

Reparation Day by Day

Repair every day
and build the
future together.

Photo: Pedro Soares Gravatá e Felipe Bentes Mesquita

Photo: Vale Archives



Gleuza Jesué
Reparation Officer

Message from the **officer**

Over the past five years, I have closely followed every step taken, as Executive Reparation Manager. Now, as Officer, I reinforce that we have experienced the most challenging moments of our trajectory. Each day brought deep reflections and crucial learnings. We learn, with humility, respect, and compassion, to listen, understand, and act.

We have an immense responsibility to the communities where we operate and to all those who help us, daily, to find ways to make Vale a better company. Dialogue and collective collaboration have become essential pillars in our journey.

We remain firm in our aim to repair the impacts caused to people, communities, and the environment. We have completed 64% of the Comprehensive Reparation Settlement, which includes obligations to do and to pay.

This document is not just intended to record what has already been done. It symbolizes our daily and ongoing commitment to reparation. For this reason, we have adopted the name “Reparation Day by Day”.

It is also on a daily basis that we build a safer Vale, with life first as its main value. We will never forget Brumadinho and, for this reason, we work daily to avoid repetition.

May this reading serve as a reinforcement of our commitment to learning and, above all, to our cultural transformation.

What you will see on the next pages

6	Timeline
8	We will never forget Brumadinho
10	Impacted area
12	Commitment to searches

What we have done

16	Humanitarian care
18	Emergency actions
20	Compensation and support for the affected persons
	Comprehensive assistance program for the affected persons
21	Family reference program
22	Guarantee of water for all
25	Agriculture
26	Greater water security for Belo Horizonte and Metropolitan Region (RMBH)
30	Take me home
36	Socioeconomics
38	Health cycle
40	Resignification of Córrego do Feijão
44	Brumadinho sustainable tourism promotion program
48	Agricultural development in Mário Campos
52	Social and urban infrastructure works
54	Compensation works

Where we are

62	Full Reparation Settlement
66	Pro-Brumadinho Steering Committee
70	Socioeconomic Reparation
72	Projects for Brumadinho and municipalities in the Paraopeba River Basin
74	Donation of street market kits
76	Health in Brumadinho and in the Paraopeba River Basin
78	Agriculture Development Program
80	Delivery of machines
82	Brumadinho Industrial District

84 Socioenvironmental Reparation

86	Tailings containment
88	Tailings removal
90	Ground Zero
91	Remanso 1B
92	Recovery of degraded areas
93	Seeds of Reparation
95	Recovery of plant species
96	Monitoring water quality in the Paraopeba River
99	Tailings Geochemical Research Program
100	Aquatic biodiversity
101	Terrestrial biodiversity
104	Special projects

106 Dam safety

108	Our advances in dam safety
110	Elimination of upstream dams
115	Global Tailings Standard
116	More preventive actions
118	24 hour monitoring
119	Prevention culture
120	Changes in the sector

Where we are going

124	Message from the President
-----	-----------------------------------

Timeline with key milestones

Reparation Day by Day

November/2023

2019

January 25th. B1 dam collapse, in Brumadinho, which caused irreparable human losses.



Commitment to searches

Support in the immediate rescue and search for the 270 victims as a top priority.



Emergency actions

Creation of the **Immediate Response and Humanitarian Aid Committee**.

2020

Start of the **Brumadinho Sustainable Tourism Promotion Program**: tourist governance, rural and community-based tourism, diversification of the tourist offer, expansion of financing mechanisms and restructuring of the events calendar.

Definition, together with residents, of the project for Resignification of **Córrego do Feijão**, one of the affected communities.

Launch of the Ciclo Saúde Program to strengthen the Primary Care Network in 15 impacted municipalities. More than 3,200 health professionals were trained and more than 5,700 pieces of equipment were delivered.

Socioeconomics

Completion of the decharacterization works on the 8B dam, in Nova Lima.

Beginning of permanent monitoring of dams by three **Geotechnical Monitoring Centers (CMG)**, two in Minas Gerais and one in Pará.

Compensation and support for the affected persons

Opening of Compensation Offices: to this date, more than **7,100 settlements have been signed, involving more than 14,000 people**. More than 5,300 people have already been served by the Comprehensive Assistance Program for Affected Persons (PAIA).

Creation of the **Family Reference Program for psychosocial support** for a families. 100% of the follow-ups have already been completed.

Uninterrupted supply of water for people affected by the suspension of use of water from the Paraopeba River and for the riverside population.

Constant monitoring of water delivered to the population.

Inputs for animal feed and technical support for rural producers in 16 municipalities in the Paraopeba River Basin, totaling 425 properties.



Environment

Training of 42 small producers in the municipality of Mário Campos through the **Agricultural Development Program**, which offered individualized technical assistance for the resumption of activities.

Definition of **compensation works for Brumadinho**, after listening to communities. Daycare centers, Family Health Unit (USF), road paving, public lighting, new headquarters for the Military Police Battalion, new sports center, and revitalization of the municipal theater have already been delivered in Brumadinho.

Environment

Launch of Marco Zero [Ground Zero], a pilot project for the environmental recovery of the impacted area.

Use of an **innovative technique capable of rescuing the DNA** of impacted vegetation to create copies of the plants. Seedlings that could take more than eight years to flower began the process between six and twelve months.

Start of **terrestrial biodiversity monitoring**. Among the species, 14 plants and 14 animals are endangered.

Seeds of Reparation Project contributes to the production of native seedlings for the recovery of the impacted area.

Dam safety

Adoption of the Global Industry Standard on Tailings Management (GISTM).

Completion of the **decharacterization of three upstream structures: Rio de Peixe Dike, in Itabira, and Kalunga 2 and 3 Dikes, in the mine Mina do Azul, in Parauapebas (PA)**.

2021

Commitment to searches

Implementation of **Search Stations** to increase effectiveness of the Fire Department investigation.

Full Reparation Settlement

Execution of the Comprehensive Reparation Settlement among the Government of the State of Minas Gerais, the Minas Gerais State Public Prosecutor's Office, the Federal Public Prosecutor's Office, the Minas Gerais State Public Defender's Office and Vale, in the amount of R\$37.69 billion.

Dam safety

Formation of the Pro-Brumadinho Management Committee.

Tailings Geochemistry Research Program: analyzed samples indicated that the tailings are not hazardous waste and are not toxic, according to ABNT (Brazilian Association of Technical Standards) standards.

Socioeconomics

Implementation of the **Agriculture Promotion Program**, serving 220 farmers.

Cultivar Project

improved the management of productive activities of small farmers in Mário Campos.

Dam safety

Elimination of three upstream dams: Fernandinho (Nova Lima), Dikey 5 of the Pontal System (Itabira), and Ponder de Rejeitos Igarapé Bahia, in Parauapebas (PA).

2022

Full Reparation Settlements

Donation of street market kits for structuring street markets in municipalities and technical and managerial guidance for around two thousand producers.

Delivery of vehicles and support and **structuring materials** for the Civil Defense School at Cidade Administrativa, in Belo Horizonte.

Socioeconomics

Launch of the **Céu de Montanhas Catalog**, involving 39 local tourist experiences, through the Brumadinho Sustainable Tourism Promotion Program.

Dam safety

Decharacterization of five upstream structures: Auxiliary Dikey of the B5 dam (Nova Lima), Baixo João Pereira dam (Congonhas), Dikes 3 and 4 of the Pontal dam, and Ipoema Dikey (Itabira).

Development of an unprecedented system in the world, **Lift Line Spider**, which allows safe access to dams with evacuated Self-Rescue Zones (ZAS).

2023

Commitment to searches

Continuity of the **8th Search Operation** of the Minas Gerais Fire Department to find the three victims.

Socioeconomics

Resignification of Córrego do Feijão: delivery to the community of Praça Central 25 de Janeiro, the Ipê Amarelo Community Market, and the Laudelina Marcondes Culture and Crafts Center. Seven local businesses have already been incubated and 14 are receiving technical assistance with support from Rede Terra.

Tourism in Brumadinho was highlighted at ABAV Expo 2023, held in Rio de Janeiro by the Brazilian Association of Travel Agencies.

Water security

Progress in works to **improve water security** to serve the population of the Metropolitan Region of Belo Horizonte and the Paraopeba River Basin. Of the 79 structural works planned, 57 have already been completed.

Full Reparation Settlement

Projects for Brumadinho and municipalities in the Paraopeba River Basin: 298 approved, 133 underway, and 79 completed.

Advance of 64% in the Comprehensive Reparation Settlement, between Vale's obligations to do and pay.

Delivery of 75 machines for the restoration of rural roads to 25 municipalities in the Paraopeba River Basin.

Launch of the new **Brumadinho Industrial District**, with an investment of R\$170 million.

Start of recovery of the affected area named Remanso 1B, a three-hectare plot.

Restoration of 60 hectares of Atlantic Forest, the equivalent of 60 football fields, with the planting of approximately 90 thousand native seedlings.

Dam safety

Construction work begins on the **Wolbachia Biofactory**.

More than 61 thousand deliveries were made in the healthcare sector, including medical and hospital equipment, vehicles to support care and trained people.

Implementation of four tailings filtration plants (Vargem Grande, Conceição, Brucutu, and Cauê) to reduce dependence on dams.

Start of decharacterization works on five more upstream structures: Dikey 2 and Dikey 1A (Itabira), Campo Grande (Mariana) and Grupo and Area IX (Ouro Preto).

Completion of the decharacterization works on Dikey 2 of the Pontal System, in Itabira.

Of the 50 tailings storage structures, **48 are compliant with GISTM** and the remaining two will be compliant by 2025.

Approximately 75% of the leaked tailings have already been released for inspection by the Minas Gerais State Fire Department.



Find out more at vale.com/reparacao

Repairing every day and building the future, together.



We will never forget Brumadinho.

We will never forget the victims, their families, and the socioenvironmental and socioeconomic impacts caused by the tragedy.

