

Samarco update

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Samarco Mineração S.A (50/50 BHP Billiton and Vale)



Material impacts



Death of 19 people



Significant impact on **public and private infrastructure** including **3 communities** to be **relocated**



2,200 hectares impacted along 650 river kilometres including short-term fish kill



~7,500 fishermen unable to sell fish due to fishing ban



300 rural producers impacted with many unable to continue producing



Water shortage in 10 cities

Renova Foundation



FUNDAÇÃO
renova
reparar, restaurar, reconstruir

Renova Foundation

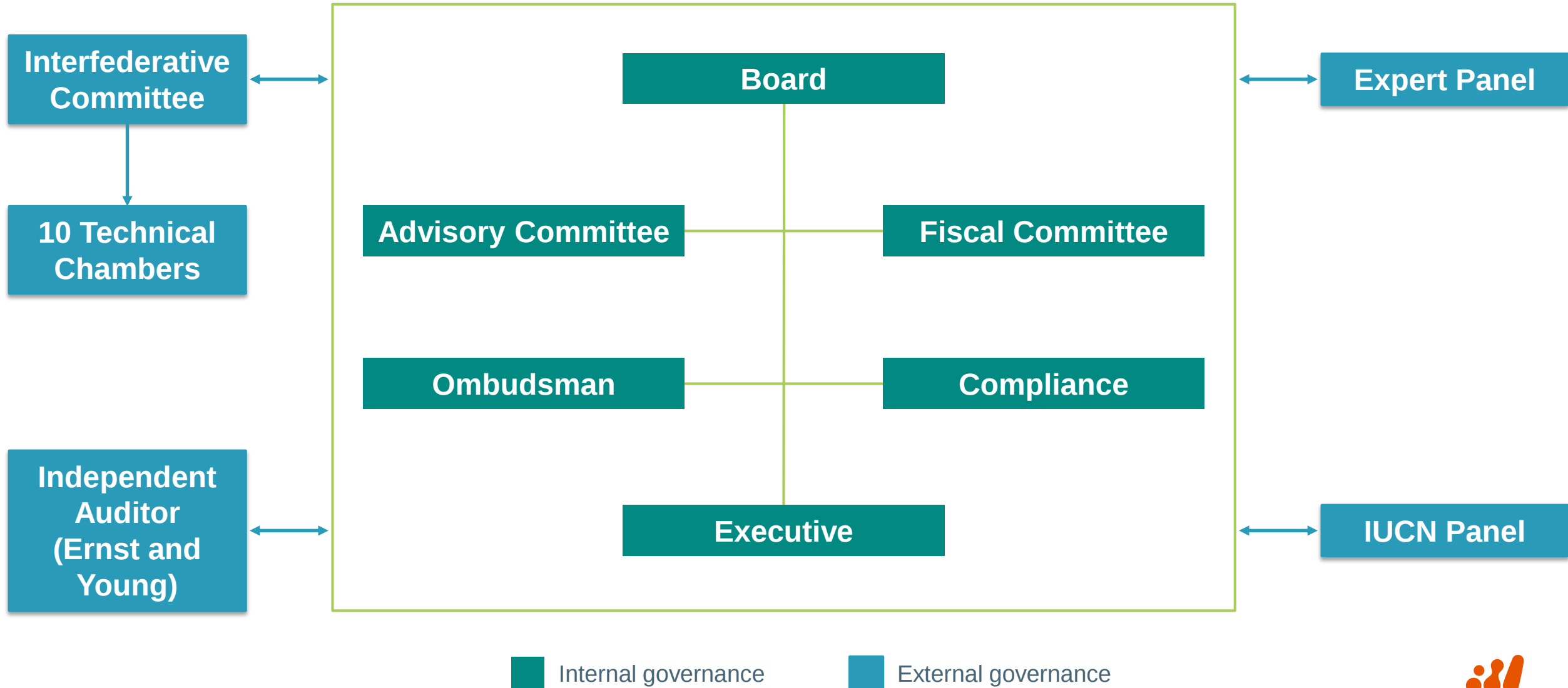
Renova Foundation was incorporated as a private, non-profit foundation by Samarco, BHP Billiton and Vale in June 2016 to implement the 23 socioeconomic and 18 socioenvironmental programs outlined in the Framework Agreement



