Briefing Note

ProAct Network

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Key messages

Healthy ecosystems provide important services for disaster risk reduction:

- as protective barriers against natural hazards; and
- by building local resilience by sustaining livelihoods and improving local capacity to adapt to climate change

Ecosystem decline increases the risk of disasters:

- natural buffers are degraded and cannot function properly
- poor communities are more vulnerable as the basis of their livelihoods is weakened

Investing in innovative, ecosystem-based interventions that link climate adaptation, disaster risk reduction and vulnerability reduction with national development policies has great potential benefits as a "no-regrets" approach.

In practice, however, environmental management rarely features in disaster risk reduction strategies.

Urgent action is required to:

- gather **quantitative evidence** on ecosystem-based disaster risk reduction; and
- **raise awareness** of the benefits of this approach among policy-makers, planners and practitioners.

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Maximising Ecosystem Services for Disaster Risk Reduction

Healthy ecosystems contribute positively to community and environmental resilience.
As well as providing us with products essential to life and livelihoods − food, fuel, medicine and construction materials − ecosystems act as natural, dynamic barriers that can help protect people from natural hazards and the impacts of climate change.

Some examples:

- forests can reduce the level of immediate rainfall run-off, help prevent soil erosion, help ensure slope stability, regulate stream flow and reduce the impacts of coastal storm surges;
- wetlands and other ecosystems can be managed to reduce the impact of floods and regulate water flow; and
- natural geological systems such as sedimentation and long-shore drift can be harnessed to facilitate the development of barrier islands, providing added protection to vulnerable coastal communities.

Sound environmental management can reduce the scale and occurrence of certain disasters. Managing ecosystems both for disaster risk reduction and strengthening the livelihood base of communities is a particularly relevant option as climate change poses ever-increasing risks to already poor communities and at-risk regions.

Healthy ecosystems often provide a far more cost-effective and sustainable way of regulating hazards compared with man-made alternatives such as dykes and concrete walls. Natural buffers also contribute to climate change mitigation due to the positive effect of vegetation and soil on carbon sequestration and storage.

Ecosystem degradation, on the other hand, increases disaster risk both by reducing the ability of an ecosystem to act as a natural buffer, as well as by exposing communities to added risks. The destruction of certain ecosystems − floodplains and forests, for example − directly threatens communities who are already vulnerable to the effects of climate change and natural hazards.

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Poor communities – many of whom depend directly on natural resources for their livelihoods – are often the worst impacted and have the least resources with which to rebuild their livelihoods. In many cases, local and traditional coping strategies to minimise risk are – or have been − based on sustainable ecosystem management. Ecosystem-based interventions provide important opportunities to work with and strengthen pre-existing local knowledge and practices, to empower communities to take control of their immediate surroundings, and to develop and improve disaster risk responses which are sustainable in financial, social and cultural terms.

The approaches, requirements, economic value and multiple benefits of healthy ecosystems acting as natural buffers are, on the whole, still poorly known and undervalued among decision-makers, planners and practitioners.

ProAct Network actively promotes more sustainable use and better management of critical ecosystems to strengthen community and environmental resilience to disasters. Helping translate known practices and approaches into practical action is what we seek to assist with.

Human costs of ecosystem decline

Cyclone Nargis caused over 135,000 casualties in Myanmar in 2008. The area had experienced a 50 per cent loss of its mangrove forests and serious degradation of remaining cover since the 1970s.

Clearance of this natural protection system is likely to have made the area more vulnerable to cyclone forces.

Economic benefits of ecosystem-based DRR

In Switzerland, avalanche prevention of protection forests is valued at up to US$170,000/ha/yr in areas adjacent to high-value assets.

Flood mitigation services by Luznice floodplain in Czech Republic are valued at over US$11,800/ha/yr.

Further reading

ProAct Network. 2008. *The Role of Environmental management and Eco-engineering in Disaster Risk Reduction and Climate Adaptation.*

Download with other key ecosystem-DRR resources at our website: http://proactnetwork.org/proactwebsite/en/resources/ecosystem-based-drr

Join Us in Promoting Ecosystem Services for Disaster Risk Reduction

√ Share information on your work on ecosystem-based disaster risk reduction with us;
√ Share knowledge on coping systems and traditional knowledge;
√ Get involved in our work and join our expert roster;
√ Become our funding partner for Ecosystems Protecting Infrastructure and Communities (EPIC) programme, aiming to address the gaps on lack of quantitative evidence and awareness on ecosystem management benefits for reducing disaster risk.

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ProAct Network is a Swiss-based non-governmental environmental organisation. Our work aims to help vulnerable communities improve their resilience to disasters, climate change and humanitarian crises, through sustainable environmental management.

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