Adail Dos Santos Junior
Adair Custódio Rodrigues
Ademário Bispo
Adilson Saturnino De Souza
Adnilson Silva Nascimento
Adriano Aguiar Lamounier
Adriano Caldeira Do Amaral
Adriano Gonçalves Dos Anjos
Adriano Junio Braga
Adriano Ribeiro Da Silva
Adriano Wagner Da Cruz De Oliveira
Alaércio Lúcio Ferreira
Alano Reis Teixeira
Alex Mário Moraes Bispo
Alex Rafael Piedade
Alexis Adriano Da Silva
Alexis César Jesus Costa
Alisson Martins De Souza
Alisson Pessoa Damasceno
Amanda De Araújo Silva
Amarina De Lourdes Ferreira
Amauri Geraldo Da Cruz
Anailde Souza Pereira
Anderson Luiz Da Silva
André Luiz Almeida Santos
Andrea Ferreira Lima
Angélica Aparecida Ávila
Angelita Cristiane Freitas De Assis
Ângelo Gabriel Da Silva Lemos
Anízio Coelho Dos Santos
Antônio Fernandes Ribas
Armando Da Silva Raggy Grossi
Aroldo Ferreira De Oliveira
Bruna Lelis De Campos
Bruno Eduardo Gomes
Bruno Rocha Rodrigues
Camila Aparecida Da Fonseca Silva
Camila Santos De Faria
Camila Taliberti Ribeiro Da Silva
Camilo De Lelis Do Amaral
Carla Borges Pereira
Carlos Augusto Dos Santos Pereira
Carlos Eduardo De Souza
Carlos Eduardo Faria
Carlos Henrique De Faria
Carlos Roberto Da Silva
Carlos Roberto Da Silveira
Carlos Roberto Deusdedit
Carlos Roberto Pereira
Cassia Regina Santos Souza
Cássio Cruz Silva Pereira
Cláudio Jose Dias Rezende
Cláudio Leandro Rodrigues Martins
Cláudio Marcio Dos Santos
Cláudio Pereira Silva
Cleudson Aparecido Moreira
Cleiton Luiz Moreira Silva
Cleosane Coelho Mascarenhas
Cristiane Antunes Campos
Cristiano Braz Dias
Cristiano Jorge Dias
Cristiano Serafim Ferreira
Cristiano Vinicius Oliveira De Almeida
Cristina Paula Da Cruz Araujo
Daiana Caroline Silva Santos
Daniel Guimarães Almeida Abdalla
Daniel Muniz Veloso
David Marlon Gomes Santana
Davyson Christhian Neves
Denilson Rodrigues
Dennis Augusto Da Silva

Diego Antônio De Oliveira
Diomar Custódia Dos Santos Silva
Dirce Dias Barbosa
Djener Paulo Las-Casas Melo
Duane Moreira De Souza
Edeni Do Nascimento
Edgar Carvalho Santos
Edimar Da Conceição De Melo Sales
Ediônio José Dos Reis
Edirley Antônio Campos
Ednilson Dos Santos Cruz
Edson Rodrigues Dos Santos
Edymayra Samara Rodrigues Coelho
Egilson Pereira De Almeida
Eliandro Batista De Passos
Eliane De Oliveira Melo
(Grávida Da Maria Elisa)
Eliane Nunes Passos
Elis Marina Costa
Elivelton Mendes Santos
Elizabeth De Oliveira Espíndola Reis
Elizeu Caranjo De Freitas
Emerson José Da Silva Augusto
Erdio Dias
Eudes José De Souza Cardoso
Eva Maria De Matos
Evandro Luiz Dos Santos
Éverton Guilherme Ferreira Gomes
Everton Lopes Ferreira
Fabrício Henriques Da Silva
Fabrício Lúcio Faria
Fauler Douglas Da Silva Miranda
Felipe Jose De Oliveira Almeida
Fernanda Batista Do Nascimento
Fernanda Cristhiane Da Silva
Fernanda Damian De Almeida
(Grávida Do Lorenzo)
Flaviano Fialho
Francis Erick Soares Silva
Francis Marques Da Silva
George Conceição De Oliveira
Geraldo De Medeiros Filho
Gilmar Jose Da Silva
Giovani Paulo Da Costa
Gisele Moreira Da Cunha
Gislene Conceição Amaral
Glayson Leandro Da Silva
Gustavo Andrié Xavier
Gustavo Sousa Júnior
Heitor Prates Máximo Da Cunha
Helbert Vilhena Santos
Hermínio Ribeiro Lima Filho
Hernane Junior Moraes Elias
Hugo Maxs Barbosa
Ícaro Douglas Alves
Izabela Barroso Câmara Pinto
Janice Helena Do Nascimento
Jhobert Donadonne Gonçalves Mendes
João Marcos Ferreira Da Silva
João Paulo Altino
João Paulo De Almeida Borges
João Paulo Ferreira De Amorim Valadão
João Paulo Pizzani Valadares Mattar
João Tomaz De Oliveira
Joiciane De Fátima Dos Santos
Jônatas Lima Nascimento
Jonis André Nunes
Jorge Luiz Ferreira
José Carlos Domeneguete

Josiane De Souza Santos
Josué Oliveira Da Silva
Juliana Creizimar De Resende Silva
Juliana Esteves Da Cruz Aguiar
Juliana Parreiras Lopes
Júlio César Teixeira Santiago
Jussara Ferreira Dos Passos Silva
Kátia Aparecida Da Silva
Kátia Gisele Mendes
Lays Gabrielle De Souza Soares
Leandro Antonio Silva
Leandro Rodrigues Da Conceição
Lecilda De Oliveira
Lenilda Cavalcante Andrade
Lenilda Martins Cardoso Diniz
Leonardo Alves Diniz
Leonardo Da Silva Godoy
Leonardo Pires De Souza
Letícia Mara Anízio De Almeida
Letícia Rosa Ferreira Arrudas
Levi Gonçalves Da Silva
Lourival Dias Da Rocha
Luciana Ferreira Alves
Luciano De Almeida Rocha
Lúcio Rodrigues Mendanha
Luís Felipe Alves
Luís Paulo Caetano
Luiz Carlos Silva Reis
Luiz Cordeiro Pereira
Luiz De Oliveira Silva
Luiz Taliberti Ribeiro Da Silva
Manoel Messias Sousa Araújo
Marcelle Porto Cangussu
Marcelo Alves De Oliveira
Marciano De Araújo Severino
Marciel De Oliveira Arantes
Marcileia Da Silva Prado
Marcio Coelho Barbosa
Mascarenhas
Márcio De Freitas Grilo
Márcio Flavio Da Silva
Márcio Flavio Da Silveira Filho
Márcio Paulo Barbosa Pena
Mascarenhas
Marco Aurélio Santos Barcelos
Marcus Tadeu Ventura Do Carmo
Maria De Lurdes Da Costa Bueno*
Marlon Rodrigues Gonçalves
Martininho Ribas
Maurício Lauro De Lemos
Max Elias De Medeiros
Milton Xisto De Jesus
Miraceibel Rosa
Miramar Antonio Sobrinho
Moisés Moreira De Sales
Natália Fernanda Da Silva Andrade
Nathalia De Oliveira Porto Araujo*
Nilson Dilermando Pinto
Ninrode De Brito Nascimento
Noé Sanção Rodrigues
Noel Borges De Oliveira
Olavo Henrique Coelho
Olimpio Gomes Pinto
Pamela Prates Da Cunha
Paulo Geovane Dos Santos
Paulo Natanael De Oliveira
Pedro Bernardino De Sena
Peterson Firmino Nunes Ribeiro
Priscila Elen Silva
Rafael Mateus De Oliveira
Ramon Júnior Pinto

Rangel Do Carmo Januário
Reginaldo Da Silva
Reinaldo Fernandes Guimarães
Reinaldo Gonçalves
Reinaldo Simão De Oliveira
Renato Eustáquio De Sousa
Renato Rodrigues Da Silva
Renato Rodrigues Maia
Renato Vieira Caldeira
Renildo Aparecido Do Nascimento
Ricardo Eduardo Da Silva
Ricardo Henrique Veppo Lara
Robert Ruan Oliveira Teodoro
Robson Máximo Gonçalves
Rodney Sander Paulino Oliveira
Rodrigo Henrique De Oliveira
Rodrigo Miranda Dos Santos
Rodrigo Monteiro Costa
Rogério Antônio Dos Santos
Roliston Teds Pereira
Ronnie Von Olair Da Costa
Rosaria Dias Da Cunha
Roselia Alves Rodrigues Silva
Rosiane Sales Souza Ferreira
Rosilene Ozorio Pizzani Mattar
Ruberlan Antônio Sobrinho
Samara Cristina Dos Santos Souza
Samuel Da Silva Barbosa
Sandro Andrade Gonçalves
Sebastião Divino Santana
Sérgio Carlos Rodrigues
Sirlei De Brito Ribeiro
Sueli De Fátima Marcos
Thiago Leandro Valentim
Thiago Mateus Costa
Tiago Augusto Favarini
Tiago Barbosa Da Silva
Tiago Coutinho Do Carmo
Tiago Tadeu Mendes Da Silva*
Uberlandio Antônio Da Silva
Vagner Nascimento Da Silva
Valdeci De Sousa Medeiros
Vinícius Henrique Leite Ferreira
Wagner Valmir Miranda
Walaci Junhior Cândido Da Silva
Walisson Eduardo Paixão
Wanderson Carlos Pereira
Wanderson De Oliveira Valeriano
Wanderson Paulo Da Silva
Wanderson Soares Mota
Warley Gomes Marques
Warley Lopes Moreira
Weberth Ferreira Sabino
Wellington Alvarenga Benigno
Wellington Campos Rodrigues
Wenderson Ferreira Passos
Weslei Antônio Belo
Wesley Antônio Das Chagas
Wesley Eduardo De Assis
Willian Jorge Felizardo Alves
Wilson Jose Da Silva
Wiryslan Vinicius Andrade De Souza
Zilber Lage De Oliveira

* People not found to this date

Area impacted by the collapse of the B1 dam, in Brumadinho

9.7 million cubic meters of **tailings leaked.**

26 municipalities affected.

132 hectares of Atlantic Forest impacted.

270 deaths.

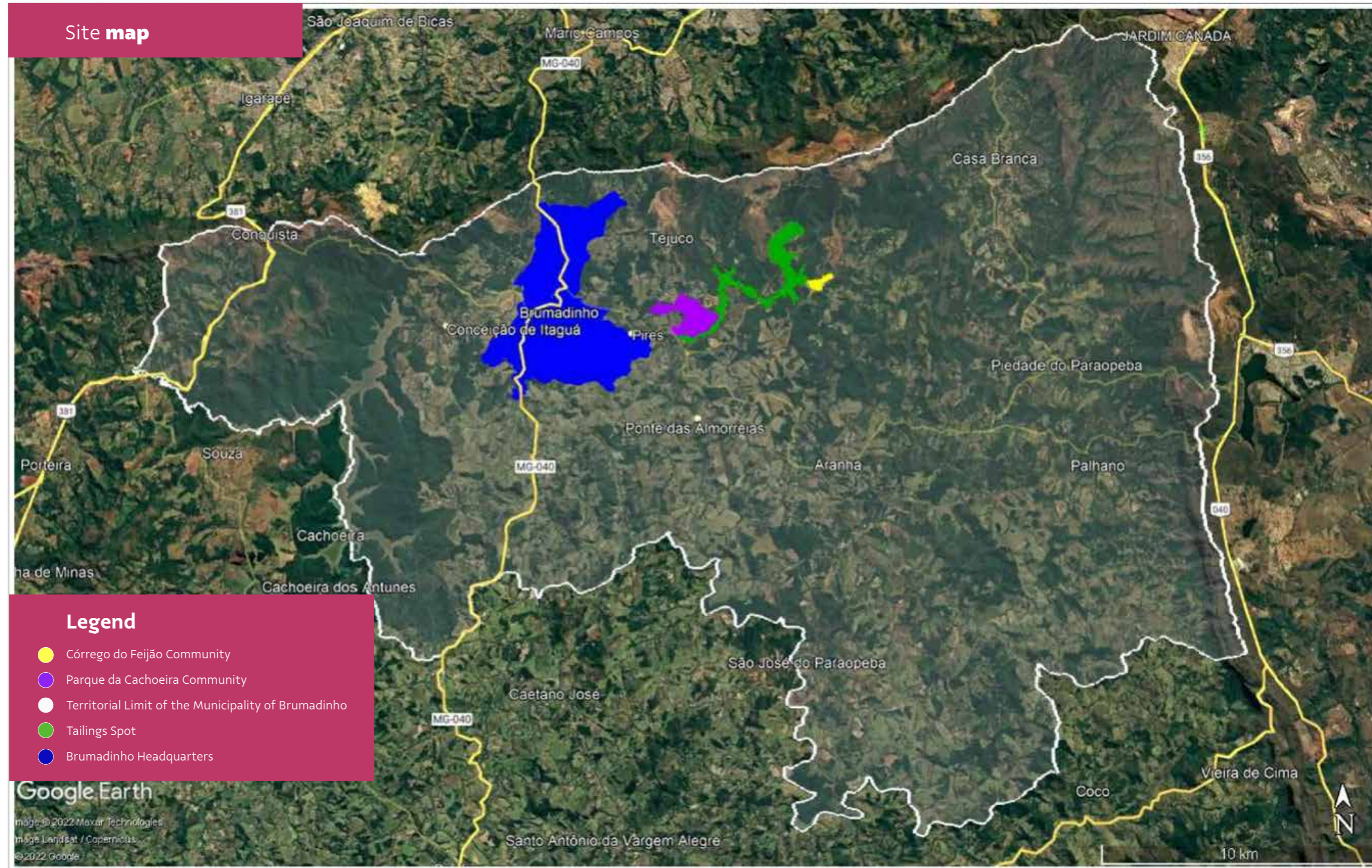




Photo: Video Delivery

Search Stations used by the Minas Gerais Fire Department

Commitment to searches

Support in the immediate rescue and search for victims has always been our priority.

