



CASE STUDY

THE MULTIPLE BENEFITS OF MANGROVE RESTORATION: LESSONS FROM VIET NAM

Nature in action: Nature-based solutions in humanitarian contexts

VIET NAM RED CROSS SOCIETY

BACKGROUND

Large-scale conversions of coastal mangroves exacerbated Vietnam's vulnerability to typhoons and storm surges, in particular in provinces such as Thai Binh in North-Eastern Viet Nam. Massive conversion of coastal mangroves into rice fields and aquaculture from 1980s to 1990s, as well as urban development and war, increased the exposure of coastal infrastructure and livelihoods to typhoons and storm surges. Sea dykes, aquacultures, and rice farming along the coastline were damaged and lost as a result. During this period, sea dykes made of soil suffered many broken sections resulting in seawater intrusion into rice fields and aquaculture areas.

FROM 5 TO 100 COMMUNITIES

To combat the loss of natural coastal protection, Viet Nam Red Cross (VNRC) launched the Mangrove Plantation and Disaster Risk Reduction (MP-DRR) project in 1994 to safeguard sea dykes, reduce flooding risk and protect livelihoods. The project began as a pilot in 5 communities in Thai Binh province focused on planting mangroves. VNRC worked with targeted communities, a research institute and local government to select appropriate planting areas and reach common mangrove restoration and management agreements. A key component included raising awareness and mobilizing communities in mangrove planting and protection.

Following initial successes, VNRC scaled up the initiative to include over 100 communities in 7 additional coastal provinces: Ha Tinh, Hai Phong, Nam Dinh, Nghe An, Ninh Binh, Quang Ninh and Thanh Hoa. VNRC added a capacity building component to strengthen community disaster risk reduction capacity, including in assessments, planning and small infrastructure works.

The involvement of the local community, in particular women and children, was a critical dimension of project implementation. The project engaged vulnerable people in planting, protecting and restoring the mangroves, including the local community who depend on mangroves for their livelihoods. The project also engaged school children, conducting awareness-raising sessions on the importance of mangroves through kick-off events for mangrove planting season to enhance their knowledge, awareness and responsibility in forest restoration. The school children then conducted awareness-raising activities, with around 300 schools participating in the dissemination and communication of mangrove knowledge.

Mangroves planted and protected by VNRC and communities are currently covering approximately 9,000 hectares. All VNRC chapters and communities continue to take care of mangroves, in many cases with support of local government.

BENEFITS OF MANGROVE RESTORATION

Mangrove restoration has contributed to environmental benefits: coastal biodiversity, enhanced ecosystem function and integrity. The VNRC planted millions of native species of mangroves that were adapted to the local climate. They avoided monoculture planting and thus supported the provision of a diverse habitat for coastal wildlife. Assessments were carried out to measure changes in the ecosystem, including mangrove density, growth rate and health; number and health of key aquatic species, insects, amphibians, reptiles and birds. The project also contributes to climate change mitigation, the value of estimated minimum CO₂ emissions absorbed by the planted mangroves stands at US \$218 million.

VNRC and communities have planted and protected mangroves covering an estimated 9,000 hectares. The mangrove area in Viet Nam increased from 1999 to 2013 by about 6.4%, partly due to the VNRC project. The larger coastal mangrove area has resulted in more protection against storm surges and typhoons. Further, an impact evaluation of the project estimated the benefits between 1994–2025: around USD 53million in protective benefits; economic benefits of over USD 13 million; and ecological benefits (the hardest to estimate) of around USD 82 million. The benefits significantly outweighed the costs.

The project has provided several socio-economic benefits. Local community members who participate in planting mangroves, can earn an income of 20 USD per hectare per year. In each commune where mangroves exist, people rely on the forest for their daily livelihoods, collecting aquaculture and non-timber products. Livelihood improvements related to mangroves in coastal forestry areas are notable; in areas with mangroves, yields from collecting marine species increased by up to 57.2%. The project has resulted in direct benefits to 350,000 people and indirect benefits to another 2 million.

