



## THE CRITICAL ROLE OF FORESTS AS BARRIERS TO NATURAL DISASTERS

### FACT

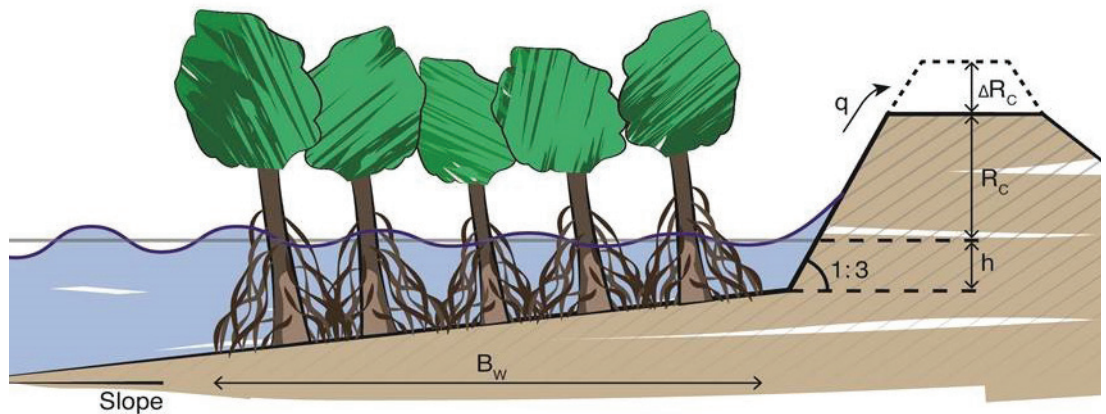
COASTAL FORESTS CAN REDUCE THE DESTRUCTIVE POWER OF TSUNAMIS, WITH WAVE HEIGHTS OF UP TO

**8–10 METERS,**

BY ABSORBING WAVE ENERGY AND STABILIZING SAND DUNES AND OTHER ELEVATED WAVE BARRIERS ALONG THE COAST. COASTAL FORESTS CAN ALSO DECREASE SECONDARY DAMAGE BY BLOCKING DRIFTING OBJECTS FROM WASHING INLAND.<sup>1</sup>

### Context & Facts

- In the last two decades, natural disasters have led to over one million deaths and caused around \$2 trillion in economic losses.
- The poor and vulnerable are the most likely to be impacted by natural disasters.
- Disaster risk management (DRM) focuses on reducing vulnerability and strengthening resilience, so countries can protect lives and assets from known risks.
- Forests play a crucial role in mitigating the risks of natural disasters and providing communities a source of income that contributes toward alleviating poverty.
- The new Sendai Framework for Disaster Risk Reduction (2015–2030), for example, underlines ecosystem-based solutions for reducing disaster-related risks;
- And the Sustainable Development Goals highlight the importance of restoring and protecting ecosystems to enhance disaster mitigation.



Forest-based approaches can be used in combination with engineering structures to offer effective flood risk protection. This example shows how the height and cost of a dyke can be reduced by planting trees in the floodplain. *Image credits: Merijn Janssen and Bregje van Wesenbeeck*

<sup>1</sup> <http://www.cid.org.nz/assets/Key-issues/Enviroclimate-change/2013-Forest-and-natural-disaster-risk-reduction.pdf>

### WHAT IS FOREST SMART?

“Forest-smart” is a development approach that recognizes forests’ significance for sustaining growth across many sectors, including agriculture, energy, infrastructure, and water. It transforms how sectors operate by identifying opportunities for mutual benefit and creating practical solutions that can be implemented at scale. Forest-smart solutions support development outcomes such as improved food security, green growth, and climate change mitigation and adaptation.

## What Forests Offer for DRM

Forests have an important role to play in helping to manage risks from natural disasters, address the impacts of climate change, and build sustainable resilience in vulnerable developing countries. Forest protection and reforestation on a watershed level, for instance, can help reduce runoff and river flood peaks after intense rainfall. In urban areas, forests and parks can increase the absorption of rain water and reduce the impacts of urban flooding. Along the coast, mangroves, when properly located and maintained, can reduce storm surge, by lessening the energy of waves, and can reduce the damage caused by potential hurricanes, flooding and coastal erosion. Forest-based DRM solutions can also bring a range of co-benefits, including fishery, tourism, carbon storage and biodiversity conservation.

## PROFOR's Forest-Smart Program on Forests and DRM

Over the last decade, the international community has increasingly looked into the use of nature-based solutions for disaster risk reduction and climate change. However, specific tools for forest management for risk reduction are not readily available. The World Bank's multi-donor Program on Forests (PROFOR) is aiming to change that through its program on Harnessing Forests for Nature-Based Solutions to Disaster Risk Management, which will promote the use of forest-related and ecosystem-based approaches to reducing vulnerabilities and risks from natural disasters.

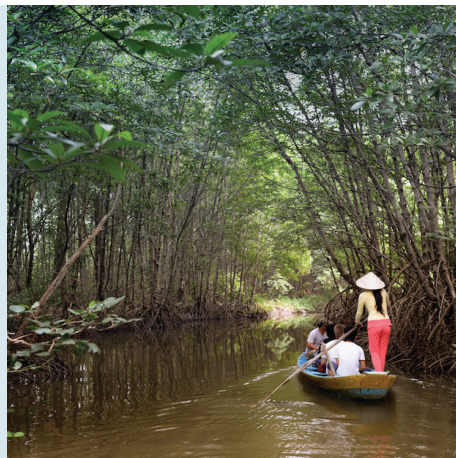
### Assessment and Economic Valuation of Coastal Protection Services Provided by Mangroves in Jamaica

In Jamaica, PROFOR is supporting the Government of Jamaica's promotion of cost-effective coastal protection measures by enhancing mangrove ecosystems that will contribute towards climate change adaptation and disaster risk reduction in coastal areas.



### Framework for Development and Management of Coastal Forests in Vietnam

PROFOR is supporting the Government of Vietnam in implementing the country's 2006-2020 Forestry Development Strategy, which envisions the widespread delivery of ecosystem services for sustainable development, livelihoods and growth. This involves the restoration, conservation and management of coastal forest within selected coastal areas; and the development of appropriate monitoring frameworks.



## What Approach is PROFOR Using?

PROFOR's DRM program will develop guidelines and case studies to address the following:

- Risk assessment and economic analysis—to develop best practices for the assessment and cost-benefit analysis of nature-based solutions for risk management, including projections of climate change.
- Risk reduction via ecosystem-based approaches and reforestation—to increase the resilience of vulnerable communities by reducing the risk to disaster that they are exposed to while also harvesting social and economic benefits.
- Preparedness and forest protection—to reduce the impact of wildfires on forests and those communities whose livelihoods depend on those forests by promoting the use of risk-informed fire management.

The DRM program will also learn from the technical assistance to other projects, including mangroves coastal protection in Jamaica and managing the risks of forest fires in Indonesia and Serbia.

For more information about this program, visit <http://profor.info/>

Interested in learning more? Contact our communications focal point: Laura Ivers: [laivers@worldbankgroup.org](mailto:laivers@worldbankgroup.org)

The Program on Forests (PROFOR) multi-donor partnership generates innovative, cutting-edge knowledge and tools to advance sustainable management of forests for poverty reduction, economic growth, climate mitigation and adaptation, and conservation benefits. Through its programs, PROFOR is advancing forest-smart development, which recognizes forests' significance for sustaining growth across many sectors, including agriculture, energy, infrastructure, and water.



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