As of October 2023, 267 victims have been found and identified, and another three are still being searched.

Over time, improvements were implemented that brought advances in the process of searching for victims. This is the case of the Search Stations, structures adapted to increase the effectiveness of military investigations. During these almost five years, there were three interruptions, due to the Covid-19 pandemic and the torrential rains in January 2022.

The 8th search strategy continues as planned by the Minas Gerais Fire Department team, with the support of the Civil Police, represented by the Medical Examiner's Office, Vale teams and the collaboration of the victims' families.



All our actions were previously discussed and validated with the Fire Department, always with the aim of improving search conditions and results.

Eduardo Neves,
 general manager of
 Implementation of Social
 Value Projects
 South Southeast

A man and a woman are standing outdoors on a paved path, engaged in conversation. The man, on the left, has a beard and is wearing a light blue short-sleeved button-down shirt and dark blue jeans. The woman, on the right, has long, curly dark hair and is wearing a light blue short-sleeved button-down shirt and blue jeans. They are both looking towards each other. The background shows a green lawn, trees, and a building in the distance, suggesting a park or a community center. The lighting is warm, indicating it might be late afternoon or early morning. On the left side of the image, there are decorative curved shapes in yellow, teal, and pink. The text 'What we have done' is overlaid in a bold, pink font in the upper right quadrant.

What we have done



Photo: Vale Archives

Humanitarian care

From the first minutes after the B1 dam collapsed, we dedicated ourselves fully to repairing the damage.

In addition to the searches, emergency actions were focused on sheltering and humanitarian support to impacted families and communities.

Emergency actions



Community service stations and 0800 toll-free channel



Medical care and psychosocial support



Payment of emergency aid



Lodging of families in temporary housing and hotels



Transfer of R\$360 million to Brumadinho and public bodies in Minas Gerais



Contribution of funds for environmental services, health materials, reinforcement of public policies, transportation, and other logistical costs



Compensation and support for the affected persons

On the financial support front, in addition to emergency aid, extrajudicial civil and labor compensation remained a priority, reaffirming our commitment to compensating everyone who suffered any damage. At least one family member of each employee, whether directly or outsourced, who is a victim of the breach has already signed an indemnity agreement.

+7,1 mil

civil and labor **indemnity agreements** to date

+14,3 mil

thousand **people** involved

+R\$ 3,4 bi

billion **in payments** made to date

Data from 10/24/23. They include people who had to be evacuated, in conjunction with the Municipal Civil Defense bodies, due to the change in the emergency level of some of our dams in Minas Gerais.



Foto: AdobeStock

Comprehensive Assistance Program for Affected Persons (PAIA)

In addition to compensation, the affected persons received support to resume their routine. The program created based on the Term of Commitment signed with the Office of the Public Defender of the State of Minas Gerais, the program allows the guidance of indemnified families in planning their lives in the face of new economic and socioenvironmental conditions. Of the total number of persons indemnified to the date hereof, 35% have signed up for at least one of the PAIA fronts: assisted property purchase, financial education, urban and rural productive recovery, and psychosocial support.

+5,3 mil

thousand **people** served

80%

of services **completed**

Financial education was one of the most accessed areas and already has more than 2,600 services completed.



Photo: Vale Archives

Psychosocial care for directly affected families

Family Reference Program

Families impacted by the collapse received psychosocial assistance, support to overcome the impacts experienced, to reestablish autonomy and redefine their ways of life, through the Family Reference Program.

The services were carried out systematically and continuously by specialized professionals.

1,2 mil

families joined the program

+3,5 mil

thousand **people** served

100%

of **follow-ups** completed

+111 mil

thousand **services**



Photo: Vale Archives

Mineral water distribution

Guarantee of water for all

To maintain access to water for people affected by the suspension of the use of water from the Paraopeba River, between the cities of Brumadinho and Pompéu, we moved forward with the implementation of water treatment systems and the drilling of wells, along with supply in water trucks and mineral water.

Water supply

- 184**
underground intakes for the riverside population and public supply
- 3**
water pipelines in operation in Brumadinho and Pará de Minas
- +4.100**
hydraulic and reservoir structures (reservoirs, drinking fountains, and water tanks)
- 87**
water trucks running daily



Photo: Vale Archives

Distribution of water to the communities of Esmeraldas

Distribution of drinking water to the riverside population

Just like the population of the cities that were impacted by the suspension of water intake from the Paraopeba River, riverside communities were also guaranteed access to drinking water, through water trucks or distribution of mineral water, in addition to drilled or reactivated wells.

To find out more about requesting the supply of drinking water via water trucks, please call our Service Center: 0800 031 0831.

The following has already been provided to date



Water monitoring

We constantly monitor the water delivered to the population, daily in water trucks and quarterly in tubular wells drilled, in accordance with current regulations. All samples are carried out by accredited laboratories. In addition, there is monthly monitoring of water treatment systems.

Based on a Term of Commitment signed with Vale, the independent technical audit company retained to serve the Minas Gerais State Public Prosecutor's Office, also carries out analyzes such as control samples and onsite audits of collections.

2.021

collection stations

37,44 mil

thousand samples collected

+1,9 mi

million results



Water monitoring

Water treatment systems

Together with state and municipal health departments, we install treatment systems in sources selected by the public authorities, leaving the water free of biological contaminants and metals. The action is expected to be completed by 2024.

148

water treatment systems installed to date



Distribution of animal feed

Agriculture

Emergency deliveries to rural producers

In addition to receiving water to maintain their agricultural activities, rural producers from 16 municipalities in the Paraopeba Basin regularly receive inputs to feed their animals, in addition to technical support.

The Emergency Agricultural Assistance Plan is based on studies prepared by the Brazilian state-owned agricultural research company Empresa Brasileira de Pesquisa Agropecuária (Embrapa).

In the aggregate, more than 378 million kilograms of diverse animal feed have already been distributed, subject to strict quality controls.

425

properties served

“

“Since the dam collapse, Vale has offered full support to my rural property, from emergency aid to feeding the more than 650 animals, which now have access to three drinking fountains. I receive around 3,500 bags of silage per month. The company has been very responsive to my production needs.”

Geraldo Cândido Machado Junior, resident of Pequi, one of the impacted municipalities



Installation works for the Carlos Prates water pipeline, in Belo Horizonte

Greater water security for Belo Horizonte and Metropolitan Region (RMBH)

To guarantee continuous access to water for approximately five million people, we are carrying out more than 79 structural works in the RMBH and the Paraopeba River Basin.

Of these, 57 have already been completed and are part of the Contingency Plan, activated in the event of a dam collapse that impacts the Rio das Velhas Basin.

Discover some of the works included in the plan.



Intake and pipeline at the Cambimbe dam

Intake and pipeline at the Cambimbe dam

We installed a raw water collection system in the Cambimbe dam reservoir to serve the population of Raposos and part of Nova Lima.

Its purpose is to guarantee the supply of water to these regions in the event of a possible interruption of water intake in Rio das Velhas, benefiting around 84 thousand inhabitants. The system starts to capture water stored in the Cambimbe dam and directs it through a pipeline to the Bela Fama Water Treatment Station (ETA).



Photo: Video Delivery

Wells in Sabará

To reinforce water security in Sabará, tubular wells with a depth of 300 to 450 meters are being drilled, as an alternative supply source for the municipality.

Works to serve essential users

A series of works are underway to ensure continuous water supply to hospitals, educational institutions and prisons, considering the specific storage capacity needs of each user. Currently, 72% of these initiatives have already been completed to meet the demands of 32 essential users, who consume more than 80 thousand liters of water per day.

Carlos Prates transfer pipeline

Completion of this work increased the possibility of water transfer between the distribution systems of the Paraopeba river basin and the das Velhas river basin.

New intake from the Paraopeba river

Upstream of the collapse point, we built a new intake from the Paraopeba River and other operational units to supply raw water to the Rio Manso Water Treatment Station (ETA Rio Manso). These works will contribute to the supply of RMBH, with a design flow of 5,000 L/s, serving around two million inhabitants.



Access the project page and find out more.



Photo: Lúcia Horta

Take me Home

The Take me Home program wants to find new families for the animals that were directly or indirectly impacted by the B1 collapse, in Brumadinho, and by the evacuations and preventive relocations in Minas Gerais.



Watch testimonials from adopters.

Photo: Lúcia Horta

Helena Maria and Brener Rocha, environmental analyst at Vale, with their children Raul, Luana and Tainá together with their adopted dogs

Take me Home

We took care of them, now let them take care of you.

In 2023, the Take Me Home program gained visibility on our internal communication channels. Based on scientific evidence about the benefits of adopting a pet in people's lives, such as the exchange of love and affection, our campaign motto currently is "We take care of them. Now let them take care of you."

The initiative has been expanded and strengthened so that it has greater reach and we can accelerate responsible adoptions.

“

Adoption only brings benefits, both for children and adults. The connection with animals is very quick.

You will always have company, protection, and affection too.”

Brener Rocha,
who adopted three dogs

”



Photo: Lúcia Horta

Adoption fairs

Since 2019, we have promoted adoption fairs open to the population in Brumadinho and the Metropolitan Region of Belo Horizonte. In addition to the publicity that took place in the media during this period, we also took the fairs to our internal operations and administrative areas.

This year, we had a greater presence in medium and large public events, such as the Itatiaia Run, in Belo Horizonte, which had approximately eight thousand participants, and the run Corrida do Bem Eco, in which three thousand persons registered.

Incentives to adopt in the Take Me Home program

We know that adopting is an act of love done responsibly. Therefore, we are together to support new guardians throughout the process, ensuring that the adoption is carried out in a well-planned manner.

Castration included

Dogs and cats are delivered neutered.

