



©Fabiola Monty

Transforming disaster risk reduction through ecosystem management in Africa

GLOBAL ECOSYSTEM MANAGEMENT PROGRAMME

KEY MESSAGES

Background

Disasters in Africa have increased over the past few decades with increased reports of disasters caused by natural hazards, despite concerted disaster management efforts^{1,2}. Africa's disaster profile is characterised by extreme hydro-meteorological events with floods and droughts being the most common reported natural hazards³.

A total of 1,517 disasters were recorded between 1980 and 2016 in Africa resulting in more than 610,000 losses in human lives, injuring close to 82,000 people, leaving more than 450 million people needing immediate assistance and leaving about 8 million people homeless⁴. Total economic losses for the same period were estimated to be close to US\$29 billion⁴. Of these 1,517 events recorded, 59 % were caused by hydrological hazards⁴, which are likely to increase in frequency and magnitude due to climate change. While taking up approximately 22% of the world's total lands mass, half of the countries with high risk profiles in the world are found in Africa². High exposure to hazards, high vulnerability and low coping capacity all contribute to the continent's high disaster risks². An increase in frequency of natural hazards does not have to coincide with

increased number of disasters and increased impacts on society.

If communities are resilient and more proactive investments are made towards **managing and reducing disaster risks**, not every hazard will turn into a disaster and harm people. However as highlighted by the 2013 and 2015 Africa Status reports, more is spent on response than risk reduction and reducing underlying risk factors are among the most challenging aspects of disaster risk reduction in the continent². Recent policy developments including the adoption of the Sendai Framework for Disaster Risk Reduction 2015 - 2030 which put the focus on managing risks versus managing disasters, present an important opportunity to re-think current and future measures for disaster risk reduction and to invest in risk-informed, proactive and innovative efforts.

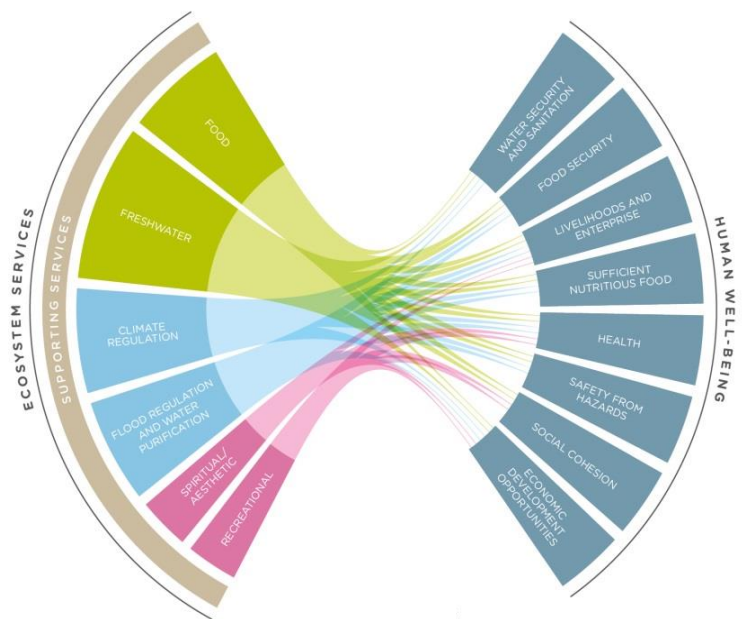
- The Sendai Framework for Disaster Risk Reduction 2015-2030 put the focus on managing disaster risks versus managing disasters and calls for concerted proactive efforts to tackle the underlying disaster risk drivers.
- Environmental degradation and declining ecosystems have been identified as one of the biggest disaster risk drivers across Africa.
- While ecosystem degradation exacerbates disaster risks, healthy ecosystems and sound management can help communities prepare for, cope with and recover from disasters.
- Yet ecosystem management is not easily identified or accepted as an approach towards disaster risk reduction.
- The Sendai Framework and the Programme of Action for its implementation in Africa both recognise the importance of ecosystem management as a risk reduction measure and calls for the protection and management of ecosystems to manage and mitigate risks.
- Investment in ecosystem-based approaches as a response to disaster risks provides a concrete way for countries to demonstrate their disaster risk reduction commitments.

