

Reparation Report

The distribution of drinking water to the population that relies on the Paraopeba river is an ongoing job that started in January 2019 and will continue until catchment is released.

December 2020

What we are doing for the people and the environment.

Periodic report on reparation and development actions carried out by Vale in the areas impacted by the collapse of Dam I and on evacuated territories.



Message from the CEO

Since I took over the leadership at Vale, my focus has been on people, safety and reparation. We made a commitment to actively listening to society, making for a virtuous circle. Our entire team of officers is working united towards that end. We are using our best efforts to develop an open dialog with the residents in our communities, our employees and third-party service providers, as well as our suppliers. We want to make our company a benchmark for safety, and we aim to be a reliable operator, creating value, reducing carbon emissions, and appreciating the territories we operate on. We are taking major steps towards building an improved Vale, valuing those who make up our company and respecting our planet and our communities.

Eduardo Bartolomeo
Chief Executive Officer

Message from the Special Officer

As we pursue our mission of fully repairing the damages caused to the people and territories, the work done by the Special Office of Reparation and Development is constantly monitored by Vale's Board of Directors and other independent executive committees. We are committed to being increasingly transparent, and we seek to work constantly at actively listening and addressing all of the demands we receive. Over these past two years, we have moved forward in the process of paying individual and group indemnities and with our projects designed for the training, development and well-being of people. In addition, socioenvironmental and socioeconomic actions are delivering results to the impacted regions. We remain steady and watchful of the needs of society by actively listening, so we can share value and contribute to the territorial development of our communities.



Marcelo Klein
Special Reparation and
Development Officer

What you will see on the following pages



Actions designed to improve quality of life and create jobs for Brumadinho residents through social projects that transform local realities and bring more dynamism into the economy.



Social work programs for those affected and testimonies by community members who participated in the various projects that are underway in partnership with institutions and municipalities.



Actions designed for forest restoration, protection of wildlife, fish and plant species, as well as constant water quality monitoring and studies to assess risks to human health.



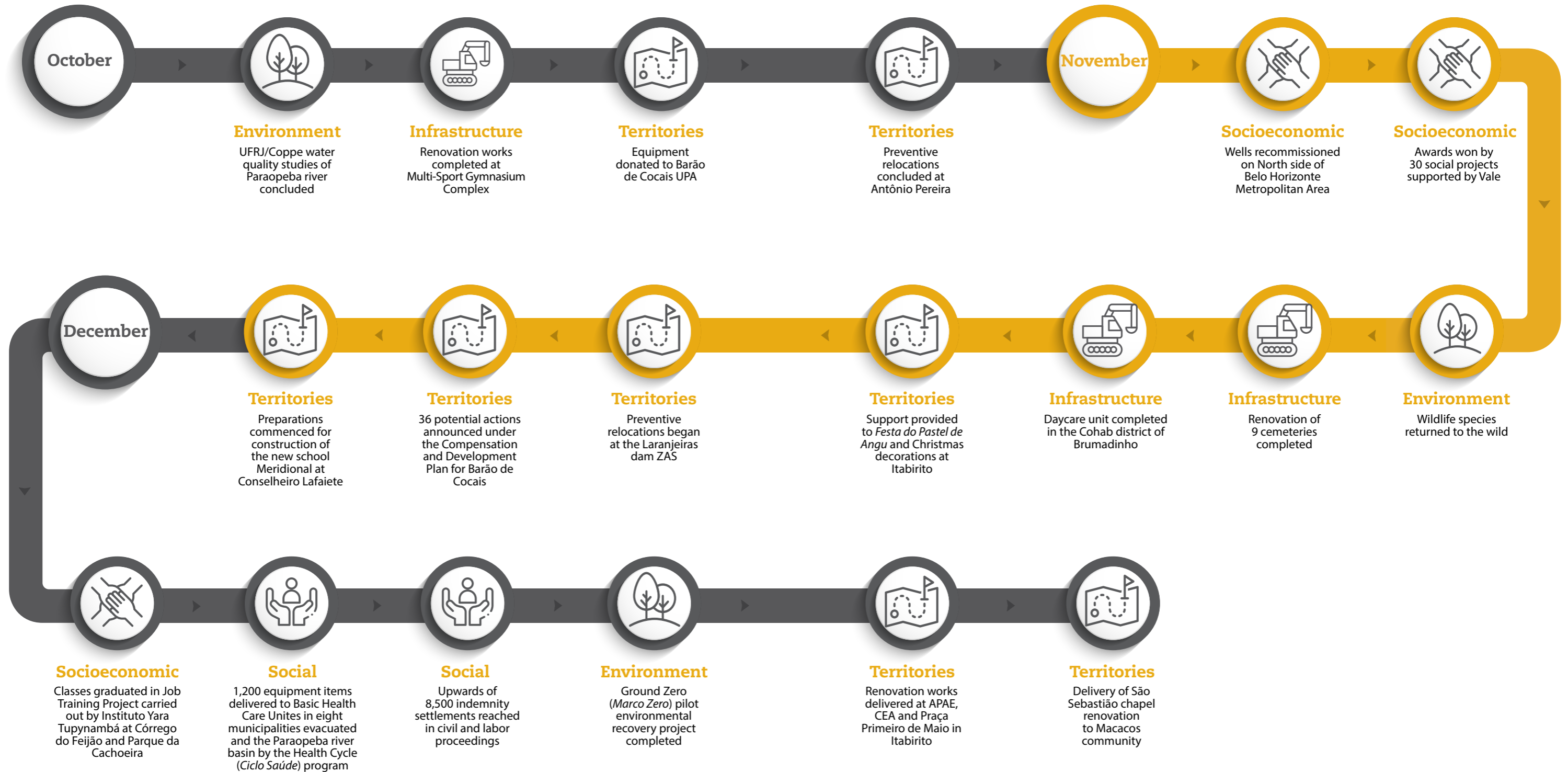
Status updates for social and urban infrastructure construction projects devised from our active listening to voices from our communities and from our partnerships with governments.



Updates on actions designed to bring normality back to the evacuated communities of Barão de Cocais, Conselheiro Lafaiete, Itabirito, Macacos and Ouro Preto, which are also contributing to economic sustainability of the territories.



Timeline: Highlights of Each Month





Action Statuses by December 2020

Ground Zero Pilot Project



Multi-Sport
Gymnasium Complex



Renovation of
Municipal Cemeteries



Renovation of APAE
in Itabirito



Paving and traffic signage on
the road connecting Pontilhão
to Avenida Alberto Flores in
Brumadinho



Implementation of Street
Lighting at Pires in
Brumadinho



Construction of Family
Health Care Unit in Mário
Campos



Art Deco Project in
Macacos



Renovation of Environmental
Education Center (CEA) in
Itabirito



Revitalization of São
Sebastião Chapel in
Macacos



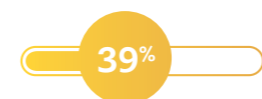
Renovation of 16
Municipal Schools



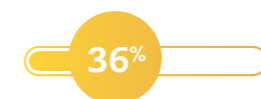
Construction of the
Pará de Minas Mains



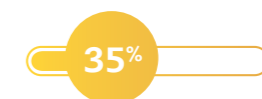
Sewage Treatment System
at Pires in Brumadinho



Care Center for Students
with Special Needs at Bela
Vista in Brumadinho



Territory-Park at Córrego
do Feijão



Agriculture Development
Program in Brumadinho and
Mário Campos



Renovation of Antônio Toledo
Sobrinho Municipal School in
Itabirito



Dredging of São João River
in Barão de Cocais



Daycare Unit at Cohab
in Brumadinho



Projeto Valorizar
in Brumadinho



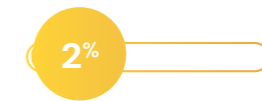
Tailings Removal



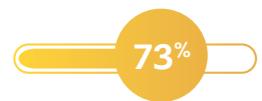
New Meridional
Municipal School in
Conselheiro Lafaiete



Health and Environmental
Risk Assessment Studies



Palhano Daycare Unit
in Brumadinho



Installation of water filters
for riverside communities
and farmers



Memorial Project in Honor
of Victims in Brumadinho



Construction of Municipal
Daycare Unit in Mário Campos



Actions in progress
Actions completed



“It’s an opportunity we have to find a new occupation. In addition, when these courses began, many people pulled through depression and regained their will to live.”

Priscila Rafaela,
Parque da Cachoeira resident and
a student in the Construction
Official course.



Socioeconomic



Diversifying the regional economy to create jobs and income for its populations

On the socioeconomic front, the goal of the actions undertaken by the Special Office of Recovery and Development is to endow Brumadinho and vicinities with tools that will enable them to reduce the local economic dependency on the mining business. To that end, it is important to diversify income sources in the municipality, strengthen local social organizations, incentivize new business fronts, and offer job training for residents, contributing to raise the population’s family income levels. Another important work front is to foster initiatives to optimize both urban infrastructure and sanitation in Brumadinho.



Yara Tupynambá



ASCAVAP ranked first in the Environment category



“Our Association has been around for 22 years, and our machines have never been maintained. This Valorizar award we won was really important because it recognized our work and our struggle.

We are going to buy new machines and fix the space so we can expand the collection effort.”

Helina Ferreira, president of the Vale do Paraopeba Trash Pickers Association (Associação dos Catadores do Vale do Paraopeba, or “ASCAVAP”)

More quality of life and jobs for residents

To accomplish that, we work at strengthening local social organizations and small entrepreneurs, while advancing business training actions. These include initiatives like the work done by Instituto Yara Tupynambá, which is not only training 140 Córrego do Feijão and Parque da Cachoeira residents, but also enabling its students to renovate their homes. In other words, it makes these people more employable, while simultaneously improving their quality of life. This is what we want for Brumadinho—more employment, income and satisfaction for its residents.

In your view, is a person with an occupation a better citizen?

Without a doubt! Professionalization empowers, qualifies, humanizes and dignifies social beings, putting them in a position of better citizens.

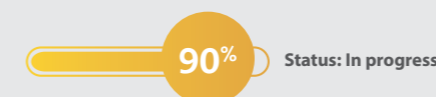
Why bring business training to Córrego do Feijão and Parque da Cachoeira?

Instituto Yara Tupynambá was created 33 years ago and has been doing renovation work on houses in vulnerable and/or affected areas, as well as— most importantly — educating individuals and training citizens. Getting this work done for Parque da Cachoeira and Córrego do Feijão contributes to social change in that, at the end of the courses, we are going to have trained and empowered new citizens and many homes renovated.



Social initiatives transforming local reality

The Valorizar program is yet another example of focus on people. By training social organizations in Brumadinho, not only does the initiative create jobs for their members, it contributes to transforming the social reality of its communities. In 2020, 52 social organizations were trained, and 30 projects were selected upon a call for projects to receive voluntary social investment from Vale.