Vaccines and anti-parasitic drugs

New guardians receive their pets dewormed and with ectoparasite control. Furthermore, protocol updating is included in the monitoring period.

Delivery convenience

We take the animals to their new homes in a radius of up to 150 km from Belo Horizonte.

Veterinary services

All animals receive veterinary services for six months after adoption.

Support during adaptation

Our team is available to provide support and guidance during the monitoring period.

Important testing

Dogs are tested for leishmaniasis and cats for retroviruses: FIV (feline immunodeficiency) and FeLV (feline leukemia).

Perfect combination

Support to find the best compatibility between adopters and animals, considering your preferences and lifestyle.

Guaranteed exams

If necessary, exams are also guaranteed during the monitoring period, ensuring that the animal is always healthy.



Photo: Ovelha EXCO

Mariana Pinto, administrative analyst at Vale, and her husband Diego Felipe with their pets



"As soon as the veterinarian brought him for us to meet, it was a meeting of souls.

I feel gratitude in his eyes. Today he is so happy and has a protective instinct.

It changed our lives from water to wine."

Marianna Pinto,
Vale employee

Contact us and find out a reason for you to adopt your pet.

Website: vale.com/melevapracasa

Fauna Shelter: (31) 97178-0969

Adoption Team: (31) 99885-2738

Service Center: 0800 031 0831



Socioeconomics

**Open listening, dialogue,
and collective construction.**

These were the guidelines that steered our main actions in the years leading up to the Comprehensive Reparation Settlement, signed in 2021, and they still remain as essential pillars.

Through programs that boost tourism and encourage entrepreneurship, we seek to strengthen and diversify the economy by creating opportunities to improve people's lives.

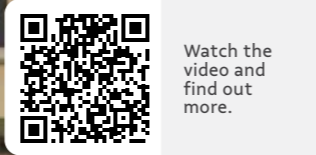


Photo: Vale Archives



Professional training

Program x-ray

3.206
trained professionals

5.754
pieces of equipment delivered

764
workshops held

143
UBS (Primary Health Care Centers) served

216
Young Health Builders trained



“This is a program that really brought effectiveness to what was proposed to us. In addition to equipment and training actions, it supports management through georeferencing, with which we can easily identify the epidemiological profile of the city and, from there, outline the goals and actions that will best serve our municipalities.”

Márcia dos Anjos
Ferreira Lopes,
Municipal Secretary of
Health of Paraopeba

Health Cycle

The program left a legacy of strengthening the Primary Care Network in Brumadinho, Mário Campos, Sarzedo, São Joaquim de Bicas, Pará de Minas, Pompéu, Fortuna de Minas, Morada Nova de Minas, Papagaios, Inhaúma, and Pequi, in addition to the municipalities of evacuated territories.

In total, 15 cities in Minas Gerais had 100% of their Basic Health Units (UBS) equipped and had support in management processes. Health professionals were also trained.



Photo: Ovelha EXCO

Praça 25 de Janeiro

Resignification of Córrego do Feijão

At the beginning of 2023, residents met again on the streets of the community, after delivery of the square Praça 25 de Janeiro, the Ipê Amarelo Central Market, the Laudelina Marcondes Culture and Crafts Center, and two community kitchens. The urban requalification project was built on dialogue to solve the community's main demands and needs.

It includes improvements to water and sewage networks, road paving and lighting, as well as qualified and attractive leisure spaces, capable of generating income and promoting the development of local tourism.



Photo: Ovelha EXCO

Ipê Amarelo Community Market

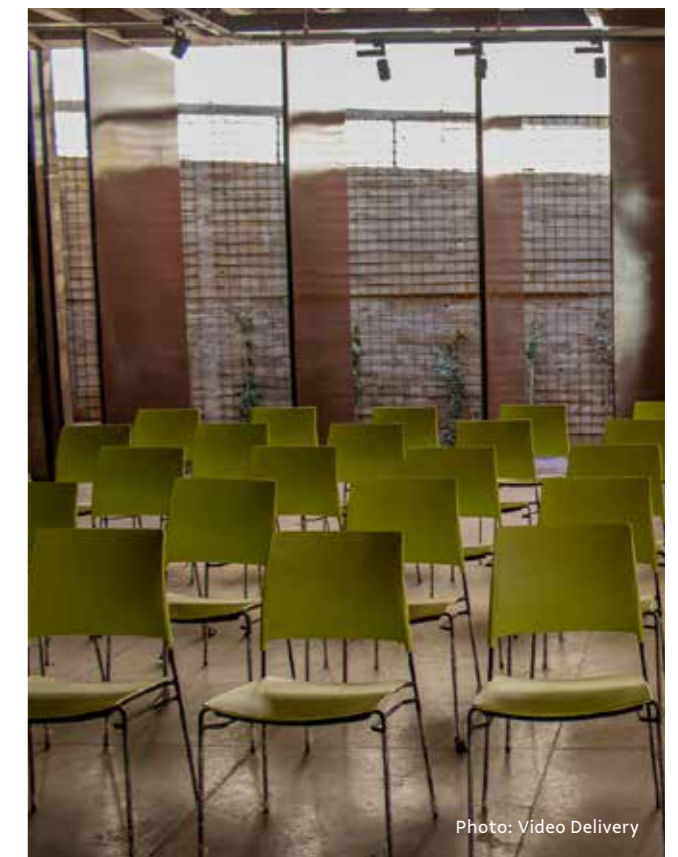


Photo: Video Delivery

Laudelina Marcondes Culture and Crafts Center

In conjunction with physical deliveries, an occupancy and activation plan is implemented, in partnership with Instituto Rede Terra, to support the community in the use and participatory management of equipment, working with the vision of a networked economy.

Community entrepreneurship

Local commerce in Córrego do Feijão has been boosted by the Community Social Entrepreneurship project, which has already brought together seven local businesses in the incubation process and currently advises 14 collective and individual enterprises on structuring and marketing strategies, capable of keeping productive activities ongoing.

In addition to social businesses, the project promotes a permanent network of initiatives that strengthen local knowledge, promote links and value the community's creative repertoire.



Photo: Vale Archives

“

“I took the soap making and aromatic products course, I learned how to make soaps, foot baths, sachets, bath salts, incense, all naturally and using products, inputs, and herbs from the community's own backyards.”

Josefa Josenilda Coelho,
resident of Córrego do Feijão

”



Photo: Vale Archives



Foto: Arquivo Vale

Ateliê Cerâmica Raiz, from Brumadinho, is part of the Céu de Montanhas catalog

Brumadinho Sustainable Tourism Promotion Program

The program operates through five structuring projects, with actions to strengthen tourism governance, increase rural and community-based tourism, diversify the local tourist offer, expand financing mechanisms in the area, and restructure the tourist events calendar.

One of the highlights is **Céu de Montanhas**, a collection of tourist experiences developed by Vale and curated by Minas Gerais designer Ronaldo Fraga and experiential tourism specialist Miriam Rocha.



Check out the collection using the QR Code below.

39
ventures

133
people benefited, **82% of whom are women**

26
months of technical assistance

+60
new products

29
with **microcredit and consultancy** for projects

experiences
Support **new** mature tourist



Brumadinho stand at ABAV Expo 2023

Brumadinho was one of the highlights at ABAV

The new momentum in Brumadinho's tourism sector was one of the highlights of ABAV Expo 2023, by the Brazilian Association of Travel Agencies, which took place from September 27 to 29 in Rio de Janeiro.

The fair featured a stand from the municipality, through the Brumadinho Sustainable Tourism Promotion Program, together with Inhotim, sponsored by Vale, and the Céu de Montanhas catalogue.

The fair's program featured a panel highlighting the methodologies applied and actions carried out by the program in the process of collective strengthening of the sector.



The rural experiences that are part of the Céu de Montanhas catalog were a highlight in the press. Access the QR Code and see.



Partnership between Inhotim and Céu de Montanhas

Anyone who accesses the website of the largest open-air museum in Latin America will find a wide menu of rural, gastronomic, artistic, and well-being experiences available in the region.

www.inhotim.org.br



Photo: Vale Archives

Nineteen producers from Mário Campos were advised on participating in fairs

Agricultural Development in Mário Campos

Support for productive resumption

Agriculture projects developed in partnership with the municipality of Mário Campos expanded the productive capacity of rural producers.

Working on local development, together with other production chains, the Fomento Agro project trained 42 producers over three years and provided support in planning, accompanying, and monitoring the entire production process.

The first eight stages were completed last March.

Check the numbers

71
Families received technical assistance

73
Soil analysis and interpretation of fertilization and pasting

70
Families informed with pieces of advertising materials

2.848
Hours of field visits carried out

42
Producers trained

68
Producers registered on the Agritrace Platform

71
individual projects created

19
Producers advised on participation in fairs

406
Plant tissue analyzes

70
Communication and Marketing Projects

67
Properties with plant traceability implemented



Photo: Vale Archives

Seedlings from the Cultivar Project

Cultivar Project

Farmers from Mário Campos also participated in the Cultivar Project, created in partnership with the municipal government.

Participants received seedlings, technical assistance, and training to improve the management of their productive activities.

“The project gave us a macro view of our business, we created an action plan, learned several techniques and then created and started monitoring indicators that until now did not even exist in our business.”

Thiago Henrique,
owner of Hora do Doce



Photo: Vale Archives



Photo: Vale Archives



Photo: Vale Archives

Social and urban infrastructure works

Our initiatives are aimed at improving the well-being and quality of life of impacted communities.

Based on dialogue with communities and public authorities, we invested in social projects and in the construction of daycare centers, basic health units, squares, in the maintenance and paving of roads, in addition to the implementation of public lighting.



Photo: Vale Archives

Family Health Unit (USF) built in Brumadinho

Set of compensation works

Delivery of daycare centers

As a result of the active listening process, we carried out works to improve public structures in order to meet the needs of the population.

In Brumadinho, we built and delivered large, colorful, and furnished daycare centers to welcome children from the Cohab, Palhano, and Parque da Cachoeira districts - which also received a Family Health Unit (USF).



"Having the health unit here is exceptionally good.

The municipality is very well serving us, there is a doctor and a very good dentist too.

Everything is new and well taken care of"

Silei Matias Aguiar,
resident of Parque da Cachoeira



Photo: Vale Archives

Cohab Daycare



Photo: Vale Archives



"The construction of Cohab Daycare is a well-structured project, which delights everyone, in addition to providing greater convenience and access to children and families, bringing improvements and values to the community"

Giovânia Cândida Jesus de Paulo,
daycare director



"School is the greatest asset of any society.

It is through it that we create thinkers, critical people capable of moving this world differently."

Sônia Aparecida Barcelos Maciel,
municipal secretary of Education of Brumadinho, reinforcing the importance of investments in education



Photo: Vale Archives

Casa Branca Daycare Center



Photo: Vale Archives



"We did not believe it would happen so quickly and it did.

Before the pandemic, we held meetings here periodically to decide the right place.

Ademir Geraldo Caricati,
who has lived in Parque da Cachoeira for ten years"

Paved road

We completed the paving, drainage, and traffic signaling works on the road between Córrego do Feijão and Alberto Flores, in Brumadinho. In total, there were six kilometers of improvements.



