relevant information	

Name of related party	Samarco Mineração S.A.
Date of transaction	October 6, 2016
Amount (R$)	10,760,145.00
Current balance (R$)	0.00
Amount of related party	10,760,145.00
Duration	August 31, 2016
Loan or other type of debt	No
Interest rate	0.0000
Relationship with the Company	Shareholder 50%

Purpose of the contract	Purchase by Samarco and sale by Vale of material from the "Mina de Fazendão", owned by Vale, to be made available for removal by Samarco. (195.639 t). This agreement was entered into on an emergency basis on October 6, 2016 to formalize the emergency supply of blocks for containment works on Samarco's existing structures.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None.
Conditions of termination or expiration	Termination may occur: - upon mutual agreement; - due to noncompliance; - interruption of activities for more than 90 days; - violation of anticorruption laws.
Nature and reasons for the operation / other relevant information	

Name of related party	Samarco Mineração S.A.
Date of transaction	October 6, 2016
Amount (R$)	51,245,640.00
Current balance (R$)	0.00
Amount of related party	51,245,640.00
Duration	July 31, 2017
Loan or other type of debt	No
Interest rate	Not applicable
Relationship with the Company	Shareholder 50%
Purpose of the contract	Purchase by Samarco and sale by Vale of material from the "Mina de Fazendão", owned by Vale, to be made available for removal by Samarco. Contract signed to formalize the emergency supply of blocks for containment works on Samarco's existing structures, as follows: - R$40.00 per metric ton, not exceeding 50,000 metric tons per order; - 1,281,141 tons provided.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None.
Conditions of termination or expiration	Termination may occur: - upon mutual agreement; - due to noncompliance; - interruption of activities for more than 90 days; - violation of anticorruption laws.
Nature and reasons for the operation / other relevant information	

Name of related party	Samarco Mineração S.A.
Date of transaction	January 9, 2017
Amount (R$)	10,858,403.00
Current balance (R$)	807,410.00
Amount of related party	10,858,403.00
Duration	July 31, 2017
Loan or other type of debt	No
Interest rate	Not applicable.
Relationship with the Company	Shareholder 50%
Purpose of the contract	Purchase by Samarco and sale by Vale of material from the "Mina de Fábrica Nova", owned by Vale, to be made available for removal by Samarco. Contract signed to formalize the emergency supply of blocks for containment works on Samarco's existing structures.

If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None.
Conditions of termination or expiration	Termination may occur: - by a declaration of bankruptcy by any of the parties; - upon mutual agreement; - due to noncompliance; - interruption of activities for more than 90 days; - violation of anticorruption laws.
Nature and reasons for the operation / other relevant information	

Name of related party	Samarco Mineração S.A.
Date of transaction	February 1, 2017
Amount (R$)	31,580,020.00
Current balance (R$)	0.00
Amount of related party	31,580,020.00
Duration	May 18, 2017
Loan or other type of debt	No
Interest rate	Not applicable.
Relationship with the Company	Shareholder 50%
Purpose of the contract	Provision of Itabirite block ("Material") loading and transportation services by the contractor to Samarco, from the Mina de Alegria, owned by Samarco, to the dumping points CV27, Pinheirinho, and *Fábrica Nova*, owned by the contractor. Contract signed to formalize the emergency supply of blocks for containment works on Samarco's existing structures. The parties state that by December 31, 2016, 1,579,001 metric tons of the Material was transported, at a cost of R$20.00 per metric ton of transported Material.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None.
Conditions of termination or expiration	Termination may occur: - by a declaration of bankruptcy by any of the parties; - interruption of activities for more than 90 days; - violation of anticorruption laws; - Fines applied in excess of 10% of R$2,000,000 (two million).
Nature and reasons for the operation / other relevant information	

Name of related party	Samarco Mineração S.A.
Date of transaction	February 1, 2016
Amount (R$)	0.00
Current balance (R$)	0.00
Amount of related party	0.00
Duration	The term of this contract is for an indefinite period until the needs of the Lessee are met.
Loan or other type of debt	No
Interest rate	Not applicable
Relationship with the Company	Shareholder 50%
Purpose of the contract	The Agreement for the Loan for Use of Equipment and Other Assets was entered into aimed at the loan for use of equipment by Samarco to Vale. The Lessor (Samarco) assigns to the Lessee (Vale S.A.), the mine operation equipment located in the Germano Complex. The equipment consists of 3 Locotracks, 3 Hoppers, 300m of conveyer belts, 2 8"x21" sieves, 1 hp400 Crusher, 2 CAT 993, and 1 ROC D-65 Drill. Failure to delivery and return the assets, by the deadline agreed between the Parties, shall result in a daily fine of R$20,000.00.

If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None.
Conditions of termination or expiration	Termination may occur: - by a declaration of bankruptcy by any of the parties; - in case of failure to comply with any condition, and unable to demonstrate the resolution of the reason for any possible infringement; - violation of anticorruption laws.
Nature and reasons for the operation / other relevant information	

Name of related party	Samarco Mineração S.A.
Date of transaction	October 6, 2016
Amount (R$)	0.00
Current balance (R$)	0.00
Amount of related party	0.00
Duration	July 31, 2017 or until the termination of the subject matter of the contract.
Loan or other type of debt	No
Interest rate	0.0000
Relationship with the Company	Shareholder 50%
Purpose of the contract	The Lessor (Samarco) assigns to the Lessee (Vale S.A.), the mine operation equipment located in the Germano Complex. The equipment consists of 2 Loaders Model PM 993 or 994. It is a contract signed to formalize the emergency supply of blocks for containment works on Samarco's existing structures. Equipment under loan for use was used to support the loading of the blocks.
If issuer is Creditor or Debtor	Creditor.
Guaranties and insurance	None.
Conditions of termination or expiration	Violation of anticorruption laws. Failure to return the equipment shall result in a daily fine of R$4,000.00.
Nature and reasons for the operation / other relevant information	

Name of related party	Ultrafertil S.A. to Vale Fertilizantes S.A.
Date of transaction	January 1, 2017
Amount (R$)	128,562,729.80
Current balance (R$)	7,595,046.18
Amount of related party	Not applicable
Duration	December 31, 2017
Loan or other type of debt	No
Interest rate	0.00
Relationship with the Issuer	Related party
Purpose of the contract	Guaranty operating continuity of plants with the use of the port terminal to import input for fertilizers.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None.
Conditions of termination or expiration	Not applicable.
Nature and reasons for the operation / other relevant information	

Name of related party	Vale Cubatão Fertilizantes Ltda. to Vale Fertilizantes S.A.
Date of transaction	January 1, 2017
Amount (R$)	10,969,772.20
Current balance (R$)	34,847,402.71
Amount of related party	Not applicable
Duration	December 31, 2017
Loan or other type of debt	No

Interest rate	0.00
Relationship with the Issuer	Related party
Purpose of the contract	Lease of its facilities.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None.
Conditions of termination or expiration	Not applicable.
Nature and reasons for the operation / other relevant information	

Name of related party	Vale Energia S.A. to Vale Fertilizantes S.A.
Date of transaction	January 1, 2017
Amount (R$)	38,983,869.84
Current balance (R$)	0.00
Amount of related party	Not applicable
Duration	December 31, 2017
Loan or other type of debt	No
Interest rate	0.00
Relationship with the Issuer	Related party
Purpose of the contract	Purchase of Electrical Energy.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None.
Conditions of termination or expiration	Not applicable.
Nature and reasons for the operation / other relevant information	

Name of related party	Vale International to Vale Fertilizantes S.A.
Date of transaction	January 1, 2017
Amount (R$)	256,718,484.57
Current balance (R$)	16,006,422.72
Amount of related party	Not applicable
Duration	December 31, 2017
Loan or other type of debt	No
Interest rate	0.00
Relationship with the Issuer	Related party
Purpose of the contract	Purchase of inputs for fertilizers.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None.
Conditions of termination or expiration	Not applicable.
Nature and reasons for the operation / other relevant information	

Name of related party	Vale Fertilizantes S.A. to Vale S.A.
Date of transaction	January 1, 2017
Amount (R$)	132,843,561.09
Current balance (R$)	10,614,649.25
Amount of related party	Not applicable
Duration	December 31, 2017
Loan or other type of debt	No
Interest rate	0.00
Relationship with the Issuer	Related party
Purpose of the contract	Sale of Ultraprill "Inputs for extraction of ore".
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None.
Conditions of termination or expiration	Not applicable.
Nature and reasons for the operation / other relevant information	

Name of related party	Vale Fertilizantes S.A. to Salobo Metais S.A.
Date of transaction	January 1, 2017
Amount (R$)	63,254,220.04
Current balance (R$)	5,296,031.35
Amount of related party	Not applicable
Duration	December 31, 2017
Loan or other type of debt	No
Interest rate	0.00
Relationship with the Issuer	Related party
Purpose of the contract	Sale of Ultraprill "Inputs for extraction of ore".
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None.

Conditions of termination or expiration	Not applicable.
Nature and reasons for the operation / other relevant information	

Name of related party	Samarco Mineração S.A.
Date of transaction	August 3, 2016
Amount (R$)	500.000.000,00
Current balance (R$)	459.298.537,26
Amount of related party	459.298.537,26
Duration	02/08/2017
Loan or other type of debt	Sim
Interest rate	0,00000
Relationship with the Issuer	50% Shareholder
Purpose of the contract	Private issuance of 500,000,000 simple debentures, not convertible by Samarco, for a unit face value of R $ 1.00, totaling R$ 500,000,000.00.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	None. Nevertheless, within 90 days of obtaining the last license required for the resumption of Samarco's operational activities; or together with the provision of a guarantee for the benefit of any of its bank creditors, whichever occurs first, the Debentures should be converted to the "collateralized" type.
Conditions of termination or expiration	The following are circumstances of Early Maturity of the referred to issuance: (a) Non-fulfillment by the Issuer of any pecuniary obligation due under the terms of the Deed, not remedied within 5 business days; (b) Default by the Issuer under the terms of any bond instruments and/or any financial contracts in which the Issuer is listed as a "Borrower" or loan taker, including debentures under the Issue subscribed by BHP, which is not remedied in its respective period of cure; (c) Default by the Issuer of any pecuniary obligations contracted in the local or international financial market, even if in the condition of guarantor, that are not remedied in their respective periods of cure; (d) Event of early maturity declared within the scope of the Issue subscribed by BHP; (e) Any amendment to the provisions of the deed in the scope of the Issue subscribed by BHP without the prior consent of Vale; (f) Failure by BHP to make the disbursement under the Issue subscribed by BHP after the applicable cure period, or Samarco's waiver of any of its rights under the Issue subscribed by BHP without Vale's prior consent, as provided in Clause 3.15. 7 of the Deed; (g) Confirmation that the statements provided in the Deed by the Issuer are false, misleading, incorrect or incomplete in any material respect; (h) Transfer or any form of assignment or promise to third parties by the Issuer of the obligations assumed in the Deed; (i) Request for judicial or extrajudicial recovery or self-bankruptcy formulated by the Issuer or decree of bankruptcy of the Issuer or any decision or judicial request to restructure or renegotiate debts with creditors or, also, any act similar to the previous ones
Nature and reasons for the operation / other relevant information	The applicable interest rate is Libor + 1.15 percentage points per year.

16.3 Identification of measures taken to address the conflict of interest and demonstration of the strictly commutative nature of conditions agreed upon or appropriate compensation payment

a. identify measures adopted to deal with conflict of interests

Under the terms in the Policy of Related Parties of the Company, the Board of Directors and the Board of Executive Officers must certify that the transactions with related parties should be formalized in writing, under mutually agreed upon conditions, compliant with market conditions, including the appropriate compensation payment, if any.

For that end, the Board of Directors counts on the assistance by the Governance and Sustainability Committee that should be involved to evaluate the selection process and the transaction conditions, issuing a report on potential conflict of interests.

The Board of Directors may create groups, responding to the Board of Executive Officers that meet the specificities and nature of the operations, notwithstanding, the Board of Executive Officers and the management areas, as applicable, shall maintain the groups duly informed about transactions with related parties.

The shareholder or shareholder proxy, member of the Board of Directors or the Board of Executive Officers of Vale that is under a conflict of interest situation should notify immediately the conflict of interest. Should it fail to do, another person may notify the conflict. As soon as the conflict of interest is found regarding a specific issue, the shareholder or shareholder proxy involved will have access solely to information and documentation on this matter as disclosed to the market, under the terms in current laws and should be absent, including physically, from discussions in Shareholders' Meetings, always compliant with its legal obligations. The notification of the conflict of interest, the absence and the temporary leave should be registered in the minutes.

In addition, as soon as the conflict of interest is identified related to a specific issue, the member of the Board of Directors or Board of Executive Officers that is involved should not receive information and documentation on this matter and should be absent, including physically, from discussions, always compliant with its legal obligations. The notification of the conflict of interest, the absence and the temporary leave should be registered in the minutes.

If requested by the President of the Table, Chairman of the Board of Directors or the CEO of the Company, as the case may be, the shareholders and shareholders' proxies, members of the Board of Directors or Board of Executive Officers of Vale involved in conflict of interests may partially participate in the discussion, aiming to provide further information about the Transaction with Related Party object of the discussion. In this case, they should be absent from the final portion of the discussion.

b. demonstrate the strictly agreement of conditions or appropriate compensation payment

Transactions concluded with related parties are supported by prior, careful evaluations of the terms therein, so that they take place under strictly equitable conditions, obeying the normal market prices and conditions. Thus, transactions with related parties do not generate any undue benefits or harm to the parties involved.

To check the equitable nature of operations with related parties, the Company reviews the financial viability of each operation vis-à-vis similar market transactions between unrelated parties. The Company uses comparative analysis methods.

Transactions with related parties of the Company may, in general, be divided into: (i) Operational transactions, and (ii) Financial transactions.

Within the operational part of its activities, Vale performs a substantial volume of transactions with its wholly owned subsidiaries, subsidiaries and companies under joint control with third parties, in view of its policy of integration of its activities in the production and commercial chain. Besides the extraction of minerals, Vale invests in activities related to transport, logistics, and energy services and supplies required to achieving its corporate purpose. In this context, several operational contracts have been signed between Vale and members of companies in its group, always taking care to observe fair and balanced terms and avoid discrepancies with market conditions, as required by Corporate and Tax laws.

With respect to transactions of a financial nature, Vale seeks continuously and energetically to find the best options to raise and use resources available in local and international markets, with a view to securing or investing resources. Overall, investments are undertaken in order to maintain the liquidity of the Company available for its investments coupled with a conservative policy regarding the assuming of credit risk of counterparties, with a focus on maintaining its assets in first-tier banks.

Find below the measures seen in main operations with related parties as mentioned in item 16.2, executed in the last fiscal year:

- *Banco do Brasil S.A. (Financing exportation agreements – ACC) (January 5, 2016).* The operation presented attractive costs when compared to the average cost of Vale operations and costs with other players in the market and were according to the same evaluation criteria, price study and procedures that guide negotiations with third parties unrelated to Vale, regardless of value and characteristic. Under the decision making process of Vale, board members appointed by Litel did not receive documents or information related to this matter and did not participate in the decision.

- *Banco Bradesco S.A. (Financing exportation agreement – ACC) (January 6, 2016).* The operation presented attractive costs when compared to the average cost of Vale operations and costs with other players in the market and were according to the same evaluation criteria, price study and procedures that guide negotiations with third parties unrelated to Vale, regardless of value and characteristic. In the decision-making process of Vale, board members appointed by Bradespar did not receive documents or information related to this matter and did not participate in the decision.

- *Banco Bradesco S.A. (Financing exportation agreements – ACC) (January 6, 2016).* These operations presented attractive costs when compared to the average cost of Vale operations and costs with other players in the market and were according to the same evaluation criteria, price study and procedures that guide negotiations with third parties unrelated to Vale, regardless of value and characteristic. In the decision-making process of Vale, Board members appointed by Bradespar did not receive documents or information related to this matter and did not participate in the decision.

- *Purchase and Sale, and Loan for Use Agreements entered into between the Company and Samarco Mineração S.A.* (October 6, 2016). After the bursting of the Fundão Dam in November 2015, it was necessary to carry out emergency repairs to contain the remaining tailings. In order to enable these works, large volumes of materials classified as unusable ore and with characteristics analogous to compact itabirite were required, which Samarco was unable to supply via the market. Due to the urgency in carrying out repairs, to the possibility of deterioration, and to locational proximity, Samarco and Vale S.A entered into agreements to supply these materials, as well as the loan for use of equipment. The operations presented followed the same criteria for evaluation, pricing, and procedures that guide negotiations with third parties not related to Vale.

- *Simple debentures issued by Samarco (August 03, 2016).* Samarco issued private debentures, which were subscribed by Vale. The funds contributed by Vale were allocated as follows: (a) R$ 222 million used by Samarco in repair programs; and (b) R$ 237 million invested by Samarco to finance its working capital.

- *Ultrafertil S.A. and Vale Fertilizantes S.A. (Operational Contact) (January 1, 2016).* The operation refers to the use of a terminal at the port of Santos under concession of Ultrafértil that is used by Vale Fertilizantes to import raw materials. The operations presented followed the same criteria for evaluation, pricing, and procedures that guide negotiations with third parties not related to Vale.

Name of related party	Ultrafertil S.A. to Vale Fertilizantes S.A.
Date of transaction	January 1, 2016
Amount (R$)	134,937,267.16
Current balance (R$)	7,775,625.40
Amount of related party	Not applicable
Duration	December 31, 2016
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Issuer	Related party
Purpose of the contract	Guaranty operating continuity of plants with the use of the port terminal to import input for fertilizers.
If issuer is Creditor or Debtor	Ultrafertil is Creditor and Vale Fertilizantes is Debtor.
Guaranties and insurance	None.
Conditions of termination or expiration	Not applicable.

Nature and reasons for the operation / other relevant information	

- *FCA S.A. (Contract from May 13, 2016).* The operation has the objective of using the FCA to transport the mill balls imported by Vale, which will be used in the iron ore milling process in the Minas Gerais (MG) units. The option with the use of FCA will provide an estimated saving of R $ 6 million per year in relation to the road operation. The negotiated rail tariff took into account the values applied for related flows in the market. As a reference, it was used the ball transport flow of mills that the Pellet Board has with FCA, whose price is close to that negotiated for this contract.

Name of related party	FCA S.A.
Date of transaction	May 13, 2016
Amount (R$)	949,440.00
Current balance (R$)	602,526.90
Amount of related party	Not applicable
Duration	June 13, 2017
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Subsidiary
Purpose of the contract	Rail transport by FCA to Vale of ball mills ("Products") in the respective transportation flow from Rio das Velhas Quarries (EPW) to the Industrial Park (EPI) and Eldorado (EEL), with FCA responsible for the transportation stage in the Centro Atlântica Railroad's network, with loading at the terminal of origin and unloading at the destination terminal Vale is responsible for.
If issuer is Creditor or Debtor	Debtor
Guaranties and insurance	There is no guarantee of volume, contract without take or pay
Conditions of termination or expiration	Without prejudice to the other obligations established herein, the Commercial Agreement may be terminated by operation of law in the event of failure to comply with any of its conditions, provided that such failure has not been remedied within 10 days of a written notification by the compliant party, as well as in case of bankruptcy or judicial or extrajudicial recovery of any of the contracting parties, under the terms of Law No. 11,101, of February 9, 2005, without the need for any judicial or extrajudicial notification for this purpose.
Nature and reasons for the operation / other relevant information	

- *FCA S.A. (Contract from October 11, 2016).* The purpose of the operation is to provide rail transport services for Vale's own cargoes to FCA, railway operation equipment (locomotives, track equipment, railcars, etc.) and rails, with Vale being responsible for the transportation stage In the Vitória-Minas Railway, excluding any types of services related to the loading of the wagons at the terminals of origin and the unloading of the wagons at the destination terminal, which are the sole responsibility of FCA. The operations presented followed the same criteria for evaluation, pricing, and procedures that guide negotiations with third parties not related to Vale.

Name of related party	FCA S.A.
Date of transaction	October 11, 2016
Amount (R$)	5,000,000.00
Current balance (R$)	4,473,051.28
Amount of related party	
Duration	October 11, 2018
Loan or other type of debt	No
Interest rate	0.000000
Relationship with the Company	Subsidiary
Purpose of the contract	Provision of railway transportation for own cargo by Vale to FCA, of railway operation equipment (locomotives, road equipment, wagons etc.) and tracks, and Vale is responsible for transportation through the Railway Vitória a Minas, excluding any type of service related to the loading of wagons at the terminals of origin and unloading of wagons at the destination terminal, which are sole responsibility of FCA.
If issuer is Creditor or Debtor	Creditor
Guaranties and insurance	Not applicable
Conditions of termination or expiration	This agreement may be terminated by either party by means of written notice to the other party with no right to claims, indemnity, or compensation for the notified party, under the following circumstances:

	a) Petition or declaration of bankruptcy or liquidation, or judicial or extrajudicial recovery by the other party; b) In the event of an act of God or force majeure that comes to stop the execution of this Contract for more than 30 days; c) Fraud or misconduct. Without prejudice to the satisfaction of other rights, Vale, at its sole discretion, may terminate this Agreement by means of written notice to FCA, at least 30 days in advance, with no right to claims, indemnity, or compensation for FCA, under the following circumstances: a) non-compliance by FCA of any contractual obligation; b) assignment, subcontracting and/or partial or total transfer of contractual obligations to third parties; c) delays in payment for a period exceeding 30 days. Without prejudice to the satisfaction of other rights, FCA, at its sole discretion, may terminate this Agreement by means of written notice to Vale, at least 30 days in advance, with no right to claims, indemnity, or compensation for Vale, under the following circumstances: delay to provide information that affect contract performance and non-compliance with any contractual obligation. Upon termination of this contract, under any circumstance, pending issues must be settled within 60 days. If the Resolution of the Order occurs due to a breach of a contractual obligation, the defaulting Party shall pay the other Party a non-compensatory termination fine in the amount corresponding to 10% of the total value of the approved contract, adjusted for inflation based on the variation of the IPG-M/FGV – General Market Price Index.
Nature and reasons for the operation / other relevant information	

16.4 – Other relevant information – Transactions with related parties

There is no more relevant information that has not been disclosed in the items above.