Out in the Media

Economic dynamism

Through surveys and research conducted by experts hired by Vale, it was found that agriculture and tourism are two industries that create many jobs in Brumadinho and its vicinities. In addition, they already have local capillarity, which boosts policies aimed at strengthening these business fronts.

For this reason, one of the first projects to be implemented was the Private-Sector Tourism Competitiveness Improvement Project in partnership with Circuito Veredas, which is bringing 50 ventures together into one major chain of partnerships, as well as a language learning project for local businesses.

The results achieved thus far show those work fronts will greatly benefit the economy of Brumadinho and its vicinities, reducing the municipality's dependency on the mining business.

Rota V8 Rock Bar among ventures backed by Circuito Veredas



Credit: Circuito Veredas Image Bank

“With the guidance I was given, I invested in machinery and in organizing the kitchen. That increased our pizza delivery speed and number of customers,”

says Flávia Parreira, owner of Rota V8 Rock Bar in Brumadinho.

Next Steps

An important initiative to foster tourism in the Brumadinho area is providing training for local businesses. With that in mind, a language learning program will be launched in the next few days for industry professionals, designed to bridge a major gap found among travel agencies and other businesses in the sector.



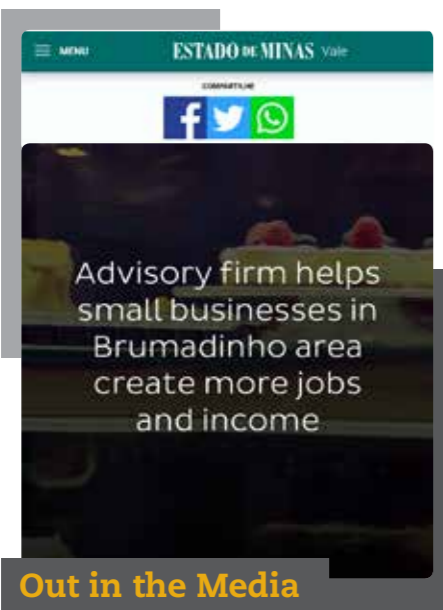
Property in Mário Campos assisted by Projeto Cultivar.

More income and production capacity

Like tourism, another business front already receiving reparation investments is the family-agriculture and livestock farming. Launched in August, the Farming Development Program already serves 300 producers in Brumadinho and Mário Campos by developing business plans tailored to each property's specific needs. The end goal for the program is to enable those families to increase their income and production capacity, creating more jobs and excelling at sustainability and food quality.

Another program implemented in 2020 is Cultivar, in Mário Campos. Projeto Cultivar is already bearing fruit and has contributed to the restructuring and resumption of farming activities in the municipality. Altogether, 9 rural properties are receiving inputs and materials to build processing and technical monitoring facilities in order to resume, improve and diversify their production activities.

Out in the Media



Out in the Media

An important step towards resignifying Córrego do Feijão

The Territory-Parque project was launched in December 2019 and aims for an urban reframing of Córrego do Feijão. Its goal is to leave a legacy to the community, and it includes actions to improve infrastructure (renovations, paving and urbanization of streets, houses and structures), rebound the economy and develop local tourism, while honoring the memory of the victims of Dam I collapse. Actions are currently focused on renovating the central community square and implementing a community market and a culture and craftwork center.



Constructions In Progress



How it will look after construction is completed

35%

Status: In progress

Improving quality of life for the population



Aerial view of the head office in Brumadinho

Another key objective of the socioeconomic reparation efforts is to foster initiatives that optimize Brumadinho's infrastructure to create a favorable environment to draw tourists and new businesses.

These projects are being carried out in conjunction with local governments, and communities play an active role. They will introduce road and traffic improvements, while enhancing urban furniture and quality of life for the population as new public service operations are set up (basic health care units, daycare units, schools and other social-purpose buildings), as well as major sanitation actions that will enable the waters from the Paraopeba river to be better managed.

Ensuring quality water for the riverside population

We have implemented a series of measures to ensure quality water for the riverside population on the Paraopeba river basin. Since suspension of water catchment from the Paraopeba river in January 2019, Vale has been ensuring water is supplied on an emergency basis, with bails of bottled mineral water delivered, as well as water distributed by water tank trucks that collected it from the treatment stations of water and sewer utility Companhia de Saneamento de Minas Gerais, or "Copasa."

In parallel, we are recommissioning wells—for use in case water rationing is required—in key municipalities on the Paraopeba river basin and installing water treatment systems, among them high-performance filters. We are installing approximately 250 filters to treat water from groundwater wells serving more than 10,000 riverside community residents in the 22 municipalities covered by the Paraopeba river basin. The initiative is also key to supplying rural producers who would catch water from the river for irrigation and animal consumption.

A solution so water doesn't run out

The 23,000 inhabitants in São José da Lapa gained further assurance their homes will not run out of water, even in the drought period. This problem has been solved by the recommissioning of alternative catchment systems.

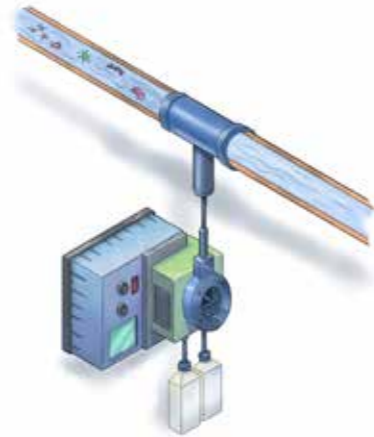
Alternative water supply solutions were also implemented in Lagoa Santa and Vespasiano.

Deep wells are also being installed to serve Sabará residents.

The solution was provided under agreements with Vale, which was tasked with the construction.

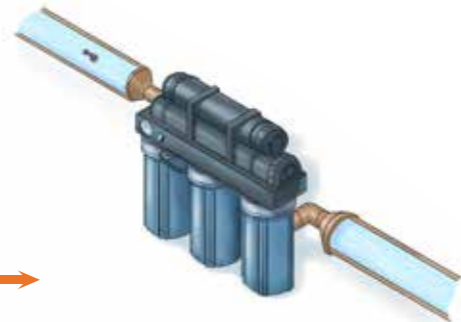
What treatment systems were installed and what are they for?

Disinfection:
Microorganisms eliminated



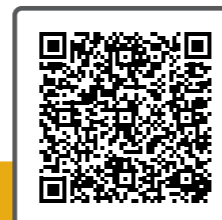
Filter: Impurities eliminated from water

Osmosis Filter: Drinking water quality further improved



Only upon validation by state and municipal health departments are water treatment systems released.

Learn more about water management actions



Pompéu communities to receive water treatment system

In Pompéu, Vale is having plumbing fixtures installed for three existing artesian wells in Assentamento Queima-Fogo and Chácara Chorio. The goal is to supply water to reservoirs that will distribute it to around 50 plots of land. Vale is also going to install a water meter on each property to enable the community association to control and manage consumption. Individuals designated by the community are going to be trained in operating the wells.

Also to be set up is a water treatment system that will be monitored by Vale for five years.

Residents will be allowed to use water for human and animal consumption, as well as irrigation. This is yet another project Vale has been undertaking in pursuit of meeting the local community's demand for water.



Pompéu – Plumbing Fixtures in Assentamento Queima Fogo



“Business training, nursing courses, the way people are received and triaged, and know-how in caring for people. This support from Ciclo Saúde had a wonderful result for me as a professional. And the community and patients all win, as well.”

Sidney Macedo,
Mário Campos Community and Family Doctor.



Social

The single most important focus of our reparation activities is on people

We spare no efforts to provide full reparation and ensure the well-being of impacted people through foundational projects and actions that are capable of assisting families, each in its particular life resignification process. It is our commitment to provide the communities with tools to bring about long-lasting social development.

Indemnities

Vale continues to honor its commitment to indemnifying all of those impacted and their nuclear families in a comprehensive, fair and swift manner.



Thus far, **3,800 settlements in civil** and labor proceedings have been signed involving more than **8,500 people**.



During the pandemic, our service to handle **out-of-court individual indemnity settlements has continued using videoconferencing**, as long as those impacted felt comfortable with that and their attorneys participate.



More than **101,000 people receive emergency payment** today in Brumadinho and the evacuated municipalities on the Paraopeba river basin under a preliminary consent degree and court rulings.

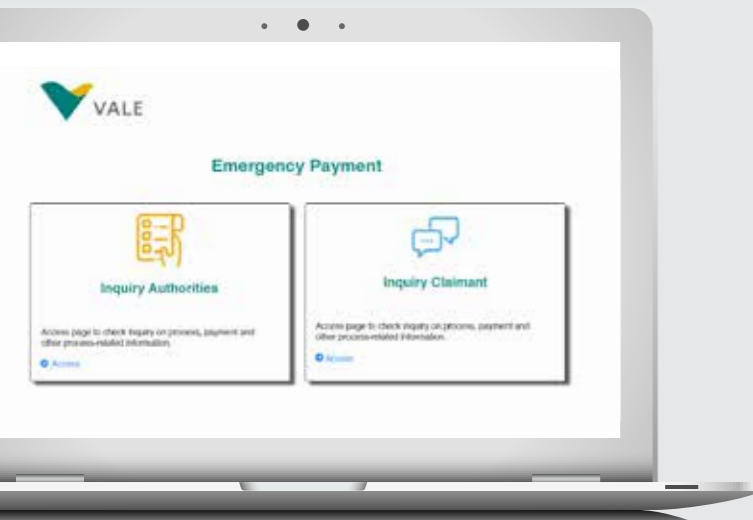
Emergency payment search platform

We maintain an online platform for claimants and courts to check process status information.



valepagamentosememergenciais.com

Learn about the platform



Full Support Program for Those Impacted

“For me, it fit my life like a glove. When the screen opened up, it was like my whole world opened up again. I was able to go into my situation —I was really disoriented because several things happened in my life recently. The consultant was very humane, very professional, and was able to uplift me so I could move on, while helping me with my self-esteem. It’s great to know I have someone I can count on to help and advise me,”

says Ângela Trindade, hairstylist in Belo Horizonte.

Upon adhering to the Full Support Program for Impacted Persons (*Programa de Assistência Integral ao Atingido*, or “PAIA”), Ângela started to get advice on planning and financial education to improve her control over her accounting and the way she schedules her expenses and investments, which has empowered her and contributed to a better quality of life. The hairstylist was also given psychological and social support through the Family Reference (*Referência da Família*) program.

“As I open myself, I can see there are ways to go. I’ve even went back to going for walks with more pleasure and have been taking better care of myself,”

says Belo Horizonte-based hairstylist Ângela Trindade.

2,993 people and **1,699** family members have adhered to PAIA so far

How do I apply for support?