Six kilometers of improvements

Street lighting

The community of Pires, in Brumadinho, has new public lighting. The initiative, defined together with residents and the municipal government, is part of the compensation actions carried out to improve safety and quality of life.



Public lighting in Pires



Façade of the new headquarters

New headquarters for the Military Police Battalion

The population of Brumadinho received the new headquarters of the 215th Independent Company of the Military Police of Minas Gerais. The initiative reinforced our commitment to the safety and well-being of residents.



New furniture for the internal environment



Photo: Vale Archives

Revitalized theater

Revitalization of the Brumadinho municipal theater

Upon completion of the renovation works, the population has a theater with capacity for 510 people at their disposal.

Brumadinho Sports Center

The city's new sports center, which underwent renovations and other improvements, serves around 1,200 people per month.



Foto: Arquivo Vale

Dance room



Foto: Arquivo Vale

Skate lane

“ ”

“Sport helps a lot to maintain our health and to have more energy. I feel very well doing physical activities. During the pandemic, we were away for more than a year and now we can return. I loved the space, everything is new, that’s a 10 out of 10.”

Carmem Carvalho,
resident of the municipality
of Brumadinho

Where we are





Photo: AdobeStock

Full Reparation Settlement

We remain committed to fulfilling our agreed obligations and commitments.



Signed on February 4, 2021 with the Government of the State of Minas Gerais, the Federal and Minas Gerais State Public Prosecutor's Offices and the Minas Gerais State Office of the Public Defender, the settlement judicially formalized Vale's obligations to do and pay within the scope of the **socioeconomic and socioenvironmental** reparation.

It also provides for resources for the retainment of independent audits, which aim to monitor and inspect the execution of planned projects.



Full Reparation Judicial Settlement



OVERALL VALUE estimated

R\$ 37,69 billion

(Thirty-seven billion, six hundred and ninety million Reais)

Parties

Government of Minas Gerais | Minas Gerais State Public Prosecutor's Office
 Federal Public Prosecutor's Office | Minas Gerais State Office of the Public Defender



Obligation to **do**

21%

completed

Obligation to **pay**

81%

completed

General advancement

64%

completed

Our commitment to

2019	2021	2023	2026	2028	2030	2031
B1 Collapse	Signing of the settlement	64% Progress of the Settlement	100% Obligation to pay	100% Management of the Paraopeba River Basin	100% Degraded Areas Recovery Plan (PRAD)	100% Obligation to do



Pro-Brumadinho Steering Committee

Created in February 2021

Under coordination of the State Office for Planning and Management (Seplag), the Pro-Brumadinho Steering Committee coordinates with bodies and entities of the Government of the State of Minas Gerais and with justice institutions involved in the process of reparation to people and regions affected by the rupture of the B1 dam, in Brumadinho.



Access the committee page.

Consisting of a Superior Council, General Coordination, Thematic Centers, and Advisory Bodies.

Its role is to coordinate, systematize, and supervise the planning and implementation of the measures set out in the Judicial Comprehensive Reparation Settlement.

Exhibits provided for in the settlement

Exhibit 1

Socioeconomic Reparation Program

Exhibit 1.1

Vale's Obligation to Pay  Projects on Demands of Affected Communities

 R\$3 billion **100%**

Exhibit 1.2

Vale's Obligation to Pay  **Program for the Transfer of Income to the affected population**

 R\$4.4 billion **100%**

Exhibit 1.3

Vale's Obligation to Do  Projects for the Paraopeba Basin

 R\$2.5 billion* **30,7%**
*R\$125 million contemplated as an obligation to pay

Exhibit 1.4

Vale's Obligation to Do  Projects for Brumadinho

 R\$1.5 billion **50,9%**

Exhibit 2

Socioenvironmental Reparation Plan

Exhibit 2.1

Vale's Obligation to Do  Socioenvironmental Recovery

 R\$5 billion **>>>****
(expense estimate, no cap)

Exhibit 2.2

Vale's Obligation to Do  Socioenvironmental compensation for damages already known

 R\$1.55 billion **>>>*****

Exhibit 2.3

Vale's Obligation to Pay  Water Security Projects


 R\$2.05 billion **100%**

Exhibit 3

Mobility Program

Vale's Obligation to Pay 


 R\$4.95 billion **46,8%**

Exhibit 4


Public Service Strengthening Program

Vale's Obligation to Pay 


 R\$3.65 billion **93,5%**

Special Projects

Civil Defense Term of Commitment 

 R\$96.6 million **57,06%**

Fire Department Term of CommitmentBiofábrica 

 R\$71 million **12,91%**

Wolbachia and Funed Biofactory 

 R\$135 million **4,92%**

Other expenses



(already executed, public expenses and temporary hiring, advance compensation and support structures, including technical advisory services).

 R\$8.79 billion

Economic advancement

% calculated based on economic execution in relation to the total values contemplated in the AJRI, adjusted by the Broad Consumer Price Index (IPCA). Data from September 2023.

Nominal values

-  **Obligations to do**
-  **Obligations to pay**

(**) Reparation Plan under analysis by the parties involved
(***) Projects under analysis by the parties



Photo: Pedro Soares Gravata and Felipe Bentes Mesquita

Reparation Socioeconomic

Exhibit 1

The program has a series of initiatives aimed at repairing the socioeconomic effects of the collapse. The indication of projects for Brumadinho and municipalities in the Paraopeba River Basin by the parties was made based on popular consultation with the affected residents.



Projects for Brumadinho and municipalities in the Paraopeba River Basin

298 Projects approved

133
In progress

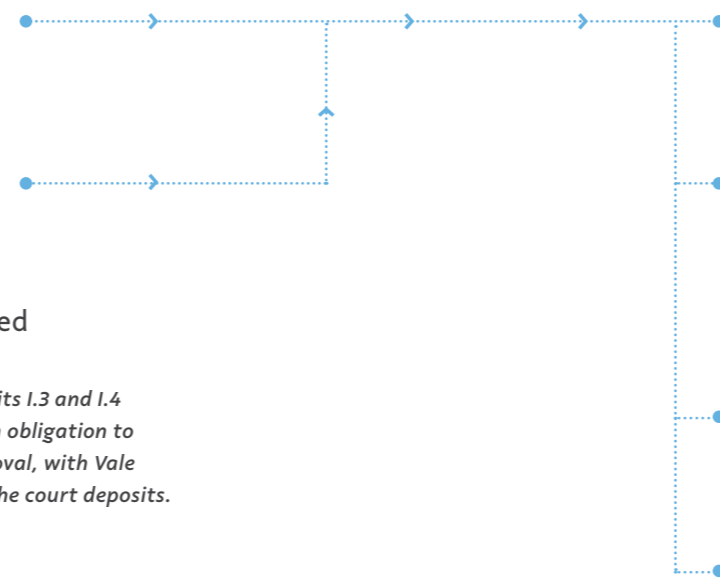
79
Completed

86
Projects converted

Some projects in Exhibits I.3 and I.4 were converted into an obligation to pay, as per court approval, with Vale having already made the court deposits.

R\$ 1,4 billion
in construction projects

R\$ 101,3 million
in assistance and health service projects



Strengthening social assistance and education services.

Infrastructure works and services in daycare centers, schools, hospitals, UBS, and affordable housing, among others.

Strengthening agriculture and improving rural services.

Equipping health units.

More than **61 thousand** deliveries in the health sector have already been made, including medical and hospital equipment, vehicles to support care and trained people.



Pro-Brumadinho Committee Website

Donation of street market kits

Structuring street markets in municipalities and providing technical and managerial guidance to rural producers

Affected municipalities received the Donation of Street Market Kits project, the objective of which is to support the adaptation of the infrastructure of street fairs and train farmers eligible for the project in technical and managerial management of the production and sale of agricultural products.

“ I really need this fair to help at home. I have a bedridden husband, and this income will be essential to pay for his treatment. I loved the course! We are grateful for this project, because it will help not only me, but many people here in the municipality”.

Maria Romilda Lima,
artisan from
Mateus Leme

“ Today, the objective is to come to the fair to show the population what is good about the region.

I participated in the course, it was two days of a lot of knowledge, it added a lot. I will receive a stand, scales, the entire kit”.

Rafael Batista,
farmer from
Mateus Leme



Photo: Vale Archives

Project participants



Photo: Vale Archives

Technical guidance for rural producers



Photo: Vale Archives

Health in Brumadinho and the Paraopeba River Basin

Actions promote health strengthening

Each municipality in the region received R\$32 million, out of a total of R\$96 million, to reinforce teams, implement improvements in health units, and strengthen public health services in general.

The amount was deposited by Vale, as the project was converted into an obligation to pay, so that the improvements can be carried out directly by the municipalities.

Planned improvements



Opening of **ten beds in the Intensive Care Unit (ICU)** in Brumadinho.



More than **30 Health Units** to be built, renovated, or expanded.



More than **60 thousand items** and pieces of equipment being delivered.



Increase in the supply of **elective surgeries and specialized visits** in Brumadinho.



Expansion of procedures in the Specialties Center.



Expansion of opening hours for the tomography examination sector at the Image Center in Brumadinho to 24 hours.



610 health professionals being hired, with 443 allocated to 25 municipalities in the Basin and 167 in Brumadinho.

Other transfers

250 million

in investments for hiring, improvements, and new equipment for the Brumadinho Hospital Complex.

461 million

allocated to the 19 projects already started in 26 municipalities in the region, three of which in Brumadinho.

12 million

in investments to equip 18 emergency rooms. Each room was equipped with 37 types of equipment, totaling more than 100 items.

Dados gerais retirados do site: <https://www.saude.mg.gov.br/svs/story/18256-saude-atualiza-balanco-de-aco-es-de-reparacao-por-rompimento-de-barragem>



Photo: Vale Archives

Agriculture Promotion Program

Support for the resumption of local agriculture

Two hundred and twenty farmers from Brumadinho participated in studies on local production adjustments.

The objective was to develop processes to strengthen agriculture and implement production traceability, with a view to legal compliance and access to diversified markets.

Main project numbers

192
individual projects created

4
Participation in fairs

8
Training courses



Photo: Vale Archives

Seventy-five machines were delivered

Machine delivery

Seventy-five machines were delivered to restore rural roads to 25 municipalities in the Paraopeba Basin. Each of them received three pieces of equipment.

The initiative provided for the acquisition, delivery, and registration, when applicable, of machines, in addition to training municipal government teams to carry out maintenance on rural roads.



Foto: Arquivo Vale

Delivery of vehicles to the Minas Gerais State Civil Defense

Through the Term of Commitment signed with the State of Minas Gerais, the Minas Gerais State Civil Defense also received vehicles and other support materials. The Civil Defense School was also structured at Cidade Administrativa, in Belo Horizonte.

497 trucks

497 computers

513 electronic tape measures

2495 vests

Brumadinho Industrial District

Brumadinho will have an industrial district to diversify the local economy, in addition to reducing economic dependence on mining activity. With an investment of R\$170 million, an area of around 1.2 million square meters will be urbanized for the construction of cutting-edge infrastructure.

The project, which is also part of the agreement, is strengthening Brumadinho' business environment by training specialized labor, encouraging local entrepreneurs, modernizing municipal legislation and increasing the creative economy sector.

