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Vale takes measures to recover and develop Brumadinho and affected territories of Barão de Cocais, Itabirito and Macacos

Vale is striving to fully repair the damage caused by the Dam 1 breach, including social and environmental initiatives aimed at recovering the affected citizens, gearing efforts towards close dialogue with communities and the government.

The works for containment and de-characterization of upstream dams are being developed at a fast pace, further increasing the safety of Vale's operations. Other efforts are intended to ensure safety and social and economic development of affected territories.

Social Actions

More than 107,000 residents of Brumadinho and areas within 1km from the Paraopeba River channel will receive emergency aid over the course of one year, amounting to one minimum wage per adult, half of that amount per adolescent, and 1/4 per child.

To reinforce its commitment to repair damages, Vale has presented an emergency payment extension proposal to the 6th Public Finance Court and is awaiting confirmation. In addition to these amounts, Vale has signed more than 4,000 indemnity agreements to provide full compensation to those affected. More than R\$ 2 billion have already been allocated to these measures.

Besides indemnities and donations, Vale has set up the Full Assistance Program for Affected People to help families plan their future. The project offers financial planning and education; support for the purchase of real estate; technical assistance to rural activities, microentrepreneurs, and income supplement activities; in addition to social monitoring. So far, 650 people have voluntarily joined the program.

In order to develop the city's workforce and increase the employability of residents of Brumadinho, the company commissioned Instituto Yara Tupynambá to provide professional construction and gardening courses, starting on 20 November. 80 students from Parque da Cachoeira district will receive a scholarship in the amount of R\$1,000 during the period of classes.

In addition, Vale supports the City Government of Brumadinho to expand the Family Referral Program, which includes psychologists and social assistants, using dialogue as the foundation for care. Vale provided financial aid to the municipality, maintaining the R\$ 80 million collected by CFEM (Mineral Exploration Charge).

The Municipal Department of Health and Social Assistance of Brumadinho also received R\$32.6 million to hire multidisciplinary health professionals and buy new equipment.

Environmental Actions

Recovery of the Paraopeba River

Three large containment structures (two hydraulic filtration barriers and a dike) and 23 small stabilizing barriers have been installed between B1 and the confluence of Ferro-Carvão stream and Paraopeba river in Brumadinho. The purpose of these interventions is to retain sediment flow into Paraopeba river.

All structures can be decommissioned; that is, they can be disassembled from the moment they are no longer required for stabilization of the affected areas.

In addition to these structures, a curtain of metal piles was installed near the confluence of Ferro-Carvão stream and Paraopeba river. This measure allowed cleaning of the river stretch concentrating most sediments and, since May 27, the solid flow into Paraopeba river was stopped.

To complement recovery of Paraopeba river, a River Water Treatment Plant (ETAF, Estação de Tratamento de Água Fluvial) was set up near the confluence of Ferro-Carvão stream and Paraopeba river. To date, ETAF has returned more than 2.6 billion liters of clean water to Paraopeba, within the legal standards set out by the National Council for the Environment (Conama).

Vale also began dredging tailings from the affected stretch of Paraopeba River, which is fundamental to its recovery. Dredging removes the tailings from the silted area of the river. The material removed is stored and dehydrated in large geotextile bags. The water drained from these bags is pumped to a treatment plant and returned clean to Paraopeba river. Dredging activities are planned to continue until 2020, beginning at the confluence of Ferro-Carvão stream and Paraopeba river, and extending almost 2km downstream.

To ensure water supply to the local population safely and in compliance with all engineering quality standards, in October Vale started construction works of the new pipeline system at Pará river – located between Pará de Minas and Conceição do Pará, in the midwest region of the state. 25% of the work has been completed. This structure provides a water flow rate of 1 million liters per hour – the same rate collected by the municipality at Paraopeba river before the breach. The project is expected to be complete by July 2020, when it will be delivered to the City Government of Pará de Minas and operated by the utility Águas de Pará de Minas.

Monitoring of Paraopeba River

Vale has been monitoring the water quality of Paraopeba river. More than four million analysis of water, soil, tailings, and sediment along Paraopeba river channel have been carried out, with 31 thousand samples collected. Today, the company has 90 water quality monitoring points that cover an area of 2.6 thousand kilometers along the river.

To meet emergency needs, Vale distributes water to properties with no access to piped water which withdrew water from Paraopeba river and used artesian wells or cisterns located 100 meters away from the river channel. Since January, more than 500 million liters of drinking water have been provided for human consumption, animal consumption, and irrigation.

Animal Care

Vale implemented efforts to rescue, identify, treat, and shelter domestic and wild animals from the areas affected by the breach since day 1. Measures included building a veterinary hospital for diagnosis and prompt care in Brumadinho, in addition to renting and equipping five farms to shelter approximately 9,000 animals that are being temporarily protected by Vale, coming from affected areas, regions where construction works are taking place, and from the three affected territories. The farms were equipped with complete infrastructure to shelter and treat the animals in similar or better conditions than they were before, and comprise a team of approximately 400 professionals, including veterinarians, biologists and auxiliaries – both Vale employees and third-party employees.

Dam Safety and De-Characterization

Vale is investing in the de-characterization of its dams raised with the upstream construction method. Always prioritizing the hiring of local labor, the construction works began in May 2019, and completion is expected between three and five years.

The company is working on several improvements – such as lowering of the water level of all reservoirs and cleaning of drainage channels –, and carrying out sensitivity studies with the auditing company to assess how lowering the water level can affect stability of the dams.

De-characterization is the process of ending use of a dam permanently. After the construction works are complete, the remaining structure is fully stable and reincorporated into the relief and the environment. The projects were filed with the State Department of Environment and Sustainable Development of Minas Gerais (SEMAD, Secretaria de Estado de Meio Ambiente e Desenvolvimento Sustentável), the State Prosecution Office, and Brazil's National Mining Agency (ANM, Agência Nacional de Mineração).

In addition, containment works are in progress on three dams of the affected territories: Sul Superior (Barão de Cocais), B3/B4 (Macacos), and Forquilhas (Itabirito/Ouro Preto). Dimensions of the walls of each containment are:

- **Sul Superior**: concrete barrier, 36 meter high by 306 meter length, 6km downstream of the dam;
- **B3/B4**: stone barrier (rock-fill); 30 meter high by 190 meter length, 8km downstream of the dam;
- **Forquilhas**: concrete barrier, 60 meter high by 350 meter length, 11km downstream of the dam.

For more information about Vale's construction works and actions, go to www.vale.com/brumadinho.

More information



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