“...Disasters are preventable through environmental protection, proper urban and rural planning, good-will from government and citizens, and investments to reduce underlying risk factors.”
UNISDR, 2015

Nature as a tool for disaster risk reduction

It is now recognised that the state of the environment and the occurrence and extent of impacts of disasters are related. In an ideal situation where ecosystems are maintained in a healthy state, they are able to provide multiple benefits for human well-being, namely ecosystem services which can be harnessed to help people prepare for, cope with and recover from disasters.

However despite increasing evidence and lessons worldwide, inclusion of ecosystem management in disaster risk reduction strategies remains underdeveloped worldwide. Sadly, it also frequently takes a major disaster before countries begin to set in motion plans and actions to reduce environmental degradation and invest in ecosystem management for risk reduction.



Ecosystem Services and Human well-being (©IUCN Water)

The essential role of nature for disaster risk reduction is based on two main facts:

1) Environmental degradation exacerbates disaster risks

While we derive our basic needs for human wellbeing from nature, ecosystem degradation and associated loss of ecosystem services exacerbates social vulnerabilities and the impacts of disasters on populations. For example if 80-90% of the wetland area in a landscape is cleared, there is an increased risk of flooding⁵. We have examples of multiple cities across Africa where the destruction of wetlands has been linked to increased impacts from floods. Africa is also the region that is the most severely affected by desertification, also known as land degradation in drylands^{6,7}. The causes include conversion of natural habitats into agricultural land, infrastructure development, and overexploitation of forest products⁷. Land degradation exacerbates the impacts of hazards such as droughts by contributing to loss of land fertility, reduced agricultural production, reduced income and food insecurity.

2) Healthy ecosystems and sound management enhance resilience to disasters

Ecosystems such as mangroves, coral reefs and sand dunes, if they are sustainably managed and healthy, can provide physical protection from the direct impacts of natural hazards and they can also reduce underlying vulnerabilities of communities through provision of subsistence, livelihood options and safety nets⁸. In Africa, healthy soil ecosystems enhance resilience for example to slow-onset hazards like droughts. With land degradation challenges, nature-based solutions such as sustainable land management are important to sustain land resources, land productivity and livelihood resilience. According to UN Environment, Africa would generate about US\$71.8 billion if all countries were to invest in sustainable land management interventions⁷.

“The economic benefits of taking actions against land degradation in Africa are worth 7 times the costs involved.”

UN-Environment, 2015

Ecosystem-based Disaster Risk Reduction (Eco-DRR) has a key role to play in Africa by providing proactive solutions to effectively shift from responses to prevention; particularly since environmental degradation and declining ecosystems have been identified as one of the biggest disaster risk drivers across the continent².

What is Ecosystem-based Disaster Risk Reduction?

Ecosystem-based disaster risk reduction (Eco-DRR) can be defined as the “Sustainable management, conservation and restoration of ecosystems to reduce disaster risk, with the aim of achieving sustainable and resilient development”⁸. It promotes the use of ecosystem management approaches in reducing risks through one or more of the following:

- Sustainably using and managing natural resources to derive services;
- Protecting and conserving intact ecosystems that can play a critical role in risk reduction;
- Restoring degraded ecosystems in order to reduce risks.

Eco-DRR: a mean to translate the Sendai Framework commitment into actions

With seven global targets and four priorities for action, a key feature of the Sendai Framework is the shift in focus from managing the aftermaths of disasters to managing the causes of disasters. It also recognises and promote the role of ecosystem management in disaster risk reduction for example by highlighting poor land management, unsustainable use of natural resources and degrading ecosystems as underlying drivers of disaster risk. Ecosystems will now need to be taken into account in undertaking risk assessments (Priority Action 1), in risk governance (Priority Action 2) and investing in resilience (Priority Action 3)⁹.