Location where the Industrial District will be built



Photo: Vale Archives



Photo: Casa Criativa website

At Casa Criativa, residents of Brumadinho participate in training



In addition to mineral extraction, Brumadinho, like the entire region, is a very rich location, with distinct potential for economic advancement.

Fernando Passalio,
Secretary of State for
Economic Development

Casa Criativa is one of the fronts of activity.

It is a digital platform created to function as a space for interaction for entrepreneurs in the municipality.

In addition, it offers courses, training, varied programs and content related to the theme of creative economy, aligned with the new demands of the job market and the skills required for professionals in the creative sector and entrepreneurs in Brumadinho.



Statement taken from material published on the website: www.mg.gov.br

Access the QR-Code.



Reparation Socioenvironmental

Exhibit 2

Since 2019, we have carried out a series of actions to recover the Ferro-Carvão stream and the Paraopeba river, investing in studies to understand the environmental impacts of the collapse, monitoring the quality of water, soil, and sediments, and contributing to the preservation of local flora and fauna.

All of these initiatives were included in the Socioenvironmental Reparation Plan and, today, are monitored by the parties.



Photo: Vale Archives

Tailings containment

One of our main concerns was to contain the flow of tailings immediately after the collapse

As initial action, the following were implemented:

- **3 large containment structures**, including two hydraulic barriers and a dike;
- **25 gutter stabilization barriers**, as well as dredging to retain sediment transport and prevent them from reaching the Paraopeba river, at the confluence with the Ferro-Carvão stream;
- **1 curtain to contain waste** and make it possible to clean the area where the highest concentration of sediment was found.



Photo: Vale Archives

Water treatment

We built a River Water Treatment Station (ETAF) that has already returned more than 52 billion liters of clean water to the Paraopeba River.



Photo: Vale Archives

Temporary Waste Deposits

Tailings removal

Waste such as metals, rubber, and wood are separated before disposing of the material in the pit

The tailings removed from the impacted area is sent to Search Stations for inspection and release by firefighters. After this stage, the material released is destined for Temporary Waste Deposits (DTRs) or for final disposal in the Córrego do Feijão pit. In addition to enabling the 8th Search Strategy, the process is also fundamental for environmental recovery.

Total volume of B1 Dam:

11,7 million de m³

Volume leaked:

9,7 million

Approximately

75%

of the tailings have already been released for inspection by the Minas Gerais State Fire Department



Photo: Vale Archives

Before and after Ground Zero



Photo: Vale Archives



Photo: Brokolis do Brasil

Ground Zero

Rehabilitate and restore the vegetation of the Ferro-Carvão stream

We have completed phase one of the Marco Zero project, which aimed to stabilize the channel of the Ferro-Carvão stream and recover the local vegetation, promoting soil protection until the next phase can be implemented.

It will take place after the completion of tailings management and the decommissioning of upstream sediment containment structures.

Remanso 1B

As tailings removal activities advance, directly affected areas are beginning to become available for the environmental recovery process, as is the case of the so-called Remanso 1B, a plot of land of around three hectares.

The space occupation projects, built after listening to the communities and technical institutions, are being evaluated by the audit and the competent bodies.

Recovery of degraded areas

We are restoring around **60 hectares of Atlantic Forest**, the equivalent of 60 football fields, by planting approximately 90 thousand native seedlings.

So far, the actions are concentrated around the tailings site and the reparation works.

The recovery of the directly affected areas will only begin after release by the Fire Department, as the search for victims who have not yet been found has been a top priority since the collapse.



Photo: Vale Archives

Forest planting



Photo: Vale Archives

Reuse of fertile soils



Photo: Vale Archives

Watercourse protection



Photo: Vale Archives

Production of forest seedlings



Photo: Vale Archives

Planting on slopes



Photo: Vale Archives

Research & development



Photo: Vale Archives

Seedlings developed in Vale's natural reserve

Seeds of Reparation

Collecting seeds from native trees

The project represents one of several fronts for the recovery of areas directly impacted by the collapse and reparation works in the surrounding area, contributing to the production of native seedlings adapted to the region's characteristics.

To date, around 870 kg of fruits and seeds from 180 different species have been collected and processed.



Photo: Vale Archives



Acesse e conheça a websérie.



Photo: Vale Archives

From seeds to seedlings

The transformation of seeds into seedlings begins on a journey of almost 700 km between Brumadinho and the Vale Natural Reserve (RNV), in Linhares, Espírito Santo. The 23 thousand hectare area is dedicated to conservation and scientific research, with a production capacity of up to three million seedlings per year.

In the Vale Natural Reserve, the seeds are placed for germination and when they reach the ideal size they are ready to return to Brumadinho as seedlings, on a new trip.



“I have always liked nature, but I never imagined working with seed collection, it is a very good surprise. Being a “woodsman”, as they say in the countryside, was not in my plans, but now I intend to deepen my knowledge and study biology in college.

For me, every forest is born from a seed, what we are doing, respecting the environment, is collecting some of them and returning them to the region as seedlings that will become large trees tomorrow.”

José Fernandes,
resident of Brumadinho

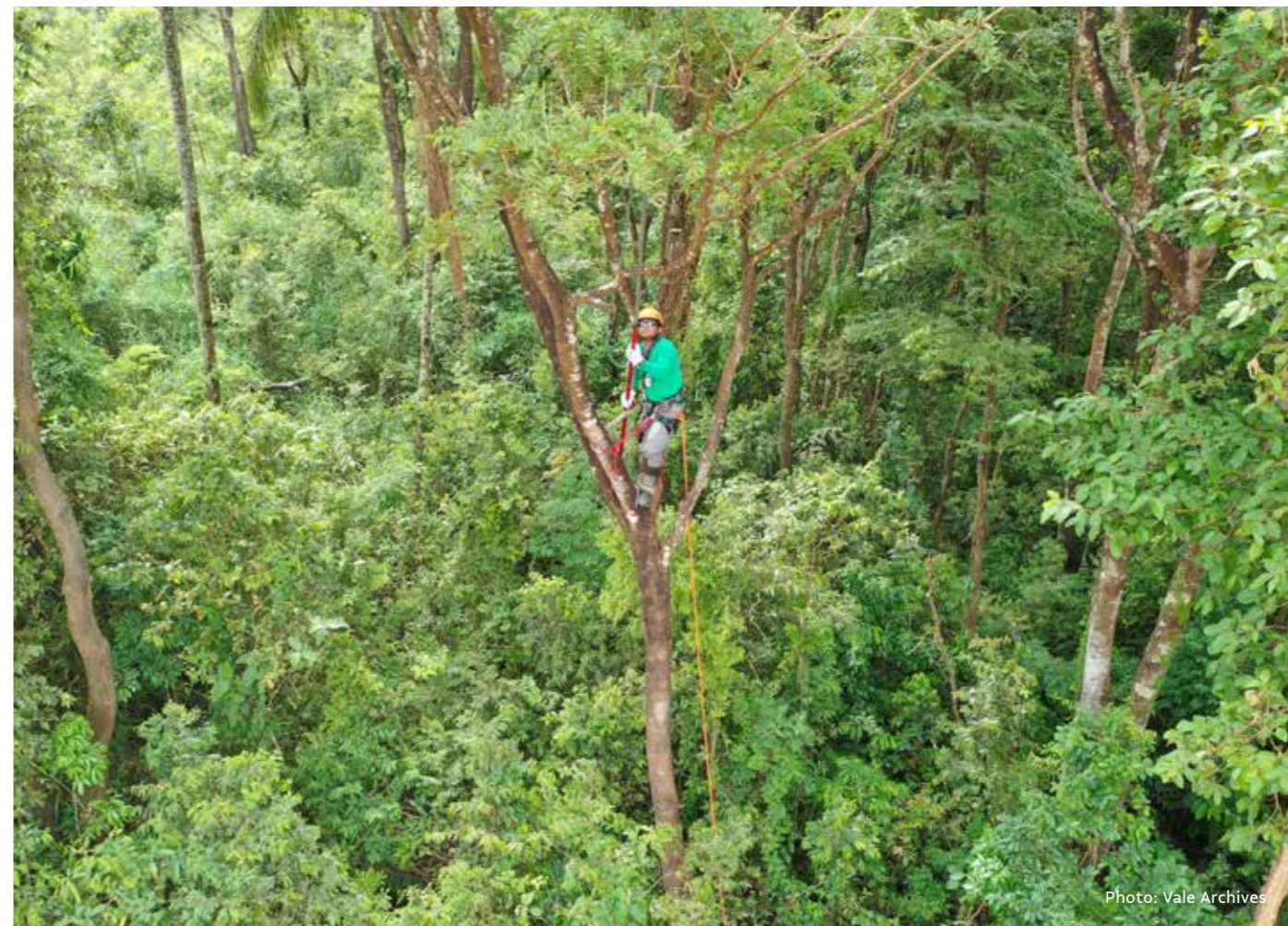


Photo: Vale Archives

Recovered species

Recovery of plant species

Resgate DNA Project innovates in environmental reparation

A technique developed by researchers at Universidade Federal de Viçosa (UFV), capable of rescuing the DNA of impacted vegetation and creating copies of the region’s plants, began to be applied for forest rehabilitation in the area. Seedlings that could take more than eight years to flower began this process between six and 12 months.



Photo: Pedro Soares Gravatá and Felipe Bentes Mesquita

Around 80 monitoring points were installed along the Paraopeba River

Monitoring water quality in the Paraopeba River

Analyses of the water quality of the Paraopeba River, as well as at points in the Ferro-Carvão River Basin, including within the B1 dam, began on the day of the collapse.

Monitoring includes affected and non-affected regions to compare results, in addition to analyzes on tributaries.

The results obtained by our work point to a progressive improvement in the river's water quality, with indicators similar to those recorded before the collapse, especially in dry periods. The data converges with that being produced by the Minas Gerais Water Management Institute (Igam).

The entire process, from collection to results, is monitored by government supervising bodies and the Independent Technical Audit of the State Public Ministry.



We **periodically collect** water and sediment samples



We use **methodologies recognized** and validated by the responsible bodies and by Coppe-UFRJ



Around **80 monitoring** points



Almost **69 thousand** samples collected



Telemetric Stations automatically analyze data such as temperature, turbidity, pH and dissolved oxygen in the water



More than **6.2 million** results



Around **250 professionals** involved in this process

The importance of monitoring

With the analyses, it is possible to evaluate the condition of the river and compare it with the limits established in the applicable and with the historical conditions of the basin.

In addition to the monitoring work presented, there are studies to assess water quality and its interactions with sediments, developed by national and international teaching and research institutions contracted by Vale.

Restrictions on the use of Paraopeba water

Currently, Igam – the body responsible for monitoring and releasing the use of water from the Paraopeba River –, together with the Minas Gerais State Department of Health (SES-MG) and the State Department of Agriculture, Livestock and Supply (SEAPA) maintain the recommendation not to use raw water from the Paraopeba River for any purpose, in the stretch that covers the municipalities of Brumadinho up to the limit of the Retiro Baixo HPP, in Pompéu (approximately 250 km away from the collapse).

The use of water in the sections that are before the location affected by the collapse, in Brumadinho, and after the Retiro Baixo HPP is authorized for the most diverse purposes, according to Igam, and there are no restrictions by public bodies.



