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Vale publishes the first report on climate changes in line with the recommendations of the Task Force on Climate Related Financial Disclosures

The document presents the resilience of Vale's business strategy against climate change scenarios and gathers the strategy for zero emissions in detail

Vale released its first report on climate changes, an initiative that reinforces the strategic importance of the subject to the company. The purpose of the document, which will be published annually, is to map the exposure of Vale's assets to climate change risks, in line with the guidelines of the Task Force on Climate-Related Financial Disclosures (TCFD) and present the resilience of the company's business strategy before climate change scenarios.

Vale has a consistent management of risks and opportunities related to the climate changes, continuously identifying and monitoring them by means of different tools. TCFD recommendations are part of this management process, contributing to the analysis of the physical impacts and the impacts pursuant to the transition to zero carbon economy.

By means of the scenario-based analyses of the International Energy Agency, only 4% of the company's assets are highly exposed to transition risks (such as regulatory changes, demand changes or product replacement due to new technologies). Working on this front, Vale has an emission reduction target, adopted an internal carbon price and has been adjusting its project portfolio in order to provide low-carbon solutions, adapting to the potential market demands as well.

So far, Vale has already been able to evaluate possible physical impacts, such as increase in the global temperature, the sea level or the rainfall patterns, in addition to the exposure to strong winds in the category of hurricanes and extreme events, for 67% of its assets. For this purpose, the company uses internationally recognized tools and its own methodologies to identify the physical impacts and mitigate them. It also has an operational risk area that makes periodic analyses of all Vale's businesses, including with data related to the climate changes.

Regarding the opportunities identified in the scenarios of the International Energy Agency¹, the potential for the use of lower emission energy sources was identified in more than 68% of the company's assets. Seeking the leadership in the low-carbon mining, Vale is committed to achieving 100% self-production of electric energy from renewable sources in Brazil by 2025, and consumption of 100% renewable electric energy globally by 2030. The company also created an internal program called PowerShift to support the decarbonization targets, focused on the transition to a low-carbon energetic matrix.

Vale Climate Forecast – Physical Risk Management at Vale

With the purpose to reduce the exposure of its assets to physical risks, in 2020, Vale developed a methodology for management of physical risks related to the climate changes, Vale Climate Forecast. This enables identification of

potential operational and financial impacts due to climatic variables, such as changes in the rainfall regimes and volumes and temperature variation for all operations of the company. The methodology is divided into two fronts: short-term (focused on the current operational impacts), such as the shipment of products; and long-term (focused on the assessment of the asset resilience for long-term planning).

In relation to short term, in partnership with Vale Technological Institute (ITV), a tool was developed that enables better predictability and monitoring of climate variables.

The pilot of this tool was implemented at the Ponta da Madeira Maritime Terminal, in São Luís (MA). Rainfall forecasts are spread to the entire port daily. Such information helps the decision-making in the operations for shipment and distribution of iron ore and other products, optimizing the plans and minimizing the risks.

In relation to long term, the methodology also enables identifying physical impacts, such as future exposure to floods, heat, wind and rainfall. Based on this information, analyses of operational impacts and financial impacts arising from issues related to the climate changes can be made. A pilot of the methodology was implemented at Vale's operations in Canada.

Such information is extremely relevant to Vale, as it contributes to building a line of defense with long-term action plans against the possible physical impacts of the climate changes, making the fixed assets resilient to these impacts.



Ships in Ponta da Madeira (MA) berths: tool developed by ITV allows monitoring of climate variability in the maritime terminal. Credit_Daniel da Costa Gomes Martins.

Net Zero

Vale's first Climate Change Report also details the company's ambitious targets to zero its direct and indirect net carbon emissions (scopes 1 and 2) by 2050. For this purpose, it will invest between US\$ 4 billion and 6 billion in technological solutions to reduce its emissions by 33% by 2030. Any residual emissions will be removed and compensated through

Nature Based Solutions.

Vale also made a commitment to reduce scope 3 net emissions by 15% by 2035. For this challenge, the company is strategically positioned to help its customers reduce their carbon footprint. Recent examples of initiatives under implementation are the release of the green briquette, a disruptive technology developed internally and patented by the company, with potential to reduce the emissions of steel-making customers by up to 10%, and the partnership with Boston Metals, a startup which aims to produce zero emission steel.

The company also announced the target to protect and recover other 500,000 hectares of forests in Brazil by 2030. For 40 years, Vale has been helping to protect approximately 1 million hectares in the world, 800,000 hectares of which are in the Amazon – an area equivalent to five times the city of São Paulo. 400,000 out of the 500,000 hectares of the target are already existing forests the company will help protect, and 100,000 correspond to degraded areas which, by means of Vale Fund and a network of partners, will be recovered through businesses with positive social and environmental impacts. The concept enables generating income and employment in the family farming, and at the same time, helps to recover forests, which, in turn, sequester carbon from the atmosphere during the growth phase of the trees.

¹*“World Energy Outlook” November, 2019, IEA/ “Innovation in batteries and electricity storage”, September 2020, IEA/“Iron and steel technology roadmap”, October 2020, IEA*

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