New pipeline installed on the Santa Maria River in Colatina

- ‘Renova’ name reflects its objective of **repairing, restoring and rebuilding**
- Operational since **2 August 2016**
- Highly respected CEO – **Roberto Waack** (former WWF Brasil, GRI, Forestry Stewardship Council)
- Current focus:
 - Assembling a technically and functionally competent team of 95 people with shared services provided by Samarco
 - Building relationships with communities, academia, NGOs, governments and regulators
 - Moving from emergency approach to strategic, structured way of working focused on engagement
- **2017 Budget – \$R1.94 billion**

Governance Framework



Recent legal developments

Preliminary Agreement with Federal Prosecutors Office

- On 2 March 2016, Samarco, Vale and BHP Billiton Brasil entered into Framework Agreement (FA) with the federal government (among others) for remediation and compensation of the impacts associated with the dam failure to settle a BRL 20 billion (~US\$6.1 billion) civil claim.
- Federal Prosecutors were not a party to the FA and subsequently issued BRL155 billion (~US\$47.5 billion) civil claim.
- On 18 January 2017, the Federal Prosecutors Office entered into a Preliminary Agreement with Samarco, Vale and BHP Billiton Brasil outlining process and timeline to settle the BRL 155 billion claim by 30 June 2017.
- **The Preliminary Agreement provides for:**
 - prosecutors to be supported by technical advisors, who will review the adequacy of the programs currently being undertaken under the FA. This advice will be considered in the negotiations towards a settlement.
 - extensive community consultation in the development of the final agreement.
 - security of BRL 2.2 billion (~US\$675 million) to support existing obligations in relation to programs that are ongoing. The security comprises charges over Samarco assets (BRL800 million), insurance bonds (BRL1.3 billion) and liquid assets (BRL100 million).
 - subject to court approval, the security will replace the BRL 1.2 billion injunction in the BRL 20 billion case, and suspend applications by the Federal Prosecutors for a BRL 7.7 billion injunction in the BRL 155 billion case and a BRL 20 billion asset freezing order in the criminal proceedings brought by Federal Prosecutors.

Environmental remediation



Socio-environmental programs

1. **Waste management** – recovery of tailings, erosion control
2. **Reforestation and Water Production** – riparian vegetation, natural springs
3. **Biodiversity Conservation** – ecological recovery programs
4. **Water Security and Water Quality** – sewage and water treatment plants
5. **Education, Communication and Information** – emergency response and awareness
6. **Preservation and Environmental Safety** – environmental monitoring
7. **Land Management and sustainable land use** – impacts on protected areas and implementation of remedial actions (if required)



Dam remediation – sediment containment



Selinha dyke

- Main works to increase safety factor of the structure.

November 15



Safety Factor: 1.22

December 16



Safety Factor (Nov 16): 1.68

Old and New Santarém dams

- Old Santarém: Dam damaged in the incident. Works have been undertaken to restore the safety factor and increase storage capacity.

November 15



Safety Factor: 1.37

January 17



Safety Factor (Nov 16): 2.82

S4 dyke

- Dyke being built to contain tailings from the area around the old Bento Rodrigues village, any additional overflow from S3 and improve water quality.

January 17



Candongga dredging

- Candonga is the largest sediment trap in the Rio Doce.
- **10.5 million m³** of tailings held back by Candonga dam was stopped from flowing down Doce river to the sea.
- Aim of dredging is to remove tailings held back in the Candonga dam to reduce the risk to dam wall stability.
- In the first phase, Samarco must cover 400 m upstream. Over 400,000 m³+ of tailings have been removed from Candonga to date.
- The first phase should be concluded by August 2017.