Foto: Arquivo Vale

Meetings to present the study

Tailings Geochemical Research Program

The results indicate that the same elements observed in the tailings make up the natural soils of the Ferro-Carvão Basin, but in different proportions.

The main metals are iron, aluminum, silicon, and manganese. All analyzed samples show that the Brumadinho tailings **are not hazardous waste, in addition to being non-toxic**, in accordance with ABNT NBR 10.004/2004 standard.

Aquatic biodiversity

We continue to monitor aquatic biota, including fish, as well as their ability to reproduce throughout the Paraopeba River Basin. Monitoring has been carried out since November 2019 and samples are collected every two months.

Throughout the basin – before PCH Salto do Paraopeba until after the Três Marias reservoir – samples are collected at 35 study points. All points and methods were defined together with the competent environmental bodies. The work is developed in partnership with renowned researchers and universities, such as the Federal Universities of Minas Gerais, Ouro Preto, Lavras, Viçosa, and Triângulo Mineiro.

Studies have so far shown that:

- The collapse did not impact fish reproduction.
- There is no evidence of damage to the health of the fish as a result of the collapse.

Other studies are underway to assess possible damage to the health of animals that live in or use water from the Paraopeba River.



116 species of fish have already been recorded, **12 of which** are migratory species and **five** are endangered

Legenda

- Local do Rompimento
- Pontos de Monitoramento Biodiversidade Terrestre
- Pontos de Monitoramento Biodiversidade Aquática
- Rio Paraopeba
- Rio São Francisco
- Reservatórios
- Limites Municipais



Terrestrial biodiversity

Between August 2020 and January 2023, we monitored



547
species of insects



61
species of reptiles



516
plant species



77
species of mammals



193
species of birds



Watch the video and find out more.

14 plant species and 14 animal species endangered on the state, national, and/or international level. They include the Zebra Swallowtail (*Parides burchellanus*) and the White-winged Swallow (*Pygochelidon melanoleuca*)



Rare type found in Brumadinho
Lives in small populations
More than 100 butterflies already identified

Zebra Swallowtail

Photo: Vale Archives



Access and watch the video

Reproductive population with more than 100 individuals found
The study is already the most complete carried out worldwide



Foto: Arquivo Vale

White-winged swallow



Photo: Vale Archives

Works are in progress

Special Projects

Construction of the Wolbachia Biofactory

One of the special projects contemplated in the Comprehensive Reparation Settlement is the biofactory for the production of *Aedes Aegypti* mosquitoes with the Wolbachia bacteria. The start of works was announced on March 27th by the Minas Gerais State Government.

The biofactory will produce more than two million mosquitoes with Wolbachia per week. The release of mosquitoes into the environment will gradually replace the mosquito population in these regions, contributing positively to reducing the occurrence of dengue, zika, and chikungunya, which diseases have a major impact on public health in Minas Gerais and Brazil.



Photo: Vale Archives

The methodology, which is already present in 13 countries, is safe, effective, self-sustainable, and recommended by health authorities, such as the Ministry of Health and the World Health Organization. Mosquitoes are not transgenic and do not transmit diseases.

The Biofactory will be located in Belo Horizonte and the works are expected to be completed by April 2024. In addition to the construction of the biofactory, the agreement will include the implementation of the project in 22 municipalities in the Paraopeba Basin affected by the collapse.



Gustavo Martins, engineer, worked on the de-characterization works on dike 2, in Itabira.

Photo: Brokolis do Brasil

Dam safety

Since 2019, we have worked every day to improve the safety of our dams.

Our Upstream Dam De-characterization Program continues to advance. This year, we started five new works and completed the de-characterization of Dike 2 of the Pontal System, at Cauê Mine, in Itabira.

Ending the dams raised upstream, however, is just part of the effort that Vale

has been making to become safer and more sustainable.

The company has been continuously improving the management of its mining dams, carrying out an in-depth technical analysis of the history and current conditions and performance of each of its structures.

Preventive, corrective, and monitoring actions have also been intensified, with

measures increasingly integrated with societal movements and updated in relation to the law. One of the guides in this process, especially after the collapse in Brumadinho, is the Global Industry Standard on Tailings Management (GISTM), launched in 2020.

Our advances in dam safety

13

upstream dams **de-characterized** out of the 30 contemplated in the Upstream Dams De-characterization Program.

8

dams are undergoing de-characterization works.

6,2 bilhões

billion invested in the De-characterization Program since 2019.

11

dams **have been removed from emergency status** since 2022.

9

dams are in the design or preparatory phase.

+100

Emergency Action Plans for Mining Dams (PAEBMs) in Minas Gerais and Pará.



Photo: Video Delivery

Before and after the 8B dam, in Nova Lima

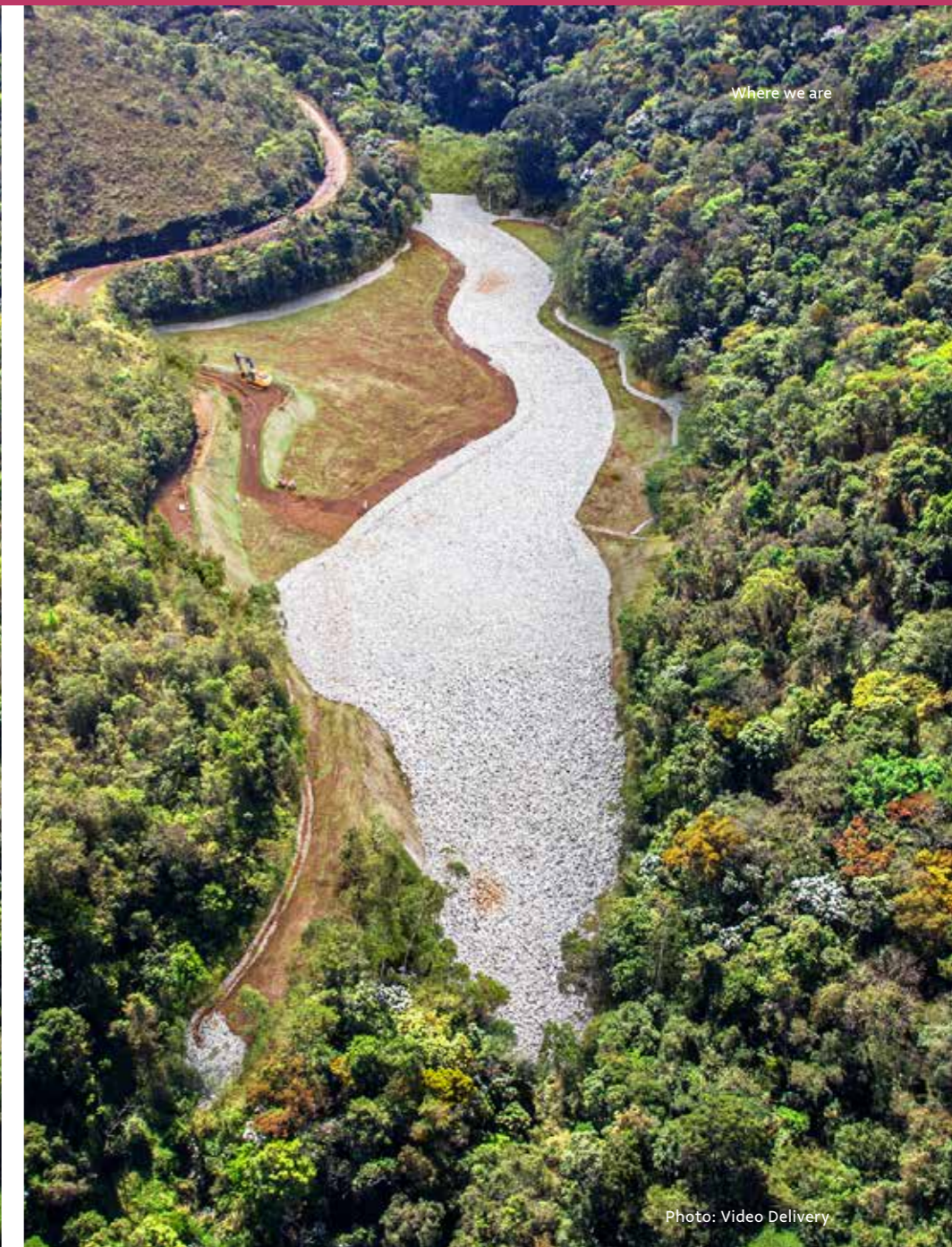


Photo: Video Delivery

What is de-characterization?

De-characterization is when the structure no longer has dam characteristics or performs a dam function, i.e., it no longer serves its main purpose of storing tailings.



Access and learn more about the process of de-characterization of upstream structures



Photo: Vale Archives

Dike 2

Elimination of upstream dams

One of the commitments we made

The elimination of structures built upstream is a commitment we have made since the B1 Dam collapse, and which has also become a legal requirement.

Since 2019, R\$6.2 billion has already been invested in the De-characterization Program. More than 40% out of a total of 30 upstream dams have already been eliminated since 2019, which is equivalent to 13 structures.

We have completed our 13th de-characterization work

In October, the de-characterization works on Dike 2 of the Pontal System, located in Mina Cauê, in Itabira (MG), were completed. This is the 13th structure of this type eliminated by Vale in Brazil since 2019 and the sixth to be destroyed in the municipality.

Completion of the works was brought forward by one year due to advances in the development of project engineering and preparatory works. Around 200 workers, direct and outsourced, worked on the works, with priority given to hiring local labor.



Photo: Video Delivery

Dike 2

Dike 2 was the 6th upstream structure eliminated in Itabira, of the total of 10 dams included in the Upstream Dam De-characterization Program in the municipality.

In September 2022, the Ipoema dam, in Mina do Meio, and Dique 3, also in the Pontal System, had already been eliminated.

Previously, Dikes 4 and 5 of the Pontal System and the Rio do Peixe Dike were de-characterized.

Access the QR Code and learn more about the evolution of the Upstream Dam De-characterization Program in Itabira.



Construction in progress

Campo Grande Dam (Alegria Mine, Mariana/MG)

The de-characterization works on the Campo Grande dam began in April and are expected to be completed in 2026.



To find out more about this work, visit.



Photo: Video Delivery



“We are anticipating the creation of up to 900 jobs in the Campo Grande de-characterization work, including direct and outsourced workers, giving priority to the hiring of local labor.”

Emerson Vieira, Vale engineer



Photo: Personal archives

Barragem Doutor

Doutor Dam (Timbopeba Mine, Antônio Pereira, Ouro Preto/MG)

The work to restore the slopes along the Doutor Dam spillway, at the Timbopeba Mine, continues. The works began in April and involve reducing the steepness of slopes and installing systems to drain rainwater. The forecast is to complete the recovery of the entire area by 2023. To date, around 1.3 million m³ of tailings have been removed from the structure. In addition, improvements were made to the drainage and monitoring systems.

Sul Superior Dam (Gongo Soco Mine, Barão de Cocais/MG)

The works to eliminate the Sul Superior Dam are carried out using unmanned equipment, controlled remotely. Furthermore, the excavations achieved the highest productivity, as planned for this year.



Watch the video.