- Register interest in settlement reached
- Inform interest to reference technician that keeps track of families
- Apply for support via Call Center: **0800 031 0831**

Sowing Hope



Juliana Brasil

“

“Embroidering is building something—it’s about telling a story, making memories. When we embroider, we remember moments that marked our lives and those of our beloved ones. As sadness is woven into hope, we create things we wouldn’t have even imaged we could. Embroidery helps us see new pathways—a new occupation. It is also a healing process, where I feel I’m cared for. There are bad days, but there are times of a lot of laughter as well. My dream right now is for this group of embroiders to be able to make a living out of their art, their craft, by selling a product that provides this value—that rescues a traditional art,”

says Brumadinho resident Juliana Brasil.

Juliana is an arts teacher in the municipality and one of the 37 students in the Sowing Hope (*Semeando Esperança*) project, an initiative by Fundação Vale in partnership with Instituto Matizes Dumont. September saw the project kick off its second cycle, whose format has been adjusted due to the coronavirus pandemic. Embroidery learning now takes place through virtual workshops, with weekly lessons and ongoing group experience exchanges via social media.

Art therapy

Working at expressing feelings and sensations using art techniques, rather than speaking directly, is one of the methods used with groups of family members for resignifying their pain and loss.

This method has been introduced to Brumadinho public health professionals who use Complementary and Integrative Practices (CIPs) by means of a training program kicked off in October, with an expected nine months in length. Annie Rottenstein, a French expert on the subject matter and on thanatology, has been teaching her own technique, called “Art of Bridge” (*Arte da Ponte*), to both government and private-sector employees, such as social workers, psychologists and acupuncturists, among others.

The psychologist Aparecida Celina is one of the students. She tells us she has already been able to apply the theory in here sessions with children. “I’ve been looking at the children as a portrait of their families. Working death is no easy task, and it’s something more inexplicable for them. The course enabled me to look at death and its processes and rituals through various lenses. And I’ve been able to apply these concepts toward providing closure for the cycles of living and dying. I hope I am now better equipped and positioned to help the population and families,” she points out.

Health Cycle

The Health Cycle (*Ciclo Saúde*) program has been carried out in Brumadinho, Mário Campos and Sarzedo since 2019. In August, the program expanded into another eight municipalities. See some of the numbers featured so far:



Brumadinho, Mário Campos and Sarzedo

574 workers trained

354 hours of training through 49 workshops

2,093 equipment items delivered to

47 Basic Health Care Units



New municipalities

Inhaúma, Paraopeba, Pará de Minas, Pompéu, São Joaquim de Bicas, Barão de Cocais, Itabirito, and Nova Lima (Macacos)

228 workers trained

20 hours of training through 9 workshops

1,176 equipment items delivered to

47 Basic Health Care Units 75 Basic



Health Cycle training workshop for health care workers

The Health Cycle program

continues serving its

purpose of contributing

to development in the

municipalities, strengthening

basic health care by working

on three fronts:

Equipping, by providing tools and furnishings for improved diagnostics and clinical practice;

Health Promotion and Education, by training multipliers and health care workers; and

Basic Care Management Support, through computerization and integrated management to support, control and organize the services provided by Basic Health Care Units.

Jovens Construtores em Saúde

Lívia Almeida, a 16-year-old Córrego do Feijão resident, has been going to Estação Conhecimento Brumadinho since 2016, when she started taking classes in athletics.

In 2020, Lívia also became a student in the Vale Música project, learning how to play the clarinet. In September, she joined the *Jovens Construtores em Saúde* (“JCS”) project, an initiative under the Health Cycle program that fosters the development of community assets and health campaigns by training youths and is taking place in Brumadinho, Sarzedo and Mário Campos.

Through the project, Lívia and 74 other youths in these municipalities contribute to fostering community health in connection with their Basic Health Care Units, with support from the Center for the Advancement of Health (Centro de Promoção da Saúde, or “CEDAPS”), with which Vale has partnered in the initiative.

Youths in Brumadinho are devising a strategy for young people to play an active role in mental health and environmental education.

Lívia says her group has already outlined an awareness campaign strategy involving PET bottle recycling.



I hope things go according to our plans—that everything we have planned will be really good for people and somehow help them build a better future and become more aware”

says Lívia, a young woman who believes in empowering the community.

I feel I play a very important role where I live—there’s too little information for people here. I feel I have a duty to do my share in this, and I know that with the help of young people we can change a lot of stuff.”

Lívia Almeida, student.



Lívia Almeida



**Our work is ongoing.
We're constantly tracking
and monitoring the
fauna surrounding our
reparation activities.”**

Cristiane Cäsar,
environmental analyst



Environment

Environmental recovery moves forward

December saw the completion of the Ground Zero (*Marco Zero*) project, which rehabilitated a section of the Ferro-Carvão riverbed, up to the point where it joins the Paraopeba river. It's a pilot project that paves the way for new studies and projects for impacted areas.

We have also advanced in contention, removal and disposal of tailings, dredging the most impacted area of the Paraopeba river, treating the water and returning it to the river.

Environmental recovery emergency actions

Environmental recovery actions are among the emergency initiatives taken since the dam collapse. As part of this process, we have been able to achieve good results as we move forward in containing, removing and disposing of dam tailings, dredging the most impacted area of the Paraopeba river and treating the water, which is returned to the river, and we concluded the revegetation pilot project (Ground Zero).



January 2019 - Area where hydraulic barrier BH1 was installed



November 2020 - Hydraulic Barrier BH1

Contention

Along the Ferro-Carvão river, 25 small barriers, two hydraulic barriers, one dike and one metal pile wall (all piles can be decommissioned) have been installed.

Purpose

Minimizing dam tailings carried into the Paraopeba river. Milestone achieved on May 27, 2019.

Removal and disposal

Volume leaked

99 million cubic meters of tailings (estimate)

Volume handled

2.3 million cubic meters of tailings (25% of the total)

Disposal

The tailings removed and released by the Fire Department are stored in a pit at the Córrego do Feijão mine. Before they are disposed of, tailings also go through a sifting process to separate residual materials like metals, rubber and wood.

Vale Answers

When will the tailings removal be completed?

The removal efforts are directly related to the searches conducted by the fire department, so they are planned and executed together with it. Currently, we estimate all tailings will have been totally removed by the end of 2025.

Water Treatment Plants

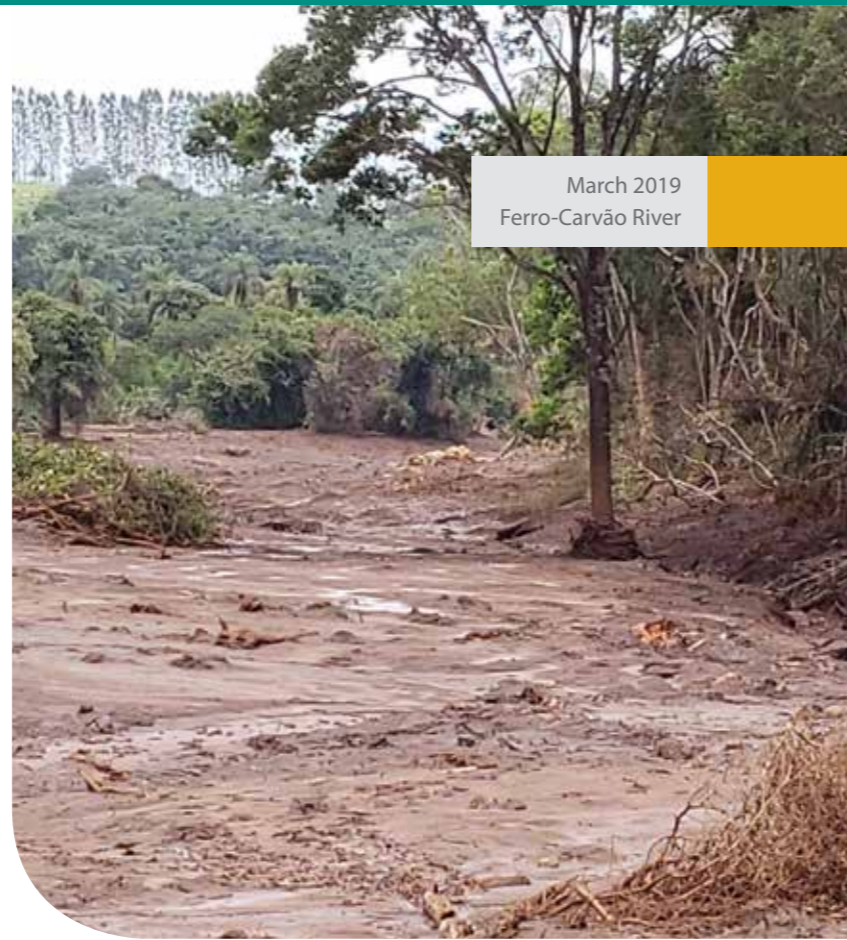
The two water treatment plants set up in Brumadinho have allowed 18.7 billion liters of clean water to return to the Paraopeba river, with turbidity below 100 NTU (legal standards specified by Conama).