17.1 - Information on capital

Authorization or approval date	Capital value (in Reais)	Term of payment	Number of common shares (Units)	Number of preferred shares (Units)	Total number of shares (Units)
Type of capital	**Issued Capital**				
5/09/2014	77,300,000,000.00		3,217,188,402	2,027,127,718	5,244,316,120
Share capital by share class		Other share convertible securities and conditions for conversion			
Preferred share class	**Number of shares (Units)**	**Security**			
Preferred Class A	2,027,127,706				
Preferred Class E	12				
Type of capital	**Subscribed Capital**				
5/09/2014	77,300,000,000.00		3,217,188,402	2,027,127,718	5,244,316,120
Share capital by share class		Other share convertible securities and conditions for conversion			
Preferred share class	**Number of shares (Units)**	**Security**			
Preferred Class A	2,027,127,706				
Preferred Class E	12				
Type of capital	**Paid Capital**				
5/09/2014	77,300,000,000.00		3,217,188,402	2,027,127,718	5,244,316,120
Share capital by share class		Other share convertible securities and conditions for conversion			
Preferred share class	**Number of shares (Units)**	**Security**			
Preferred Class A	2,027,127,706				
Preferred Class E	12				

Type of capital	Authorized Capital				
8/30/2007	0.00		3,600,000,000	7,200,000,000	10,800,000,000

Share capital by share class		Other share convertible securities and conditions for conversion	
Preferred share class	**Number of shares (Units)**	**Security**	
Preferred Class A	7,200,000,000		

17.2 - Increases of share capital

Date of resolution	Body that resolved on the	Issue date	Total issue amount (In Reais)	Type of increase	Common Shares (Units)	Preferred Shares (Units)	Total shares (Units)	Subscription / Previous capital	Issue price	Quote factor
5/09/2014	General Meeting		2,300,000,000.00	No issue of shares	0	0	0	0.00000000	0.00	R$ per Unit

Criterion for determination of the issue price

Form of payment

17.3 - Information on stock splits, reverse splits and bonuses

Justification for not completing the table:

There have been no stock splits, reverse splits or bonuses over the past three fiscal years.

17.4 - Information on capital reductions

Justification for not completing the table:

There has been no reduction in the Company's capital over the past three fiscal years.

17.5 - Other relevant information

There is no other relevant information that has not been disclosed in the above items.

18.1. Share rights

Share types or CDA	Common
Tag along	80.000000
Dividend rights	Under Vale's Bylaws and the applicable legislation, owners of common shares will have the right to receive dividends proportionate to their interest in the capital stock, after distribution of dividends to holders of preferred shares. According to Article 44 of Vale's Bylaws, at least 25% of the annual net profits, adjusted under the law, will be assigned to the payment of the mandatory dividend to all Vale's shareholders.
Voting rights	Full
Convertibility	No
Right to reimbursement of capital	Yes
Description of the characteristics of the reimbursement of capital	Shareholders who hold common shares will have the right to the reimbursement of the value of their shares according to the provisions set forth in the applicable law, according to the terms and conditions established.
Restriction to outstanding units	No
Conditions to alter rights assured by the securities	Rights guaranteed to common shares that are not determined by the applicable law may be altered by means of an amendment of the Bylaws, approved at the Extraordinary General Meeting that can only be held in the 1st instance, with the presence of the shareholders representing at least 2/3 of the voting capital, and in a second instance with any number of shareholders present. The amendment shall be approved based on the quorums and conditions provided for in Law No. 6,404, dated December 16, 1976, as amended ("Brazilian Corporation Law"). It is also stressed that in accordance with article 7 of the bylaws, special class preferred shares shall have the right of veto over any modification of rights assigned to types and classes of shares issued by Vale, as well as any change of article 7 itself, or of other rights assigned to special class shares.
Possibility of Redemption	There are no specific statutory provisions for the investment of profits or reserves on share redemptions or amortization.
Other relevant characteristics	There are no restrictions regarding outstanding common shares issued by Vale. For information about restrictions to Vale's stock trading by the involved individuals, see description of the Company's Negotiation Policy in item 20 on this Reference Form. All other characteristics of common shares issued by the Company that we believe are relevant were described on items above.

Share types or CDA	Preferred
Class of preferred shares	Class A Preferred
Tag along	0.000000
Dividend rights	Class "A" preferred shares have the following rights: a) priority in receiving dividends, to be calculated in the form of Company bylaws, corresponding to (i) at least 3% of the shareholders' equity of the share based on the Financial Statements that served as a reference for the payment of dividends or (ii) 6% calculated on the part of the capital formed by each class of share, whichever of them is greater; b) the right to participate in profit sharing on equal terms with the common shares, once these have been guaranteed a dividend equal to the minimum priority; and c) participation in any premiums, on equal terms with the common shares, maintaining the priority for the distribution of dividends. According to the Vale Bylaws, at least 25% of the annual net profits, adjusted under the law, will be assigned to the payment of the mandatory dividend to the company's shareholders.
Voting rights	Restricted
Description of restricted vote	Preferred shares class "A" will have the same political rights as the common shares, with the exception of voting for the election of members of the Board of Directors, with the qualification set forth in §§ 2 and 3 of article 11 of the Company Bylaws, as well as the right to elect and dismiss a member of the Fiscal Council and his Deputy. Preferred shares will exercise full and unrestricted right to vote if the Company no longer pays, for a period of three (3) consecutive fiscal years, the minimum dividends assured to holders of preferred shares, to which they have a right under the terms above.
Convertibility	No
Right to reimbursement of capital	No
Restriction to outstanding units	No
Conditions to alter rights assured by the securities	The rights guaranteed to the class "A" preferred shares that are not legal may be altered by means of an amendment of the bylaws, approved at the General Meeting that can only be held in the 1st instance, with shareholders representing at least 2/3 of the voting capital, and the 2nd instance with any number of shareholders present. Changes shall be approved based on quorums and conditions set forth by the Law of Joint Stock Company. The effectiveness of the decision will depend on the prior approval or ratification within one year, without the possibility of extending this period, by holders of more than half of each class of preferred shares whose rights would be impaired, meeting at special shareholders' meeting. It is also stressed that in accordance with article 7 of the bylaws, special class preferred shares shall have the right of veto over any modification of rights assigned to types and classes of shares issued by Vale, as well as change of article 7 itself, or of other rights assigned to special class shares.
Possibility of Redemption	There are no specific statutory provisions for the investment of profits or reserves on share redemptions or amortization.
Other relevant characteristics	There are no restrictions regarding outstanding class A preferred shares issued by the Company. For information about restrictions to the Vale's stock negotiations by the involved individuals, see description of the Company's Negotiation Policy in item 20 on this Reference Form. All the characteristics of the class "A" preferred shares that the Company believes are relevant were described above.

Share types or CDA	Preferred
Class of preferred shares	Class E Preferred
Tag along	0.000000
Dividend rights	Special class preferred shares (golden shares) have the following rights: a) priority in receiving dividends, to be calculated in the form of the Company's bylaws, corresponding to (i) at least 3% of the shareholders' equity of the share based on the Financial Statements that served as a reference for the payment of dividends or (ii) 6% calculated on the part of the capital formed by each class of share, whichever of them is greater; b) the participation in profit sharing on equal terms with the common shares, once these have been guaranteed a dividend equal to the minimum priority; and c) participation in any premiums, on equal terms with the common shares, maintaining the priority established for the distribution of dividends. According to the Company's Bylaws, at least 25% of the annual net profits, adjusted under the law, will be assigned to the payment of the mandatory dividend to the company's shareholders.
Voting rights	Restricted
Description of restricted vote	The special class preferred shares (golden shares) have the same political rights as common shares, with the exception of voting for the election of members of the board of directors, with the qualification set out in §§ 2 and 3 of article 11 of the Company Bylaws, as well as the right to elect a member of the Fiscal Council and his Deputy. Golden shares also have a right to veto on the following subjects: (i) change in corporate name; (ii) change of headquarters; (iii) change in statutory purpose regarding mining activities; (iv) liquidation of the company; (v) transfer or closing of the activities of any or all of the following stages of the company's integrated system of iron ore: (a) mineral deposits, reservoirs, mines; (b) railroads; (c) ports and maritime terminals; (vi) any modification of rights assigned to types and classes of shares set forth in the bylaws; and (vii) any amendment to article 7, or any rights granted to special class shares in the Bylaws.
Convertibility	No
Right to reimbursement of capital	No
Restriction to outstanding units	Yes
Description of Restriction	Special class preferred shares belong exclusively to the Federal Union.
Conditions to alter rights assured by the securities	The rights guaranteed to preferred shares that are not determined by the applicable law may be altered by means of an amendment of the bylaws, and approved at the Extraordinary General Meeting that can only be held in the 1st instance, with the presence of shareholders representing at least 2/3 of the voting capital, and the 2nd instance with any number of shareholders present. Changes shall be approved based on quorums and conditions set forth by the Law of Joint Stock Company. It is also stressed that in accordance with article 7 of the bylaws, special class preferred shares shall have the right of veto over any modification of rights assigned to types and classes of shares issued by Vale, as well as any change of article 7 itself, or of other rights assigned to special class shares.
Possibility of Redemption	There are no specific statutory provisions for the investment of profits or reserves on share redemptions or amortization.
Other relevant characteristics	All the other characteristics of the special class preferred shares that the Company believes are relevant were described above.

18.2 Description of eventual statutory regulations which limit the right to vote of large shareholders or which cause them to hold a public offering

On the date of this Reference Form, there are no statutory rules that limit the voting rights of significant shareholders or that require them to make a public offering.

18.3 Description of exceptions and suspensive clauses relative to ownership or political rights set forth in the bylaws

On the date of this Reference Form, there are no exceptions and suspensive clauses related to equity or political rights provided form in the Company's Bylaws.

18.4 Volume of trading, daily average and minimum and maximum prices for securities traded

Fiscal Year	**December 31, 2016**								
Quarter	**Security**	Type	Class	Market	Administrative entity	Traded Financial Volume (R$)	Average Daily Price Rate (R$)	Highest Price Listed (R$)	Lowest Price Listed (R$)	Price Listed Factor
March 31, 2016	**Shares**	Common		Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	7,285,723,336.00	11.98	18.60	8.60	R$ per Unit
June 30, 2016	**Shares**	Common		Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	8,405,679,015.00	16.60	22.19	13.66	R$ per Unit
September 30, 2016	**Shares**	Common		Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	6,420,203,387.00	17.72	19.39	15.51	R$ per Unit
December 31, 2016	**Shares**	Common		Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	10,839,034,707.00	25.71	31.65	17.56	R$ per Unit
March 31, 2016	**Shares**	Preferred	PNA	Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	19,689,460,964.00	8.82	13.07	6.44	R$ per Unit
June 30, 2016	**Shares**	Preferred	PNA	Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	26,840,256,263.00	13.18	16.87	10.85	R$ per Unit
September 30, 2016	**Shares**	Preferred	PNA	Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	19,803,133,367.00	14.74	16.34	12.55	R$ per Unit
December 31, 2016	**Shares**	Preferred	PNA	Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	35,519,983,787.00	23.24	28.26	15.33	R$ per Unit

Fiscal Year	**December 31, 2015**								
Quarter	**Security**	**Type**	**Class**	**Market**	**Administrative entity**	**Traded Financial Volume (R$)**	**Average Daily Price Rate (R$)**	**Highest Price Listed (R$)**	**Lowest Price Listed (R$)**	**Price Listed Factor**
March 31, 2015	Shares	Common		Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	7,582,885,511.00	20.54	23.13	17.65	R$ per Unit
June 30, 2015	Shares	Common		Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	9,610,690,988.00	20.69	27.89	17.17	R$ per Unit
September 30, 2015	Shares	Common		Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	8,037,342,035.00	18.06	20.56	14.77	R$ per Unit
December 31, 2015	Shares	Common		Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	6,022,903,782.00	16.11	20.83	11.25	R$ per Unit
March 31, 2015	Shares	Preferred	PNA	Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	18,579,281,199.00	17.93	20.32	15.40	R$ per Unit
June 30, 2015	Shares	Preferred	PNA	Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	26,465,843,826.00	17.02	21.10	14.70	R$ per Unit

September 30, 2015	Shares	Preferred	PNA	Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	21,431,151,294.00	14.58	16.37	11.89	R$ per Unit
December 31, 2015	Shares	Preferred	PNA	Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	16,294,248,139.00	13.03	16.35	9.08	R$ per Unit

Fiscal Year	**December 31, 2014**									
Quarter	**Security**	**Type**	**Class**	**Market**	**Administrative entity**	**Traded Financial Volume (R$)**	**Average Daily Price Rate (R$)**	**Highest Price Listed (R$)**	**Lowest Price Listed (R$)**	**Price Listed Factor**
March 31, 2014	Shares	Common		Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	10,230,723,387.00	32.27	36.05	29.08	R$ per Unit
June 30, 2014	Shares	Common		Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	7,204,624,269.00	30.47	34.44	28.21	R$ per Unit
September 30, 2014	Shares	Common		Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	8,611,370,533.00	30.22	33.25	26.14	R$ per Unit
December 31, 2014	Shares	Common		Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	9,459,888,182.00	24.38	28.74	18.20	R$ per Unit
March 31, 2014	Shares	Preferred	PNA	Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	28,070,167,554.00	29.00	32.88	25.65	R$ per Unit
June 30, 2014	Shares	Preferred	PNA	Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	23,253,355,623.00	27.53	30.87	25.27	R$ per Unit
September 30, 2014	Shares	Preferred	PNA	Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	24,789,060,124.00	26.90	29.66	22.99	R$ per Unit
December 31, 2014	Shares	Preferred	PNA	Stock Exchange	BM&FBOVESPA S.A. - Bolsa de Valores, Mercadorias e Futuros	20,284,258,142.00	21.09	25.00	15.50	R$ per Unit

18.5 Description of other securities issued in Brazil

Security	**Debentures**
Identification of securities	Private Debentures
Issuing date	August 19, 2015
Quantity (Units)	3,000
Global face value (Real)	R$3,000,000,000.00
Restriction to outstanding units	No
Outstanding Debt Balance at the end of the last fiscal year	R$3,131,254,045.20
Convertibility	No
Possibility of redemption	Vale may, starting on the 12th month, from the issuing date, pay early, total, or partial debentures free of any fees or premiums.
Characteristics of securities	Simple, nominative and unsecured, single series, debentures with moratorium interest of 101% of the accrued DI Tax rate with maturity on August 19, 2021.
Conditions to alter rights assured by the securities	Any change in the conditions of the debentures shall depend on the approval of the debenture holders that represent at least half of the current debentures.
Other relevant characteristics	*Maturity:* August 19, 2021. *Main Early Maturity Events:* Debentures may be declared matured in the following events: I. default of monetary obligation due to the debenture holder as provided in the Deed, not remedied in 30 business days starting on the date of default; II. default of material obligation provided for in the Deed, no remedied within 30 business days from the date the notice of noncompliance is delivered by the debenture holder; III. declaration of judicial recovery or submission to any creditor or class of creditors of a request for renegotiation of the extrajudicial recovery plan, formulated by Vale; IV. termination, liquidation, dissolution, bankruptcy, application for Vale's voluntary or involuntary bankruptcy; V. reduction of Vale's share capital, without prior consent from debenture holder; VI. accelerated maturity of any financial obligations that are subject to Vale, in the local or international markets at an individual amount greater than R$500,000,000.00; and VII. corporate restructuring, including incorporation (in cases where Vale is incorporated), merger or divestiture of Vale, without prior consent from debenture holder. *Interest:* 101% of the DI Fee *Guarantee:* None. *In the absence of any guarantee, if the credit is secured or subordinate:* Unsecured. *Possible restrictions imposed on the issuer, in relation to:* ▪ distribution of dividends: None. ▪ disposal of determined assets: None. ▪ contracting of new debt: None. ▪ issuing new securities: None.

	▪ corporate deals involving the issuer, controlling company or subsidiaries: early maturity shall apply in the event of any corporate restructuring, including incorporation (in cases where Vale is incorporated), merger or divestiture of the Issuer, without the prior consent from debenture holders. *The fiduciary agent:* None.

Security	**Debentures 9th Issuance**
Identification of securities	Debentures
Issuing date	August 15, 2015
Quantity (Units)	1,000,000
Global face value (Real)	R$1,350,000,000.00
Restriction to outstanding units	No
Outstanding Debt Balance at the end of the last fiscal year	R$1,516,769,178.16
Convertibility	No
Possibility of redemption	If early redemption is legally permitted for Debentures, under the terms of applicable legislation, including under the regulation by the National Monetary Council applicable to the redemption possibility provided for in Law 12,431, the Company may, at its sole discretion, present an optional offer for early redemption, in total or partial, for outstanding Debentures, in general or per series, with cancellation of such Debentures, to be addressed to all Debenture-holders, under equal conditions.
Characteristics of securities	Due to the system's restrictions, the "Characteristics of the Securities" are available in item 18.12 of this Reference Form.
Conditions to alter rights assured by the securities	Any changes to key debenture terms will be subject to approval by debenture holders representing at least 90% of outstanding debentures.
Other relevant characteristics	Debentures were subject to takeover carried out by the Company in Brazil, under the terms in CVM Instruction 400.

Security	**Debentures 8th Issuance**
Identification of securities	Debentures
Issuing date	January 15, 2014
Quantity (Units)	1,000,000
Global face value (Real)	R$1,000,000,000.00
Restriction to outstanding units	No
Outstanding Debt Balance at the end of the last fiscal year	R$1,320,827,923.04
Convertibility	No
Possibility of redemption	If early redemption is legally permitted for Debentures, under the terms of applicable legislation, including under the regulation by the National Monetary Council applicable to the redemption possibility provided for in Law 12,431, the Company may, at its sole discretion, present an optional offer for early redemption, in total or partial, for outstanding Debentures, in general or per series, with cancellation of such Debentures, to be addressed to all Debenture-holders, under equal conditions.
Characteristics of securities	Due to the system's restrictions, the "Characteristics of the Securities" are available in item 18.12 of this Reference

	Form.
Conditions to alter rights assured by the securities	Any changes to key debenture terms will be subject to approval by debenture holders representing at least 90% of outstanding debentures.
Other relevant characteristics	Debentures were subject to takeover carried out by the Company in Brazil, under the terms in CVM Instruction 400.

Security	**Debentures**
Identification of securities	Participatory Debentures (CVRDA6, CVRDB6, CVRDC6, CVRDD6)
Issuing date	July 8, 1997
Quantity (Units)	388,559,056
Global face value (Real)	3,885,590.56
Restriction to outstanding units	No
Outstanding Debt Balance at the end of the last fiscal year	R$2,525,633,864.00
Convertibility	No
Possibility of redemption	No
Characteristics of securities	Single series. Registered Nominative Debenture Updating of the face value according to the IGP-M rate. The participatory debentures are traded on the secondary market at the National System of Debentures (SND, Portuguese acronym), managed by the National Association of Open Market Institutions (ANDIMA, Portuguese acronym), and operated by CETIP since October 2002. The CETIP debenture codes are CVRDA6, CVRDB6, CVRDC6 and CVRDD6. The debentures ISIN number is BRVALEDBS028.
Conditions to alter rights assured by the securities	Any amendments to the main terms of the debentures shall be contingent on approval by debenture holders representing the absolute majority of outstanding debentures. Debentures shall be matured in the event of extinction of all mining rights that are the purpose of the Deed, including extinction due to depletion of the described mineral reserves or mineral reserves that replace them. In such case, the Issuer (Vale) shall liquidate the outstanding debentures in circulation at the face value updated pursuant to the provisions set forth in the Deed, without premium.
Other relevant characteristics	*Maturity:* the debenture shall be matured in the event of full extinction of the mining rights that are the purpose of the Deed. *Main Events Related to Automatic Early Maturity:* The Fiduciary Agent may declare the early maturity of the obligations set forth in the deed, without warning, notice, or judicial or extrajudicial summons, ant it may demand the immediate settlement, by Vale, of the face value of the debentures, in the case of Vale's bankruptcy. *Main Events Related to Non-Automatic Early Maturity:* Vale may not, totally or partially, redeem the debentures. *Premium:* Premium shall apply the net revenue relative to each mineral product: (i) Iron Ore - 1.8%, (ii) Gold and Copper and Byproducts - 2.5%, and, (iii) other minerals -

	1%. Premium due to debenture holders shall be paid biannually, on March 31 and September 30 of each year. *Interest:* The face value of debentures shall be from the date they are issued based on General Price Index - IGP-M rate. *Guarantee:* None. *In the absence of any guarantee, if the credit is secured or subordinate:* Subordinate, pursuant to paragraph 4 of article 58 of Law No. 6,404/76. *Possible restrictions imposed on the issuer, in relation to:* ▪ distribution of dividends: None. ▪ disposal of determined assets: None. ▪ contracting of new debt: None. ▪ issuing new securities: None. ▪ corporate deals involving the issuer, controlling company or subsidiaries: None. *The fiduciary agent:* GDC Partners Serviços Fiduciários DTVM Ltda. The main contractual obligation of the fiduciary agent is to call a general meeting of debenture holders, when necessary. *Other Information*. In 1997, in the first stage of the Company's privatization, the Company issued shareholders' debentures to existing shareholders. The terms of the debentures were set so as to ensure that the shareholders prior to privatization, among them the Brazilian government, participated with the Company in future financial benefits that would result from the extraction of certain mineral resources that were not taken into account when the minimum purchase price of shares in the privatization was determined. According to the issue indenture of shareholders' debentures, its holders are entitled to receive semiannual payments equivalent to a certain percentage of the Company's net revenues (revenues minus value-added tax, transportation fees, and insurance expenses related to trading the products) from certain mineral resources belonging to the Company during privatization, provided that the Company exceed the defined sales volume limits related to certain mineral resources, and the sale of mineral rights that the Company had at the time. The Company's obligation to make payments to the holders of these debentures will cease when the relevant mineral resources are exhausted. The amounts of US$118 million in 2014, US$65 million in 2015, and US$87 million in 2016 were made available for withdrawal by the holders of shareholders' debentures. In October 2013, the North System's accumulated iron ore sales volume reached the relevant threshold established in the issue indenture of shareholders' debentures, which triggered the Company's obligation to make additional

	semiannual payments of the premium on iron ore products, as of 2014.

Security	**Debentures BNDESPAR – 1st Issue**
Quantity	66,510
Global Face Value	R$665,100,000.00
Outstanding Debt Balance at the end of the last fiscal year	R$697,849,760.99
Issuing date	December 17, 2007
Restriction to outstanding units	None
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None.
Possibility of redemption	I. In case of redemption: Vale shall pay early redemption of all outstanding debentures (and nothing less) within 30 days from following events: a) extinction of the concession contract entered into by Vale Engenharia, Construções e Ferrovias S.A, a state-owned company, established as a joint-stock corporation under the Ministry of Transport, and FNS, for the management and operation of the public service of railway cargo transportation in Ferrovia Norte e Sul - FNS, due to forfeiture, expropriation, termination, agreement between the parties, concession or sub-concession annulment or declaration of nullity of administrative bidding process; and b) intervention, by the concession grantor, in the sub-concession or concession for the management and operation of the public service of railway cargo transportation in Ferrovia Norte e Sul - FNS granted to FNS. II. Formula for calculating value of redemption: On the payment date of redemption, Vale shall settle debentures still circulating at their non-amortized unit face value, plus the amount capitalized but not amortized, as well as monetary interest capitalized semi-annually on the 15th of June and December each year with a grace period of 4 years counted from the issuing date and still not amortized, plus remuneration in the amount of 0.8% per annum above the TJLP (long-term interest rate), liable until such ("Value of Redemption"). The Value of Redemption shall be increased by a percentage of 20% if (i) the termination of letter "a" above results from the expiration of the concession or sub-concession (ii) when the annulment of the aforementioned concession or sub-concession is attributable, pursuant to the administrative proceedings, to Vale Logística or to FNS.
Characteristics of securities	Due to the system's restrictions, the "Characteristics of the Securities" are available in item 18.12 of this Reference Form.

