



## INTERCONNECTIONS BETWEEN HUMAN AND ECOSYSTEM HEALTH

### AN INTEGRATIVE APPROACH FOR THE RIO DOCE BASIN AFTER THE FUNDÃO DAM FAILURE

The Fundão dam failure in November 2015 exacerbated the already critical situation of the region that was affected, which was characterised by poor or non-existent facilities for basic sanitation and aggravated by the limited access to public health care. Implementation of an integrative approach that considers human and ecosystem health will be crucial for the restoration process and will guarantee long-term benefits for the affected population.

#### WHAT SHOULD BE DONE

To improve the well-being of the communities affected by the disaster, the Rio Doce Panel has proposed the use of a comprehensive concept of health, taking into account the interdependence of healthy ecosystems and people. This interdisciplinary perspective considers integrative and

systemic analyses that will contribute to a more thorough insight and understanding of the complex interconnections and impacts in the Rio Doce context. Such approaches will be crucial to promote a healthier human-environment interface:

**The One Health approach**, developed by World Health Organization, recognises that:

- Humans are healthy if their environment is also healthy.
- Health promotion and prevention for human beings and ecosystems are interwoven in a landscape in a three-fold relationship – human, animal and environment.
- Community participation at all decision-making levels and the creation of partnerships are emphasised as key success factors for this approach.

The One Health approach can benefit from **Nature-based Solutions (NbS)**, another complementary perspective, that constitutes “actions to protect, sustainably manage, and restore natural or modified ecosystems, which address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits”, according to IUCN.

## SOME EXAMPLES OF NBS THAT LINK ECOSYSTEM AND HUMAN HEALTH

- Green corridors along city rivers to restore remnant ecosystems and improve connectivity, air quality and river sanitation and encourage people to engage in more physical exercise;
- Filter gardens to act on sewage purification through rooted macrophyte plants;
- Wetlands and biodiversity corridors to protect and enhance areas to store storm water and prevent floods; connect biodiversity fragments; restore riparian corridors, and avoid river-bank erosion.



## PANEL FACTS

- 1 Among the 39 municipalities directly affected by the dam failure, only four collect and treat more than 50% of their sewage. Prior to the disaster, more than 80% of the affected municipalities lack sewerage and treatment facilities altogether.
- 2 The impacts from iron ore mines interact with those associated with unsustainable agricultural practices, including extensive livestock, silvicultural activities for pulp and paper, and for steel making.
- 3 The combination of untreated sewage and the substances released by the dam failure, including those buried in the river sediments liberated have the potential to increase cases of skin allergies and illnesses affecting the respiratory system.
- 4 The tragedy mainly impacted the most vulnerable residents of the affected areas, including indigenous peoples, quilombolas, fishers and other rural and marginal urban communities.



## Recommendations



**1. Build local capacities for monitoring impacts on health and the environment** to promote a stronger connection between society and the environment and contribute to the regular collection of information concerning risk factors for human diseases. In addition, community members involved in monitoring activities can contribute to local awareness of the importance of sanitation and the communities' rights to safe water.



**2. Communicate and promote the exchange of data and information on manifestations of health symptoms in community members between formal health providers**, such as health agents that are part of the Brazilian National Health System (SUS, in Portuguese), and members of organisations that address broad health concerns (for example, NGOs, religious organisations, social movements and cultural communities). Such actions would respond to Rio Doce Panel's recommendations 6 and 7 published in the Thematic Report No. 1.



**3. Promote the use of nature-based solutions (NbS) and innovative technologies in sewage and water treatment systems**, which are best adapted for management by rural and traditional communities, including the organisation of hands-on capacity-building courses for the users.