Water Treatment Plant

Revegetation - Ground Zero Project

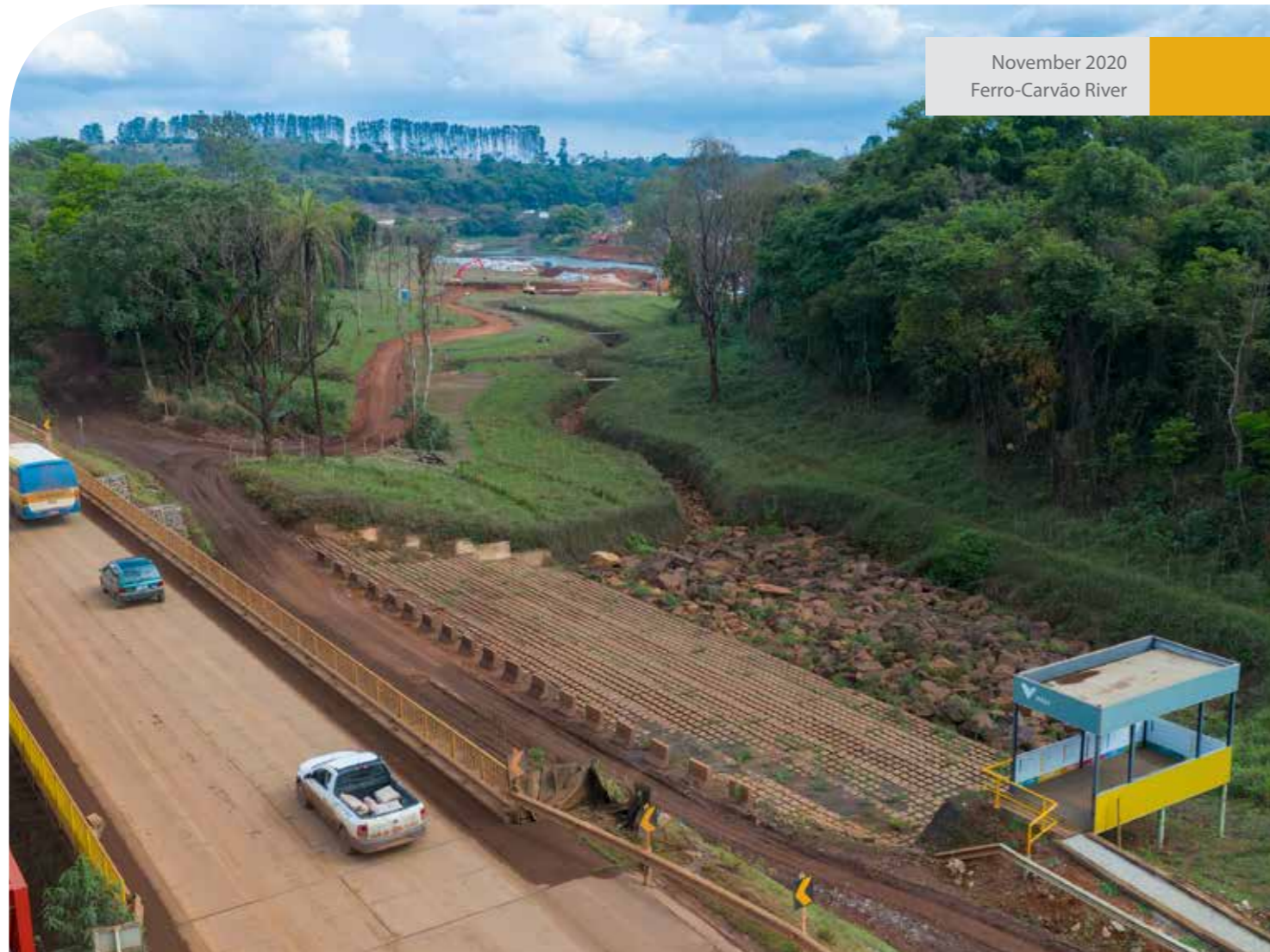
Completed in December of this year, the Ground Zero (*Marco Zero*) project represents the first impacted area to be recovered. Along the section spanning from the metal wall, in the Alberto Flores area, to the confluence with the Paraopeba river, the Ferro-Carvão river was restored back to its original condition, including revegetation with plant species that are native to the region. This project has also ensured safety in oil company Transpetro's existing oil pipeline strip.



The initiative involved forest restoration efforts like gathering seeds, producing seedlings, acclimatization and planting in the areas to be recovered. Maintenance and monitoring works continue to be done with a view to restoring the environmental quality of the Ferro-Carvão river mouth.

At the end of the recovery efforts, the Ground Zero area will feature about 4,000 seedlings of tree species native to the region, as well as other environmental restoration techniques, such as nucleation, artificial perches, and soil transposition, which will also contribute to the recovery process medium term.

100% Status: 100% completed



Protected breeding

The fish in the Paraopeba river basin are tracked during the spawning period. Between November and February, schools swim upstream to release their eggs.

During the current spawning season, a team of 25 experts hired by Vale, among them biologists and professional fishermen, are monitoring the fish over a 46-kilometer stretch, from the Igarapé thermopower plant in Juatuba, in the Belo Horizonte metropolitan area, to the dredging operations conducted over two kilometers from the point where the Ferro-Carvão river meets the Paraopeba river.



Fish evaluated and returned to the river

Vale Answers

When will we be able to fish on the Paraopeba river again?

Following the collapse on the BI dam, fishing on the Paraopeba river basin was prohibited by an ordinance issued by the State Institute for Forests (Instituto Estadual de Florestas, or "IEF"). The Primary purpose of the ordinance is to ensure the biodiversity is preserved during the diagnostic and recover actions on the basin. The prohibition will be maintained by the IEF until a new ordinance is issued on this topic.

In areas near the dredging operation, fishnets are used to detect whether any local schools of fish can pose any danger. If such fish are identified, then a warning alarm goes off to call activities to a halt.

Wildlife species released back into the wild

communities were released back into the wild. The animals are clinically treated, nurtured and rehabilitated before returning to their natural habitat. The entire process is in line with the region's environmental and biodiversity recovery works.

The latest animals to be released, back in November, were a female southern caracara, a distant cousin to falcons, and another 13 specimens of bird species like the purple-winged ground dove, the scaled dove, the scaly-headed parrot, the rufous-collared sparrow, the green-winged saltator, the ultramarine grosbeak, and the saffron finch. Released before them were a toucan, a sipo snake, two porcupine, and one red-legged seriema.



Rehabilitation simulates feeding in the wild



Flock of scaly-headed parrots prepared for rehabilitation

Another 25 animals are currently sheltered,

either waiting for the environmental authority to authorize relocation or in the rehabilitation process. Species currently sheltered include three terrapins, one Argentine giant tegu, one opossum and one pigeon, among other birds.



After going through a long rehabilitation process, the southern caracara was released back into the wild by the IEF one and a half month after being turned in on the Fauna Shelter Farm (*Fazenda Abrigo de Fauna*, or "FAF") created by Vale.

The bird was rescued by Brumadinho's emergency management authority with its wings cut and broken, riddled with lice and unable to fly.



Every animal has its own story, which informs the care techniques to be used, the confinement time and, according to its characteristics, the type of rehabilitation and release. For the southern caracara, a long rehabilitation process was needed. The bird's health was rather weakened, and from the way in which it was found, it may have been held in captivity, which is forbidden by law."

Cristiane Casar, environment analyst at Vale.



Female southern caracara rehabilitated

Agencies and Partners Involved

- IEF (Instituto Estadual de Florestas)
- Instituto Pro Raptos
- Fazenda Cachoeira
- Loro Vet Consultoria Veterinária



Watch video on caracara release



This is an ongoing action that is carried as new animals need rescuing.

Recovery of plant species

Technology is contributing to the recovery of the impacted vegetation. A technique developed by researchers at Universidade Federal de Viçosa (UFV), whereby DNA can be rescued and copies of plants of the region can be created, is now being used for forest rehabilitation in the area.

Seedlings that could otherwise take more than eight years to flourish are expected to start that process within six to 12 months, which will contribute to accelerating the recovery of the region's biodiversity. The plan is for seedlings to begin being planted in the impacted areas in the early months of 2021. In addition to UFV's contribution, the project is managed by Sociedade de Investigações Florestais (SIF)



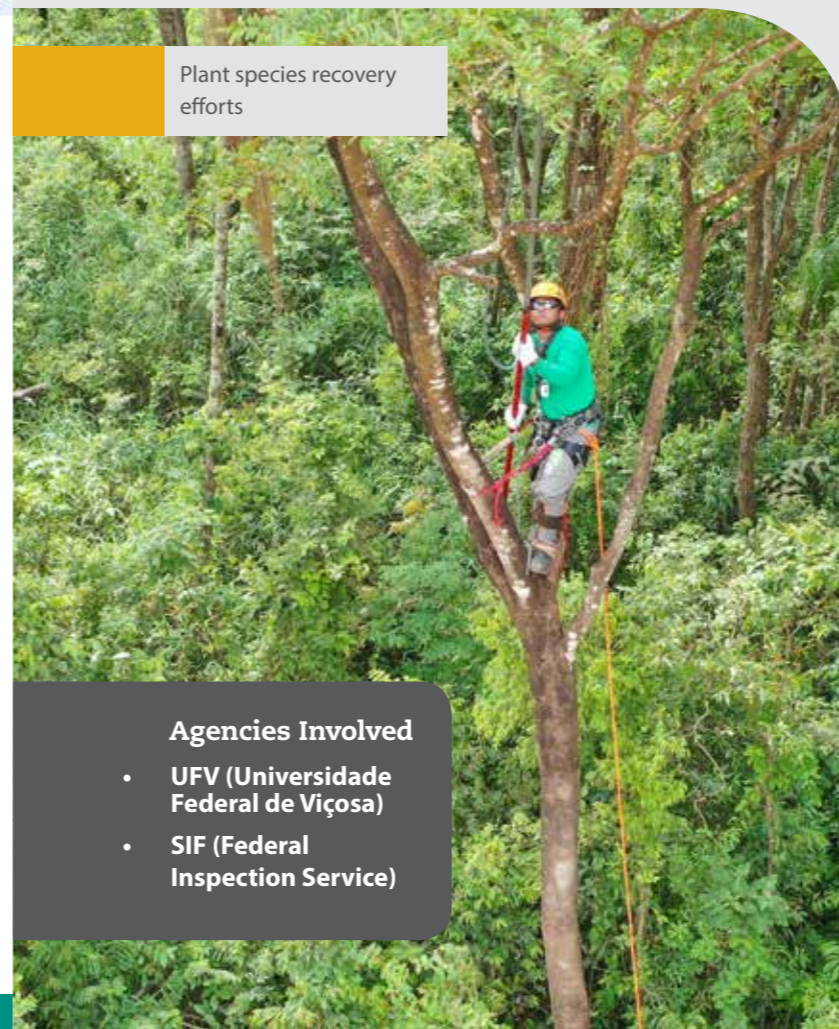
We rescued the DNA of species that are structurally important for the forests in the region, such as the rosewood, yellow ipe, brauna and jequitiba trees. We are also making copies of each of those plants to ensure their genetic makeup is not lost."

Gleison dos Santos, professor at UFV's Forest Engineering Department (DEF/UFV)

Altogether, genetic material was collected from 10 plants of five different species, including species that are endangered and protected by law.

The genetic material is taken to UFV and stored according to the most stringent of plant safety and health standards. The copying process begins in the field, with the collection branches from the matrix trees. Back at the laboratory, those branches undergo a grafting process that enables them to accurately reproduce the genetic material of other plants from small samples.

Plant species recovery efforts



Agencies Involved

- UFV (Universidade Federal de Viçosa)
- SIF (Federal Inspection Service)

Human Health and Environmental Risk Assessment Studies

A equipe executora dos Estudos de Avaliação de Risco à Saúde Humana e Ecológico iniciou, em julho, os trabalhos com diversos órgãos dos municípios ao longo da Bacia do rio Paraopeba.

Studies comprise a total of 29 municipalities, stretching along the Paraopeba river basin from Brumadinho to those adjacent to the Três Marias reservoir.

The studies comprise a search for risks to human health and the environment arising in connection with any potential environmental changes caused by the presence of dam tailings in the Paraopeba river. They are conducted by the EPA Group, inspected by authorities like the FEAM, the SES, the Minas Gerais State Public Prosecutor's Office and the Committee For Brumadinho, and audited by AECOM on behalf of the Minas Gerais State Public Prosecutor's Office. At an early stage, the initiative will result in a diagnosis of the impacted territories so that actions can be subsequently proposed.



We are currently in Phase 1, conducting a survey of community concerns about health, with—online—public meetings with municipal governments and local leaderships, including teachers, health care workers and community leaders.