In 2016, African states adopted the Programme of Action for the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 in Africa. The Programme of Action recognises the environment as a key asset that needs to be protected in order to manage and mitigate risks. In the table of actions, the following priorities are identified:

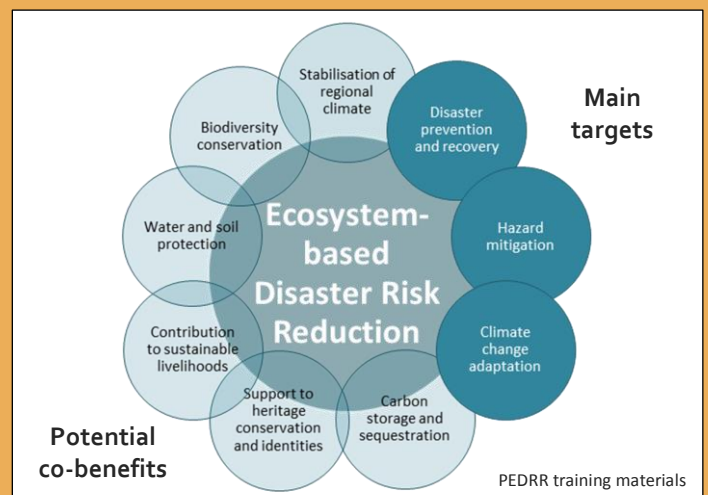
- ▶ Priority 2 (Regional): Develop harmonized mechanisms to identify ecosystems critical for transboundary DRR and modalities for their protection and management;
- ▶ Priority 2 (National): Develop national mechanisms to identify ecosystem critical for DRR and modalities for their protection and management.

Investments in Eco-DRR actions can not only form part of disaster risk reduction solutions but they can be used as indicators of countries’ progress against the Sendai Framework for Disaster Risk Reduction.

DRR+: the added benefits of ecosystem-based disaster risk reduction

Some of the biggest barriers to the uptake of Eco-DRR are a lack of trust in these approaches and the need for immediate results. Eco-DRR is indeed not a solution that fits all contexts; benefits may take time to manifest and as there are multiple drivers of disaster risks, it needs to be part of a larger strategy that can consist of a combination of approaches. However ecosystem management are too easily dismissed in risk reduction strategies, even when ecosystem degradation is one of the root causes of vulnerability. It is important to value Eco-DRR investment as an approach towards DRR and one that also provide multiple benefits:

- Eco-DRR as a cross-cutting theme can provide multiple co-benefits beyond disaster risk reduction including livelihoods, food and water security and biodiversity conservation;
- Eco-DRR for disaster risk reduction can simultaneously contribute to conservation efforts, risk reduction, sustainable development, gender equity, climate change adaptation and food security. It can thus ensure the achievement of multiple goals and commitments in a more cost-effective way;
- Eco-DRR is a “no regrets” option that can provide multiple benefits, regardless of a disaster occurrence.



Transforming disaster risk reduction with ecosystem management: where do I start?

Integrating knowledge on ecosystem status in risk and vulnerability assessments: understanding risks and vulnerability assessments are the essential steps towards the implementation of effective DRR. Given that ecosystem degradation is a key driver of disaster risk, it is also important to integrate ecosystem assessments in efforts to understand risk (Priority Action 1) by identifying:

1. Which ecosystems provide important services for disaster risk reduction?
2. What is the health status of these critical ecosystems?
3. What are the current and future threats to these ecosystems?

The knowledge generated will help identify where Eco-DRR is an important investment for effective disaster risk reduction.

