IUCN

RIO DOCE PANEL

INDEPENDENT SCIENTIFIC AND TECHNICAL ADVISORY PANEL

THEMATIC REPORT 1

IMPACTS OF THE FUNDÃO DAM FAILURE

A PATHWAY TO SUSTAINABLE AND RESILIENT MITIGATION

On 5 November 2015, the Fundão dam containing 52 million m^3 mining tailings collapsed in Mariana, Brazil. The mud wave flowed through a narrow valley and entirely or partially destroyed the localities of Bento Rodrigues, Paracatu de Baixo and Gesteira. 19 people lost their lives, including 14 workers at the dam site and five inhabitants of Bento Rodrigues. After having been partially contained at the Candonga Hydropower Dam, the mud travelled further downstream for 670 km, affecting wildlife, riparian vegetation and other settlements before reaching the Atlantic Ocean.

In its first report, the independent Rio Doce Panel presents its views and recommendations for moving towards sustainable and resilient mitigation of the impacts of the dam failure. The Panel's key message is that mitigation efforts should lead to a positive and lasting legacy for present and future generations.

The recommendations are based on an ecosystem approach and a source-to-sea and landscape perspective that considers the cumulative effects of past, present and reasonably foreseeable future actions and factors on the environmental resources and the people affected by the disaster.

Indemnity payments to cover loss of income and livelihood are a temporary measure needed to support people until their livelihoods, and the ecosystems on which they depend, have been restored or at the very least replaced by viable alternatives.

WHAT SHOULD BE DONE

In the context of defining corrective actions to address the impacts of the dam failure, the Panel understands that mitigation is composed of measures:

- To remediate damage
- To restore ecosystems and people's livelihoods
- To compensate for damage that cannot be remediated

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MITIGATION EFFORTS SHOULD LEAD TO A POSITIVE AND LASTING LEGACY FOR PRESENT AND FUTURE GENERATIONS

While aiming at addressing the impacts, remediation and restoration actions should also be sustainable: the activities have to be managed in a way that causes minimum harm and leads to self-sustaining solutions that enhance the quality of the environment and the livelihoods of people from the affected communities.

The solutions proposed in the restoration process should be resilient: they have to cope with current and future threats, such as climate change and the historical degradation of natural resources in the Rio Doce watershed.

RIO DOCE FACTS

1. About 24.3 million m3 of tailings were deposited in the approximately 100 km of the river between the Fundão and Candonga Dams.

2. 18.9 million m3 of mud flowed past the Candonga dam and, after 16 days, reached the ocean, 670 km downstream.

3. 220 families were displaced, and 218 buildings destroyed, including the chapel in São Bento.

4. Approximately 2,000 ha of land along the river belonging to more than 200 rural properties were affected.

5. 1,469 ha of natural vegetation was devastated, and large numbers of fish belonging to at least 21 species were killed.

Recommendations

The recommendations follow a list of prerequisites needed to construct a road-map for a more sustainable and resilient mitigation. It requires partnership and collaboration with several stakeholders for proper implementation.

1 • Prepare a comprehensive assessment of the impacts of the dam failure and take into consideration, for each valued environmental and social component, the baseline at some point in the past and prior to the failure as well as trends in the state of those valued components;

2 • Carry out an integrated evaluation of the outcomes of the mitigation programmes;

3 • Identify threats to sustainability and resilience of mitigation outcomes, and address them;

4 • Review regional climate change models and propose improvements in mitigation programmes to address risks to the achievement of outcomes;

5 • Develop an adaptive management plan;

6 • Develop and implement a data and information sharing plan;

7 • Initiate and maintain actions to gather and disseminate relevant information and knowledge.

Read the full report trocar endereço: https://doi.org/10.2305/IUCN.CH.2018.18.en
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