Steps in river remediation

1. Road access
2. Rapid revegetation
3. Tributaries restoration



Steps in river remediation

- 4. Erosion Control
- 5. Mainstem reconfiguration



Steps in river remediation

6. Riverside and floodplains revegetation
7. Agricultural planting



Steps in river remediation

8. Riparian forest planting



Stabilising tailings



Reforming and stabilising drainage channels



Tributary and vegetation works

River revegetation – Barra Longa Bridge

February 16



December 16



Old Bento Rodrigues district

December 15



December 16



Geochemistry and water



Water quality and supply

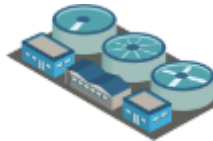


Tailings are considered to be non-reactive and non-toxic

Water distribution using trucks was organised immediately after incident. Renova is now working on recovering and improving water supply systems and plants.



- **1,378 Billion litres of drinking water distributed** to cities with water supply impaired mostly between Nov 15 and Jan 16, equivalent to **138,000 tank trucks** with 10 thousand litres capacity.



- **19 Water Treatment plants improved** with 21 being currently monitored.



- **Drilling started for 18 wells** along the river, to provide alternative supply systems.



- **Five pipelines delivered** to help supply the Water Treatment plants (more than 10 km of pipelines).