Conditions to alter rights assured by the securities	Any amendments to the terms of the issued debentures shall be contingent on approval by debenture holders representing at least 50% plus one debenture of the debentures in circulation. For the purposes of reaching a quorum, debentures belonging to Vale shall be excluded from the number of debentures.
Other relevant characteristics	VALE and BNDESPAR on June 23, 2015, amended the referred deed of debenture to exclude (i) the possibility of interchanging debentures in shares issued by VLI, and to exclude all obligations from VLI and FNS under said deed of debenture, freely granting to BNDESPAR purchase options for a certain number of common shares of issued by VLI and held by Vale.

Security	**Debentures BNDESPAR – 2nd Issue**
Quantity	38,520 debentures
Global Face Value	R$385,200,000.00
Outstanding Debt Balance at the end of the last fiscal year	R$355,636,924.11
Issuing date	October 15, 2009
Restriction to outstanding units	None
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None
Possibility of redemption	I. In case of redemption: Vale shall pay early redemption of all outstanding debentures (and nothing less) within 30 days from following events: a) extinction of the concession contract entered into by Valec Engenharia, Construções e Ferrovias S.A, a state-owned company, established as a joint-stock corporation under the Ministry of Transport, and FNS, for the management and operation of the public service of railway cargo transportation in Ferrovia Norte e Sul - FNS, due to forfeiture, expropriation, termination, agreement between the parties, concession or sub-concession annulment or declaration of nullity of administrative bidding process; and b) intervention, by the concession grantor, in the sub-concession or concession for the management and operation of the public service of railway cargo transportation in Ferrovia Norte e Sul - FNS granted to FNS. II. Formula for calculating value of redemption: On the payment date of redemption, Vale shall settle debentures still circulating at their non-amortized unit face value, plus the amount capitalized but not amortized, as well as monetary interest capitalized semi-annually on the 15th of June and December each year with a grace period of 4 years counted from the issuing date and still not amortized, plus remuneration in the amount of 0.8% per annum above

	the TJLP (long-term interest rate), liable until such ("Value of Redemption"). The Value of Redemption shall be increased by a percentage of twenty per cent (20%) if (i) the termination of letter "a" above results from the expiration of the concession or sub-concession (ii) when the annulment of the aforementioned concession or sub-concession is attributable, pursuant to the administrative proceedings, to Vale Logística or to FNS.
Characteristics of securities	Due to the system's restrictions, the "Characteristics of the Securities" are available in item 18.12 of this Reference Form.
Conditions to alter rights assured by the securities	Any amendments to the terms of the issued debentures shall be contingent on approval by debenture holders representing at least 50% plus one debenture of the debentures in circulation. For the purposes of reaching a quorum, debentures belonging to Vale shall be excluded from the number of debentures.
Other relevant characteristics	VALE and BNDESPAR on June 23, 2015, amended the referred deed of debenture to exclude (i) the possibility of interchanging debentures in shares issued by VLI, and to exclude all obligations from VLI and FNS under said deed of debenture, freely granting to BNDESPAR purchase options for a certain number of common shares of issued by VLI and held by Vale.

Security	**Debentures BNDESPAR – 3rd Issue**
Quantity	35,712 debentures
Global Face Value	R$357,120,000.00
Outstanding Debt Balance at the end of the last fiscal year	R$294,713,419.50
Issuing date	June 9, 2011
Restriction to outstanding units	None
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None.
Possibility of redemption	I. In case of redemption: Vale shall pay early redemption of all outstanding debentures (and nothing less) within thirty (30) days from following events: a) extinction of the concession contract entered into by Valec Engenharia, Construções e Ferrovias S.A, a state-owned company, established as a joint-stock corporation under the Ministry of Transport, and FNS, for the management and operation of the public service of railway cargo transportation in Ferrovia Norte e Sul - FNS, due to forfeiture, expropriation, termination, agreement between the parties, concession or sub-concession annulment or declaration of nullity of administrative bidding process; and b) intervention, by the concession grantor, in the sub-concession or concession for the management and operation of the public service of railway cargo transportation in Ferrovia Norte e Sul - FNS granted to

	FNS. II. Formula for calculating value of redemption: On the payment date of redemption, Vale shall settle debentures still circulating at their non-amortized unit face value, plus the amount capitalized but not amortized, as well as monetary interest capitalized semi-annually on the 15th of June and December each year with a grace period of 4 years counted from the issuing date and still not amortized, plus remuneration in the amount of 0.8% per annum above the TJLP (long-term interest rate), liable until such ("Value of Redemption"). The Value of Redemption shall be increased by a percentage of twenty per cent (20%) if (i) the termination of letter "a" above results from the expiration of the concession or sub-concession (ii) when the annulment of the aforementioned concession or sub-concession is attributable, pursuant to the administrative proceedings, to Vale Logística or to FNS.
Characteristics of securities	Due to the system's restrictions, the "Characteristics of the Securities" are available in item 18.12 of this Reference Form.
Conditions to alter rights assured by the securities	Any amendments to the terms of the issued debentures shall be contingent on approval by debenture holders representing at least 50% plus one debenture of the debentures in circulation. For the purposes of reaching a quorum, debentures belonging to Vale shall be excluded from the number of debentures.
Other relevant characteristics	VALE and BNDESPAR on June 23, 2015, amended the referred deed of debenture to exclude (i) the possibility of interchanging debentures in shares issued by VLI, and to exclude all obligations from VLI and FNS under said deed of debenture, freely granting to BNDESPAR purchase options for a certain number of common shares of issued by VLI and held by Vale.

18.6 Brazilian markets where company's securities are admitted for trading

The main market for trading the Company's common and preferred shares with no face value is the BM&FBOVESPA – Bolsa de Valores Mercadorias e Futuros in São Paulo.

The debentures of the Company are recorded for trading in the secondary market through (i) the Module CETIP21 – Securities, administered and operated by CETIP; (ii) the PUMA Trading System, BM&FBOVESPA; both administered and operated by BM&FBOVESPA.

18.7 Information on class and type of securities admitted to trading in foreign markets

Vale's common and preferred shares traded on LATIBEX, under the codes XVALO and XVALP, respectively. LATIBEX is an unregulated electronic market, established in 1999 by the Madrid Stock Exchange to allow trading of Latin American securities. These shares were listed on Latibex on February 8, 2000.

The bonds VALE26 (reopening), VALE26, VALE21, VALE42, VALE22 (reopening), VALE22, VALE39, VALE19, CVRD36, CVRD34B, CVRD34, INCO2032, CVRD20, CVRD39 (Bonds) were admitted for trading in the United States of America, on the New York Stock Exchange, respectively on February 6, 2017, August 10, 2016, June 7, 2016, September 11, 2012, April 4, 2012, January 11, 2012, November 10, 2009, September 15, 2009, November 21, 2006, November 2, 2005, January 15, 2004, September 23, 2002, September 15, 2010, September 15, 2010. The Securities Exchange Commission (SEC) is the body responsible for the administration of the New York Stock Exchange and the Bank of New York is the depositary bank and custodial institution for the Bonds.

The American Depositary Shares (ADSs), represented by American Depositary Receipts (ADRs) Vale and VALE.P, were admitted to trading in the United States of America, on the New York Stock Exchange on March 15, 2002 and June 20, 2000 respectively. The ADSs, represented by ADRs, VALE3 and VALE5, have also been admitted for trading in France, on the NYSE Euronext, both on July 21, 2008. The Securities and Exchange Commission (SEC) is the body responsible for the administration of the New York Stock Exchange and the French Autorité des Marchés Financiers (AMF) is the entity responsible for the NYSE Euronext. The depositary bank is Citibank N.A., replacing JPMorgan Chase Bank N.A. on December 22, 2015. On December 31, 2016, there were 1,397,140,313 outstanding ADSs, 786,259,642 of which were common ADSs and 610,880,671 were preferred ADSs. Each ADS VALE or ADS VALE3 represents a common share issued by the company, and on December 31, 2016, 62.3% of the company's common shares were linked to the ADSs VALE and VALE3. Each ADS VALE.P or ADS VALE5, represents a Class A preferred share issued by the Company, and on December 31, 2016, 32.5% of Vale Class A preferred shares were linked to the ADSs VALE.P and VALE5.

Eurobond VALE23 with maturity in 2023 was admitted to trading on the regulated market of Luxembourg, the Luxembourg Stock Exchange and the EuroMTF, on July 10, 2012. The Commission de la Surveillance du Secteur Financier is responsible for approval of the issue prospectus and the Bank of New York is the depositary bank and custodial institution for Eurobond VALE23.

Trading of Bonds, Depositary Shares and Eurobonds last year was wholly conducted abroad.

For more information about bonds issued in foreign markets, see items 18.8 and 18.12 of this Reference Form.

18.8. Bonds issued abroad

Security	**Securities Deposit Certificates**
Identification of securities	ADS (American Depositary Shares) VALE
Jurisdiction	United States of America
Issuing date	March 15, 2002
Quantity (Units)	786,259,642
Global face value (Real)	5,991,298,472.04
Restriction to outstanding units	No
Outstanding Debt Balance at the end of the last fiscal year	0.00
Convertibility	Yes
Convertibility condition and effects on share capital	1 ADS VALE corresponds to one (1) common share issued by the Company, and the conversion has no effect on share capital.
Possibility of redemption	No
Characteristics of securities	Each ADS VALE corresponds to one common share issued by Company. In the field "Quantity" above were considered ADS in circulation on December 31, 2016. The "Global Face Value" above was determined by taking into consideration the number of ADS reported and the closing price of the ADS on December 31, 2016, subject to the Real conversion rate on that date.
Conditions to alter rights assured by the securities	None.
Other relevant characteristics	ADS VALE are traded on the New York Stock Exchange (NYSE), under the code VALE. The ADSs are represented by ADRs (American Depositary Receipts) issued by the depositary, Citibank N.A.

Security	**Securities Deposit Certificates**
Identification of securities	ADS (American Depositary Shares) VALE.P
Jurisdiction	United States of America
Issuing date	June 20, 2000
Quantity (Units)	610,880,671
Global face value (Real)	4,208,967,823.19
Restriction to outstanding units	No
Outstanding Debt Balance at the end of the last fiscal year	0.00
Convertibility	Yes
Convertibility condition and effects on share capital	1 ADS VALE.P corresponds to one (1) preferred share issued by the Company, and the conversion has no effect on share capital.
Possibility of redemption	No
Characteristics of securities	Each ADS VALE.P represents one preferred share issued by the Company. In the field "Quantity" above were considered ADS in

	circulation on December 31, 2016. The "Global Face Value" above was determined by taking into consideration the number of ADS reported and the closing price of the ADS on December 31, 2016, subject to the Real conversion rate on that date.
Conditions to alter rights assured by the securities	None.
Other relevant characteristics	ADS VALE.P are traded on the New York Stock Exchange under the code VALE.P. ADS VALE.P are represented by ADRs (American Depositary Receipts) issued by the depositary, Citibank N.A.

18.9 Distribution public offerings made by the issuer or by third parties, including affiliates, controlling and controlled companies, relating to issuer's securities

For information on issuances from our affiliates and controlled companies, see item 18.12.

2016

Not applicable, given that in said fiscal year, public offerings were not made by Vale S.A. or third parties, including affiliates, controlling and controlled companies, related to the Company's securities.

2015

In August 2015, Vale submitted to CVM's approval a request the registration of a public distribution of 1,000,000 simple, infrastructure debentures, non-convertible into shares, unsecured, in two series, the 9th issued by Company, with a unit face value of R$1,000.00 on the date the debentures are issued, that is, on August 15, 2015, totaling, on this date, the value of R$1,000,000,000.00.

On September 18, 2015, Vale concluded the offering of infrastructure bonds. Initially, Vale expected to capture RS$1 billion through the offering, but it raised the issuing to R$1.35 billion due to the demand for bond. Debentures shall be monetarily updated and they shall pay annual interest, priced at IPCA + 6.6232% per annum (equivalent to NTN-B 2020 - 0.5%) and IPCA + 6.6252% per annum (equivalent to NTN-B 2022 - 0.5%), with maturity in 2020 and 2022, respectively. For more information on this issuing, see item 18.5 of this Reference Form.

2014

In February 2014, Vale concluded the public offering of 1,000,000 simple debentures, non-convertible into shares, unsecured, in four series, with a unit face value of R$1.0 thousand, totaling R$1.0 billion. Debentures shall be monetarily updated and they shall pay annual interest, priced at IPCA + 6.46% per annum (equivalent to NTN-B 2020 - 0.15%), IPCA + 6.57% per annum (equivalent to NTN-B 2022 - 0.10%), IPCA + 6.71% per annum (equivalent to NTN-B 2024 + 0%) and IPCA + 6.78% per annum (equivalent to NTN-B 2030+ 0%), with maturities in 2021, 2024, 2026 and 2029, depending on their series. Debentures are unsecured obligations and are on an equal footing with all of Vale's similar obligations.

For more information on this issuing, see item 18.5 of this Reference Form.

18.10 - Public Offers of Securities Distribution

a. how the proceeds from the offering were used

For information on issuances from our affiliates and controlled companies, see item 18.12.

2016

Not applicable, given that in said fiscal year, public offerings were not made by Vale S.A. or third parties, including affiliates, controlling and controlled companies, related to the Company's securities.

2015

In August 2015, Vale submitted to CVM's approval a request the registration of a public distribution of 1,000,000 simple, infrastructure debentures, non-convertible into shares, unsecured, in two series, the 9th issued by Company, with a unit face value of R$1,000.00 on the date the debentures are issued, that is, on August 15, 2015, totaling, on this date, the value of R$1,000,000,000.00.

On September 18, 2015, Vale concluded the offering of infrastructure bonds. Initially, Vale expected to capture RS$1 billion through the offering, but it raised the issuing to R$1.35 billion due to the demand for bond. Debentures shall be monetarily updated and they shall pay annual interest, priced at IPCA + 6.6232% per annum (equivalent to NTN-B 2020 - 0.5%) and IPCA + 6.6252% per annum (equivalent to NTN-B 2022 - 0.5%), with maturity in 2020 and 2022, respectively.

The net proceeds obtained by the Company with the Issuance were fully intended for the reimbursement of expenses, expenditures and/or debts related to investment projects in the Company's infrastructure considered a priority, under Article 2 of Law No. 12,431, from Decree No. 7,603 and Ordinance from the Ministry of Transport.

2014

In February 2014, Vale concluded the public offering of 1,000,000 simple debentures, non-convertible into shares, unsecured, in four series, with a unit face value of R$1.0 thousand, totaling R$1.0 billion. Debentures shall be monetarily updated and they shall pay annual interest, priced at IPCA + 6.46% per annum (equivalent to NTN-B 2020 - 0.15%), IPCA + 6.57% per annum (equivalent to NTN-B 2022 - 0.10%), IPCA + 6.71% per annum (equivalent to NTN-B 2024 + 0%) and IPCA + 6.78% per annum (equivalent to NTN-B 2030+ 0%), with maturities in 2021, 2024, 2026 and 2029, depending on their series. Debentures are unsecured obligations and are on an equal footing with all of Vale's similar obligations.

The net proceeds obtained by the Company with the Issuance were fully intended for the reimbursement of expenses, expenditures and/or debts related to investment projects in the Company's infrastructure considered a priority, under Article 2 of Law No. 12,431, from Decree No. 7,603 and Ordinance from the Ministry of Transport.

For more information on this issuing, see item 18.5 of this Reference Form.

b. If there were relevant differences between the actual application of the resources and the intended application disclosed in the respective distribution statement

There were no relevant differences between the actual application of the resources and the intended application disclosed in the respective distribution statement.

c. If there were differences, list the justification for the difference

Not applicable since there were no differences.

18.11 Description of takeover bids made by the issuer for shares issued by third parties

In the past 3 (three) fiscal years, the Company has not made any public offering of acquisition relative to shares issued by third parties

18.12 Other relevant information

Additional information to item 18.5

Due to the system's restrictions, the additional information of securities issued by the Company is described below:

Security	**Debentures 9th Issuance**
Characteristics of securities	Simple, nominal, and book debentures, with no guarantees, in 2 series, where: (i) the first series consists of 800,000 debentures, IPCA adjusted at an interest rate of 6.6232% per annum and maturity on August 15, 2020; (ii) the second series consists of 550,000 debentures, IPCA adjusted at an interest rate of 6.6252% per annum and maturity on August 15, 2022. *Main Events Related to Automatic Early Maturity:* I. default related to monetary obligation due to the Debenture holder under the terms in the Deed of Issuance, which is not solved within two working days from the date of default; II. any type of assignment or promise of assignment to third parties, by the Company, of any of its obligations set forth in the Deed of Issuance, as a whole or in part, except upon prior authorization by the Debenture holders representing at least 90% of the outstanding Debentures; III. liquidation, dissolution and/or extinction of the Company, except when the liquidation, dissolution and/or extinction is result of an operation that is not a Default Event, under the terms permitted by item VII in "Events Related to Non-Automatic Early Maturity"; and other circumstances provided for in the Deed of Issuance. *Main Events Related to Non-Automatic Early Maturity:* I. default by the Company related to non-monetary obligation provided for in the Deed of Issuance, which is not solved within 60 days from the date of default, except when there is a specific term for cure or for any of the other Default Events (as defined in the Deed of Issuance); II. reduction of the Company capital stock, except upon prior authorization by Debenture holders representing at least the majority of outstanding Debentures; III. change to the Company corporate purpose, provided that, consequently, the Company is no longer engaged in mining activities; IV. evidence that any of the Statements made by the Company in the Deed of Issuance is false or inaccurate in any relevant aspect; V. default by the Company or Relevant Subsidiary, which is not solved, in any contract, instrument, or document, evidencing outstanding Indebtedness (as defined in the Deed of Issuance), in amount equal or higher than R$250,000,000.00, updated annually based on IGPM, or equivalent in other currency, provided that such default results in the effective early maturity of such Indebtedness; bankruptcy of the Company and/or any relevant subsidiary (as defined in the Deed of Debenture); (b) voluntary bankruptcy of the Company and/or any relevant subsidiary;

	(c) involuntary bankruptcy of the Company and/or any relevant subsidiary, filed by third parties, not elided in the legal deadline; or (d) request for judicial or extrajudicial recovery by the company and/or any relevant subsidiary, not contingent on approval of the respective request, and other provisions set forth in the Deed of Debentures. *Possible restrictions imposed on the issuer, in relation to:* ▪ distribution of dividends: None. ▪ disposal of determined assets: Vale may not dispose of all or nearly all of its assets or mining properties, unless (a) previously authorized by debenture holders representing at least the majority of outstanding debentures; or (b) if the redemption of debenture is guaranteed to debenture holders who wish to redeem them, according to the terms of the Deed of Debentures that they hold; or (c) if all requirements set forth in the Deed of Debentures have been met, requirements that include, but are not limited to, the agreement and fulfillment of all obligations set forth in the Deed of Debentures by the company receiving the assets to contracting new debt: None. ▪ issuing new securities: None. ▪ corporate deals involving the issuer, controlling company or subsidiaries: consist of immediate maturity events: (a) reduction of the Company's share capital, unless previously authorized by the debenture holders, (b) changes in the Company's corporate format from a joint-stock company to a limited company, (c) divestiture, merger, incorporation (only when the Company is incorporated) or share incorporation (only when shares issued by the company are incorporated) of the Company, except upon approval of debenture holders or pursuant to the Deed of Debenture; (d) amendment of the Company's corporate purpose provided that, as a result, the Company no longer engages in mining activities. The fiduciary agent: Pentágono S.A. Distribuidora de Títulos e Valores Mobiliários. Major contractual obligations: (i) accompany the frequency in the submission of mandatory information, alerting the Debenture holders about possible omissions or inaccuracies in such information; (ii) issue opinion on the sufficiency of information in the proposals to alter the Debenture terms; (iii) request, when needed, extraordinary audits at the Company; and (iv) call, when needed, the general meeting of Debenture holders.

Security	**Debentures 8th Issuance**
Characteristics of securities	Due to the system's restrictions, the "Characteristics of the Securities" are available in item 18.12 of this Reference Form. Simple, nominal, and book debentures, with no guarantees, in 4 series, where: (i) the 1st series is comprised of 600,000 debentures, adjusted by the IPCA,

	with interest rate at 6.46% per annum and maturity on January 15, 2021; (ii) the 2nd series is comprised of 150,000 debentures, adjusted by the IPCA, with interest rate at 6.57% per annum and maturity on January 15, 2024; (iii) the 3rd series is comprised of 100,000 debentures adjusted by the IPCA, with interest rate at 6.71% per annum and maturity on January 15, 2026; and (iv) the 4th series is comprised of 150,000 debentures, adjusted by the IPCA, with interest rate at 6.78% per annum and maturity on January 15, 2029. *Main Events Related to Automatic Early Maturity:* I. default related to monetary obligation due to the Debenture holder under the terms in the Deed of Issuance, which is not solved within two working days from the date of default; II. any type of assignment or promise of assignment to third parties, by the Company, of any of its obligations set forth in the Deed of Issuance, as a whole or in part, except upon prior authorization by the Debenture holders representing at least 90% of the outstanding Debentures; III. liquidation, dissolution and/or extinction of the Company, except when the liquidation, dissolution and/or extinction is result of an operation that is not a Default Event, under the terms permitted by item VII in "Events Related to Non-Automatic Early Maturity"; and other circumstances provided for in the Deed of Issuance. Main Events Related to Non-Automatic Early Maturity: I. default by the Company related to non-monetary obligation provided for in the Deed of Issuance, which is not solved within 60 days from the date of default, except when there is a specific term for cure or for any of the other Default Events (as defined in the Deed of Issuance); II. reduction of the Company capital stock, except upon prior authorization by Debenture holders representing at least the majority of outstanding Debentures; III. change to the Company corporate purpose, provided that, consequently, the Company is no longer engaged in mining activities; IV. evidence that any of the Statements made by the Company in the Deed of Issuance is false or inaccurate in any relevant aspect; V. default by the Company or Relevant Subsidiary, which is not solved, in any contract, instrument, or document, evidencing outstanding Indebtedness (as defined in the Deed of Issuance), in amount equal or higher than R$250,000,000.00, updated annually based on IGPM, or equivalent in other currency, provided that such default results in the effective early maturity of such Indebtedness; VI. bankruptcy of the Company and/or any relevant subsidiary (as defined in the Deed of Debenture); (b) voluntary bankruptcy of the Company and/or any relevant subsidiary; (c) involuntary bankruptcy of the Company and/or any relevant subsidiary, filed by third parties, not elided in the legal deadline; or (d) request for judicial or extrajudicial recovery by the company and/or any relevant subsidiary, not contingent on approval of the respective request, and other provisions set forth in the Deed of Debentures.

	Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: None. ▪ disposal of determined assets: Vale may not dispose of all or nearly all of its assets or mining properties, unless (a) previously authorized by debenture holders representing at least the majority of outstanding debentures; or (b) if the redemption of debenture is guaranteed to debenture holders who wish to redeem them, according to the terms of the Deed of Debentures that they hold; or (c) if all requirements set forth in the Deed of Debentures have been met, requirements that include, but are not limited to, the agreement and fulfillment of all obligations set forth in the Deed of Debentures by the company receiving the assets to contracting new debt: None. ▪ issuing new securities: None. ▪ corporate deals involving the issuer, controlling company or subsidiaries: consist of immediate maturity events: (a) reduction of the Company's share capital, unless previously authorized by the debenture holders, (b) changes in the Company's corporate format from a joint-stock company to a limited company, (c) divestiture, merger, incorporation (only when the Company is incorporated) or share incorporation (only when shares issued by the company are incorporated) of the Company, except upon approval of debenture holders or pursuant to the Deed of Debenture; (d) amendment of the Company's corporate purpose provided that, as a result, the Company no longer engages in mining activities. The fiduciary agent: Pentágono S.A. Distribuidora de Títulos e Valores Mobiliários. Major contractual obligations: (i) accompany the frequency in the submission of mandatory information, alerting the Debenture holders about possible omissions or inaccuracies in such information; (ii) issue opinion on the sufficiency of information in the proposals to alter the Debenture terms; (iii) request, when needed, extraordinary audits at the Company; and (iv) call, when needed, the general meeting of Debenture holders.

Security	**Debentures BNDESPAR – 1st Issue**
Characteristics of securities	Due to the system's restrictions, the "Characteristics of the Securities" are available in item 18.12 of this Reference Form. Debentures issued by Vale S.A., privately, and which have been fully subscribed by BNDES Participações S.A. The operation is aimed at financing the expansion project of Ferrovia Norte Sul. I. Maturity date: December 17, 2027 II. In case of Immediate Maturity: In addition to the assumptions referred to in Articles 39, 40 and 47a of the Provisions Applicable to BNDES Agreements, the debenture

	holders may declare early maturity for all debentures and demand payment, from Vale, of the debt relative to the balance of the debentures, plus interest and other charges which are liable up to the date of payment, in the following events, among others: (a) failure by Vale to fulfill any monetary obligation related to the debentures not remedied within 10 business days counting from their respective date of maturity; (b) Vale bankruptcy filed by third parties and not suppressed by Vale within the legal period, request for judicial or extrajudicial recovery made by Vale or, still, Vale's voluntary bankruptcy; (c) dissolution and liquidation of VALE; (d) failure to correct any default of any non-monetary obligation as provided in the Deed, within 45 days; (f) declaration of acceleration of any debt of Vale by reason of breach of contract in whose individual amount is equal to or greater than R$125,000,000.00 or whose added value, in a period of 12 consecutive months is equal to or greater than R$1,000,000,000.00. The amount in this item shall be updated monthly counting from the Issuing Date based on the General Price Index-Market rate issued by Fundação Getúlio Vargas (IGPM); f) inclusion of mechanisms in Vale' articles of incorporation or bylaws requiring: (i) a special quorum for deliberation or approval of matters limiting or restricting the control of Vale by the respective controlling companies; (ii) restrictions on the growth capacity of Vale or its technological development; (iii) restrictions on Vale's access to new markets; or (iv) restrictions or loss of the ability to pay financial obligations under the Deed of Debenture; g) finding that the statements made in the Deed, by Vale, in any relevant aspect, were false or misleading or even incorrect or incomplete on the date they were made; h) changes to Vale's corporate purpose, unless previously approved by debentures holders representing the majority of debentures in circulation; i) if Vale approves reductions in share capital with repayment to shareholders of part of the value of the shares or by decreasing their value, when not paid, to the amount of the input, without prior written approval by debenture holders representing a majority of DEBENTURES in circulations; j) if (i) Vale's direct share control is in any way changed, unless previously approved by debentures holders representing the majority of outstanding debentures; or (ii) Vale's direct share control is changed in noncompliance with the assumptions of changes in indirect control, without the prior written consent of debenture holders, Vale is committed to presenting, within two months counting from the date of said change, a surety letter, which shall be accepts are the debenture holders' discretion; k) Vale's noncompliance with obligation of not providing collateral to other creditors, without guarantee of equal quality to the issuing with equal priority of payment, unless previously approved by debenture holders representing a majority of the debentures in circulation;

	l) if Vale does not use the proceeds from the issuance for the capitalization of FNS, within 3 business days of payment of the debentures; and m) if Vale does not redeem the debentures pursuant to the deadlines and terms set forth in the DEED; n) if it does not provide, in the event that the levels established are not met, within 60 days from the date the written notification from BNDS is received, collateral accepted by BNDES, in the amount corresponding to at least 130% of the value of the debt, unless, within that period, the levels described below are restored: - Adjusted EBITDA debt ratio less than or equal to 4.5 (noting that only relative to the calculations to be performed on the basis of financial results for the fiscal years 2015 and 2016, shall prevail the rate of 5.5); and - Adjusted EBITDA ratio of Interest Expense greater than or equal to 2.0. III. Interest: TJLP + 0.8% per annum IV. Guarantee: None. V. In the absence of any guarantee, if the credit is secured or subordinate: Unsecured. VI. Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: None. ▪ disposal of determined assets: Vale may dispose of any assets if, at its discretion, this act is desirable to conduct its business and does not adversely affect Vale's ability to honor its obligations under the Deed. ▪ contracting of new debt: None. ▪ issuing new securities: None. ▪ corporate deals involving the issuer, controlling company or subsidiaries: fall under the events of early maturity listed in items (f), (h), (i) and (j) above. VII. The fiduciary agent: None.

Security	**Debentures BNDESPAR – 2nd Issue**
Characteristics of securities	Due to the system's restrictions, the "Characteristics of the Securities" are available in item 18.12 of this Reference Form. Debentures issued by Vale S.A., privately, and which have been fully subscribed by BNDES Participações S.A. The operation is aimed at financing the expansion project of Ferrovia Norte Sul. II. Maturity date: December 17, 2027 II. In case of Immediate Maturity: In addition to the assumptions referred to in Articles 39, 40 and 47a of the Provisions Applicable to BNDES Agreements, the debenture holders may declare early maturity for all debentures and demand payment, from Vale, of the debt relative to the

	balance of the debentures, plus interest and other charges which are liable up to the date of payment, in the following events, among others: (a) failure by Vale to fulfill any monetary obligation related to the debentures not remedied within 10 business days counting from their respective date of maturity; (b) Vale bankruptcy filed by third parties and not suppressed by Vale within the legal period, request for judicial or extrajudicial recovery made by Vale or, still, Vale's voluntary bankruptcy; (c) dissolution and liquidation of VALE; (d) failure to correct any default of any non-monetary obligation as provided in the Deed, within 45 days; (f) declaration of acceleration of any debt of Vale by reason of breach of contract in whose individual amount is equal to or greater than R$125,000,000.00 or whose added value, in a period of 12 consecutive months is equal to or greater than R$1,000,000,000.00. The amount in this item shall be updated monthly counting from the Issuing Date based on the General Price Index-Market rate issued by Fundação Getúlio Vargas (IGPM); f) inclusion of mechanisms in Vale' articles of incorporation or bylaws requiring: (i) a special quorum for deliberation or approval of matters limiting or restricting the control of Vale by the respective controlling companies; (ii) restrictions on the growth capacity of Vale or its technological development; (iii) restrictions on Vale's access to new markets; or (iv) restrictions or loss of the ability to pay financial obligations under the Deed of Debenture; g) finding that the statements made in the Deed, by Vale, in any relevant aspect, were false or misleading or even incorrect or incomplete on the date they were made; h) changes to Vale's corporate purpose, unless previously approved by debentures holders representing the majority of debentures in circulation; i) if Vale approves reductions in share capital with repayment to shareholders of part of the value of the shares or by decreasing their value, when not paid, to the amount of the input, without prior written approval by debenture holders representing a majority of DEBENTURES in circulations; j) if (i) Vale's direct share control is in any way changed, unless previously approved by debentures holders representing the majority of outstanding debentures; or (ii) Vale's direct share control is changed in noncompliance with the assumptions of changes in indirect control, without the prior written consent of debenture holders, Vale is committed to presenting, within two months counting from the date of said change, a surety letter, which shall be accepts are the debenture holders' discretion; k) Vale's noncompliance with obligation of not providing collateral to other creditors, without guarantee of equal quality to the issuing with equal priority of payment, unless previously approved by debenture holders representing a majority of the debentures in circulation; l) if Vale does not use the proceeds from the issuance for the capitalization of FNS, within 3 business days of payment of the debentures;

	m) if Vale does redeem the debentures pursuant to the deadlines and terms set forth in the DEED; n) if it does not provide, in the event that the levels established are not met, within 60 days from the date the written notification from BNDS is received, collateral accepted by BNDES, in the amount corresponding to at least 130% of the value of the debt, unless, within that period, the levels described below are restored: - Adjusted EBITDA debt ratio less than or equal to 4.5 (noting that only relative to the calculations to be performed on the basis of financial results for the fiscal years 2015 and 2016, shall prevail the rate of 5.5); and - Adjusted EBITDA ratio of Interest Expense greater than or equal to 2.0. III. Interest: TJLP + 0.8% per annum IV. Guarantee: None. V. In the absence of any guarantee, if the credit is secured or subordinate: Unsecured. VI. Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: None. ▪ disposal of determined assets: Vale may dispose of any assets if, at its discretion, this act is desirable to conduct its business and does not adversely affect Vale's ability to honor its obligations under the Deed. ▪ contracting of new debt: None. ▪ issuing new securities: None. ▪ corporate deals involving the issuer, controlling company or subsidiaries: fall under the events of early maturity listed in items (f), (h), (i) and (j) above. VII. The fiduciary agent: None.

Security	**Debentures BNDESPAR – 3rd Issue**
Characteristics of securities	Due to the system's restrictions, the "Characteristics of the Securities" are available in item 18.12 of this Reference Form. Debentures issued by Vale S.A., privately, and which have been fully subscribed by BNDES Participações S.A. The operation is aimed at financing the expansion project of Ferrovia Norte Sul. III. Maturity date: December 17, 2027 II. In case of Immediate Maturity: In addition to the assumptions referred to in Articles 39, 40 and 47a of the Provisions Applicable to BNDES Agreements, the debenture holders may declare early maturity for all debentures and demand payment, from Vale, of the debt relative to the balance of the debentures, plus interest and other charges which are liable up to the date of payment, in the following events, among others:

	(a) failure by Vale to fulfill any monetary obligation related to the debentures not remedied within 10 business days counting from their respective date of maturity; (b) Vale bankruptcy filed by third parties and not suppressed by Vale within the legal period, request for judicial or extrajudicial recovery made by Vale or, still, Vale's voluntary bankruptcy; (c) dissolution and liquidation of VALE; (d) failure to correct any default of any non-monetary obligation as provided in the Deed, within 45 days; (f) declaration of acceleration of any debt of Vale by reason of breach of contract in whose individual amount is equal to or greater than R$125,000,000.00 or whose added value, in a period of 12 consecutive months is equal to or greater than R$1.000.000.000,00. The amount in this item shall be updated monthly counting from the Issuing Date based on the General Price Index-Market rate issued by Fundação Getúlio Vargas (IGPM); f) inclusion of mechanisms in Vale' articles of incorporation or bylaws requiring: (i) a special quorum for deliberation or approval of matters limiting or restricting the control of Vale by the respective controlling companies; (ii) restrictions on the growth capacity of Vale or its technological development; (iii) restrictions on Vale's access to new markets; or (iv) restrictions or loss of the ability to pay financial obligations under the Deed of Debenture; g) finding that the statements made in the Deed, by Vale, in any relevant aspect, were false or misleading or even incorrect or incomplete on the date they were made; h) changes to Vale's corporate purpose, unless previously approved by debentures holders representing the majority of debentures in circulation; i) if Vale approves reductions in share capital with repayment to shareholders of part of the value of the shares or by decreasing their value, when not paid, to the amount of the input, without prior written approval by debenture holders representing a majority of DEBENTURES in circulations; j) if (i) Vale's direct share control is in any way changed, unless previously approved by debentures holders representing the majority of outstanding debentures; or (ii) Vale's direct share control is changed in noncompliance with the assumptions of changes in indirect control, without the prior written consent of debenture holders, Vale is committed to presenting, within two months counting from the date of said change, a surety letter, which shall be accepts are the debenture holders' discretion; k) Vale's noncompliance with obligation of not providing collateral to other creditors, without guarantee of equal quality to the issuing with equal priority of payment, unless previously approved by debenture holders representing a majority of the debentures in circulation; l) if Vale does not use the proceeds from the issuance for the capitalization of FNS, within 3 business days of payment of the debentures; and m) if Vale does redeem the debentures pursuant to the deadlines and terms set forth in the DEED.

	n) if it does not provide, in the event that the levels established are not met, within 60 days from the date the written notification from BNDS is received, collateral accepted by BNDES, in the amount corresponding to at least 130% of the value of the debt, unless, within that period, the levels described below are restored: - Adjusted EBITDA debt ratio less than or equal to 4.5 (noting that only relative to the calculations to be performed on the basis of financial results for the fiscal years 2015 and 2016, shall prevail the rate of 5.5); and - Adjusted EBITDA ratio of Interest Expense greater than or equal to 2.0. III. Interest: TJLP + 0.8% per annum IV. Guarantee: None. V. In the absence of any guarantee, if the credit is secured or subordinate: Unsecured. VI. Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: None. ▪ disposal of determined assets: Vale may dispose of any assets if, at its discretion, this act is desirable to conduct its business and does not adversely affect Vale's ability to honor its obligations under the Deed. ▪ contracting of new debt: None. ▪ issuing new securities: None. ▪ corporate deals involving the issuer, controlling company or subsidiaries: fall under the events of early maturity listed in items (f), (h), (i) and (j) above. VII. The fiduciary agent: None.

Following is a description of securities issued by the Company's subsidiary:

Security	**Debentures Salobo**
Quantity	5 debentures
Unit Value	R$15,250,399.93
Global Face Value	R$76,251,999.65
Outstanding Debt Balance at the end of the last fiscal year	R$1,289,286,227.59
Issuing date	January 6, 1997
Restriction to outstanding units	None
Convertibility into shares or granting the right to subscribe or acquire issuer shares	The debentures combine 5 subscription premiums giving the holder the right to subscribe to preferred shares of Salobo Metais S.A., in the amount equivalent to 50% of the shares issued existing at the time the subscribed fully paid in capital 2 times the issue value of the debentures.
Possibility of redemption	None
Characteristics of Securities	I. Maturity date: 7 years as of the achievement of accumulated commercial invoicing of 200,000 tons of copper by Salobo Metais S.A. (5 successive annual installments, formed of principal and interest due after the first 2 years after the achievement of

	accumulated commercial invoicing of 200,000 tons of grade A copper cathode of London Metals Exchange) II. In case of Immediate Maturity: None. III. Interest: IGP-DI + 6.5% per annum (capitalized) IV. Guarantee: Vale S.A. guarantee V. In the absence of any guarantee, if the credit is secured or subordinate: the debentures will be subordinate to the other creditors of the issuer VI. Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: None. ▪ disposal of determined assets: None. ▪ contracting of new debt: None. ▪ issuing new securities: None. ▪ corporate deals involving the issuer, controlling company or subsidiaries: None. VII. The fiduciary agent (indicate the key terms of the contract): None.
Conditions to alter rights assured by the securities	None.
Other relevant characteristics	Debentures issued by Salobo Metais S.A., privately, which were fully subscribed by the Banco Nacional de Desenvolvimento Econômico e Social (BNDES). When issuing shares arising from the exercise of the right of subscription, a premium will be paid corresponding to the dividends distributed to shareholders until that date, in the proportion of shares subscribed by BNDES or its assignee. In March 2015, the Salobo mine reached the production needed to start the debt payment flow, as described above.

Additional Information to items 18.7 and 18.8

Following is a description of Bonds issued by the Company and its subsidiaries.

Security	**Bonds VALE 26**
Jurisdiction	United States of America
Quantity	Bonds are issued at the minimum value of US$2,000.00, always in multiples of US$1,000.00.
Global Face Value	Bonds were issued in US$. US$1,000,000,000.00 were issued on August 10, 2016 and US$1,000,000,000.00 were issued by the reopening of existing bond on February 6, 2017, totaling US$2,000,000,000.00
Outstanding Debt Balance at the	US$1,254,079,861.11

end of the last fiscal year	
Issuing date	August 10, 2016
Restriction to outstanding units	None
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None
Possibility of redemption	I. In case of redemption: ▪ Redemption by means of payment of premium, at any time, of all notes, or part of the notes, periodically, at Vale criterion. ▪ Redemption due to changes in the tax law: if Vale is forced to maintain values greater than 15%, in the event of payment of interest over note, due to changes in the Brazilian tax law, Vale may redeem the entirety of the notes in advance. II. Formula for calculating value of redemption: ▪ The redemption value will be 100% of the principal value or the sum of the current value of the interest installments and the remaining principal, whichever is the greatest, deducted at the date of redemption at the rate equivalent to Treasury + 0.50%. Redemption due to changes in the tax law: The redemption value will be equal to 100% of the principal value plus the interests accrued up to the date of redemption.
Characteristics of Bonds	I. Maturity date: August 10, 2026 II. In case of Immediate Maturity: If a default event occurs, which is not corrected or condoned, the trustee, as instructed by at least 25% of the note holders for the value of the principal showing an open debt, must declare the principal value, the interests accrued and any amount unpaid immediately due. The default events are described in the deed of issuance, including, but not limited to: ▪ failure to pay interests, principal or premium, if any. ▪ in relation to Vale, its relevant subsidiaries (subsidiaries with total assets exceeding 10% of the total consolidated assets of the group at the end of each fiscal year), and Vale Overseas: the occurrence of any default, in any transaction characterized as debt, that exceeds, in total, US$100 million and this default results in the effective acceleration of the debt. ▪ failure from Vale or Vale Overseas to comply with its covenants in relation to the note and this failure persists 90 days after Vale or Vale Overseas has received communication from the trustee or from at least 25% of the note holders reporting the noncompliance of the obligations. These obligations include, but are not limited to: (a) obligation not to conduct a merger or sale of the entirety of the assets or a significant part of the assets of Vale or Vale Overseas, with some exceptions and (b) limitations to granting collateral in debt transactions, with some permitted exceptions.

	▪ insolvency or bankruptcy. ▪ notes issued by Vale Overseas become illegal, generating the acceleration of over US$100 million total. ▪ the collateral becomes invalid or unenforceable. III. Interest: 6.250% per annum IV. Guarantee: There is no granting of collateral. Vale irrevocably and unconditionally guarantees the total payment of principal, interest, and other amounts due, in the event of lack of payment by Vale Overseas. V. If the credit is secured or subordinate: Not applicable VI. Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: There are no restrictions on dividend distribution by Vale. However, Vale Overseas may not declare or pay any dividends, without the trustee's consent, as instructed by at least 25% of the note holders for the value of the principal showing an open debt. ▪ disposal of determined assets: Vale and Vale Overseas may not, without the consent from the majority of the note holders, participate in a merger with another company or transfer all or a significant part of its assets to a third party, except, however that: (i) the company created by this consolidation or a third party that acquired said assets undertakes to make timely payments of the principal and interests and other obligations from Vale and Vale Overseas in the deed of issuance; (ii) no default event occurs as a result of the transaction; and (iii) Vale or Vale Overseas, as applicable, provide their trustee with a certification and a legal opinion attesting that the consolidation or transfer of assets meet the requirements set forth in item (ii). ▪ contracting of new debt: there are no restrictions to contracting new debts by Vale. Vale Overseas may issue debts instruments within the scope of the deed of issuance, but Vale Overseas may not contract any other type of loan or financing. ▪ issuing new securities: Vale Overseas may issue, without the consent from the note holders, new notes according to the terms and conditions applicable to Bond VALE 2026. In addition, Vale Overseas may issue new notes under other terms and conditions. Vale has the right to guarantee, without the consent from the note holders, its subsidiaries' debts and issue its own debt. ▪ corporate deals involving the issuer, controlling company or subsidiaries:

	○ Vale Overseas and Vale may not consolidate or merge with any other entity or, (a) in the case of Vale Overseas, transfer all or nearly all of its properties or assets to any other entity or (b) in the case of Vale, transfer all or nearly all of its mining properties or assets to any other entity without the consent of more than 50% of the note holders in amount of the outstanding principal, unless the corporation created or that substantially acquired all the assets or all properties expressly becomes liable as the successor corporation for all the obligations of Vale Overseas and/or Vale. ○ Vale Overseas will do everything it can to preserve its legal existence updated in the Cayman Islands. ○ Vale shall always, directly or indirectly own 100% of the share capital of Vale Overseas. ○ Vale Overseas may not (i) engage in any business that is not related to the issuance of bonds or acquire and hold securities for the payment of bonds; (ii) have any subsidiary; or (iii) consolidate or merge with any other entity without the consent of the trustee under the guidance of at least 25% of the note holders in the amount of the outstanding principal. Vale and Vale Overseas shall not be able to create or approve any amendments Vale Overseas' articles of incorporation allowing Vale Overseas to engage in any other activity without the consent of the trustee under the guidance of at least 25% of note holders in the amount of the outstanding principal. VII. The fiduciary agent (indicate the key terms of the contract): The Bank of New York Mellon acts as a trustee, registrar, paying agent and transfer agent of the notes within the scope of the deed of issuance and its main role is to secure investors' rights.
Conditions to alter rights assured by the securities	The deed of issuance, allows, at any time, with some exceptions, the amendment the rights and obligations of Vale and the investors' in the notes. Said amendments must be executed by Vale and by the trustee upon the consent from the majority of the note holders for the value of the principal showing an open debt.
Other relevant characteristics	Bonds issued by the subsidiary Vale Overseas Ltd. The bonds are rated BBB- by Standard & Poor's Rating Services, Ba3 by Moody's Investor Services, BBB low by the Dominion Bond Rating Service, and BBB by Fitch Ratings. The net proceeds obtained from the February 2017 issuance were used to pay the redemption price of Vale's €750,000,000 bonds with a coupon rate of 4.375% and maturity in March 2018, and for the general purposes of the Company.