ADVOCATING FOR POLICY CHANGE AND SUSTAINABILITY

The project has been running for over 20 years and many activities have been taken on by local and national government. Initially, VNRC facilitated and coordinated meetings, dialogues and negotiations with local authorities, communities, and central government (incl. Ministry of Agriculture and Rural Development (MARD) and Forest Department) to minimize the loss of mangroves from aquacultural development. This included providing evidence through environmental, economic and social impact studies that informed government technical guidance.

VNRC and partners increased communication and advocacy to change the minds of policymakers to improve forest laws on mangrove and coastal forest management. This has led to increased recognition of the importance of mangrove protection and restoration as a national priority. The government has introduced several policies focused on achieving coastal forest conservation and restoration and penalising deforestation, including decree #199/2016 '*Decree to provide for policies on sustainable management, protection and development of coastal forests to respond to climate change*'. Amongst others, the decree sets obligations; provides budget support for the management, protection and development of coastal forests; and provides guidance on land allocation.

The communities involved in the initial VNRC mangrove restoration activities have been able to directly benefit from the new decree and related financial support. For example, it has helped aquaculture farmers shift to more sustainable farming practices. The land allocation stipulation has been critical in facilitating access to land for mangrove restoration by communities, as well as enabling mangrove restoration to be more than a short-term activity. VNRC used to receive funding support from MARD to pay for protection of mangroves. Now protection rests with MARD, who continues to oversee protection and invest in new restoration.



LESSONS LEARNED

1 Mangrove restoration requires long-term commitments and ownership from both communities and governments, of around 15 to 25 years, to ensure sustained benefits and coastal protection.

2 Good planning, assessments and mapping are needed to inform mangrove restoration.

3 Land and forest ownership are key challenges for mangrove restoration; clear ownership agreements are needed from the outset.

4 Wider mangrove belts enable more effective coastal protection from typhoons and storm surges.

5 Regulation change has been key in protecting and sustainably managing mangroves.

6 Challenges have included trade-offs and community interest in aquaculture over mangrove restoration. Dialogues and negotiations with local authorities, communities, and central government have helped reduce the loss of mangroves to aquacultural development.



CONCLUSIONS

Mangrove restoration can provide multiple environmental, social and economic benefits to vulnerable communities and protect them from coastal hazards. Communities can be agents of change through working with nature. However, achieving sustainable benefits requires time, partnerships and supportive regulatory frameworks. The challenges and successes from Viet Nam provide unique lessons over time and scale.

The International Federation of Red Cross and Red Crescent Societies (IFRC) is the world's largest humanitarian network, with 192 National Red Cross and Red Crescent Societies and around 14 million volunteers. Our volunteers are present in communities before, during and after a crisis or disaster. We work in the most hard to reach and complex settings in the world, saving lives and promoting human dignity. We support communities to become stronger and more resilient places where people can live safe and healthy lives, and have opportunities to thrive.

Nature-based Solutions

Nature-based Solutions (NbS) are actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits (IUCN, 2020). NbS are an institutional priority for the IFRC network – recognized in its Plan and Budget 2021–2025; the Global Climate Resilience Programme of the IFRC; and the Climate and Environment Charter for Humanitarian Organizations. IFRC builds on its decades of expertise in community-based disaster risk reduction as a unique entry point for community-led NbS, focused on disaster risk reduction and climate change adaptation. IFRC has already applied NbS in various contexts, as showcased in this case study – and is actively capturing lessons learned as a basis for scaling up its work and partnerships in this area.

Acknowledgements

Thank you to Tao Dang, Viet Nam Red Cross and Hung Ha, IFRC for their experience, insights and guidance.

Background information and documents

'Decree to provide for policies on sustainable management, protection and development of coastal forests to respond to climate change'. Unofficial English translations of the decree are available [here](#) and [here](#).

For further information on nature-based solutions

<https://preparecenter.org/site/nbs/>