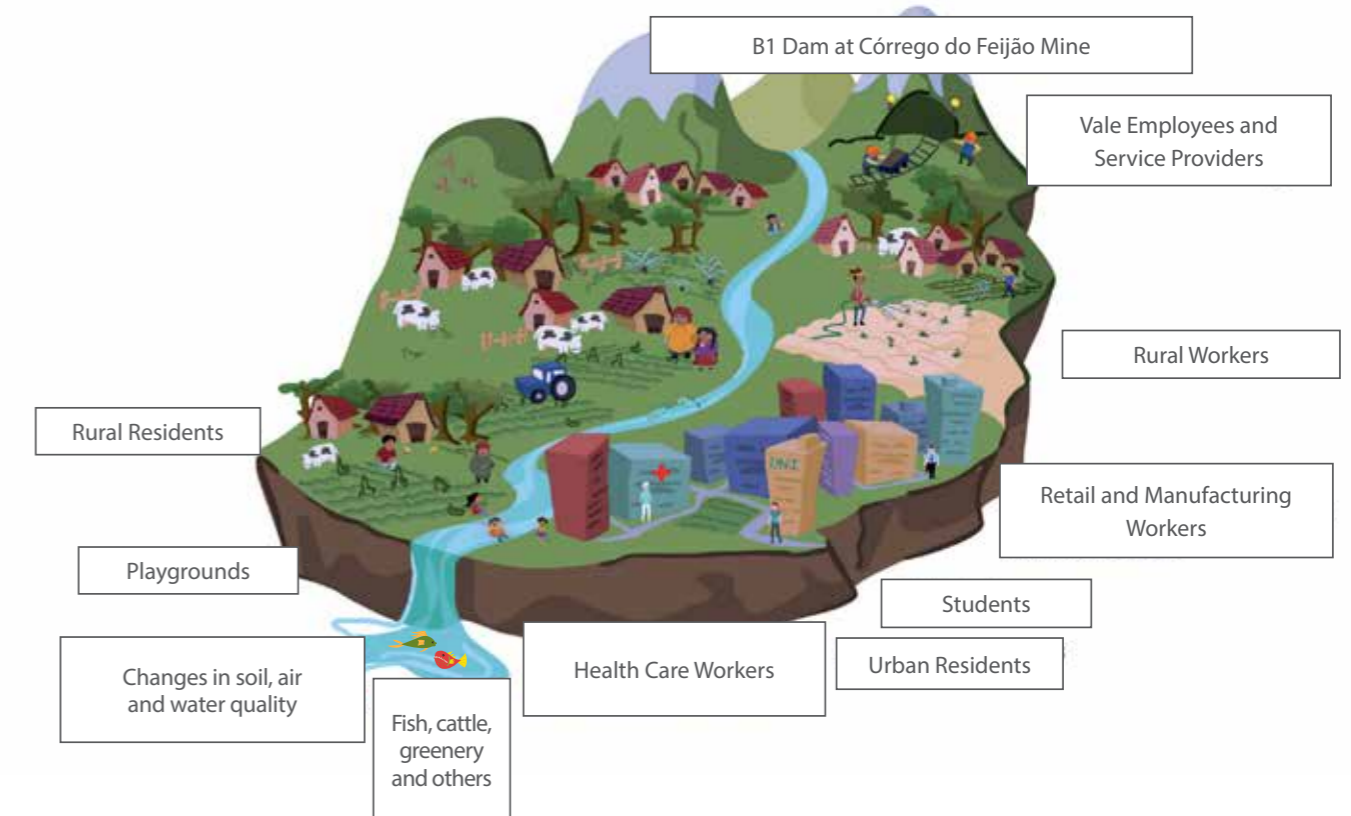
According to Marilene de Fátima Araújo, Caetanópolis Secretary of Municipal Development, Culture and Sports, Vale's coming into her municipality demonstrates the company's concern with its population.



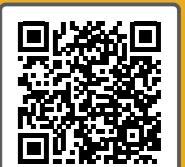
The technical team coming along with the project is going to provide some relief, as experts go into the field to understand the potential problems related to the dam breach. We are going to see the technical results of a serious work that the municipal government might not afford. This shows Vale is concerned with the municipality.”

Marilene de Fátima Araújo, Secretary of Municipal Development, Culture and Sports for Caetanópolis.

What the Human Health and Environment Risk Assessment Studies will contemplate



Follow the study results by pointing your phone camera at the code on the right



Water quality monitoring

There are 71 water quality and sediment monitoring points set up along a 342-meter course between the Paraopeba river and the Retiro Baixo Hydropower Plant, including the Paraopeba basin's main affluents.

Also in use are 14 water quality probes transmitting data via satellite, enabling physical and chemical water parameters to be read hour to hour and thereby improving information efficiency.

During the drought season (dry weather), results point to lower concentrations of analyzed elements and higher compliance with the levels permitted by law.

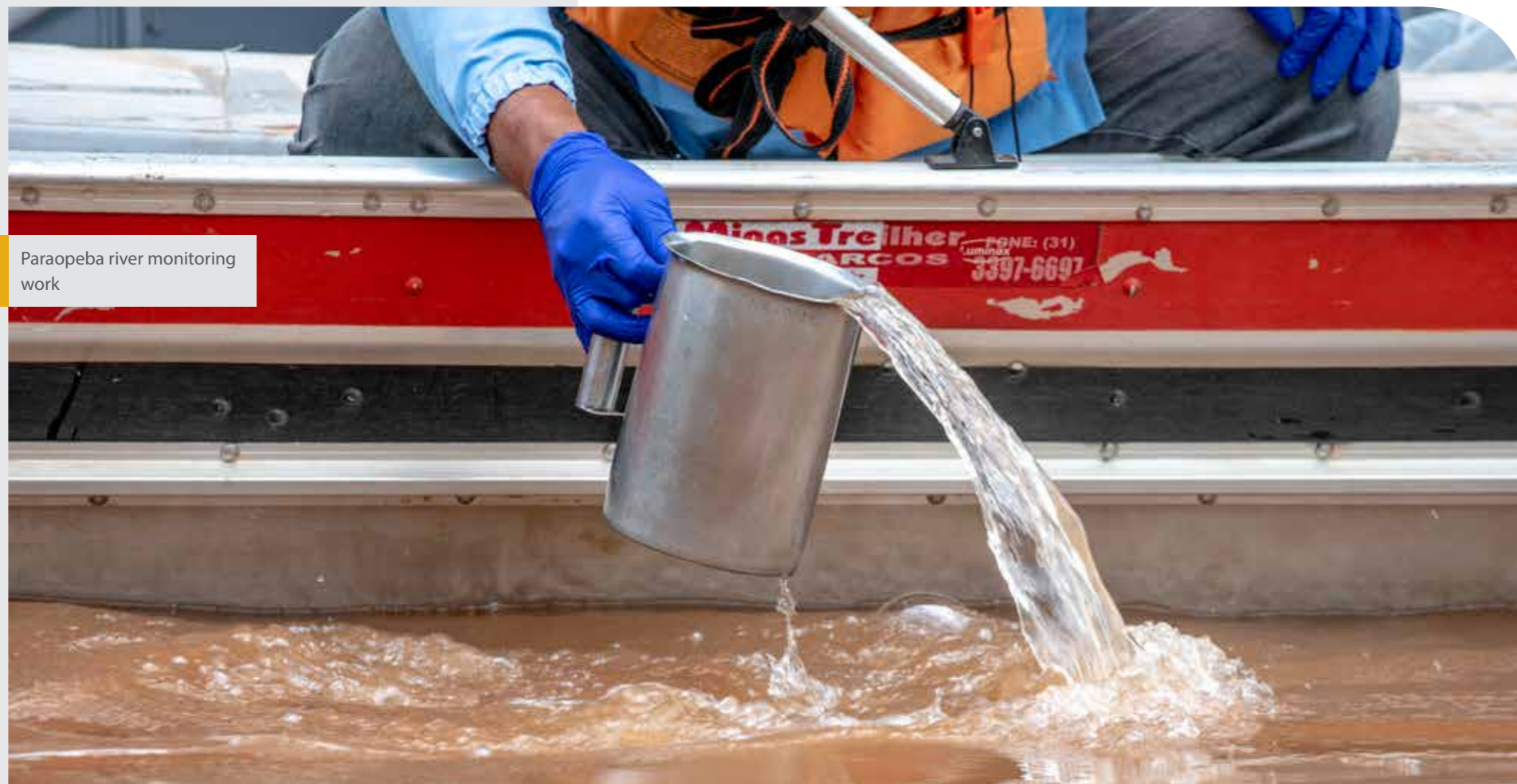
In the current rainy season, monitoring activities went back to being daily for many of the points, as it was prior to the onset of the pandemic, with a view to intensifying the tracking of potential changes in water quality. All of the work is done according to the guidelines issued by water management agency Instituto Mineiro de Gestão de Águas ("IGAM"), which stands by its recommendation against the use of raw water from the section of the Paraopeba river between Brumadinho and the Retiro Baixo Hydropower Plant, in Pompéu. There is no recommended suspension outside that section.

View IGAM's Newsletters:



The purpose of these efforts is to track the river water quality, especially concerning:

- the presence of metals;
- pH levels (measurement of acidity, neutrality or alkalinity degree);
- water turbidity;
- 4.8 million water, soil and sediment analyses on 45,000 samples;
- 100 professionals involved;
- 1 independent specialized laboratory.



Paraopeba river monitoring work

Vale Answers

What is Vale's intent in monitoring water from the Paraopeba river?

The water quality monitoring of the Paraopeba river is conducted in compliance with legal requirements imposed by the relevant environmental agencies and with the commitments made by Vale with a view to understanding the impact of the collapse on surface waters and providing government agencies like the IGAM and the IEF with technical data and information, so they can decide what actions need to be implemented by Vale and/or other related institutions.

Geotechnical safety

The safety of the community and the environment is one of the targets of our efforts. In Brumadinho, we have been working at ensuring the stability of geotechnical structures and raising safety levels. Construction is in progress on the BVI, Menezes II and Capim Branco dams, as well as what is left of the BI dam structure. As part of the results achieved, the BVI dam has earned a Declaration of Stable Condition (Declaração de Condição de Estabilidade, or “DCE”) and been removed from level 1 of the Mining Dam Emergency Action Plan (“PAEBM”), which certifies the stability and safety conditions of the structure.



Agencies Involved

- National Mining Agency (“ANM”)
- Minas Gerais State Public Prosecutor’s Office

Dam VI,
January 2019

Vale Answers

What would be the impact area in the event of a collapse of the BVI, BI and Menezes II dams?

The BVI and Menezes II dams belong to the Córrego do Feijão mine. Studies simulating the flood marks on the two structures indicate that no area would be impacted other than that which already has. Currently, emergency sirens at the Córrego do Feijão and Jangada mines undergo silent testing on a daily basis and are activated on the 5th of each month, around 10 a.m., to the sound of music.