Security	**Bonds VALE 21**

Jurisdiction	United States of America
Quantity	Bonds are issued at the minimum value of US$2,000.00, always in multiples of US$1,000.00
Global Face Value	US$1,250,000,000.00
Outstanding Debt Balance at the end of the last fiscal year	US$1,254,079,861.11
Issuing date	June 7, 2016
Restriction to outstanding units	None
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None
Possibility of redemption	I. In case of redemption: ▪ Redemption by means of payment of premium, at any time, of all notes, or part of the notes, periodically, at Vale criterion. ▪ Redemption due to changes in the tax law: if Vale is forced to maintain values greater than 15%, in the event of payment of interest over note, due to changes in the Brazilian tax law, Vale Overseas may redeem the entirety of the notes in advance. II. Formula for calculating value of redemption: ▪ The redemption value will be 100% of the principal value or the sum of the current value of the interest installments and the remaining principal, whichever is the greatest, deducted at the date of redemption at the rate equivalent to Treasury + 0.50%. ▪ Redemption due to changes in the tax law: The redemption value will be equal to 100% of the principal value plus the interests accrued up to the date of redemption.
Characteristics of Bonds	I. Maturity date: June 10, 2021 II. In case of Immediate Maturity: if a default event occurs, which is not corrected or condoned, the trustee, as instructed by at least 25% of the note holders for the value of the principal showing an open debt, must declare the principal value, the interests accrued and any amount unpaid immediately due. The default events are described in the deed of issuance, including, but not limited to: ▪ failure to pay interests, principal or premium, if any. ▪ in relation to Vale and its subsidiaries (subsidiaries with total assets exceeding 10% of the total consolidated assets of the group at the end of each fiscal year): the occurrence of any default, in any transaction characterized as debt, that exceeds, in total, US$100 million and this default results in the effective acceleration of the debt. ▪ failure from Vale or Vale Overseas to comply with its covenants in relation to the note and this failure persists 90 days after Vale or Vale Overseas has received communication from the trustee or from at least 25% of the note holders reporting the noncompliance of the obligations. These obligations include, but are not limited to: (i) obligation not to conduct a merger or sale of the entirety of the assets or a

	significant part of the assets of Vale or Vale Overseas, with some exceptions and (ii) limitations to granting collateral in debt transactions, with some permitted exceptions. ▪ insolvency or bankruptcy. ▪ notes issued by Vale Overseas become illegal, generating the acceleration of over US$100 million total. ▪ the collateral becomes invalid or unenforceable. III. Interest: 5.875% per annum. IV. Guarantee: There is no granting of collateral. Vale irrevocably and unconditionally guarantees the total payment of principal, interest, and other amounts due, in the event of lack of payment by Vale Overseas. V. If the credit is secured or subordinate: Not applicable VI. Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: There are no restrictions on dividend distribution by Vale. However, Vale Overseas may not declare or pay any dividends, without the trustee's consent, as instructed by at least 25% of the note holders for the value of the principal showing an open debt. ▪ disposal of determined assets: Vale and Vale Overseas may not, without the consent from the majority of the note holders, participate in a merger with another company or transfer all or a significant part of its assets to a third party, except, however that: (i) the company created by this consolidation or a third party that acquired said assets undertakes to make timely payments of the principal and interests and other obligations from Vale and Vale Overseas in the deed of issuance; (ii) no default event occurs as a result of the transaction; and (iii) Vale or Vale Overseas provide their trustee with a certification and a legal opinion attesting that the consolidation or transfer of assets meet the requirements set forth in item (ii). ▪ contracting of new debt: there are no restrictions to contracting new debts by Vale. Vale Overseas may issue debts instruments within the scope of the deed of issuance, but Vale Overseas may not contract any other type of loan or financing. ▪ issuing new securities: Vale Overseas may issue, without the consent from the note holders, new notes according to the terms and conditions applicable to Bond VALE21. In addition, Vale Overseas may issue new notes under other terms and conditions. Vale has the right to guarantee, without the consent from the note holders, its subsidiaries' debts and issue its own debt.

	▪ corporate deals involving the issuer, controlling company or subsidiaries: ○ Vale Overseas and Vale may not consolidate or merge with any other entity or, (a) in the case of Vale Overseas, transfer all or nearly all of its properties or assets to any other entity or (b) in the case of Vale, transfer all or nearly all of its mining properties or assets to any other entity without the consent of more than 50% of the note holders in amount of the outstanding principal, unless the corporation created or that substantially acquired all the assets or all properties expressly becomes liable as the successor corporation for all the obligations of Vale Overseas and/or Vale. ○ Vale Overseas will do everything it can to preserve its legal existence updated in the Cayman Islands. ○ Vale shall always, directly or indirectly own 100% of the share capital of Vale Overseas. ○ Vale Overseas may not (i) engage in any business that is not related to the issuance of bonds or acquire and hold securities for the payment of bonds; (ii) have any subsidiary; or (iii) consolidate or merge with any other entity without the consent of the trustee under the guidance of at least 25% of the note holders in the amount of the outstanding principal. ○ Vale and Vale Overseas shall not be able to create or approve any amendments Vale Overseas' articles of incorporation allowing Vale Overseas to engage in any other activity without the consent of the trustee under the guidance of at least 25% of note holders in the amount of the outstanding principal. VII. The fiduciary agent (indicate the key terms of the contract): The Bank of New York Mellon acts as a trustee, registrar, paying agent and transfer agent of the notes within the scope of the deed of issuance and its main role is to secure investors' rights.
Conditions to alter rights assured by the securities	The deed of issuance, allows, at any time, with some exceptions, the amendment the rights and obligations of Vale and the investors' in the notes. Said amendments must be executed by Vale and by the trustee upon the consent from the majority of the note holders for the value of the principal showing an open debt
Other relevant characteristics	Bonds issued by the subsidiary Vale Overseas Ltd. The bonds are rated BBB- by Standard & Poor's Rating Services, Ba3 by Moody's Investor Services, BBB low by the Dominion Bond Rating Service, and BBB by Fitch Ratings. Vale used the net proceeds from said issuance for corporate purposes in general, including debt amortization.

Security	**Bonds VALE42**
Jurisdiction	United States of America
Quantity	Bonds are issued at the minimum value of US$2,000.00, always in multiples of US$1,000.00.

Global Face Value	US$1,500,000,000.00
Outstanding Debt Balance at the end of the last fiscal year	US$1.529.196.428,57
Issuing date	September 11, 2012
Restriction to outstanding units	None.
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None.
Possibility of redemption	I. In case of redemption: ▪ Redemption by means of payment of premium, at any time, of all notes, or part of the notes, periodically, at Vale criterion. ▪ Redemption due to changes in the tax law: if Vale is forced to maintain values greater than 15%, in the event of payment of interest over note, due to changes in the Brazilian tax law, Vale Overseas may redeem the entirety of the notes in advance. II. Formula for calculating value of redemption: ▪ The redemption value will be 100% of the principal value or the sum of the current value of the interest installments and the remaining principal, whichever is the greatest, deducted at the date of redemption at the rate equivalent to Treasury + 0.45%. ▪ Redemption due to changes in the tax law: The redemption value will be equal to 100% of the principal value plus the interests accrued up to the date of redemption.
Characteristics of Bonds	I. Maturity date: September 11, 2042 II. In case of Immediate Maturity: if a default event occurs, which is not corrected or condoned, the trustee, as instructed by at least 25% of the note holders for the value of the principal showing an open debt, must declare the principal value, the interests accrued and any amount unpaid immediately due. The default events are described in the deed of issuance, including, but not limited to: ▪ failure to pay interests, principal or premium, if any. ▪ in relation to Vale and its subsidiaries (subsidiaries with total assets exceeding 10% of the total consolidated assets of the group at the end of each fiscal year): the occurrence of any default, in any transaction characterized as debt, that exceeds, in total, US$100 million and this default results in the effective acceleration of the debt. ▪ failure from Vale to comply with its covenants in relation to the note and this failure persists 60 days after Vale has received communication from the trustee or from at least 25% of the note holders reporting the noncompliance of the obligations. These obligations include, but are not limited to: (i) obligation not to conduct a merger or sale of the entirety of the assets or a significant part of the assets of Vale, with some exceptions and (ii) limitations to granting collateral in debt transactions, with some permitted exceptions. ▪ insolvency or bankruptcy.

	▪ notes issued by Vale Overseas become illegal, generating the acceleration of over US$100 million total. ▪ the collateral becomes invalid or unenforceable. III. Interest: 5.625% per annum. IV. Guarantee: There is no granting of collateral. V. If the credit is secured or subordinate: not applicable VI. Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: There are no restrictions on dividend distribution by Vale. ▪ disposal of determined assets: Vale may not, without the consent from the majority of the note holders, participate in a merger with another company or transfer all or a significant part of its assets to a third party, except, however that: (i) the company created by this consolidation or a third party that acquired said assets undertakes to make timely payments of the principal and interests and other obligations from Vale in the deed of issuance; (ii) no default event occurs as a result of the transaction; and (iii) Vale, as applicable, provide their trustee with a certification and a legal opinion attesting that the consolidation or transfer of assets meet the requirements set forth in item (ii). ▪ contracting of new debt: there are no restrictions to contracting new debts by Vale. ▪ issuing new securities: Vale may issue, without the consent from the note holders, new notes according to the terms and conditions applicable to Bond VALE 42. In addition, Vale may issue new notes under other terms and conditions. Vale has the right to guarantee, without the consent from the note holders, its subsidiaries' debts and issue its own debt. ▪ corporate deals involving the issuer, controlling company or subsidiaries: ▪ Vale may not consolidate or merge with any other company and it may not transfer all or a substantial number of its mining properties or assets without consent from more than 50% of the note holders in the outstanding principal, except when the new corporation or the corporation that substantially acquires all assets or all properties expressly become liable as the successor for all Vale obligations. VII. The fiduciary agent (indicate the key terms of the contract): The Bank of New York Mellon acts as a trustee, registrar, paying agent and transfer agent of the notes within the scope of the deed of issuance and its main role is to secure investors' rights, and the Bank of New York Mellon Trust (Japan), Ltd. is the main paying agent.

Conditions to alter rights assured by the securities	The deed of issuance, allows, at any time, with some exceptions, the amendment the rights and obligations of Vale and the investors' in the notes. Said amendments must be executed by Vale and by the trustee upon the consent from the majority of the note holders for the value of the principal showing an open debt.
Other relevant characteristics	Bond issued by Vale S.A.

Security	**Bonds VALED22**
Jurisdiction	United States of America
Quantity	Bonds are issued at the minimum value of US$2,000.00, always in multiples of US$1,000.00
Global Face Value	Bonds were issued in US$. US$1,000,000,000.00 were issued on January 11, 2012 and US$1,250,000,000.00 were issued by the reopening of existing bond on April 4, 2012, totaling US$2,250,000,000.00
Outstanding Debt Balance at the end of the last fiscal year	US$2,296,210,937.49
Issuing date	January 11, 2012
Restriction to outstanding units	None
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None
Possibility of redemption	I. In case of redemption: ▪ Redemption by means of payment of premium, at any time, of all notes, or part of the notes, periodically, at Vale Overseas criterion. ▪ Redemption due to changes in the tax law: Vale Overseas may redeem the entirety of the notes in advance if Vale or Vale Overseas is forced to maintain values greater than 15%, in the event of payment of interest over note, due to changes in the Brazilian or Cayman tax law. II. Formula for calculating value of redemption: ▪ The redemption value will be 100% of the principal value or the sum of the current value of the interest installments and the remaining principal, whichever is the greatest, deducted at the date of redemption at the rate equivalent to Treasury + 0.40%. ▪ Redemption due to changes in the tax law: The redemption value will be equal to 100% of the principal value plus the interests accrued up to the date of redemption.
Characteristics of Bonds	I. Maturity date: January 11, 2022 II. In case of Immediate Maturity: if a default event occurs, which is not corrected or condoned, the trustee, as instructed by at least 25% of the note holders for the value of the principal showing an open debt, must declare the principal value, the interests accrued and any

	amount unpaid immediately due. The default events are described in the deed of issuance, including, but not limited to: ▪ failure to pay interests, principal or premium, if any. ▪ in relation to Vale, its relevant subsidiaries (subsidiaries with total assets exceeding 10% of the total consolidated assets of the group at the end of each fiscal year), and Vale Overseas: the occurrence of any default, in any transaction characterized as debt, that exceeds, in total, US$50 million and this default results in the effective acceleration of the debt. ▪ failure from Vale or Vale Overseas to comply with its covenants in relation to the note and this failure persists 60 days after Vale or Vale Overseas has received communication from the trustee or from at least 25% of the note holders reporting the noncompliance of the obligations. These obligations include, but are not limited to: (a) obligation not to conduct a merger or sale of the entirety of the assets or a significant part of the assets of Vale or Vale Overseas, with some exceptions and (b) limitations to granting collateral in debt transactions, with some permitted exceptions. ▪ insolvency or bankruptcy. ▪ notes issued by Vale Overseas become illegal, generating the acceleration of over US$50 million total. ▪ the collateral becomes invalid or unenforceable. III. Interest: 4.375% per annum. IV. Guarantee: There is no granting of collateral. Vale guarantees, irrevocably and unconditionally, the full payment of the principal, interests and other amounts owed in relation to this note, in the event Vale Overseas fails to pay. V. If the credit is secured or subordinate: not applicable VI. Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: There are no restrictions on dividend distribution by Vale. However, Vale Overseas may not declare or pay any dividends, without the trustee's consent, as instructed by at least 25% of the note holders for the value of the principal showing an open debt. ▪ disposal of determined assets: Vale and Vale Overseas may not, without the consent from the majority of the note holders, participate in a merger with another company or transfer all or a significant part of its assets to a third party, except, however that: (i) the company created by this consolidation or a third party that acquired said assets undertakes to make timely payments of the principal and interests and other obligations from Vale and Vale Overseas in the deed of issuance; (ii) no default event occurs as a result of the transaction; and (iii) Vale or Vale Overseas, as applicable, provide their trustee with a certification and a legal opinion attesting

	that the consolidation or transfer of assets meet the requirements set forth in item (ii). ▪ contracting of new debt: there are no restrictions to contracting new debts by Vale. Vale Overseas may issue debts instruments within the scope of the deed of issuance, but Vale Overseas may not contract any other type of loan or financing. ▪ issuing new securities: Vale Overseas may issue, without the consent from the note holders, new notes according to the terms and conditions applicable to Bond VALE 2022. In addition, Vale Overseas may issue new notes under other terms and conditions. Vale has the right to guarantee, without the consent from the note holders, its subsidiaries' debts and issue its own debt. ▪ corporate deals involving the issuer, controlling company or subsidiaries: ▪ Vale Overseas and Vale may not consolidate or merge with any other entity or, (a) in the case of Vale Overseas, transfer all or nearly all of its properties or assets to any other entity or (b) in the case of Vale, transfer all or nearly all of its mining properties or assets to any other entity without the consent of more than 50% of the note holders in amount of the outstanding principal, unless the corporation created or that substantially acquired all the assets or all properties expressly becomes liable as the successor corporation for all the obligations of Vale Overseas and/or Vale. ▪ Vale Overseas will do everything it can to preserve its legal existence updated in the Cayman Islands. ▪ Vale shall always, directly or indirectly own 100% of the share capital of Vale Overseas. ▪ Vale Overseas may not (i) engage in any business that is not related to the issuance of bonds or acquire and hold securities for the payment of bonds; (ii) have any subsidiary; or (iii) consolidate or merge with any other entity without the consent of the trustee under the guidance of at least 25% of the note holders in the amount of the outstanding principal. ▪ Vale and Vale Overseas shall not be able to create or approve any amendments Vale Overseas' articles of incorporation allowing Vale Overseas to engage in any other activity without the consent of the trustee under the guidance of at least 25% of note holders in the amount of the outstanding principal. VII. The fiduciary agent (indicate the key terms of the contract): The Bank of New York Mellon acts as a trustee of the notes within the scope of the deed of issuance and its main role is to secure investors' rights.
Conditions to alter rights assured by the securities	The deed of issuance allows to amend the rights and obligations of Vale Overseas and the investors' in the notes. Said amendments must be executed upon consent from 100% or the majority of the note holders for the value of the principal showing an open debt, according to the type of amendment. Some non-material clarifications or amendments may be made without the consent from the note holders.

Other relevant characteristics	Bonds issued by the subsidiary Vale Overseas Ltd.

Security	**Eurobond VALE23**
Jurisdiction	United States of America
Quantity	Bonds are issued at the minimum value of EUR100,000.00, always in multiples of EUR1,000.00, above that value.
Global Face Value	EUR750,000,000.00
Outstanding Debt Balance at the end of the last fiscal year	EUR777,354,452.06
Issuing date	July 10, 2012
Restriction to outstanding units	None.
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None.
Possibility of redemption	I. In case of redemption: ▪ Redemption by means of payment of premium, at any time, of all bonds or part of the bonds periodically, at issuer's criterion. ▪ Redemption due to changes in the tax law: if Vale is forced to maintain values greater than 15%, in the event of payment of interest over note, due to changes in the Brazilian tax law, Vale may redeem the entirety of the notes in advance. II. Formula for calculating value of redemption: ▪ Redemption by means of payment of premium: The redemption value will be 100% of the principal value or the sum of the current value of the interest installments and the remaining principal, whichever is the greatest, deducted at the date of redemption at the rate equivalent to Bund Rate ("German Bund" instruments) + 0.45%. ▪ Redemption due to changes in the tax law: The redemption value will be equal to 100% of the principal value plus the interests accrued up to the date of redemption.
Characteristics of Bonds	I. Maturity date: January 10, 2023 II. In case of Immediate Maturity: if a default event occurs, which is not corrected or condoned, the trustee, as instructed by at least 25% of the note holders for the value of the principal showing an open debt, must declare the principal value, the interests accrued and any amount unpaid immediately due. The default events are described in the deed of issuance, including, but not limited to: ▪ failure to pay interests, principal or premium, if any. ▪ in relation to Vale and its relevant subsidiaries (subsidiaries with total assets exceeding 10% of the total consolidated assets of the group at the end of each fiscal year): the occurrence of any default, in any transaction characterized as debt, that exceeds, in total, US$50 million and this default results in the effective acceleration of the debt. ▪ failure from Vale to comply with its covenants in relation to the note and this failure persists 60 days after Vale has received

	communication from the trustee or from at least 25% of the note holders reporting the noncompliance of the obligations. These obligations include, but are not limited to: (i) obligation not to conduct a merger or sale of the entirety of the assets or a significant part of the assets of Vale, with some exceptions and (ii) limitations to granting collateral in debt transactions, with some permitted exceptions. ▪ insolvency or bankruptcy. ▪ notes issued by Vale Overseas Limited become illegal, generating the acceleration of over US$50 million total. III. Interest: 3.75% per annum. IV. Guarantee: The notes are obligations unsecured by Vale and do not hold privileges over other Vale unsecured debts. V. If the credit is secured or subordinate: not applicable VI. Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: There are no restrictions on dividend distribution by Vale. ▪ disposal of determined assets: Vale may not, without the consent from the majority of the note holders, participate in a merger with another company or transfer all or a significant part of its assets to a third party, except, however that: (i) the company created by this consolidation or a third party that acquired said assets undertakes to make timely payments of the principal and interests and other obligations from Vale in the deed of issuance; (ii) no default event occurs as a result of the transaction; and (iii) Vale, as applicable, provide their trustee with a certification and a legal opinion attesting that the consolidation or transfer of assets meet the requirements set forth in item (ii). ▪ contracting of new debt: there are no restrictions to contracting new debts by Vale. ▪ issuing new securities: Vale may issue, without the consent from the note holders, new notes according to the terms and conditions applicable to Eurobonds VALE23. In addition, Vale may issue new notes under other terms and conditions. Vale is entitled to collateralize debts by its subsidiaries, without consent by the holders. ▪ corporate deals involving the issuer, controlling companies or subsidiaries: Vale may not consolidate or merge with any other company and it may not transfer all or a substantial number of its mining properties or assets without consent from more than 50% of the note holders in the outstanding principal, except when the new corporation or the corporation that substantially acquires all assets or all properties expressly become liable as the successor for all Vale obligations. VII. The fiduciary agent (indicate the key terms of the contract): The Bank of New York Mellon acts as a trustee, registrar, paying agent and transfer agent of the notes within the scope of the deed of

	issuance and its main role is to secure investors' rights. The Bank of New York Mellon Trust (Japan), Ltd. acts as main paying agent, and the Bank of New York (Luxemburg) S.A. acts as registrar in Luxembourg, paying agent and transfer agent.
Conditions to alter rights assured by the securities	The deed of issuance allows amending the rights and obligations of Vale and the investors' in the notes. Said amendments must be executed upon consent from 100% or the majority of the note holders for the value of the principal showing an open debt, according to the type of amendment. Some non-material clarifications or amendments may be made without the consent from the note holders.
Other relevant characteristics	Bond issued by Vale S.A.