Dike 1A (Conceição Mine, Itabira/MG)

In June, work began on Dike 1A, at Mina Conceição, which will receive reinforcement works and will have its reservoir area filled and regularized for the construction of drainage channels to prevent water accumulation. The work is expected to be completed in 2024. In total, 150 jobs, the majority in the region, should be created.



Photo: Personal archives



“As they are very complex, the de-characterization works are being carried out cautiously, always having as priority the safety of people, the reduction of risks, and care for the environment”.

Adriana Bandeira,
Officer of Dam
De-characterization and
Geotechnical Projects at
the company

B3/B4 Dam (Mar Azul Mine, Macacos, Nova Lima/MG)

The B3/B4 dam, located at Mar Azul Mine, in Nova Lima (MG), had its emergency level reduced by the National Mining Agency, from 2 to 1, on October 9th. The advancement of the de-characterization process, with the removal of around 88% of the reservoir's content, provided an improvement in the dam's stability conditions and made it possible to reduce the emergency level, as provided for by the applicable law. The waste removal work at B3/B4 has been carried out using equipment operated remotely, with operators outside the risk area.



Photo: Point 2

Remote Operations Center, located 15 km from the B3/B4 dam



Photo: Video Delivery

Fábrica Mine, Ouro Preto



Access and find out more.

**Grupo and Area IX Dams
Fábrica Mine, Ouro Preto (MG)**

Stage 2 of the Grupo dam de-characterization works began in April this year and, to this date, more than 650 thousand cubic meters have already been removed from the structure, which represents 32% of the planned volume. In May, work on the Area IX dam also began, with the phase reinforcing the downstream structure in compacted embankment. The next stages will begin in 2024 with partial removal of the tailings, removal of the upstream elevation and drainage channel.



Foto: Video Delivery

Vargem Grande Dam (Nova Lima/MG)

The de-characterization of the Vargem Grande dam began in 2021. To this date, more than four million cubic meters have already been removed from the structure's reservoir, representing around 38% of the value to be removed. The structure is expected to be completely de-characterized by 2027.

Global Tailings Standard

The Global Industry Standard on Tailings Management (GISTM) was created in 2020

Based on an initiative by the United Nations Environment Program (UNEP), the Principles for Responsible Investment (PRI), and the International Council on Mining and Metals (ICMM), it became the first global standard in the mineral sector and a global benchmark for dam safety. At the end of July, we announced that GISTM was implemented in 48 of the total of our 50 Tailings Storage Structures (EARs), in the Iron Ore Solutions in Brazil and Metals for Energy Transition (Brazil and Canada) business units.

In practice, this means that dams will undergo (internal and external) assessments and audits more frequently and that a series of factors related to risk analysis and emergency preparedness, transparency in the disclosure of information, and the structure's management model have been improved. The main objective of GISTM is to guarantee zero harm to people or the environment around the dam throughout its life cycle, from design to closure.



Photo: Video Delivery

Geotechnical Monitoring Center, Itabira



Photo: Video Delivery

The B5 Dam, at the Águas Claras Mine, in Nova Lima, had its emergency level removed after the de-characterization of its Auxiliary Dike

More preventive

Corrective and monitoring actions

In line with the best international practices for dam management, we have intensified preventive, corrective, and monitoring actions for our structures.'

In total, 11 of the company's structures have left the emergency level since the beginning of 2022 and the



Photo: Video Delivery

The B3/B4 Dam, at Mar Azul Mine, in Macacos, Nova Lima, had its emergency level reduced with the progress of the de-characterization works.

forecast is to have no structure in critical safety condition (emergency level 3) by 2025.

Furthermore, the B3/B4 dam, in Nova Lima (MG), is at emergency level 1, after having reached its maximum level in December 2022 and having its level reduced again in October 2023. The improvement in the stability conditions of the structure was possible due to the progress of the de-characterization works, with the removal of more than 85% of the contents of the structure's reservoir.



Foto: Arquivo Vale

CMG Sul, in Nova Lima, is one of our three Geotechnical Monitoring Centers

24 hour monitoring

Since 2019, our main dams have been permanently monitored by three Geotechnical Monitoring Centers (CMG), two in Minas Gerais and one in Pará. The CMGs operate 24 hours a day, seven days a week, with a team prepared and ready to act in the event of emergency. Its objective is to assist in the control of dams, monitor possible variations through alarms, check trends in geotechnical structures in real time and support compliance with legislation and the provision of information to supervisory bodies.

Technology and innovation for dam safety

Orbital satellites, radars capable of tracking millimetric movements, instruments capable of automatically triggering sirens, equipment operated 15 kilometers away. These are some examples of how technology has been our ally in improving safety and de-characterization of upstream dams.



Foto: Arquivo Vale

Communities participate in emergency drills

Culture of prevention

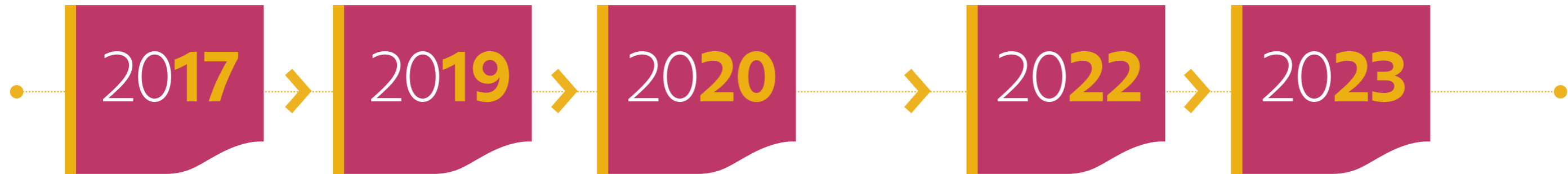
Another pillar to ensure the safety of communities living close to our operations are the actions provided for in the Emergency Action Plans for Mining Dams (PAEBMs).

More than 100 PAEBMs have already been implemented in Minas Gerais and Pará. They provide engagement and communication actions with communities located in the Self-Rescue Zone (ZAS), signs for escape routes and meeting points, alert and alarm systems, internal and external training, in addition to simulated exercises coordinated by Municipal Civil Defenses with full support from our PAEBM teams.

In addition, frequent testing of mass communication systems is carried out to ensure readiness in case of real need.

The simulated exercises carried out with the participation of the community allow timing of arrival at safe areas and checking whether the signposts are adequate. We also hold, in partnership with the Civil Defense, orientation seminars and public meetings. The meetings are opportunities to present information about dam safety to the population and open a space for dialogue to listen to the community and answer questions about the structures.

Changes in the sector



New mining framework in Brazil

Until recently, the federal body responsible for the mining sector in Brazil was the National Department of Mineral Production (DNPM). In 2017, two years after the Mariana tragedy, then-president Michel Temer sanctioned the new mining framework in the country, which transformed this body into a regulatory agency.

In the discussion to create this law, the body's historical difficulties in relation to structure and budget were already admitted. The idea was precisely for the new agency to have more independence, expand its responsibilities and have a larger budget.

PESB

On February 26, Law No. 23.291/2019 was enacted in Minas Gerais, which established the State Dam Safety Policy (PNSB), through which specific rules were created in relation to the licensing, PAEBM and audits of dams located in the State. Furthermore, the standard determined the de-characterization of upstream dams in Minas Gerais.

ANM

At the federal level, the ANM published rules that prohibited the operation of upstream dams and drained piles at risk of liquefaction, in addition to determining the de-characterization of these structures throughout the country.

GISTM

The Global Industry Standard on Tailings Management (GISTM) was launched as an initiative of the United Nations Environment Program (UNEP), the Principles for Responsible Investment (PRI), and the International Council of Mining and Metals (ICMM), becoming the **first global standard for the mineral sector and a global benchmark for dam safety.**

PNSB

The National Dam Safety Policy (PNSB) was extensively changed by Law No. 14.066/2020, which brought new features related to audits, the Emergency Action Plan for Mining Dams (PAEBM), and the operation of dams with communities and/or workers in the Self-Rescue Zone (ZAS). The standard also incorporated into the PNSB the obligation to de-characterize upstream dams in Brazil.

Resolução 95 da ANM

It consolidates the normative acts that provide for the safety of mining dams, including guidelines for the registration, monitoring, and inspections of structures, in addition to guidance on PAEBMs and the risk management of structures.

The standard established provisions related to compliance with the rule of de-characterization of upstream dams and drained piles with risk of liquefaction in Brazil.

National Mineral Policy Council

In January 2023, the Minister of Mines and Energy, Alexandre Silveira, announced the creation of the National Mineral Policy Council (CNPM) to guarantee the participation of producing and affected municipalities, as well as organized civil society and academic institutions with knowledge of the mineral sector.

The objective is to improve the coordination and implementation of public policies aimed at developing the sector, ensuring the improvement of legal security mechanisms and the sustainable development of the activity.

**Where
we are**

Photo: Vale Archives



Eduardo Bartolomeo
President

Message from the **president**

We will never forget Brumadinho. It is impossible to be the same in the face of a tragedy that impacted the lives of so many people. The dam collapse was a watershed moment that forced us to confront our practices and values and has required a profound transformation from all of us.

Our learning journey is continuous and, almost five years later, I can say that we are a new company. Not only did we institute a new set of standards and guidelines, we also established a culture of greater responsibility and empathy, redefining our relationship with society.

The tragedy made us reflect on processes, people, our way of being and acting. We are looking inward and rebuilding our company. On this journey of cultural transformation, we want to learn together, with respect, active listening, an attentive look, and awareness of our role, both in the process of repairing damage and in the development of people and communities.

In addition to moving forward with the Comprehensive Reparation Settlement, we reiterate our commitment to non-repetition through a series of actions. We have already made significant progress in the performance of our safety indicators: we accelerated the Upstream Dam De-characterization Program (more than 40% of upstream structures have already been eliminated) and reinforced dam management - 48 out of 50 tailings storage structures are already compliant with the Global Industry Standard on Tailings Management (GISTM). The remaining two will be compliant by 2025.

We also work to reduce our dependence on dams. One example is tailings filtration, which reduces the amount destined for dams by up to 80%. It already occurs in four of the company's plants, all in Minas Gerais: Vargem Grande, Conceição, Brucutu, and Cauê.

We changed the way we operate using much more technology and innovation and, with that, we took important steps to build the Vale of the future. We want to become a reference in safety and return to being a reliable operator, reducing the impacts caused to people and the environment and effectively contributing to the territories where we operate.

Credits

Report on Vale's reparation actions in the areas impacted by the B1 dam collapse, in Brumadinho.

Date: November/2023

President: Eduardo Bartolomeo

Reparation Officer: Gleuza Jesué

Communications Officer: Leandro Modé

Coordination, Editorial Design, and Writing:

Vale Communications Team

Editing and Layout: Stalo [IN]

Service Channels

Official Channels

Use these channels to clarify doubts and stay informed about reparation actions.

www.vale.com/reparacao

0800 031 0831 – Reparation Service Center

Assistance related to reparation processes.

0800 285 7000 – Vale's general customer Service Center

Information on operations and dams, including the Emergency Action Plan for Mining Dams (PAEBM).

Reparation Offices

Brumadinho

(31) 99600-7242

(31) 99648-6483

Barão de Cocais

(31) 99944-6773