Dam VI,
November 2020



The design of construction projects for infrastructure and public facilities is a process that requires a lot of dialog involving Vale, the community and governments. Needs and aspirations have to be understood so solutions can be planned that can actually contribute to improving quality of live and the collective well-being.”

Eduardo Miranda,
Manager, Reparation Works.

Health Care Unit for Parque da Cachoeira, in Brumadinho.

Infrastructure

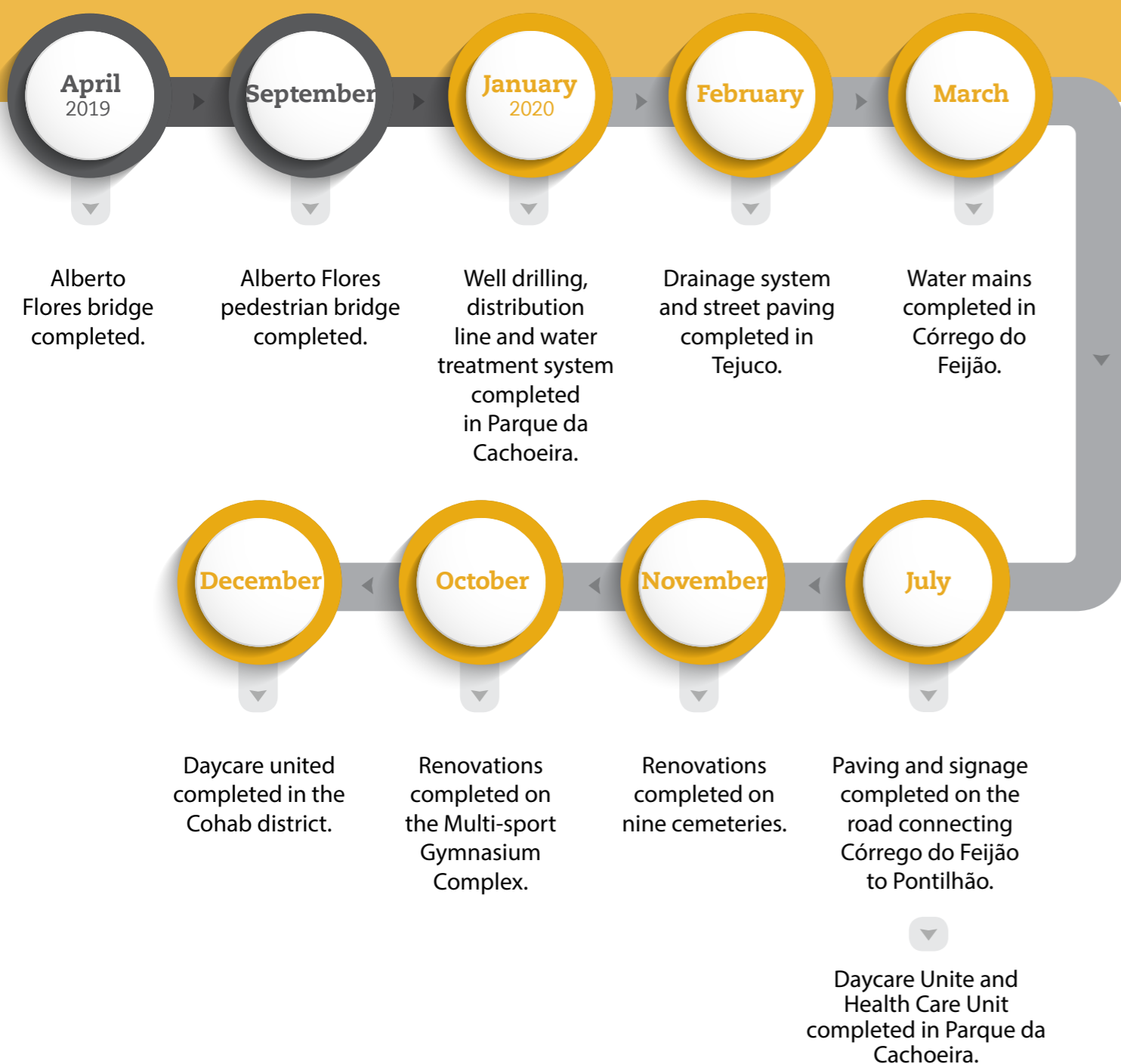


Urban infrastructure and public facilities

We remain committed to implementing actions designed to improve quality of life and collective well-being in the communities. Construction is focused on public facilities and urban infrastructure, as we always listen to the communities and partner the municipal government.



Projects completed in Brumadinho



Bridge and pedestrian bridge over Avenida Alberto Flores

The first impact reparation project completed in Brumadinho was the construction of a bridge over Avenida Alberto Flores. The emergency action was carried out to restore safe access to and from the Brumadinho downtown area and communities like those in Parque da Cachoeira, Córrego de Feijão, Melo Franco, Marques, Aranha, Palhano and Casa Branca, among others. Also built was a pedestrian bridge —a metallic structure with protective railing and lighting.



January 2019
Alberto Flores Area



November 2020
Alberto Flores Area

Construction in progress:

Brumadinho

- **Daycare unit - Palhano**

Status: In progress - 73% completed

- **Paving and signage on the road connecting Pontilhão to Avenida Alberto Flores**

Status: In progress - 55% completed

- **Implementation of street lighting - Pires**

Status: In progress - 50% completed

- **Sewage Treatment System - Pires**

Status: In progress - 39% completed

- **Care Center for Students with Special Needs - Bela Vista**

Status: In progress - 36% completed



Mário Campos:

- **Construction of municipal daycare unit**

Status: In progress - 58% completed

- **Construction of Family Health Care Unit**

Status: In progress - 40% completed



Curvelo

Residents' Association headquarters to be renovated

The Cachoeira do Choro community, located in Curvelo, has a strong connection with the Paraopeba river. With restricted access to the river, the Residents' Association sought funds in order to reopen the local economy and bring tourists back to the region. "We requested that Vale renovate our headquarters and provide us with new furnishings so we can hold meetings and deliver courses in an environment in more suitable conditions," said Carlos Roberto Filho, president of the association.

Construction started in November 2020. While revitalizing the space, the company will donate kitchen and classroom equipment and furnishings. The headquarters will host courses provided by the National Rural Learning Service (Serviço Nacional de Aprendizagem Rural, or "SENAR"), in partnership with the municipal government.



With the renovation, we are going to have a suitable kitchen to provide cooking courses, while expanding our service capacity. It's an opportunity for residents to sell stewed fruit, among other products that may become new income sources."

Association president
Carlos Roberto Filho





It was the most democratic and respectful way to give the citizens in Barão de Cocais an opportunity to voice their aspirations and needs, as well as their views on the improvements for our town.”

João Berchmans Pessoa Teixeira,
member of the Barão de Cocais
Relief and Development Plan
committee

Evacuated Territories



What are we doing to bring normality back to the evacuated communities?

With each passing day, we take another step forward in the construction and execution of relief and development plans with preventively relocated or evacuated communities.

Our primary goal is to improve the people's quality of life, so as to restore them to the previous conditions, to the extent possible. We understand that continuously listening is key in the process of empowering families. A permanent open dialog enables us to truly understand the demands, so we can move on together.

Barão de Cocais

Upper South Dam, Gongo Soco mine
(emergency level 3)

156 families evacuated

Public consultation results

The community voiced their aspirations and needs through a public consultation, and after 32 meetings held between May and October, the Barão de Cocais Relief and Development Plan's committee determined the 36 potential priority actions for the municipality. Suggestions were grouped into the fields of education, health, infrastructure and urban planning, economic development, sports, environment and water courses, tourism, culture, public security, and social work. Those which get past the feasibility studies will be completed within three years.

To learn about the 36 potential actions, go to

www.vale.com/baraodecocais

For this phase of the relief plan, Vale will provide R\$40 million. The first stage was determined based on discussions with the government and the community, and received another R\$30 million worth of investment, adding up to R\$70 million. Actions already completed or in progress include sand removal on the São João river and renovations on Praça da Lagoa and the UPA, as well as monthly fund transfer to the Municipal Hospital.

Agencies Involved

- Barão de Cocais Municipal Government
- Municipal Council
- Local associations
- Educational institutions

Reparation and Relief Plan for the Self-Reparation Zone

We are investing in a series of actions to strengthen social ties and contribute to the well-being of Socorro, Piteira, Tabuleiro and Vila do Gongo community residents who had to be evacuated from the Self-Rescue Zone of the Upper South dam. We released in October a digital form so people could choose courses and workshops they were interested in having us provide in partnership with local social institutions, such as Casa do Artesão, Projeto Sementes, and the NGO Juventude Viração. Activities commenced in December through virtual sessions, as adapted for the social isolation scenario.

Community Center

December saw us formally deliver the renovated Community Center. The property in the Lagoa district, which was already being used by the evacuated communities, has been equipped to receive residents for their traditional gathering routines, celebrations and other social functions in compliance with the recommended measures to prevent the spread of COVID-19. Management responsibilities will be shared between the Community Center subcommittee and the Socorro Community Development Association.



Want to attend courses and dancing, musing and drama workshops?

Tell us what you would like to learn.

Virtual invitation sent to the community

Agencies Involved

- Local associations



Thirtieth meeting of the Relief and Development Plan committee

Credit: Vale archive

0800 031 0831



Social Dialog

The Relief and Recovery Plan for the Self-Rescue Zone is being constructed based on the minutes of meetings with the communities and on the social diagnosis issued in 2019 by the Instituto Raízes. The goal is to contribute to repairing and reassigning the lives of families evacuated to the rise in emergency level of the Upper South dam.

Family Reference

Since 2019, when she left the Vila do Gongo community, Ms. Maria Miranda, an 82-year-old retiree, has received aid from the Family Reference (Referência da Família) program, which provides active care as well as psychological and social support on evacuated territories, too.



I'd tell Luciana I wanted to go somewhere I could see my plantation. I was raised on a farm. Now I'm in a house I like. It's a quiet place. I'm happy here,"

says Ms. Maria Miranda, 82, Barão de Cocais resident.

During one of their conversations, health care worker Luciana Morais noticed Ms. Miranda was losing too much weight and learned she missed cooking and drinking water from the public drinking fountain as she used to since childhood. Luciana contacted one of Ms. Miranda's children and suggested that they go get her some fountain water. That was the solution for the retiree to feed herself well again. Another cause for excitement to Ms. Miranda was her recent moving into a house with a planting ground, where she can keep her vegetable garden, and near a cistern. "This is clean, pure water. And here I can grow my own corn, beans and green leaves, and also breed my own chicken. It makes me happy to just look at my plantation. I was raised on tea only," she recalls.