Security	**Bonds VALE39**
Jurisdiction	United States of America
Quantity	Bonds are issued at the minimum value of US$2,000.00, always in multiples of US$1,000.00.
Global Face Value	US$1,000,000,000.00
Outstanding Debt Balance at the end of the last fiscal year	US$1,009,548,611.11
Issuing date	November 10, 2009
Restriction to outstanding units	None
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None
Possibility of redemption	I. In case of redemption: ▪ Redemption by means of payment of premium, at any time, of all notes, or part of the notes, periodically, at Vale Overseas criterion. ▪ Redemption due to changes in the tax law: Vale Overseas may redeem the entirety of the notes in advance if Vale or Vale Overseas are forced to maintain values greater than 15%, in the event of payment of interest over note, due to changes in the Brazilian or Cayman tax law. II. Formula for calculating value of redemption: ▪ The redemption value will be 100% of the principal value or the sum of the current value of the interest installments and the remaining principal, whichever is the greatest, deducted at the date of redemption at the rate equivalent to Treasury + 0.40%. ▪ Redemption due to changes in the tax law: The redemption value will be equal to 100% of the principal value plus the interests accrued up to the date of redemption.
Characteristics of Bonds	I. Maturity date: November 10, 2039 II. In case of Immediate Maturity: if a default event occurs, which is not corrected or condoned, the trustee, as instructed by at least 25% of the note holders for the value of the principal showing an open debt, must declare the principal value, the interests accrued and any amount unpaid immediately due. The default events are described in the deed of issuance, including, but not limited to: ▪ failure to pay interests, principal or premium, if any. ▪ in relation to Vale, its relevant subsidiaries (subsidiaries with total assets exceeding 10% of the total consolidated assets of the group at the end of each fiscal year), and Vale Overseas: the occurrence of any default, in any transaction characterized as debt, that exceeds, in total, US$50 million and this default results in the effective acceleration of the debt. ▪ failure from Vale or Vale Overseas to comply with its covenants in relation to the note and this failure persists 60 days after Vale or Vale Overseas has received communication from the trustee or from at least 25% of the note holders reporting the noncompliance of the obligations. These obligations include, but are not limited to:

	(a) obligation not to conduct a merger or sale of the entirety of the assets or a significant part of the assets of Vale or Vale Overseas, with some exceptions and (b) limitations to granting collateral in debt transactions, with some permitted exceptions. ▪ insolvency or bankruptcy. ▪ notes issued by Vale Overseas become illegal, generating the acceleration of over US$50 million total. ▪ the collateral becomes invalid or unenforceable. III. Interest: 6.875% per annum. IV. Guarantee: There is no granting of collateral. Vale guarantees, irrevocably and unconditionally, the full payment of the principal, interests and other amounts owed in relation to this note, in the event Vale Overseas fails to pay. V. If the credit is secured or subordinate: not applicable VI. Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: There are no restrictions on dividend distribution by Vale. However, Vale Overseas may not declare or pay any dividends, without the trustee's consent, as instructed by at least 25% of the note holders for the value of the principal showing an open debt. ▪ disposal of determined assets: Vale and Vale Overseas may not, without the consent from the majority of the note holders, participate in a merger with another company or transfer all or a significant part of its assets to a third party, except, however that: (i) the company created by this consolidation or a third party that acquired said assets undertakes to make timely payments of the principal and interests and other obligations from Vale and Vale Overseas in the deed of issuance; (ii) no default event occurs as a result of the transaction; and (iii) Vale or Vale Overseas, as applicable, provide their trustee with a certification and a legal opinion attesting that the consolidation or transfer of assets meet the requirements set forth in item (ii). ▪ contracting of new debt: there are no restrictions to contracting new debts by Vale. Vale Overseas may issue debts instruments within the scope of the deed of issuance, but Vale Overseas may not contract any other type of loan or financing. ▪ issuing new securities: Vale Overseas may issue, without the consent from the note holders, new notes according to the terms and conditions applicable to Bond VALE 2039. In addition, Vale Overseas may issue new notes under other terms and conditions. Vale has the right to guarantee, without the consent from the note holders, its subsidiaries' debts and issue its own debt. ▪ corporate deals involving the issuer, controlling company or subsidiaries: ▪ Vale Overseas and Vale may not consolidate or merge with any other entity or, (a) in the case of Vale Overseas, transfer

	all or nearly all of its properties or assets to any other entity or (b) in the case of Vale, transfer all or nearly all of its mining properties or assets to any other entity without the consent of more than 50% of the note holders in amount of the outstanding principal, unless the corporation created or that substantially acquired all the assets or all properties expressly becomes liable as the successor corporation for all the obligations of Vale Overseas and/or Vale. ▪ Vale Overseas will do everything it can to preserve its legal existence updated in the Cayman Islands. ▪ Vale shall always, directly or indirectly own 100% of the share capital of Vale Overseas. ▪ Vale Overseas may not (i) engage in any business that is not related to the issuance of bonds or acquire and hold securities for the payment of bonds; (ii) have any subsidiary; or (iii) consolidate or merge with any other entity without the consent of the trustee under the guidance of at least 25% of the note holders in the amount of the outstanding principal. ▪ Vale and Vale Overseas shall not be able to create or approve any amendments Vale Overseas' articles of incorporation allowing Vale Overseas to engage in any other activity without the consent of the trustee under the guidance of at least 25% of note holders in the amount of the outstanding principal. VII. The fiduciary agent, indicating the key terms of the contract: The Bank of New York acts as a trustee of the notes within the scope of the deed of issuance and its main role is to secure investors' rights.
Conditions to alter rights assured by the securities	The deed of issuance allows to amend the rights and obligations of Vale Overseas and the investors' in the notes. Said amendments must be executed upon consent from 100% or the majority of the note holders for the value of the principal showing an open debt, according to the type of amendment. Some non-material clarifications or amendments may be made without the consent from the note holders.
Other relevant characteristics	Bonds issued by the subsidiary Vale Overseas Ltd.

Security	**Bonds VALE19**
Jurisdiction	United States of America
Quantity	Bonds are issued at the minimum value of US$2,000.00, always in multiples of US$1,000.00.
Global Face Value	US$1,000,000,000.00
Outstanding Debt Balance at the end of the last fiscal year	US$1,016,406,250.00
Issuing date	September 15, 2009
Restriction to outstanding units	None
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None
Possibility of redemption	I. In case of redemption: ▪ Redemption by means of payment of premium, at any time, of all notes, or part of the notes, periodically, at Vale Overseas criterion.

	▪ Redemption due to changes in the tax law: Vale Overseas may redeem the entirety of the notes in advance if Vale or Vale Overseas is forced to maintain values greater than 15%, in the event of payment of interest over note, due to changes in the Brazilian or Cayman tax law. III. Formula for calculating value of redemption: ▪ Redemption by means of payment of premium: The redemption value will be 100% of the principal value or the sum of the current value of the interest installments and the remaining principal, whichever is the greatest, deducted at the date of redemption at the rate equivalent to Treasury + 0.30% ▪ Redemption due to changes in the tax law: The redemption value will be equal to 100% of the principal value plus the interests accrued up to the date of redemption.
Characteristics of Bonds	I. Maturity date: September 15, 2019 II. In case of Immediate Maturity: if a default event occurs, which is not corrected or condoned, the trustee, as instructed by at least 25% of the note holders for the value of the principal showing an open debt, must declare the principal value, the interests accrued and any amount unpaid immediately due. The default events are described in the deed of issuance, including, but not limited to: ▪ failure to pay interests, principal or premium, if any. ▪ in relation to Vale, its relevant subsidiaries (subsidiaries with total assets exceeding 10% of the total consolidated assets of the group at the end of each fiscal year), and Vale Overseas: the occurrence of any default, in any transaction characterized as debt, that exceeds, in total, US$50 million and this default results in the effective acceleration of the debt. ▪ failure from Vale or Vale Overseas to comply with its covenants in relation to the note and this failure persists 60 days after Vale or Vale Overseas has received communication from the trustee or from at least 25% of the note holders reporting the noncompliance of the obligations. These obligations include, but are not limited to: (i) obligation not to conduct a merger or sale of the entirety of the assets or a significant part of the assets of Vale or Vale Overseas, with some exceptions and (ii) limitations to granting collateral in debt transactions, with some permitted exceptions. ▪ insolvency or bankruptcy. ▪ notes issued by Vale Overseas become illegal, generating the acceleration of over US$50 million total. ▪ the collateral becomes invalid or unenforceable. III. Interest: 5.625% per annum.

	IV. Guarantee: There is no granting of collateral. Vale guarantees, irrevocably and unconditionally, the full payment of the principal, interests and other amounts owed in relation to this note, in the event Vale Overseas fails to pay. V. If the credit is secured or subordinate: not applicable VI. Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: There are no restrictions on dividend distribution by Vale. However, Vale Overseas may not declare or pay any dividends, without the trustee's consent, as instructed by at least 25% of the note holders for the value of the principal showing an open debt. ▪ disposal of determined assets: Vale and Vale Overseas may not, without the consent from the majority of the note holders, participate in a merger with another company or transfer all or a significant part of its assets to a third party, except, however that: (i) the company created by this consolidation or a third party that acquired said assets undertakes to make timely payments of the principal and interests and other obligations from Vale and Vale Overseas in the deed of issuance; (ii) no default event occurs as a result of the transaction; and (iii) Vale or Vale Overseas, as applicable, provide their trustee with a certification and a legal opinion attesting that the consolidation or transfer of assets meet the requirements set forth in item (ii). ▪ contracting of new debt: there are no restrictions to contracting new debts by Vale. Vale Overseas may issue debts instruments within the scope of the deed of issuance, but Vale Overseas may not contract any other type of loan or financing without the trustee's consent, as instructed by at least 25% of the note holders for the value of the principal showing an open debt. ▪ issuing new securities: Vale Overseas may issue, without the consent from the note holders, new notes according to the terms and conditions applicable to Bond VALE 2019. In addition, Vale Overseas may issue new notes under other terms and conditions. Vale has the right to guarantee, without the consent from the note holders, its subsidiaries' debts and issue its own debt. ▪ corporate deals involving the issuer, controlling company or subsidiaries: ▪ Vale Overseas and Vale may not consolidate or merge with any other entity or, (a) in the case of Vale Overseas, transfer all or nearly all of its properties or assets to any other entity or (b) in the case of Vale, transfer all or nearly all of its mining properties or assets to any other entity without the consent of more than 50% of the note holders in amount of the outstanding principal, unless the corporation created or that substantially acquired all the assets or all properties expressly becomes liable as the successor corporation for all the obligations of Vale Overseas and/or Vale. ▪ Vale Overseas will do everything it can to preserve its legal existence updated in the Cayman Islands.

	▪ Vale shall always, directly or indirectly own 100% of the share capital of Vale Overseas. ▪ Vale Overseas may not (i) engage in any business that is not related to the issuance of bonds or acquire and hold securities for the payment of bonds; (ii) have any subsidiary; or (iii) consolidate or merge with any other entity without the consent of the trustee under the guidance of at least 25% of the note holders in the amount of the outstanding principal. ▪ Vale and Vale Overseas shall not be able to create or approve any amendments Vale Overseas' articles of incorporation allowing Vale Overseas to engage in any other activity without the consent of the trustee under the guidance of at least 25% of note holders in the amount of the outstanding principal. VII. The fiduciary agent: The Bank of New York acts as a trustee of the notes within the scope of the deed of issuance and its main role is to secure investors' rights.
Conditions to alter rights assured by the securities	The deed of issuance allows to amend the rights and obligations of Vale Overseas and the investors' in the notes. Said amendments must be executed upon consent from 100% or the majority of the note holders for the value of the principal showing an open debt, according to the type of amendment. Some non-material clarifications or amendments may be made without the consent from the note holders.
Other relevant characteristics	Bonds issued by the subsidiary Vale Overseas Ltd.

Security	**Bonds CVRD36**
Jurisdiction	United States of America
Quantity	Bonds are issued at the minimum value of US$2,000.00, always in multiples of US$1,000.00.
Global Face Value	US$2,500,000,000.00
Outstanding Debt Balance at the end of the last fiscal year	US$2,518,619,791.67
Issuing date	November 21, 2006
Restriction to outstanding units	None
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None
Possibility of redemption	I. In case of redemption: ▪ Redemption by means of payment of premium, at any time, of all bonds or part of the bonds, periodically, at Vale Overseas' criterion. ▪ Redemption due to changes in the tax law: Vale Overseas may redeem the entirety of the notes in advance if Vale or Vale Overseas is forced to maintain values greater than 15%, in the event of payment of interest over note, due to changes in the Brazilian or Cayman tax law. II. Formula for calculating value of redemption:

	▪ Redemption by means of payment of premium: The redemption value will be 100% of the principal value or the sum of the current value of the interest installments and the remaining principal, whichever is the greatest, deducted at the date of redemption at the rate equivalent to Treasury + 0.35%. ▪ Redemption due to changes in the tax law: The redemption value will be equal to 100% of the principal value plus the interests accrued up to the date of redemption.
Characteristics of Bonds	I. Maturity date: November 21, 2036 II. In case of Immediate Maturity: if a default event occurs, which is not corrected or condoned, the trustee, as instructed by at least 25% of the note holders for the value of the principal showing an open debt, must declare the principal value, the interests accrued and any amount unpaid immediately due. The default events are described in the deed of issuance, including, but not limited to: ▪ failure to pay interests, principal or premium, if any. ▪ in relation to Vale, its relevant subsidiaries (subsidiaries with total assets exceeding 10% of the total consolidated assets of the group at the end of each fiscal year), and Vale Overseas: the occurrence of any default, in any transaction characterized as debt, that exceeds, in total, US$50 million and this default results in the effective acceleration of the debt. ▪ failure from Vale or Vale Overseas to comply with its covenants in relation to the note and this failure persists 60 days after Vale or Vale Overseas have received communication from the trustee or from at least 25% of the note holders reporting the noncompliance of the obligations. These obligations include, but are not limited to: (i) obligation not to conduct a merger or sale of the entirety of the assets or a significant part of the assets of Vale or Vale Overseas, with some exceptions and (ii) limitations to granting collateral in debt transactions, with some permitted exceptions. ▪ insolvency or bankruptcy. ▪ notes issued by Vale Overseas become illegal, generating the acceleration of over US$50 million total. ▪ the collateral becomes invalid or unenforceable. III. Interest: 6.875% per annum. IV. Guarantee: There is no granting of collateral. Vale guarantees, irrevocably and unconditionally, the full payment of the principal, interests and other amounts owed in relation to this note, in the event Vale Overseas fails to pay. V. If the credit is secured or subordinate: not applicable VI. Possible restrictions imposed on the issuer, in relation to:

	▪ distribution of dividends: There are no restrictions on dividend distribution by Vale. However, Vale Overseas may not declare or pay any dividends, without the trustee's consent, as instructed by at least 25% of the note holders for the value of the principal showing an open debt. ▪ disposal of determined assets: Vale and Vale Overseas may not, without the consent from the majority of the note holders, participate in a merger with another company or transfer all or a significant part of its assets to a third party, except, however that: (i) the company created by this consolidation or a third party that acquired said assets undertakes to make timely payments of the principal and interests and other obligations from Vale and Vale Overseas in the deed of issuance; (ii) no default event occurs as a result of the transaction; and (iii) Vale or Vale Overseas, as applicable, provide their trustee with a certification and a legal opinion attesting that the consolidation or transfer of assets meet the requirements set forth in item (ii). ▪ contracting of new debt: there are no restrictions to contracting new debts by Vale. Vale Overseas may issue debts instruments within the scope of the deed of issuance, but Vale Overseas may not contract any other type of loan or financing. ▪ issuing new securities: Vale Overseas may issue, without the consent from the note holders, new notes according to the terms and conditions applicable to Bond VALE 2036. In addition, Vale Overseas may issue new notes under other terms and conditions. Vale has the right to guarantee, without the consent from the note holders, its subsidiaries' debts and issue its own debt. ▪ corporate deals involving the issuer, controlling company or subsidiaries: ▪ Vale Overseas and Vale may not consolidate or merge with any other entity or, (a) in the case of Vale Overseas, transfer all or nearly all of its properties or assets to any other entity or (b) in the case of Vale, transfer all or nearly all of its mining properties or assets to any other entity without the consent of more than 50% of the note holders in amount of the outstanding principal, unless the corporation created or that substantially acquired all the assets or all properties expressly becomes liable as the successor corporation for all the obligations of Vale Overseas and/or Vale. ▪ Vale Overseas will do everything it can to preserve its legal existence updated in the Cayman Islands. ▪ Vale shall always, directly or indirectly own 100% of the share capital of Vale Overseas. ▪ Vale Overseas may not (i) engage in any business that is not related to the issuance of bonds or acquire and hold securities for the payment of bonds; (ii) have any subsidiary; or (iii) consolidate or merge with any other entity without the consent of the trustee under the guidance of at least 25% of the note holders in the amount of the outstanding principal. ▪ Vale and Vale Overseas shall not be able to create or approve any amendments Vale Overseas' articles of incorporation allowing Vale Overseas to engage in any other activity without the consent of the trustee under the guidance of at

	least 25% of note holders in the amount of the outstanding principal. VII. The fiduciary agent, indicating the key terms of the contract: The Bank of New York acts as a trustee of the notes within the scope of the deed of issuance and its main role is to secure investors' rights.
Conditions to alter rights assured by the securities	The deed of issuance allows to amend the rights and obligations of Vale Overseas and the investors' in the notes. Said amendments must be executed upon consent from 100% or the majority of the note holders for the value of the principal showing an open debt, according to the type of amendment. Some non-material clarifications or amendments may be made without the consent from the note holders.
Other relevant characteristics	Bonds issued by the subsidiary Vale Overseas Ltd.

Security	**Bonds CVRD34**
Jurisdiction	United States of America
Quantity	Bonds are issued at the minimum value of US$2,000.00, always in multiples of US$1,000.00.
Global Face Value	US$500,000,000.00
Outstanding Debt Balance at the end of the last fiscal year	US$518,677,083.33
Issuing date	January 15, 2004
Restriction to outstanding units	None
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None
Possibility of redemption	I. In case of redemption: Redemption due to changes in the tax law: Vale Overseas may only redeem the entirety of the notes in advance if Vale or Vale Overseas are forced to maintain values greater than 15%, in the event of payment of interest over note, due to changes in the Brazilian or in Cayman tax law. II. Formula for calculating value of redemption: The redemption value will be equal to 100% of the principal value plus the interests accrued up to the date of redemption.
Characteristics of Bonds	I. Maturity date: January 17, 2034 II. In case of Immediate Maturity: if a default event occurs, which is not corrected or condoned, the trustee, as instructed by at least 25% of the note holders for the value of the principal showing an open debt, must declare the principal value, the interests accrued and any amount unpaid immediately due. The default events are described in the deed of issuance, including, but not limited to: ▪ failure to pay interests, principal or premium, if any. ▪ in relation to Vale, its relevant subsidiaries (subsidiaries with total assets exceeding 10% of the total consolidated assets of the group at the end of each fiscal year), and Vale Overseas: the occurrence of any default, in any transaction characterized as debt, that exceeds, in total, US$50 million and this default results in the effective acceleration of the debt.

	▪ failure from Vale or Vale Overseas to comply with its covenants in relation to the note and this failure persists 60 days after Vale or Vale Overseas have received communication from the trustee or from at least 25% of the note holders reporting the noncompliance of the obligations. These obligations include, but are not limited to: (a) obligation not to conduct a merger or sale of the entirety of the assets or a significant part of the assets of Vale or Vale Overseas, with some exceptions and (b) limitations to granting collateral in debt transactions, with some permitted exceptions. ▪ insolvency or bankruptcy. ▪ If Vale Overseas notes become illegal, the trustee, upon guidance from at least 25% of bond holders in outstanding principal, will also immediately include the amount of principal, interest accrued and any due and unpaid amounts. III. Interest: 8.250% per annum. IV. Guarantee: There is no granting of collateral. Vale guarantees, irrevocably and unconditionally, the full payment of the principal, interests and other amounts owed in relation to this note, in the event Vale Overseas fails to pay. V. If the credit is secured or subordinate: not applicable VI. Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: There are no restrictions on dividend distribution by Vale. However, Vale Overseas may not declare or pay any dividends, without the trustee's consent, as instructed by at least 25% of the note holders for the value of the principal showing an open debt. ▪ disposal of determined assets: Vale and Vale Overseas may not, without the consent from the majority of the note holders, participate in a merger with another company or transfer all or a significant part of its assets to a third party, except, however that: (i) the company created by this consolidation or a third party that acquired said assets undertakes to make timely payments of the principal and interests and other obligations from Vale and Vale Overseas in the deed of issuance; (ii) no default event occurs as a result of the transaction; and (iii) Vale or Vale Overseas, as applicable, provide their trustee with a certification and a legal opinion attesting that the consolidation or transfer of assets meet the requirements set forth in item (ii). ▪ contracting of new debt: there are no restrictions to contracting new debts by Vale. Vale Overseas may issue debts instruments within the scope of the deed of issuance, but Vale Overseas may not contract any other type of loan or financing, without the consent from the trustee, as instructed by at least 25% of the note holders for the value of the principal showing an open debt. Moody's must confirm in advance that the new issuance from Vale Overseas will not result in a lower rating granted for other open notes.

	▪ issuing new securities: Vale Overseas may issue, without the consent from the note holders, new notes according to the terms and conditions applicable to Bond VALE 2034. In addition, Vale Overseas may issue new notes under other terms and conditions. Vale has the right to guarantee, without the consent from the note holders, its subsidiaries' debts and issue its own debt. ▪ corporate deals involving the issuer, controlling company or subsidiaries: ▪ Vale Overseas and Vale may not consolidate or merge with any other entity or, (a) in the case of Vale Overseas, transfer all or nearly all of its properties or assets to any other entity or (b) in the case of Vale, transfer all or nearly all of its mining properties or assets to any other entity without the consent of more than 50% of the note holders in amount of the outstanding principal, unless the corporation created or that substantially acquired all the assets or all properties expressly becomes liable as the successor corporation for all the obligations of Vale Overseas and/or Vale. ▪ Vale Overseas will do everything it can to preserve its legal existence updated in the Cayman Islands. ▪ Vale shall always, directly or indirectly own 100% of the share capital of Vale Overseas. ▪ Vale Overseas may not (i) engage in any business that is not related to the issuance of bonds or acquire and hold securities for the payment of bonds; (ii) have any subsidiary; or (iii) consolidate or merge with any other entity without the consent of the trustee under the guidance of at least 25% of the note holders in the amount of the outstanding principal. ▪ Vale and Vale Overseas shall not be able to create or approve any amendments Vale Overseas' articles of incorporation allowing Vale Overseas to engage in any other activity without the consent of the trustee under the guidance of at least 25% of note holders in the amount of the outstanding principal. VII. The fiduciary agent, indicating the key terms of the contract: The JPMorgan Chase Bank acts as a trustee of the notes within the scope of the deed of issuance and its main role is to secure investors' rights.
Conditions to alter rights assured by the securities	The deed of issuance allows to amend the rights and obligations of Vale Overseas and the investors' in the notes. Said amendments must be executed upon consent from 100% or the majority of the note holders for the value of the principal showing an open debt, according to the type of amendment. Some non-material clarifications or amendments may be made without the consent from the note holders.
Other relevant characteristics	Bonds issued by the subsidiary Vale Overseas Ltd.

Security	**Bonds CVRD34B**
Jurisdiction	United States of America
Quantity	Bonds are issued at the minimum value of US$2,000.00, always in multiples of US$1,000.00.