Recommendations for Eco-DRR actions:

- ▶ Eco-DRR actions need to be mobilised and scaled-up in priority areas where disaster risks and ecosystem degradation overlap.
- ▶ Multi-sectoral engagement and collaboration need to be promoted and strengthened to enable mainstreaming of DRR and Eco-DRR in other sectors for joint and cost-effective actions.
- ▶ It is important to establish and enforce mechanisms to protect healthy ecosystems that provide regulatory ecosystem services so as to avoid the creation of new disaster risks.
- ▶ Disaster risk reduction and management efforts including engineered grey infrastructure, recovery and reconstruction processes need be implemented without affecting the integrity of natural ecosystems.

Eco-DRR in practice

Country: Burkina Faso.

Hazards addressed: Droughts and floods.

Ecosystem-based approach: Sustainable land management to strengthen local resilience to floods and drought.

Field interventions:

- ▶ Assisted natural regeneration and reforestation was carried out to increase tree cover and improve soil quality;
- ▶ Endogenous land practices like stone lines and Zaï that conserve water were implemented over more than 3000 hectares of land to strengthen its productive capacity and increase agricultural output.

Lessons learned: Involvement of communities in vulnerability assessments, identifications of solutions to risks, project management and implementation, 1) ensures that the Eco-DRR responses are relevant to the local challenges and 2) leads to community ownership¹⁰.



References

- ¹Dewald van Niekerk, Michael Murphree, Vicci Prinsloo, Wilfred Lunga, Leandri Kruger, PW Bredenkamp, Livhuwani Nemaconde, Christo Coetzee. 2016. Regional Assessment on Ecosystem-based Disaster Risk Reduction and Biodiversity in Eastern and Southern Africa. IUCN, ESARO. viii + 60pp.
- ²UNISDR. 2015. Disaster Risk Reduction in Africa: Status Report-2015. The United Nations Office for Disaster Risk Reduction, Nairobi, Kenya.
- ³IUCN/PACO. 2016. Regional Assessment on Ecosystem-based Disaster Risk Reduction and Biodiversity in West and Central Africa. A report for the Resilience through Investing in Ecosystems – knowledge, innovation and transformation of risk management (RELIEF Kit) project. Ouagadougou, Burkina Faso: IUCN. 58pp.
- ⁴EM-DAT: The Emergency Events Database - Université catholique de Louvain (UCL) - CRED, D. Guha-Sapir - www.emdat.be, Brussels, Belgium [Accessed 25 October 2017].
- ⁵Cedfeldt P.T., Watzin M.C., and Richardson B.D. 2000. Using GIS to identify functionally significant wetlands in the Northeastern United States. Environmental Management 26: 13–24. <https://doi.org/10.1007/s002670010067>.
- ⁶IUCN. 2017. Issues brief: Drylands and land degradation. Available at: <https://www.iucn.org/resources/issues-briefs>.
- ⁷UNEP. 2015. The Economics of Land Degradation in Africa. ELD Initiative, Bonn, Germany. Available at www.eld-initiative.org.
- ⁸Estrella, M. and N. Saalismaa. 2013. 'Ecosystem-based Disaster Risk Reduction (Eco-DRR): An Overview', in Renaud, F., Sudmeier-Rieux, K. and M. Estrella (eds.) The role of ecosystem management in disaster risk reduction. Tokyo: UNU Press, pp. 26-54.
- ⁹PEDRR. 2016. Advancing implementation of the Sendai Framework for Disaster Risk Reduction (2015-2030) through Ecosystem Solutions. Briefing Paper.
- ¹⁰Monty, F., Murti, R., Miththapala, S. and Buyck, C. (eds). 2017. Ecosystems protecting infrastructure and communities: lessons learned and guidelines for implementation. Gland, Switzerland: IUCN. x + 108pp.



Convention on
Biological Diversity



Japan Biodiversity Fund

Contact IUCN ESARO:

Regional Office, Nairobi: +254 20 2493561

E-mail: info.esaro@iucn.org

Contact IUCN PACO:

Regional Office, Ouagadougou: +226 25 40 99 42

E-mail: paco@iucn.org

Where can I get more information?

iucn.org/ecosystems

Twitter: @IUCN_Ecosystem

Facebook: IUCN Ecosystem Management