Ms. Maria Miranda

Barão de Cocais

Laranjeiras North Dam, Brucutu mine (emergency level 2)

6 families relocated

Preventive relocation

To carry on with the geotechnical surveys being conducted on the Laranjeiras North dam with a view to expanding our knowledge of the causes for crack found in 2019 that has already be addressed, we deployed emergency level 2 response and preventive relocated the people living in the Self-Rescue Zone. The measure reflects the conservative approach taken by Vale considering that no material changes were found concerning structural safety factors. The families were relocated, in coordination with the emergency management authority and with support from Vale, to temporary residences of their own choice that are paid for by the company. Their animals have been sheltered as well. We will continue to provide all assistance needed.



Meeting to create the action plan

Agencies Involved

- Barão de Cocais and São Gonçalo do Rio Abaixo emergency management authorities
- State Emergency Service Authority
- Public Prosecutor's Office
- Military Police
- Fire Department
- Barão de Cocais Municipal Government

Vale
Answers

Is Vale going to buy the properties of relocated families?

The families are contacted by teams tasked with discussing this issue.

Will guardians be reimbursed for damages to production animals?

Individual damages will be negotiated with at the indemnity office through an attorney. Due to the pandemic, virtual meetings are being held.

In the event of decrease in the dam risk, will Self-Rescue Zone residents be allowed to return to their respective homes if they want?

Yes, but it is up to the municipal emergency management authorities whether or not to authorize families to return to their homes.

100% Completed

Macacos

B3/B4 dams, Mar Azul mine (emergency level 3)

130 families evacuated

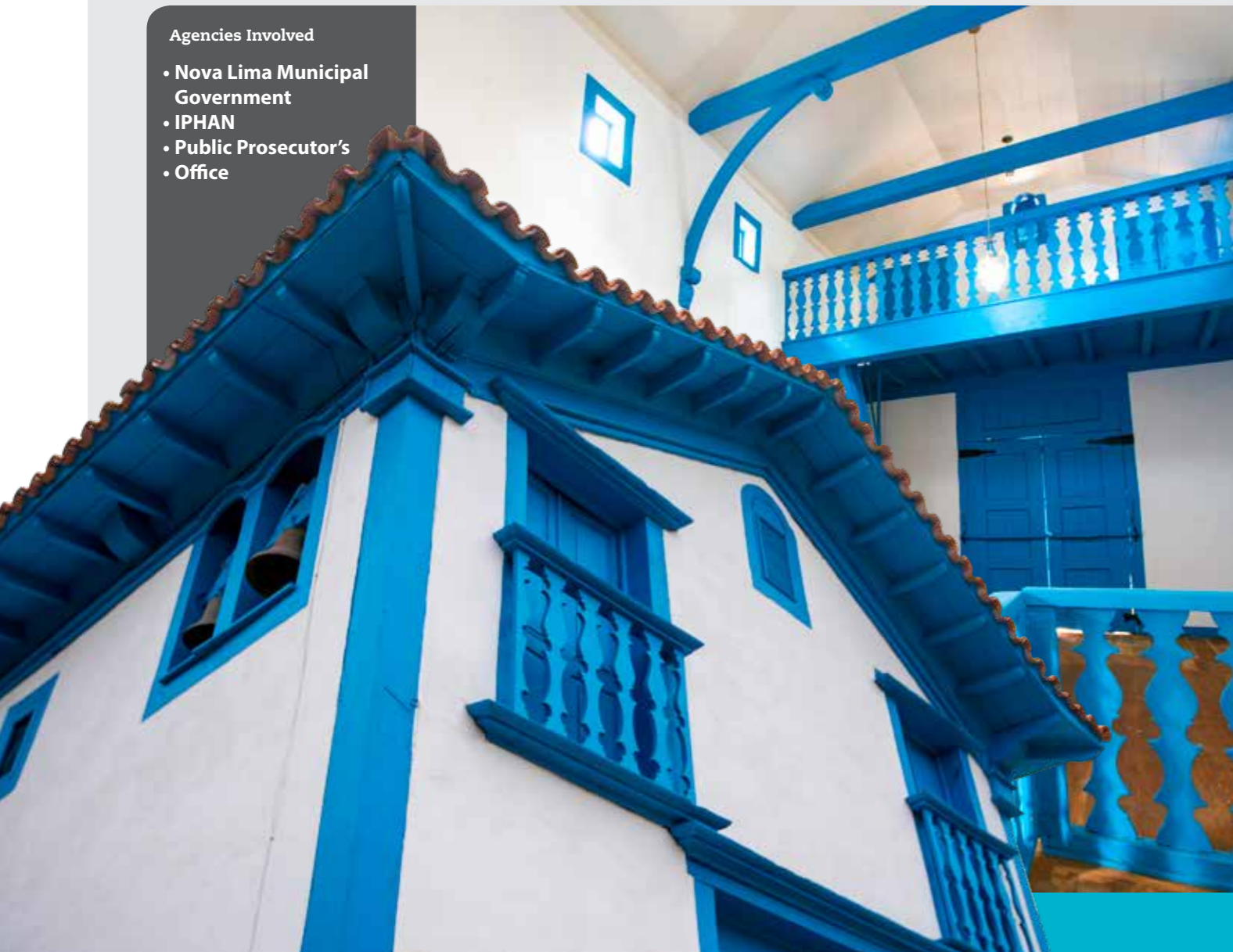
Renovation of Capela de São Sebastião

100% Completed

We completed in December the renovation work on Capela de São Sebastião, an iconic chapel built in 1718. The project comprised roof maintenance, removal of the old grout, renovation of the outer wall, inside and outside paintwork, review of the wiring and plumbing, landscaping, lighting design, and restroom renovation for accessibility. Vale also donated new sound equipment and a drainage system to reduce moisture, had wood frameworks treated for termites, and built a new annex, with the consent of the Nova Lima Heritage Council.

Agencies Involved

- Nova Lima Municipal Government
- IPHAN
- Public Prosecutor's Office



Alternate access under construction

Agencies Involved

- Nova Lima emergency management authority

Access to Perdidas track

We are building an alternate road to provide safe access to the track known as "Trilha das Perdidas," in Nova Lima, which was closed up due to raised emergency level for the B3/B4 dam. It is expected to be completed in the first half of 2021. At the end of the B3/B4 dam decommissioning project, its structural safety factor will improve, and the original trail will be fully revitalized and released to the community. Perdidas is considered one of Latin America's major mountain-biking and motocross tracks.

40%

Forecast: July 2021

Educa Bem

The Nova Lima public school system gained reinforcements in 2020 from the Educa Bem project, an initiative by the Municipal Department of Education sponsored by Vale. Using a management methodology and with support from an advisory partner, we had the 16 public schools in the municipality monitored and performance-assessed on a monthly basis for a proactive approach to continuous improvement.

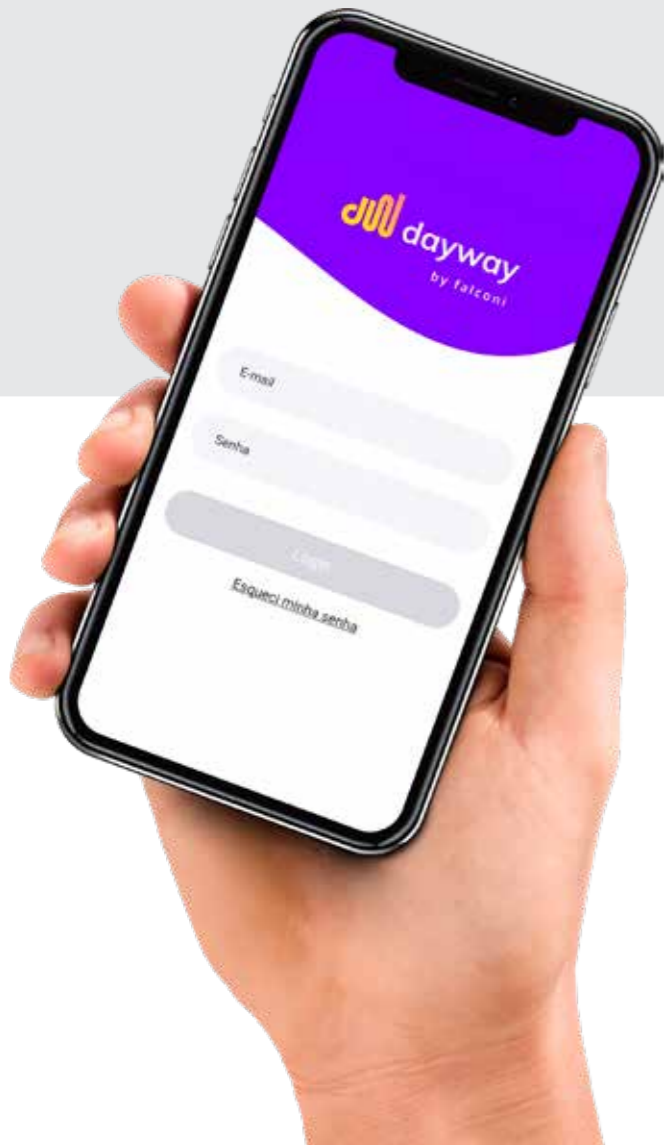
Due to the challenges posed by the pandemic and need for social distancing, the DayWay app was developed for ease of monitoring tracked indicators, such as family participation rates and weekly workbook



handouts, as well as for monitoring teachers and assessing the performance of more than 9,000 students in the public school system.

Agencies Involved

- Nova Lima Municipal Government
- Municipal Department of Education



The DayWay app, created to support the management of the municipal public school system

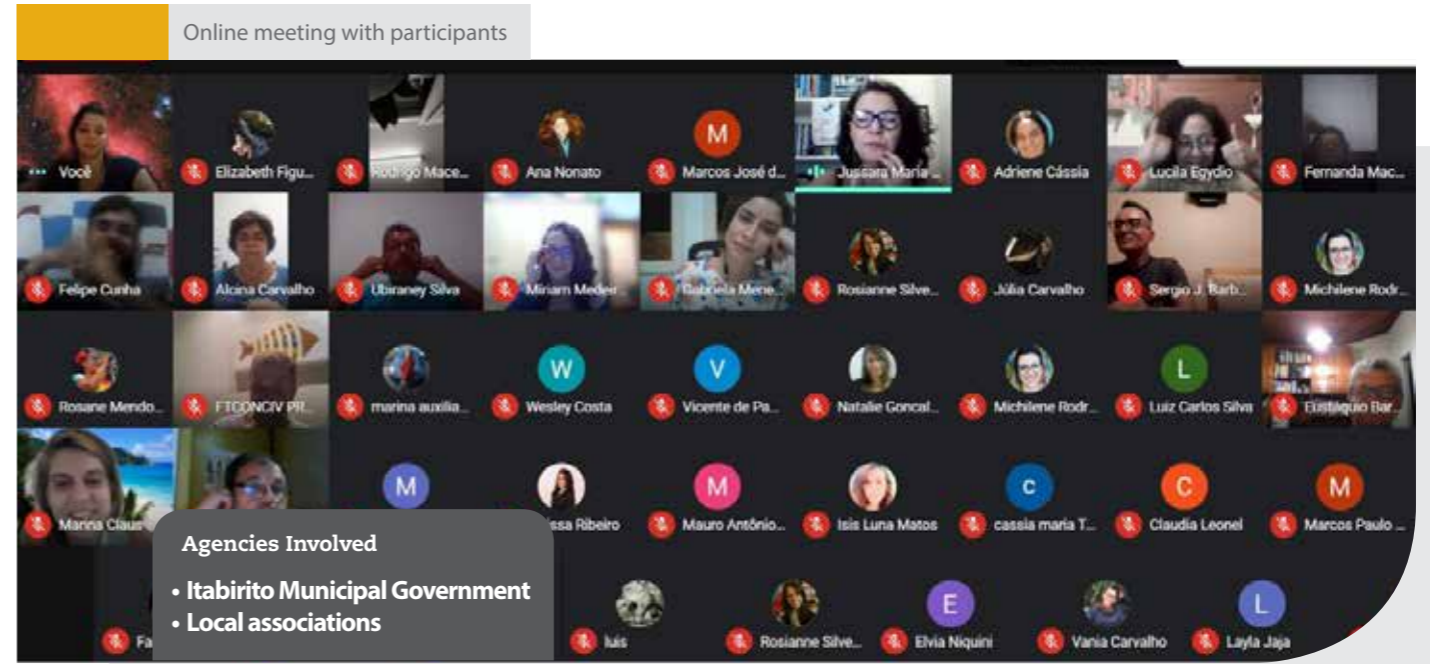
Itabirito

Forquilhas I and III dams, Fábrica mine (emergency level 3)

