



PHOTO: © Ethan Daniels

BLUE FOREST RESTORATION IN INDONESIA

MULTITALENTED MANGROVES

On Boxing Day 2004, disaster struck Asia. If it were not for the mangroves that lined the coastal communities where the tsunami hit though, things would have been worse. Mangroves help protect coastal people. They also help protect us all from climate change.

Mangroves, also known as ‘blue forests’, are exceptionally productive by way of the biodiversity they support and the carbon they store. Blue forest ecosystems are critical to the well-being of millions of coastal people too – their dense jumble of shrub and roots act as a buffer between land and sea, playing the critical role of protecting coastal communities from once-in-a-hundred-year storms. Even once-in-a-thousand-year tsunamis.

A 2005 study found that villages behind mangroves survived best, while another calculated that forests in front of settlements resulted in 8% fewer casualties from the tsunami – or 10,000 lives. The Green Coast project in Aceh province, Indonesia, was developed in response. It set out to facilitate 60 local NGOs to train and assist tsunami victims to rehabilitate the coastal ecosystem so as to reinstate the blue-forest buffer. Most importantly, it set out to restore local people’s livelihoods.

A unique approach was trialled. Microcredits, later nicknamed ‘Bio-rights’, were given to local groups to

plant and nurture mangroves – in return, they would receive unsecured credit to rebuild their economic lives. Villagers used the credit to buy new fishing nets, set up livestock breeding programs and plant orchards. When the project was later assessed, it was heralded a success, with a survival rate for mangrove seedlings at 83%, and as high as 99% in one location. Across the 70 locations where mangroves were restored, as many as 73 economic activities were facilitated as a result of the small grants, including capture fisheries and ecotourism.

The Green Coast project was a success, but at the global level, mangrove management is anything but. Over the past 50 years, the planet has lost 50% of its mangroves. And if current rates of loss (1-2% per year) persist, the precious goods and services that mangroves provide could be gone within the next 100 years. International efforts have emerged in response to these alarming trends, including the Global Mangrove Alliance and Mangrove Capital Africa – the former of which aims to increase the global area of mangrove habitat by 20% over current extent by 2030. The potential benefits of success are huge. For example, in the Philippines alone, restoring mangroves to their geographic coverage of the 1950s would deliver more than \$450 million per year in additional flood protection benefits.

Thankfully, growing awareness of the understated value of mangroves is improving thanks to efforts from the likes of the Global Mangrove Alliance. But time is ticking. Mangrove awareness must graduate to Mangrove commitments as countries resubmit their NDCs – as it stands, 42% of signatories to the Paris Agreement include mitigation targets for afforestation and/or restoration in territorial forest, but only 19% do the same for coastal habitats like mangroves.

NATURE'S CLIMATE STATISTICS

The value of 'blue forests' to coastal communities is matched only by the extraordinary amount of carbon stored in their biomass and sediments. When mangrove organic matter dies, a proportion of it forms the sediment underneath. Undisturbed, the carbon remains trapped as semi-decomposed plant matter and is unable to re-enter the atmosphere as a greenhouse gas. According to research, Mangroves CO₂ burial rates (i.e. rates at which carbon is converted into biomass through photosynthesis) 20 times greater than any other terrestrial ecosystem, including boreal and tropical forests. Mangroves, therefore, have no choice but to act as giant stores of 'blue carbon' in our biosphere.

But mitigation via mangrove is only half the story. Using mangrove to enhance coastal communities' resilience to the increasingly here-and-now impacts of climate change is as important. Probably more so. Perhaps that's why the Global Mangrove Alliance aims to raise \$10 billion for climate adaptation alone. In the northeast US, coastal wetlands have been estimated to provide \$23.2 billion per year in storm protection services, yet Sri Lanka is the only nation in the world to have protected all its mangroves.

Waves the size of those caused by the Boxing Day Earthquake of 2004 might not return for centuries, but storm surges caused by 21st century climate change will not be so patient.

KEY FIGURES

1 HECTARE
of mangrove can offset
726 TONNES
of coal emissions.

1,000 HECTARES
rehabilitated in this project.

83%
OF MANGROVE
SEEDLINGS
SURVIVED
throughout life of project.

2005 - 2008

**\$42 BILLION
LOST ANNUALLY**
and exposing ecosystems and coastal
habitats to an increased risk of devastation
from climate change.

19%
OF GLOBAL
DEFORESTATION
EMISSIONS
are caused by the loss
of mangroves.

PROJECT BACKGROUND

Developed in response to the 2004 Tsunami disaster that caused incalculable damage to ecosystems in five Tsunami-affected countries in Asia: India, Indonesia, Sri-Lanka, Thailand and Malaysia.

EXECUTING ENTITY

WWF, IUCN, Both ENDS and Wetlands International.

FUNDING

Funded by Oxfam-Novib, \$5.5 million.

SDGs



LOCATION



VIDEOS & STORIES

https://youtu.be/KhLlqdB_Rs

<https://vimeo.com/131638557>

<https://buff.ly/32imtxJ>

<https://doi.org/10.1073/pnas.1820067116>

CONTACT

post@wetlands.org

www.mangrovealliance.org