Water supply – wet season

New modular water treatment plants in Belo Oriente



Mobile water treatment plants in Regência



Wells in Alpercata, São Vitor, Itueta and Cachoeira Escura



Lagoa Nova pipeline in Linhares



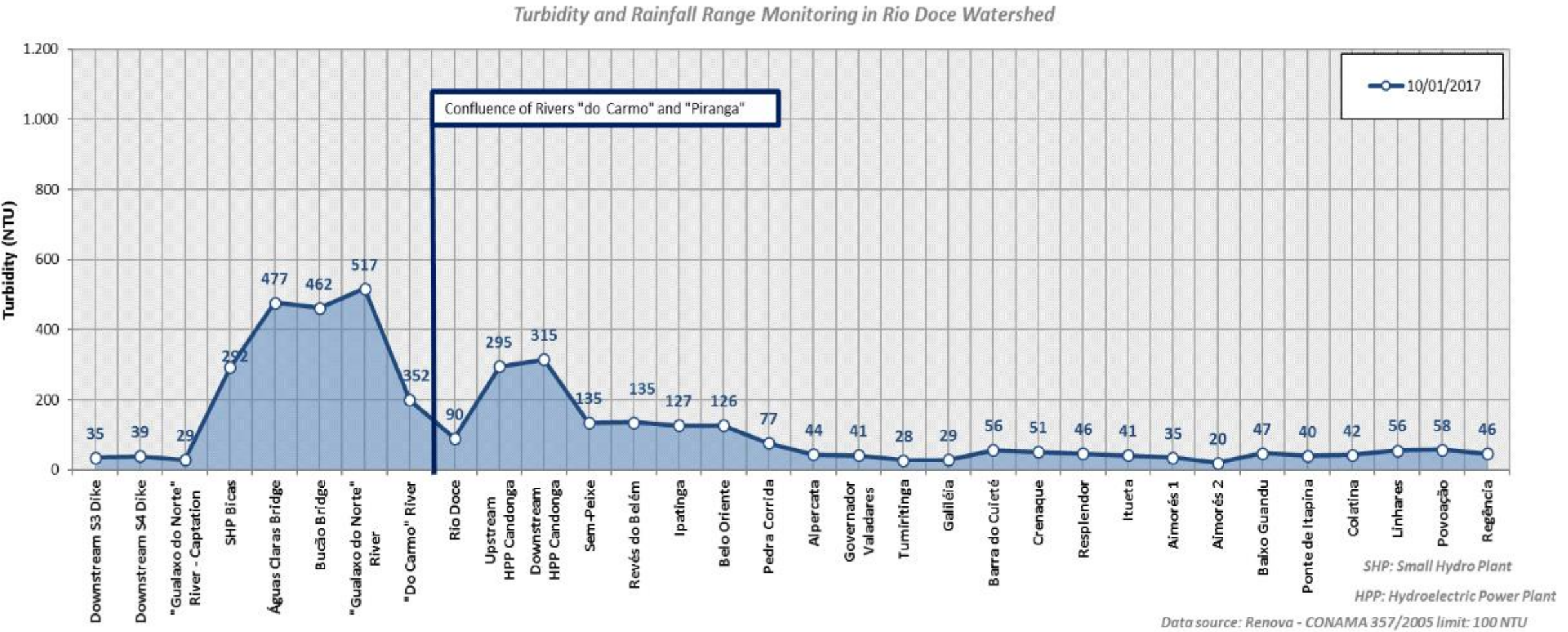
Pancas Pipeline in Colatina



Santa Maria Pipeline in Colatina



Water quality status



Socioeconomic programs



Socioeconomic programs

1. **Social organisation** – Registration, financial assistance, indemnity, Indigenous People, social dialogue
2. **Infrastructure** – recovery, reconstruction and resettlement
3. **Education, culture and leisure** – schools, historical, tourism, culture and leisure activities
4. **Health** – physical and mental health of impacted populations
5. **Innovation** – research technologies for remediation
6. **Economy** – fishing, agriculture, economic diversification, local employment and small business development



Registration and financial assistance

- Registration process is a critical in ensuring all impacted people are identified and can participate in the socioeconomic programs.
- **Emergency registration** was completed with **~8,500 families** registered.
- A more robust process is now ongoing with the possibility of up to **20,000 families**.
- **9,530 families** registered by December 2016.
- Program is suspended in Mariana due to Caritas requests for an independent service provider and greater involvement of impacted people in its design.
- IFC approves eligibility criteria and specific instances and current deadline for completion is March 2017.
- **~8,000 financial assistance** cards have been distributed with ~7,500 of those being for fishermen.



Mediated indemnity program



- Desired outcome is a high level of participation to provide timely, fair and reasonable indemnification for all the impacts on people from the dam failure.
 - Significant in scale with over 400 people running the program in the field across 10 offices.
 - Two streams – **water shortage** and **general damages** (e.g. property loss, business impact, equipment etc).
 - Program commenced in October in Governador Valadares and Colatina focusing on indemnity for water shortages during the 7-10 days after the dam failure. Activities for the indemnity of general damages has also started.
-
- **~150,000 families** will be entitled to indemnification for interruption to water supplies along the Rio Doce and just over **9,000 families** eligible for indemnification for other damages.

Community resettlement

- Social teams have been working with communities in a participatory process to determine the best location for each of the resettlements.
- New land chosen for each of the three communities.

Bento Rodrigues



- Lavoura was chosen by 92% of the 223 families who voted.
- Land purchase from Arcelor Mittal completed.
- Urban Project completed and full community validation by end January.

Paracatu de Baixo



- Lucila elected with 65% of the 103 families that voted.
- Land purchase progressing.

Gesteira



- New land elected with 95% of approval.
- Awaiting mediation due to the landowner's refusal to complete negotiations.

Barra Longa and Mariana reconstruction

- 157,000 m³ material removed from Barra Longa.
- Reconstruction of houses and infrastructure is progressing to plan.
- Of the 99 houses to be renovated, 95 have been completed and handed back to residents.
- 32 of the 36 commercial establishments have been completed.
- 28 of 49 rural properties renovated and cleaned.
- 107.5 km of paved roads completed, 110 km of unpaved roads recovered and 2.3 km of pavement reconstituted.
- Barra Longa town square and river boulevard precinct completed and commemorated with a community event in December 2016.