17 families evacuated

Investment in schools

Two years after finishing construction on the physical education courts of the municipal schools José Estevão Braga, in the Engenheiro Corrêa district of Ouro Preto, Padre Antônio Cândido and Antônio Toledo Sobrinho, in Itabirito, we commenced renovations on the courts of Ana Amélia Queiroz, Natália Donada and José Ferreira Bastos. Planned interventions include installation of new flooring, paintwork, revitalization of fencing and installation of sports apparatuses, such as goal posts, volleyball nets and basketball hoops. The courts at the schools Ana Amélia Queiroz and José Ferreira Bastos will also be covered. The project is expected to be concluded between February and April 2021, benefitting more than 1,400 students from early childhood education to the 2nd year of elementary school.



Territorial Development and Social Change

We believe in the potential and wealth of Itabirito, and we seek to foster the empowerment of the municipality. Accordingly, as the region proposes to reduce its dependency on mining, we have devised, in partnership with Instituto Raízes, a project that directly provides training for potential

local entrepreneurs. Three work fronts are covered: Creative Economy, Agroecology, and Institutional Strengthening. More than 80 associations and collectives, as well as other players in the cultural arena, willing to develop a more sustainable agricultural production have attended the initial meetings that are being held online due to the pandemic.

“I’ve been part of several projects now, many of them sponsored by Vale in the area, but I can see this one’s different. It’s not about generating numbers. It’s about perpetuating ideas. I’m very satisfied.”

Edson Zacharias, sound technician

Festa do Pastel de Angu

Festa do Pastel de Angu, a traditional festival in Itabirito, took place online this year, receiving investment and infrastructure support from Vale. Broadcast online in November from the Parque Ecológico amphitheater, the event featured local bands. For this edition, the traditional artisanal delicacies had to be home-delivered. The story goes that pastel de angu, now listed by the historical heritage as an immaterial asset of Minas Gerais, was created by slaves who lived in the region, who used the leftover angu, their main meal, to produce the delicacy.

100% Completed



A Lit Christmas

Once again, we partnered with the Itabirito Municipal Government to light up and adorn the town's hotspots for Christmas festivities.

At Praça da Bandeira, for example, a gorgeous ten-meter-high Christmas tree—the equivalent of a three-story building—was set up. Altogether, we invested nearly R\$100,000 in 7,500 meters of LED strip lights, not to mention blinking lights and decorative bows.

100% Completed



Other deliveries

Special-needs charity Associação de Pais e Amigos dos Excepcionais (“APAE”)

Renovation of kitchen and cafeteria to improve safety and accessibility conditions for the more than 190 students with intellectual and multiple disabilities.

100% Completed

Center for Environmental Education (“CEA”)

Space completely renovated to receive an average 4,500 students per month.

100% Completed



Ouro Preto

Doutor dam, Timbopeba mine (emergency level 2)

137 families relocated

Public consultation

The partial result of the public consultation for construction on the Relief and Development Plan for the Antônio Pereira and Vila Residencial Antônio Pereira communities held in August comprised over 2,100 suggestions for local investment. Infrastructure and health care were the leading areas, followed by tourism, social work, sports, education, environment and water courses, economic development, social engagement, and public security. Proposals entered will be assessed by a work group consisting of representatives of civil society, governments and Vale.

Antônio Pereira

570 surveyed

40% men

60% women

84% residing for more than 15 years

79% for less than 50 years

Vila Residencial Antônio Pereira

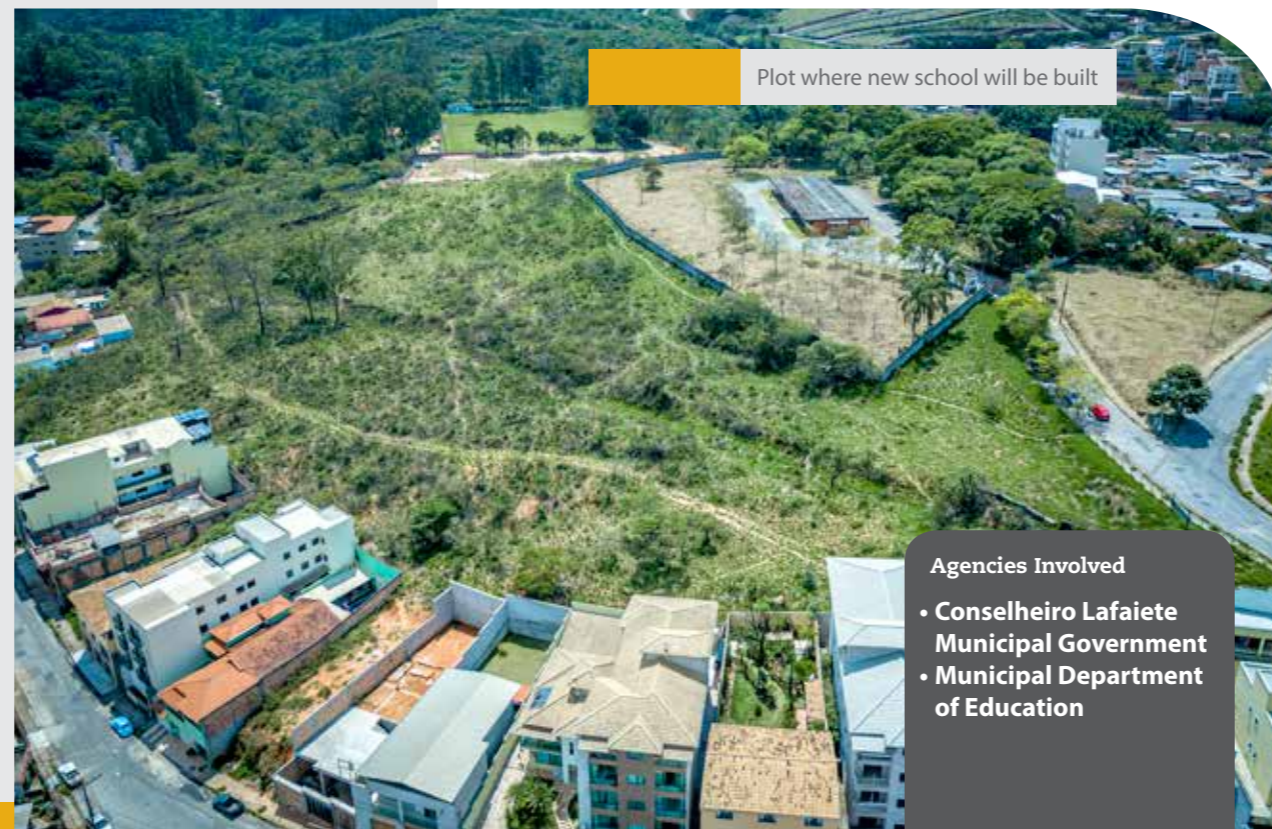
140 surveyed

50% men

50% women

56% residing for more than 15 years

52% for 35 to 59 years



10% Forecast: December 2022

- Agencies Involved**
- **Conselheiro Lafaiete Municipal Government**
 - **Municipal Department of Education**

Conselheiro Lafaiete

Waste pile, Morro da Mina

648 students relocated

Construction on new school to commence

Following preventive inspections on the properties neighboring the plot of land where the new Meridional school will be built, in the district of Morro da Minas, we started preparations in November for construction to begin. We had the perimeter boarded to isolate the space and contribute to everyone's safety, and we are in the process of contracting the companies that will be in charge of building and supplying the facilities. The project is expected to be concluded in December 2022. Until then, students will go to school for the academic year in the transitional facilities delivered by Vale in March, on the campus of Centro Universitário Presidente Antônio Carlos (UNIPAC) Lafaiete.



Transitional facility at UNIPAC



Social dialog

The new school was designed based on dialog with the community, through a series of online meetings with the Municipal Department of Education, the Meridional school principal's office, and the Municipal Council of Education, and is compliant with safety standards, requirements from the Ministry of Education, and recommendations from the National Fund to Develop Education (Fundo Nacional de Desenvolvimento da Educação, or "FNDE").

Editorial team

Quarterly report on Vale's reparation and development actions in the areas impacted by Dam B1 and on the evacuated territories.

Date: December 2020

President: Eduardo Bartolomeo

Special Reparation and Development

Officer: Marcelo Klein

Chief Communication Officer: Júlio Gama

Coordination, News Design and News

Room: Communication and Press Team,

Minas Gerais

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Print run: 200

Service Channels

Official Channels

Use the following channels to ask questions and keep up with reparation actions:

www.vale.com/reparacao

Call Center: 0800 031 0831

Indemnity Call Center: 0800 888 1182

In-person service is suspended due to the novel coronavirus pandemic. In this period, inquiries will be received through digital channels or via Call Center.

Community Service

The community service continues being provided by the 0800 031 0831 call center. Community Relations personnel are also directly reached by the families remotely. In addition, whenever necessary, they can be reached in person, taking all due precautions against the COVID-19 pandemic.

Offices - Indemnities

During the pandemic, negotiations concerning individual indemnification processes are being held online.

To schedule a meeting, you can use the following contact information:

Brumadinho

(31) 99600-7242, (31) 99648-6483 ou (31) 98445-8059

Belo Horizonte, Betim and Macacos

(31) 99983-9076

Barão de Cocais

(31) 99944-6773

Ouro Preto

(31) 99830-5886