Global Face Value	US$300,000,000.00
Outstanding Debt Balance at the end of the last fiscal year	US$311,275,004.00
Issuing date	November 2, 2005
Restriction to outstanding units	None
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None
Possibility of redemption	I. In case of redemption: Redemption due to changes in the tax law: Vale Overseas may only redeem the entirety of the notes in advance if Vale or Vale Overseas are forced to maintain values greater than 15%, in the event of payment of interest over note, due to changes in the Brazilian or in Cayman tax law. II. Formula for calculating value of redemption: The redemption value will be equal to 100% of the principal value plus the interests accrued up to the date of redemption.
Characteristics of Bonds	I. Maturity date: January 17, 2034 II. In case of Immediate Maturity: if a default event occurs, which is not corrected or condoned, the trustee, as instructed by at least 25% of the note holders for the value of the principal showing an open debt, must declare the principal value, the interests accrued and any amount unpaid immediately due. The default events are described in the deed of issuance, including, but not limited to: ▪ failure to pay interests, principal or premium, if any. ▪ in relation to Vale, its relevant subsidiaries (subsidiaries with total assets exceeding 10% of the total consolidated assets of the group at the end of each fiscal year), and Vale Overseas: the occurrence of any default, in any transaction characterized as debt, that exceeds, in total, US$50 million and this default results in the effective acceleration of the debt. ▪ failure from Vale or Vale Overseas to comply with its covenants in relation to the note and this failure persists 60 days after Vale or Vale Overseas have received communication from the trustee or from at least 25% of the note holders reporting the noncompliance of the obligations. These obligations include, but are not limited to: (a) obligation not to conduct a merger or sale of the entirety of the assets or a significant part of the assets of Vale or Vale Overseas, with some exceptions and (b) limitations to granting collateral in debt transactions, with some permitted exceptions. ▪ insolvency or bankruptcy. • if Vale Overseas notes become illegal, the trustee, upon guidance from at least 25% of bond holders in outstanding principal, will also immediately include the amount of principal, interest accrued and any due and unpaid amounts. III. Interest: 8.250% per annum. IV. Guarantee: There is no granting of collateral. Vale guarantees, irrevocably and unconditionally, the full payment of the principal,

	interests and other amounts owed in relation to this note, in the event Vale Overseas fails to pay. V. If the credit is secured or subordinate: not applicable VI. Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: There are no restrictions on dividend distribution by Vale. However, Vale Overseas may not declare or pay any dividends, without the trustee's consent, as instructed by at least 25% of the note holders for the value of the principal showing an open debt. ▪ disposal of determined assets: Vale and Vale Overseas may not, without the consent from the majority of the note holders, participate in a merger with another company or transfer all or a significant part of its assets to a third party, except, however that: (i) the company created by this consolidation or a third party that acquired said assets undertakes to make timely payments of the principal and interests and other obligations from Vale and Vale Overseas in the deed of issuance; (ii) no default event occurs as a result of the transaction; and (iii) Vale or Vale Overseas, as applicable, provide their trustee with a certification and a legal opinion attesting that the consolidation or transfer of assets meet the requirements set forth in item (ii). ▪ contracting of new debt: there are no restrictions to contracting new debts by Vale. Vale Overseas may issue debts instruments within the scope of the deed of issuance, but Vale Overseas may not contract any other type of loan or financing, without the consent from the trustee, as instructed by at least 25% of the note holders for the value of the principal showing an open debt. Moody's must confirm in advance that the new issuance from Vale Overseas will not result in a lower rating granted for other open notes. ▪ issuing new securities: Vale Overseas may issue, without the consent from the note holders, new notes according to the terms and conditions applicable to Bond CVRD2034. In addition, Vale Overseas may issue new notes under other terms and conditions. Vale has the right to guarantee, without the consent from the note holders, its subsidiaries' debts and issue its own debt. ▪ corporate deals involving the issuer, controlling company or subsidiaries: ▪ Vale Overseas and Vale may not consolidate or merge with any other entity or, (a) in the case of Vale Overseas, transfer all or nearly all of its properties or assets to any other entity or (b) in the case of Vale, transfer all or nearly all of its mining properties or assets to any other entity without the consent of more than 50% of the note holders in amount of the outstanding principal, unless the corporation created or that substantially acquired all the assets or all properties expressly becomes liable as the successor corporation for all the obligations of Vale Overseas and/or Vale. ▪ Vale Overseas will do everything it can to preserve its legal existence updated in the Cayman Islands.

	▪ Vale shall always, directly or indirectly own 100% of the share capital of Vale Overseas. ▪ Vale Overseas may not (i) engage in any business that is not related to the issuance of bonds or acquire and hold securities for the payment of bonds; (ii) have any subsidiary; or (iii) consolidate or merge with any other entity without the consent of the trustee under the guidance of at least 25% of the note holders in the amount of the outstanding principal. ▪ Vale and Vale Overseas shall not be able to create or approve any amendments Vale Overseas' articles of incorporation allowing Vale Overseas to engage in any other activity without the consent of the trustee under the guidance of at least 25% of note holders in the amount of the outstanding principal. VII. The fiduciary agent, indicating the key terms of the contract: The JPMorgan Chase Bank acts as a trustee of the notes within the scope of the deed of issuance and its main role is to secure investors' rights.
Conditions to alter rights assured by the securities	The deed of issuance allows to amend the rights and obligations of Vale Overseas and the investors' in the notes. Said amendments must be executed upon consent from 100% or the majority of the note holders for the value of the principal showing an open debt, according to the type of amendment. Some non-material clarifications or amendments may be made without the consent from the note holders.
Other relevant characteristics	Bonds issued by the subsidiary Vale Overseas Ltd.

Security	**Bonds CVRD20**
Jurisdiction	United States of America
Quantity	Bonds are issued at the minimum value of US$2,000.00, always in multiples of US$1,000.00.
Global Face Value	US$1,000,000,000.00
Outstanding Debt Balance at the end of the last fiscal year	US$1,013,489,583.33
Issuing date	September 15, 2010
Restriction to outstanding units	None.
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None.
Possibility of redemption	I. In case of redemption: ▪ Redemption by means of payment of premium, at any time, of all bonds or part of the bonds, periodically, at Vale Overseas' criterion. ▪ Redemption due to changes in the tax law: Vale Overseas may redeem the entirety of the notes in advance if Vale or Vale Overseas are forced to maintain values greater than 15%, in the event of payment of interest over note, due to changes in the Brazilian or Cayman tax law. II. Formula for calculating value of redemption:

	▪ The redemption value will be 100% of the principal value or the sum of the current value of the interest installments and the remaining principal, whichever is the greatest, deducted at the date of redemption at the rate equivalent to Treasury + 0.30%. ▪ Redemption due to changes in the tax law: The redemption value will be equal to 100% of the principal value plus the interests accrued up to the date of redemption.
Characteristics of Bonds	I. Maturity date: September 15, 2020 II. In case of Immediate Maturity: if a default event occurs, which is not corrected or condoned, the trustee, as instructed by at least 25% of the note holders for the value of the principal showing an open debt, must declare the principal value, the interests accrued and any amount unpaid immediately due. The default events are described in the deed of issuance, including, but not limited to: ▪ failure to pay interests, principal or premium, if any. ▪ in relation to Vale, its relevant subsidiaries (subsidiaries with total assets exceeding 10% of the total consolidated assets of the group at the end of each fiscal year), and Vale Overseas: the occurrence of any default, in any transaction characterized as debt, that exceeds, in total, US$50 million and this default results in the effective acceleration of the debt. ▪ failure from Vale or Vale Overseas to comply with its covenants in relation to the note and this failure persists 60 days after Vale or Vale Overseas have received communication from the trustee or from at least 25% of the note holders reporting the noncompliance of the obligations. These obligations include, but are not limited to: (i) obligation not to conduct a merger or sale of the entirety of the assets or a significant part of the assets of Vale or Vale Overseas, with some exceptions and (ii) limitations to granting collateral in debt transactions, with some permitted exceptions. ▪ insolvency or bankruptcy. ▪ Vale Overseas notes become illegal, generating the acceleration of over US$50 million total. ▪ the collateral becomes invalid or unenforceable. III. Interest: 4.625% per annum IV. Guarantee: There is no granting of collateral. Vale guarantees, irrevocably and unconditionally, the full payment of the principal, interests and other amounts owed in relation to this note, in the event Vale Overseas fails to pay. V. If the credit is secured or subordinate: not applicable VI. Possible restrictions imposed on the issuer, in relation to:

	▪ distribution of dividends: There are no restrictions on dividend distribution by Vale. However, Vale Overseas may not declare or pay any dividends, without the trustee's consent, as instructed by at least 25% of the note holders for the value of the principal showing an open debt. ▪ disposal of determined assets: Vale and Vale Overseas may not, without the consent from the majority of the note holders, participate in a merger with another company or transfer all or a significant part of its assets to a third party, except, however that: (i) the company created by this consolidation or a third party that acquired said assets undertakes to make timely payments of the principal and interests and other obligations from Vale and Vale Overseas in the deed of issuance; (ii) no default event occurs as a result of the transaction; and (iii) Vale or Vale Overseas, as applicable, provide their trustee with a certification and a legal opinion attesting that the consolidation or transfer of assets meet the requirements set forth in item (ii). ▪ contracting of new debt: there are no restrictions to contracting new debts by Vale. Vale Overseas may issue debts instruments within the scope of the deed of issuance, but Vale Overseas may not contract any other type of loan or financing. ▪ issuing new securities: Vale Overseas may issue, without the consent from the note holders, new notes according to the terms and conditions applicable to Bonds CVRD20. In addition, Vale Overseas may issue new notes under other terms and conditions. Vale has the right to guarantee, without the consent from the note holders, its subsidiaries' debts and issue its own debt. ▪ corporate deals involving the issuer, controlling company or subsidiaries: ▪ Vale Overseas and Vale may not consolidate or merge with any other entity or, (a) in the case of Vale Overseas, transfer all or nearly all of its properties or assets to any other entity or (b) in the case of Vale, transfer all or nearly all of its mining properties or assets to any other entity without the consent of more than 50% of the note holders in amount of the outstanding principal, unless the corporation created or that substantially acquired all the assets or all properties expressly becomes liable as the successor corporation for all the obligations of Vale Overseas and/or Vale. ▪ Vale Overseas will do everything it can to preserve its legal existence updated in the Cayman Islands. ▪ Vale shall always, directly or indirectly own 100% of the share capital of Vale Overseas. ▪ Vale Overseas may not (i) engage in any business that is not related to the issuance of bonds or acquire and hold securities for the payment of bonds; (ii) have any subsidiary; or (iii) consolidate or merge with any other entity without the consent of the trustee under the guidance of at least 25% of the note holders in the amount of the outstanding principal. ▪ Vale and Vale Overseas shall not be able to create or approve any amendments Vale Overseas' articles of incorporation allowing Vale Overseas to engage in any other activity

	without the consent of the trustee under the guidance of at least 25% of note holders in the amount of the outstanding principal. VII. The fiduciary agent, indicating the key terms of the contract: The Bank of New York acts as a trustee of the notes within the scope of the deed of issuance and its main role is to secure investors' rights.
Conditions to alter rights assured by the securities	The deed of issuance allows to amend the rights and obligations of Vale Overseas and the investors' in the notes. Said amendments must be executed upon consent from 100% or the majority of the note holders for the value of the principal showing an open debt, according to the type of amendment. Some non-material clarifications or amendments may be made without the consent from the note holders.
Other relevant characteristics	Bonds issued by the subsidiary Vale Overseas Ltd.

Security	**Bonds CVRD39**
Jurisdiction	United States of America
Quantity	Bonds are issued at the minimum value of US$2,000.00, always in multiples of US$1,000.00.
Global Face Value	US$750,000,000.00
Outstanding Debt Balance at the end of the last fiscal year	US$757,161,458.33
Issuing date	May 10, 2010
Restriction to outstanding units	None.
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None.
Possibility of redemption	I. In case of redemption: ▪ Redemption by means of payment of premium, at any time, of all bonds or part of the bonds, periodically, at Vale Overseas' criterion. ▪ Redemption due to changes in the tax law: Vale Overseas may redeem the entirety of the notes in advance if Vale or Vale Overseas are forced to maintain values greater than 15%, in the event of payment of interest over note, due to changes in the Brazilian or Cayman tax law. II. Formula for calculating value of redemption: ▪ The redemption value will be 100% of the principal value or the sum of the current value of the interest installments and the remaining principal, whichever is the greatest, deducted at the date of redemption at the rate equivalent to Treasury + 0.40%. ▪ Redemption due to changes in the tax law: The redemption value will be equal to 100% of the principal value plus the interests accrued up to the date of redemption.
Characteristics of Bonds	I. Maturity date: November 10, 2039

	II. In case of Immediate Maturity: if a default event occurs, which is not corrected or condoned, the trustee, as instructed by at least 25% of the note holders for the value of the principal showing an open debt, must declare the principal value, the interests accrued and any amount unpaid immediately due. The default events are described in the deed of issuance, including, but not limited to: ▪ failure to pay interests, principal or premium, if any. ▪ in relation to Vale, its (subsidiaries with total assets exceeding 10% of the total consolidated assets of the group at the end of each fiscal year) and Vale Overseas: the occurrence of any default, in any transaction characterized as debt, that exceeds, in total, US$50 million and this default results in the effective acceleration of the debt. ▪ failure from Vale or Vale Overseas to comply with its covenants in relation to the note and this failure persists 60 days after Vale has received communication from the trustee or from at least 25% of the note holders reporting the noncompliance of the obligations. These obligations include, but are not limited to: (i) obligation not to conduct a merger or sale of the entirety of the assets or a significant part of the assets of Vale or Vale Overseas, with some exceptions and (ii) limitations to granting collateral in debt transactions, with some permitted exceptions. ▪ insolvency or bankruptcy. ▪ notes issued by Vale Overseas become illegal, generating the acceleration of over US$50 million total. ▪ the collateral becomes invalid or unenforceable. III. Interest: 6.875% per annum. IV. Guarantee: There is no granting of collateral. Vale guarantees, irrevocably and unconditionally, the full payment of the principal, interests and other amounts owed in relation to this note, in the event Vale Overseas fails to pay. V. If the credit is secured or subordinate: not applicable VI. Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: There are no restrictions on dividend distribution by Vale. However, Vale Overseas may not declare or pay any dividends, without the trustee's consent, as instructed by at least 25% of the note holders for the value of the principal showing an open debt. ▪ disposal of determined assets: Vale and Vale Overseas may not, without the consent from the majority of the note holders, participate in a merger with another company or transfer all or a significant part of its assets to a third party, except, however that: (i) the company created by this consolidation or a third party that acquired said assets undertakes to make timely payments of the principal and interests and other obligations from Vale and Vale Overseas in the deed of issuance; (ii) no default event occurs as a

	result of the transaction; and (iii) Vale or Vale Overseas, as applicable, provide their trustee with a certification and a legal opinion attesting that the consolidation or transfer of assets meet the requirements set forth in item (ii). ▪ contracting of new debt: there are no restrictions to contracting new debts by Vale. Vale Overseas may issue debts instruments within the scope of the deed of issuance, but Vale Overseas may not contract any other type of loan or financing. ▪ issuing new securities: Vale Overseas may issue, without the consent from the note holders, new notes according to the terms and conditions applicable to Bond CVRD39. In addition, Vale Overseas may issue new notes under other terms and conditions. Vale has the right to guarantee, without the consent from the note holders, its subsidiaries' debts and issue its own debt. ▪ corporate deals involving the issuer, controlling company or subsidiaries: ▪ Vale Overseas and Vale may not consolidate or merge with any other entity or, (a) in the case of Vale Overseas, transfer all or nearly all of its properties or assets to any other entity or (b) in the case of Vale, transfer all or nearly all of its mining properties or assets to any other entity without the consent of more than 50% of the note holders in amount of the outstanding principal, unless the corporation created or that substantially acquired all the assets or all properties expressly becomes liable as the successor corporation for all the obligations of Vale Overseas and/or Vale. ▪ Vale Overseas will do everything it can to preserve its legal existence updated in the Cayman Islands. ▪ Vale shall always, directly or indirectly own 100% of the share capital of Vale Overseas. ▪ Vale Overseas may not (i) engage in any business that is not related to the issuance of bonds or acquire and hold securities for the payment of bonds; (ii) have any subsidiary; or (iii) consolidate or merge with any other entity without the consent of the trustee under the guidance of at least 25% of the note holders in the amount of the outstanding principal. ▪ Vale and Vale Overseas shall not be able to create or approve any amendments Vale Overseas' articles of incorporation allowing Vale Overseas to engage in any other activity without the consent of the trustee under the guidance of at least 25% of note holders in the amount of the outstanding principal. VII. The fiduciary agent, indicating the key terms of the contract: The Bank of New York Mellon acts as a trustee of the notes within the scope of the deed of issuance and its main role is to secure investors' rights.
Conditions to alter rights assured by the securities	The deed of issuance allows to amend the rights and obligations of Vale Overseas and the investors' in the notes. Said amendments must be executed upon consent from 100% or the majority of the note holders for the value of the principal showing an open debt, according to the type of amendment. Some non-material clarifications or

	amendments may be made without the consent from the note holders.
Other relevant characteristics	Bonds issued by the subsidiary Vale Overseas Ltd.

Security	**Bonds Inco 2032**
Jurisdiction	United States of America
Quantity	Bonds are issued at the minimum value of US$1,000.00
Global Face Value	US$400,000,000.00
Outstanding Debt Balance at the end of the last fiscal year	US$408,400,000.00
Issuing date	September 23, 2002
Restriction to outstanding units	None
Convertibility into shares or granting the right to subscribe or acquire issuer shares	None.
Possibility of redemption	I. In case of redemption: ▪ Redemption by means of payment of premium, at any time, at Vale Canadá's criterion. ▪ Redemption due to changes in the tax law: if Vale Canadá is forced to pay additional values to note holders, due to changes in the Canadian tax law. II. Formula for calculating value of redemption: ▪ Redemption by means of payment of premium: The redemption value will be 100% of the principal value or the sum of the current value of the interest installments and the remaining principal, whichever is the greatest, deducted at the date of redemption at the rate equivalent to Treasury + 0.40%. ▪ Redemption due to changes in the tax law: The redemption value will be equal to 100% of the principal value plus the interests to any additional values established by the Canadian tax law up to the date of redemption.
Characteristics of Bonds	I. Maturity date: September 15, 2032 II. In case of Immediate Maturity: if a default event occurs, which is not corrected or condoned, the trustee, as instructed by at least 25% of the note holders for the value of the principal showing an open debt, must declare the principal value, the interests accrued and any amount unpaid immediately due. The default events are described in the deed of issuance, including, but not limited to: ▪ failure to pay interests, principal or premium, if any. ▪ in relation to Vale Canadá: the occurrence of any default, in any transaction characterized as debt that results in the effective acceleration of the debt. ▪ insolvency or bankruptcy by Vale Canadá in Canadá.

	▪ failure from Vale Canadá to comply with its covenants in relation to the notes. These obligations include, but are not limited to: (i) obligation not to conduct a merger or sale of the entirety of the assets or a significant part of the assets of Vale Canadá, with some exceptions, and (ii) limitations to granting collateral in debt transactions, with some permitted exceptions. III. Interest: 7.2% per annum. IV. Guarantee: There is no granting of collateral by Vale Canadá or its relevant subsidiaries. V. If the credit is secured or subordinate: not applicable. VI. Possible restrictions imposed on the issuer, in relation to: ▪ distribution of dividends: There are no restrictions on dividend distribution by Vale Canadá. ▪ disposal of determined assets: Vale Canadá may not participate in a merger with another company or transfer all or a significant part of its assets to a third party, except, however that: (i) the company created by this consolidation or a third party that acquired said assets undertakes to make timely payments of the principal and interests and other obligations from Vale Canadá in the deed of issuance; (ii) no default event occurs as a result of the transaction; (iii) Vale Canadá, as the case may be, provides its trustee with a certification attesting to the consolidation or transfer of assets; and (iv) if the company created by means of this consolidation or a third party acquisition of said assets were outside Canadá, the Canadian tax law requirements must be met. ▪ contracting of new debt: there are no restrictions to contracting new debts by Vale Canadá. ▪ issuing new securities: Vale Canadá may issue, without the consent from the note holders, new notes according to the deed of issuance terms and conditions. In addition, Vale Canadá may issue new notes under other terms and conditions. Vale has the right to guarantee, without the consent from the note holders, its subsidiaries' debts and issue its own debt. ▪ corporate deals involving the issuer, controlling company or subsidiaries: ▪ Vale Canadá Limited shall not consolidate, incorporate or merge with any other corporation or make statutory arrangements in which Vale Canadá Limited participates, sells, transports or leases all assets or a substantial part of the assets of its property, unless (1) immediately after the consolidation, incorporation or merger, statutory arrangement, sale, transport or lease of the created or subsisting corporation after said consolidation, incorporation or merger, statutory arrangement, sale, transport or lease does not default in performance or compliance with any terms, covenants, and conditions of the deed of debenture maintained by Vale Canadá; (2) payments of principal and

	interest on the debentures and the performance and compliance with all covenants and conditions expressed in the deed of debenture will be taken over by an additional satisfactory deed of debenture to be executed and delivered to trustee by the created or subsisting corporations after such consolidation, incorporation or merger, statutory arrangement, sale, transport or lease; and (3) if the created or subsisting corporation after consolidation, incorporation or merger, statutory arrangement, sale, transport or lease is governed by the laws of another jurisdiction, that is not Canadá or the United States or any of its provinces, territories, states or districts ("relevant tax jurisdiction"), Vale Canadá Limited or the successor corporation shall be liable, under the additional deed of debenture accepted by the trustee to settle all payment of debentures without withholding or deduction, to settle all taxes and legal fees ("specific fee") in the present or in the future that are demanded by the relevant jurisdiction, unless Vale Canadá Limited is required to or charged for, by the law of by the administrator's interpretation, to withhold or deduct said specific taxes. VII. The fiduciary agent, indicating the key terms of the contract: The Bank of New York Mellon acts as a trustee of the notes within the scope of the deed of issuance and its main role is to secure investors' rights.
Conditions to alter rights assured by the securities	The deed of issuance allows, with certain exceptions, to amend the rights and obligations of Vale Canadá and the investors' in the notes. Depending on the type of changes, said amendments may be executed by Vale Canadá and the trustee with the consent from the note holders. In most cases, the note holders may approve changes to the note with the consent from 66.67% of the note holders for the value of the principal showing an open debt. Some non-material clarifications and changes may be made without the note holders' consent.
Other relevant characteristics	Bonds issued by the subsidiary Vale Canadá Ltd.

Information on bonds redeemed

On March 24, 2017, Vale redeemed a €750,000,000 bond with a coupon rate of 4.375% and maturity in March 2018.

On September 23, 2016, Vale Overseas redeemed a US$1,250,000,000 bond with a coupon rate of 6.250% and maturity in January 2017.

Additional Clarification

Following is information on the trading volume as well as on the highest and lowest prices of Vale's ADSs:

Vale ON - ADS VALE	Average Daily Volume (US$ Thousand)	Highest Price (US$) (1)	Lowest Price (US$) (1)
1st Quarter of 2014	296,601	14.7	12.4
2nd Quarter of 2014	252,659	15.1	12.6

3rd Quarter of 2014	266,205	14.8	10.9
4th Quarter of 2014	270,816	11.8	6.9
1st Quarter of 2015	207,376	8.7	5.7
2nd Quarter of 2015	228,676	8.8	5.6
3rd Quarter of 2015	139,050	5.9	4.0
4th Quarter of 2015	101,281	5.5	3.1
1st Quarter of 2016	103,884	4.6	2.1
2nd Quarter of 2016	157,292	6.1	3.9
3rd Quarter of 2016	129,530	6.1	4.8
4th Quarter of 2016	246,489	9.2	5.4

(1) Based on closing prices.