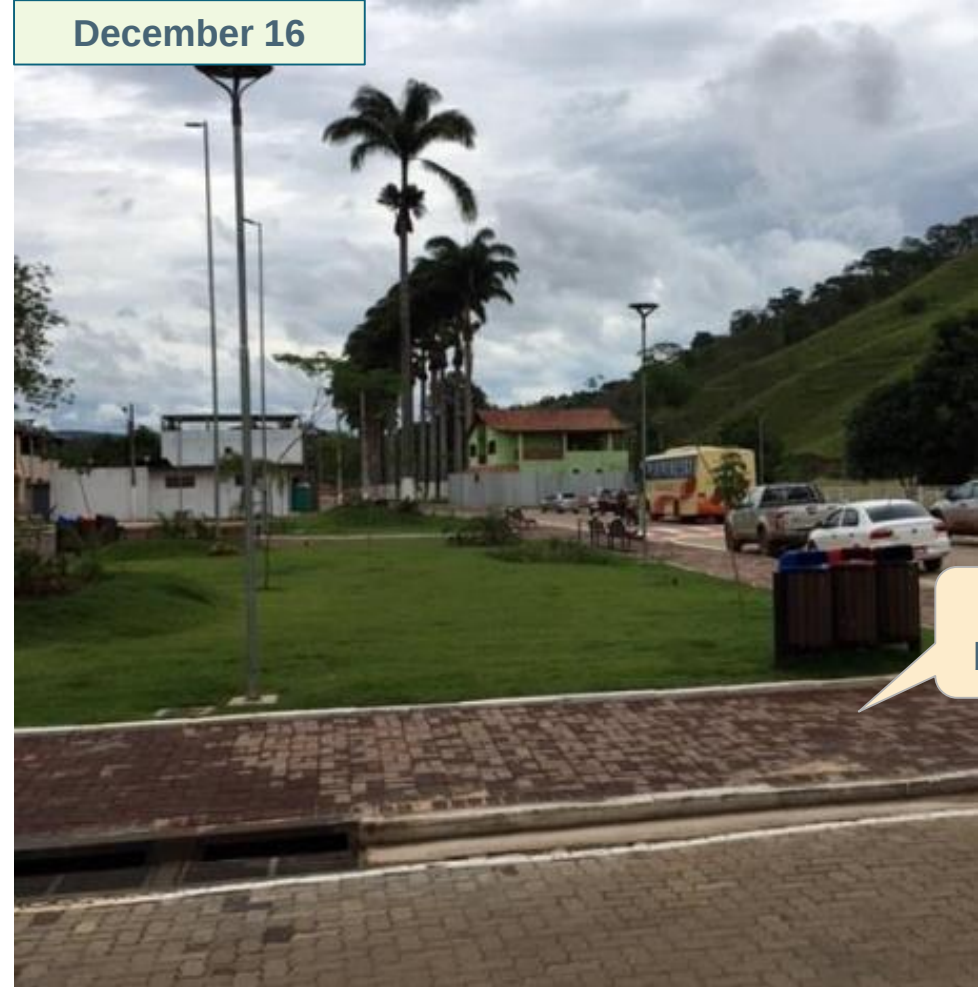


Barra Longa town square

December 15



December 16



Tailings
blocks used

Health and education

- All impacted people have been provided with access to psycho-social support.
- **65 qualified health professionals** including doctors and psychologists continue to provide health services.
- **Two health consultants** are undertaking a diagnosis of health needs in Mariana and Barra Longa in consultation with health departments. This will inform a longer term strategy for the delivery of health services and reduce dependence on support being provided by the Renova Foundation.
- A detailed **epidemiological study** will monitor changes in health, if any, over time. Discussions taking place with Harvard University School of Public Health to lead the study with involvement of the Brazilian Academy of Sciences.
- Students from the affected schools in Barra Longa and in the Mariana districts (~800) completed the 2015 school year and started 2016 as planned. Gesteira School reconstruction completed.
- School transportation offered. Teachers and students continue to receive psycho-social support.





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