Vale PNA - ADS VALE.P	Average Daily Volume (US$ Thousand)	Highest Price (US$) (1)	Lowest Price (US$) (1)
1st Quarter of 2014	89,433	13.3	10.9
2nd Quarter of 2014	90,581	13.6	11.2
3rd Quarter of 2014	79,936	13.2	9.5
4th Quarter of 2014	114,440	10.3	5.9
1st Quarter of 2015	71,559	7.6	4.8
2nd Quarter of 2015	86,600	6.7	4.8
3rd Quarter of 2015	47,298	5.0	3.2
4th Quarter of 2015	37,171	4.3	2.4
1st Quarter of 2016	37,973	3.4	1.6
2nd Quarter of 2016	49,887	4.7	3.0
3rd Quarter of 2016	31,199	5.0	3.8
4th Quarter of 2016	73,610	8.2	4.8
Source: Bloomberg			

(1) Based on closing prices.

Closing of the HDR Listing Program

On December 8, 2010, the Hong Kong Depositary Shares ("HDSs"), represented by Hong Kong Depositary Receipts ("HDRs"), 6210 and 6230, were admitted for trading on the Hong Kong Stock Exchange ("HKek").

On December 31, 2015, there were 1,867,850 outstanding HDRs, 1,721,300 of which were common HDRs and 146,550 were preferred HDRs. Each HDR 6210 represented one common share issued by the Company, and on December 31, 2015, 0.05% of Vale's common shares were linked to the HDRs 6210. Each HDR 6230 represented a class A preferred share issued by the Company, and on December 31, 2015, 0.01% of Vale's class A preferred shares were linked to the HDRs 6230. The Hong Kong Securities and Futures Commission (SFC) was the body responsible for the administration of the Hong Kong Stock Exchange. The depositary bank was the JPMorgan Chase Bank N.A.

Notwithstanding the foregoing, in line with Vale's simplification strategy, in June 2016, the Company ended its HDR program and, in July 2016, completed the delisting of HDRs from the Hong Kong Stock Exchange.

19.1 - Information on the issuer's share repurchase plans

Justification for not completing the table:

There has been no share repurchase plan over the past three fiscal years.

19.2 - Treasury stock transaction

Fiscal Year 12/31/2016

Shares

Type of share	Preferred share class	Description of the shares
Common Shares	-	-
Transactions	**Quantity (Units)**	**Total value (R$)**
Initial quantity (Units)	31,535,402	-
Purchased quantity	-	-
Weighted average purchase price	-	-
Sold quantity	-	-
Weighted average sale price	-	-
Canceled quantity	-	-
Final quantity	31,535,402	-
Percentage in relation to outstanding shares of the same class and type	1.0	1.0

Type of share	Preferred share class	Description of the shares
Preferred	Preferred Class A	-
Transactions	**Quantity (Units)**	**Total value (R$)**
Initial quantity (Units)	59,405,792	-
Purchased quantity	-	-
Weighted average purchase price	-	-
Sold quantity	-	-
Weighted average sale price	-	-
Canceled quantity	-	-
Final quantity	59,405,792	-
Percentage in relation to outstanding shares of the same class and type	2.9%	2.9%

Fiscal Year 12/31/2015

Shares

Type of share	Preferred share class	Description of the shares
Common Shares	-	-
Transactions	**Quantity (Units)**	**Total value (R$)**
Initial quantity (Units)	31,535,402	-
Purchased quantity	-	-
Weighted average purchase price	-	-
Sold quantity	-	-
Weighted average sale price	-	-
Canceled quantity	-	-
Final quantity	31,535,402	-
Percentage in relation to outstanding shares of the same class and type	1.0	1.0

Type of share	Preferred share class	Description of the shares
Preferred	Preferred Class A	-
Transactions	**Quantity (Units)**	**Total value (R$)**

Initial quantity (Units)	59,405,792	-
Purchased quantity	-	-
Weighted average purchase price	-	-
Sold quantity	-	-
Weighted average sale price	-	-
Canceled quantity	-	-
Final quantity	59,405,792	-
Percentage in relation to outstanding shares of the same class and type	2.9%	2.9%

Fiscal Year 12/31/2014

Shares

Type of share	**Preferred share class**	**Description of the shares**
Common Shares	-	-
Transactions	**Quantity (Units)**	**Total value (R$)**
Initial quantity (Units)	71,071,482	-
Purchased quantity	-	-
Weighted average purchase price	-	-
Sold quantity	-	-
Weighted average sale price	-	-
Canceled quantity	39,536,080	-
Final quantity	31,535,402	-
Percentage in relation to outstanding shares of the same class and type	1.0	1.0

Type of share	**Preferred share class**	**Description of the shares**
Preferred	Preferred Class A	-
Transactions	**Quantity (Units)**	**Total value (R$)**
Initial quantity (Units)	140,857,692	-
Purchased quantity	-	-
Weighted average purchase price	-	-
Sold quantity	-	-
Weighted average sale price	-	-
Canceled quantity	81,451,900	-
Final quantity	59,405,792	-
Percentage in relation to outstanding shares of the same class and type	2.9%	2.9%

19.3 - Other relevant information

For information on the Company's financial operations through the use of financial instruments, including derivatives, see item 5.2 of this Reference Form.

20.1 - Information on securities trading policy

Date approved	8/29/2016
Position and/or job	Vale Valepar S.A. (Company's parent company) Representatives of the shareholders of Valepar S.A. Members of Valepar's Board of Directors Members of Vale's Board of Directors Members of Vale's Audit Committee Members of the Advisory Committee to Vale's Board of Directors Executive officers Employees who, due to their position or job in the Company, and in its subsidiaries, have knowledge of privileged information. Publicly-held companies under the control of the Company.

Main characteristics

Vale's Trading Policy, formulated in accordance with the CVM Instruction 358/02 and its subsequent amendments ("CVM Instruction 358"), and Vale's Code of Ethics and Conduct, is intended to contribute to an orderly negotiation of the securities issued by Vale, or referenced thereto, removing any presumption of inappropriate use of information related to a material act or fact about Vale ("Privileged Information"). The Company's Trading Policy had been approved at a Board of Directors Meeting held on July 29, 2004, and was amended on January 19, 2011 and August 29, 2016.

The Trading Policy is also intended to contribute to compliance with the laws and regulations of the United States of America, where Vale shares are traded on the stock exchange in the form of ADRs, which prohibit insider trading/dealing (use of privileged information for one's own benefit), including the practice of tipping (providing privileged information for the benefit of third parties).

For the purposes of the laws and regulations of the United States of America, a person engages in (i) insider trading practices if he/she buys or sells securities when in possession of material, non-public information that has been obtained or used in breach of a duty of trust and confidence, and (ii) tipping, if he/she provides the same type of information to third parties, who eventually takes advantage of such information to practice insider trading.

The prohibitions contained in the Trading Policy cover any purchase, sale or transfer of securities issued or secured by Vale.

The publicly-held companies under the control of Vale shall adopt the Company's Trading Policy, applying, where applicable, the same prohibitions and/or restrictions as are regulated by Vale's Trading Policy.

Any violation of the provisions of the Company's Trading Policy will be considered a violation of Vale's Code of Ethics and Conduct and subject to punishments provided for by law and liability for losses and damages caused to Vale and third parties, in addition to procedures and penalties established in Vale's Code of Ethics and Conduct.

Prohibition periods and description of inspection procedures	In addition to the CVM Instruction 358, the Related Parties shall not negotiate the securities issued by Vale and publicly-held companies under its control: i. During the period between fifteen (15) days prior to and 2 (two) days after the disclosure or publication of Vale's quarterly and annual financial statements;

ii. In the period from the decision made by the shareholders of Valepar S.A., parent company of Vale, on: (i) modifying Vale's share capital through subscription of shares; (ii) approving a sale or purchase program for the shares issued by Vale by the Company itself; and (iii) distributing dividends or interest on equity, stock bonuses or derivatives or split thereof, and publishing the respective notices and/or announcements or information; and

iii. During any other period designated by the Executive Officer responsible for Vale's Investor Relations functions, upon prior authorization by the Chairman of the Board of Directors, at the request of the Chief Executive Officer.

The Related Parties will be able to trade securities issued by Vale, observing the aforementioned prohibition periods, with a long-term investment objective, and it is recommended that the ownership of securities issued by the Company be maintained for a minimum term of six (6) months.

Websites where the Trading Policy can be consulted

Vale's Trading Policy can be consulted at the Company's headquarters, Company's website (www.vale.com), in the Investors section (http://www.vale.com/brasil/PT/investors/company/corporate-governance/policies/Paginas/default.aspx), on the Empresas.Net System at the website of Comissão de Valores Mobiliários – CVM (Brazilian Securities and Exchange Commission), (www.cvm.gov.br), and at the website of BM&FBOVESPA S.A. – Bolsa de Valores Mercadorias e Futuros ("BM&FBOVESPA", Brazilian Commodities and Futures Exchange), (www.bvmf.com.br).

20.2 - Other relevant information

The Vale's Trading Policy rules also apply in cases in which the tradings by Related Parties are carried out for the direct and/or indirect benefit of the Company through:

- A company directly or indirectly controlled by Related Parties;
- Third parties with which Related Persons maintain a financial assets portfolio management, trust or administration contract;
- Attorneys or agents to Related Parties; and
- Spouses from whom the Related Parties are not legally separated, common-law spouses, and any dependents included in the Related Persons's annual income tax return.

The Related Parties shall ensure, to the extent possible and whenever they are unable to negotiate, that the natural persons and legal entities mentioned above also refrain from trading securities issued by the Company.

In addition to the Related Parties, the Company's Trading Policy also applies to any officer who may dircharge from the Company, prior to the public disclosure of a business or fact initiated during its term of office, and it shall extend for a period of six months after the officer's dismissal.

The restrictions set out above do not apply to trading conducted by investment funds of which the Related Persons are quota holders, provided that: (a) the investment funds are not exclusive; and (b) the trading decisions of the fund manager cannot be influenced by quota holders.

The members of the Vale's Board of Directors, its advisory committees, Executive Board and Audit Committee shall send written notice, in accordance with article 11 of CVM Instruction 358, to the Executive Investor Relations Director, and the Executive Investor Relations Director shall inform CVM and stock exchanges, where Vale's shares are listed for trading, of: (a) the number of securities (including derivatives or any other securities benchmarked to shares) issued by Vale and controlled or controlling companies that are publicly-held companies, which they may own, as well as those owned by their spouses, unless they are de facto or legally separated therefrom, by any dependents included in the annual income tax return, and companies directly or indirectly controlled thereby; and (b) any changes in the above positions.

The communication provided for in the above paragraph shall be made (a) on the first business day after his investiture; and (b) within five (5) days after the completion of each business, and it shall contain at least the following information: (i) name and qualification of the caller, with the registration number in the Brazilian Registry of Legal Entities or in the Register of Natural Persons; (ii) quantity, by type and class, in the case of shares, and other characteristics in the case of other securities, in addition to the identification of the issuer and the balance of the position held before and after trading; and (iii) form, price and date of the transactions.

The Investor Relations Executive Officer, in turn, shall transmit to the CVM and to the stock exchanges the information received from the managers, individually and in a consolidated manner, as the case may be, within ten (10) days after the end of the month in which the changes in the positions held are verified, or the month that the investiture occurs.

In addition, in line with the CVM Instruction 568, dated September 17, 2015, the Investor Relations Executive Director shall send CVM and stock exchanges, where Vale shares are listed for negotiation, the information on the negotiation referred to in the paragraphs above with respect to the securities traded by Vale itself, its subsidiaries and affiliates, including derivative transactions or any other securities referenced thereto.

The Related Parties shall sign their respective Commitment Letter, pursuant to article 16, Paragraph 1 of the CVM Instruction 358, according to the model contained in an annex to the

Company's Trading Policy, which shall remain filed at Vale's headquarters while its signatory maintains the link with Vale and, for at least five (5) years, after its dismissal.

21.1 - Description of the internal rules, regulations or internal procedures related to the disclosure of information

On August 29, 2016, Vale's Board of Directors approved the review of its Policy for Disclosure of Material Act or Fact ("Disclosure Policy"). The Disclosure Policy governs the disclosure of information that, by its very nature, may generate a Material Act or Fact, and is based on the following basic principles: (i) transparency, symmetry of information, fair treatment and respect for investors' rights; (ii) adherence to the best global investor relations practices; and (iii) compliance of the specific laws of Brazil, the United States of America and France with the regulations of the Brazilian Securities and Exchange Commission (CVM), in Brazil, the US Securities and Exchange Commission (SEC), in the United States of America, the Autorité des Marchés Financiers (AMF), in France, hereinafter referred to as "regulatory bodies", as well as with the rules of the stock exchanges where the securities issued by Vale are listed and traded.

The Disclosure Policy applies to the controlling shareholder, Board of Directors's, Audit Committee's and the Advisory Committees's members, Executive Officers, Vale executives, managers of its subsidiaries and by whomever, as a result of its position, function or job in Vale and/or its subsidiaries, is aware of information related to a Relevant Act or Fact about Vale.

The publicly-held companies controlled by Vale shall adopt the Disclosure Policy, with such adjustments as may be required by the local laws and regulations applicable to such companies and the markets in which their respective securities are traded.

Vale also has a Disclosure Committee, chaired by Vale's Chief Executive Officer, which is composed of the following members: Finance and Investor Relations Executive Officer ("DIRI"), General Consultant, Investor Relations Officer and Controller. The main attributions of the Disclosure Committee are: (i) to check whether there is any Material Act or Fact to be disclosed and ensure its wide and immediate global dissemination, fully and simultaneously, particularly in the markets in which the securities issued by Vale are traded; (ii) to supervise and approve any communications to the global capital market of any Relevant Act or Fact, as well as the need for any corrections or revisions; (iii) to express an opinion on the possibility of postponement of disclosure of a Relevant Act or Fact, should its immediate disclosure endanger the legitimate interest of Vale; (iv) to monitor developments or changes in the businesses of Vale or those of its subsidiaries to determine whether there is a need to disclose a Relevant Act or Fact; and (v) analyze any rumors and speculations in the market about Vale and evaluate whether a response and/or communication to the global capital market is necessary.

Any Related Party who has knowledge of information related to a Relevant Act or Fact shall immediately communicate it to the DIRI and/or the Director of the Investor Relations Area.

21.2 - Description of the material act or fact policy disclosure, indicating the communication channel(s) used to disseminate information about material acts or facts and the procedures related to the maintenance of secrecy about undisclosed relevant information and the websites where the policy can be consulted

According to the Disclosure Policy, Vale shall make public strategic, administrative, technical, business, financial and/or economic information capable of affecting the prices of its securities and/or influencing investors' decision to keep, sell them or exercise any rights inherent to the condition of holders of securities (Relevant Act or Fact), in accordance with applicable laws and regulations.

Vale's controlling shareholders, members of the Board of Directors, the Audit Committee, the Advisory Committees, the Executive Officers and Vale executives shall report any information related to a Relevant Act or Fact of which they are aware to the Finance and Investor Relations Executive Officer ("DIRI"), who will arrange for its prompt disclosure.

All information deemed relevant that is not yet publicly known and is disclosed, intentionally or unintentionally, to analysts, investors, journalists or any person other than (i) a member of Vale's Board of Directors, Audit Committee or Advisory Committees; (iii) member of the Executive Board; or (iii) employee of Vale and its subsidiaries directly involved with the subject matter, shall be promptly made public in accordance with applicable rules and regulations.

The disclosure of a material act or fact shall be made before the beginning or after the closing of the trading sessions of the stock exchanges where the securities issued by Vale are traded. If it is mandatory that the disclosure occurs during the negotiation period, the DIRI shall request suspension of the trading to the relevant regulatory bodies and the stock exchanges where the securities issued by Vale are listed and traded, until it can be adequately disclosed.

Access to information on a Relevant Act or Fact, prior to its public disclosure, is limited to professionals directly involved with the subject matter. Those professionals shall adequately store this information, keep it confidential until it is publicly disclosed and ensure that its subordinates and service providers subject to confidentiality obligations also do so, being jointly and severally liable therewith in case of noncompliance. Those professionals are also subject to a confidentiality agreement entered into with Vale.

The disclosure of material acts or facts may exceptionally be discontinued if the controlling shareholder and/or Vale's managers consider that their disclosure endangers the legitimate interest of the company. In this case, managers may submit to the CVM their decision to exceptionally keep in secrecy material acts or facts, the disclosure of which they deem to endanger the legitimate interests of the company.

All market rumors and/or speculations about Vale and/or its subsidiaries that have as subject thereof possible Material Acts or Facts shall be communicated to the Disclosure Committee. In the event that information about a Relevant Act or Fact escapes control or if there is an atypical oscillation in the securities' quote, price or negotiated volume, the DIRI shall publicly and immediately disclose that information.

In addition, under the applicable laws and regulations of the regulatory agencies and stock exchanges where the securities issued by Vale are listed and traded, Vale shall simultaneously disclose information to the capital market, using the following communication channels:

- To publish Material Acts or Facts in the main circulation newspapers regularly used by Vale, as well as send said documents, through the CVM periodic and occasional information system (IPE System), and make them available on the "Investors Relations" page of the Company's website (www.vale.com).

- Distribution of press releases simultaneously in Portuguese and English, followed by the immediate filing thereof, in compliance with the rules of the regulatory bodies and stock exchanges where the securities issued by Vale are listed and traded (as well as the posting thereof on the websites of regulatory agencies and/or stock exchanges), custodians and depositary agents of the American Depositary Receipts (ADRs), capital market participants and news agencies;

- Conference calls and webcasts held on a regular basis, every quarter, for the dissemination of results, or on an exceptional basis, if necessary. The accomplishment of these events shall be publicly announced to the capital market in advance, with date, time and telephone numbers for connection. Such conference calls and webcasts shall be recorded and be available on Vale's website (www.vale.com), in the Investor Relations section, for ninety (90) days following the event;

- Holding of public meetings, at the discretion of Vale's management. Vale shall publicly announce, in advance, the date, time and place of such events;

- Intense use of the Investor Relations section of Vale's website, with Portuguese and English versions, for the immediate availability of press releases, presentations made at meetings and conferences, operational information, information on corporate events, payments of compensations to shareholders, issuance of debt securities, annual reports, quarterly and annual financial statements, documents filed with regulatory agencies and stock exchanges where Vale's securities are listed and traded, stock quotes and Vale's Depositary Receipts and Answers to frequently asked questions by market participants; and

- Active participation in conferences for investors held in Brazil and abroad.

Vale's Disclosure Policy can be consulted at the Company's headquarters, Company's website (www.vale.com), in the Investors section (http://www.vale.com/brasil/PT/investors/company/corporate-governance/policies/Paginas/default.aspx), on the Empresas.Net System at the website of Comissão de Valores Mobiliários – CVM (Brazilian Securities and Exchange Commission), (www.cvm.gov.br), and at the website of BM&FBOVESPA S.A. – Bolsa de Valores Mercadorias e Futuros ("BM&FBOVESPA", Brazilian Commodities and Futures Exchange), (www.bvmf.com.br).

21.3 - Managers responsible for implementing, maintaining, evaluating and supervising the disclosure policy

The DIRI is responsible for disclosing information regarding material acts or facts, although other related parties (controlling shareholder, Board of Directors's, Audit Committee's and the Advisory Committees's members, Executive Officers, Vale executives, managers of its subsidiaries and whomever, as a result of its position, function or job in Vale and/or in its controlled companies, is aware of information related to a Relevant Act or Fact about Vale) shall be jointly and severally liable in cases of noncompliance with the rules related to this disclosure.

21.4 - Other relevant information

The Disclosure Committee may, if appropriate, approve the disclosure of forecasts relating to the behavior of the markets in which the Company operates, clearly presenting the assumptions underlying such estimates, accompanied by the following note:

"This release may include statements that present Vale's expectations about future events or results. All statements when based on future expectations involve various risks and uncertainties. Vale cannot guarantee that such statements will be correct. Such risks and uncertainties include factors related to: (a) the countries where we have operations, mainly Brazil and Canada; (b) the global economy; (c) the capital market, (d) the price of ores and metals and their dependence on global industrial production, which is cyclical in nature, and (e) the degree of global competition in the markets where Vale operates. For additional information on factors that may give rise to results different from those estimated by Vale, please refer to the reports filed with the Brazilian Securities and Exchange Commission (CVM), the Autorité des Marchés Financiers (AMF) and the US Securities and Exchange Commission (SEC), particularly the factors discussed in sections "Estimates and forecasts" and "Risk factors" in Vale's Annual Report - Form 20F."

In addition, pursuant to Article 12 of CVM Instruction 358/2002 ("CVM Instruction 358"), as amended, the direct or indirect controlling shareholders, the shareholders that elect members of the Board of Directors or the Audit Committee, and any natural person or legal entity or group of persons, acting jointly or representing a same interest, who directly or indirectly purchases or sells relevant shareholding that corresponds, directly or indirectly, to a variation, upwards or downwards, of 5% (five percent) or upwards regarding the type or class of shares representing the capital stock of Vale must, in accordance with article 12 of CVM Instruction 358, immediately send Vale a notice with the following information: (a) name and qualification of the purchaser, with its registration number in the Brazilian Registry of Legal Entities ("CNPJ") or in the Registry of Natural Persons ("CPF"), when applicable; (b) the objective of the interest and the amount targeted, containing, if applicable, a statement by the purchaser that its purchases are not intended to change the composition of Vale's ownership or administrative structure; (c) number of shares and other securities and derivative financial instruments referenced to such shares, being their settlement physical or financial, specifying the number, class and type of referenced shares; and (d) describing any agreement or contract regulating the exercise of voting rights or the purchase and sale of securities issued by Vale; and (e) in the case of a shareholder resident and domiciled abroad, the name or corporate name and the CPF or CNPJ registration number, as the case may be, of the representative or legal representative thereof in the country.

For the purposes of disclosure of the information referred to above, material ownership is deemed the business or group of businesses through which the direct or indirect interest of the persons referred to above exceeds, upwards or downwards, 5%, 10%, 15% and so on, of a type or class of shares representing Vale's capital stock.

The aforementioned obligations extend to the purchase of any rights to the shares and other securities mentioned therein and to the conclusion of any derivative financial instruments referenced to shares issued by Vale, even without physical settlement, in compliance with the rules of Paragraph 3 of Art. 12 of CVM Instruction 358.

The disclosure obligations described above shall always consider the aggregate transactions, including those executed indirectly by third parties, such as: (i) companies controlled directly or indirectly by the investor; (ii) trustees; (iii) private and exclusive investment funds; and (iv) investment funds in which the fund manager's business decisions are influenced by the investor.

The DIRI shall immediately transmit the information received to the relevant regulatory bodies and stock exchanges.