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POLICY BRIEF

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Transforming disaster risk reduction through ecosystem management in Mexico and Central America

GLOBAL ECOSYSTEM MANAGEMENT PROGRAMME

Background

According to the Global Climate Risk Index[1], Mexico and Central America is the second most vulnerable region in the world to climate risks. Environmental impacts caused by natural hazards influence human health, biodiversity and agriculture, as a high percentage of natural disasters are water-linked.

Mexico, Central America and the Caribbean has roughly 200 million inhabitants[2] and possess a wide range of biological biodiversity encompassing approximately 7% of world's know species[3] on the planet and 206 types of ecosystems[4]. The region is also vulnerable to the frequent natural hazards causing daunting losses. In 1998, Hurricane Mitch caused losses equivalent to 30% of the GDP in Central America. In addition, the occurrence of the most frequents natural hazards in the region, hurricanes, tropical storm, floods, landslides and droughts, may increase due to the influence of El Niño/ La Niña[5].

Vulnerable communities are the group of the society that suffers most from natural hazards. The region faces major challenges sus as high vulnerability to climate changes and to cyclic events of climate variability, e.g. El Niño and La Niña. Indeed, cumulative impacts of negative effects over time have had a direct impact on this targeted group, who is still coping with a constant decline in their living standards.

Despite the challenges the region is facing, policies and strategies have been developed over the past years based on the reality and current situation of each of the countries of the region. While the level of implementation of these instruments is still low, they are in continuous adaptation, providing opportunities to integrate approaches and concepts, such as Ecosystem-based Disaster Risk Reduction (Eco-DRR). The great diversity of the region is reflected in communities that organise themselves into effective groups to address key issues of concern. The impact on climate change will exacerbate the exclusion of women farmers due to the lack of fertile soils, since land management and property rights often put women of limited resources at a disadvantage[6].

KEY MESSAGES

- **The region is highly vulnerable to climate change effects and cyclic events such as El Niño / La Niña.**
- **While ecosystem degradation exacerbates disaster risks, healthy ecosystems and sound management can help communities prepare for, cope with and recover from disasters.**
- **Implementation of programmes and policies for conservation and restoration of ecosystems, as well as the establishment of more protected areas remain a great challenge.**
- **Strengthening governance and governability and mainstreaming local knowledge and community experience are fundamental for the success of programmes, plans and policies.**
- **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.**
- **Develop projects using the Eco-DRR approach can be a powerful strategy to address physical, economic and social vulnerability.**

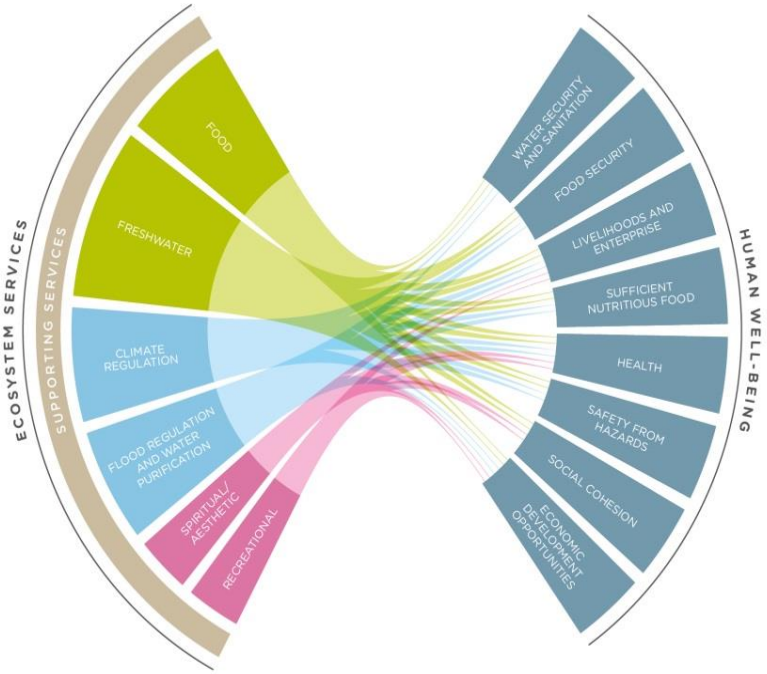
"…since the turn of the 20th century, the space and demand to maintain an unsustainable growth has pushed natural ecosystems to the brink of collapse, resulting in Earth's possible sixth mass extinction[10]."

Ceballos, 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

The region presents an inestimable value of biological diversity and richness which is an asset for present and future generations making the region as a challenging area in terms of conservation and restoration of ecosystems. Natural resources in general are subjects to great pressure, responding to an extractive and predatory development dynamic, where spatial planning is absent. Deforestation and loss of ecosystems together with climate change will favour the development of diseases and harmful invasive species for forests and agriculture.

Mexico and Central America propose to reduce the vulnerability of ecosystems through policies, incentives and the generation of scientific knowledge. The existence of protected areas, conservation policies and international agreements[7] has improved environmental health among the countries of the region. Much more remains to be done regarding overexploitation of ecosystems, illegal extraction of goods and materials, pollution of water resources and application of sustainable territorial planning.

2) Healthy ecosystems and sound management enhance resilience to disasters

Healthy ecosystems are more resilient to the negative impacts of natural disaster and become natural barriers protecting communities, especially the most vulnerable in economic terms. 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 nets[8]. Ecosystems are the best strategy against natural hazards and help reduce secondary effects of hydro meteorological hazards. The integration between the use of biodiversity and disaster risk reduction can be seen as a tool to prevent large-scale catastrophes while helping preserve the natural ecosystems[9] and increase the level of resilience so that communities are able to face disasters is key in the adaptation and mitigation of climate change.

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 promotes 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)[8].

Another one of the great opportunities is that the countries of the region possess environmental legislation, while also being signatories of the most important international agreements, for example the Convention of Biological Diversity, Ramsar Convention or Rio +20.

Central America and Dominican Republic have the "Central American Policy of Integral Disaster Risk Management" (2011); its general objective is to provide the region with a guiding framework in integral disaster risk management, facilitating the link between political decisions and tools for implementation, intertwining social, economic and environmental managemen[9].

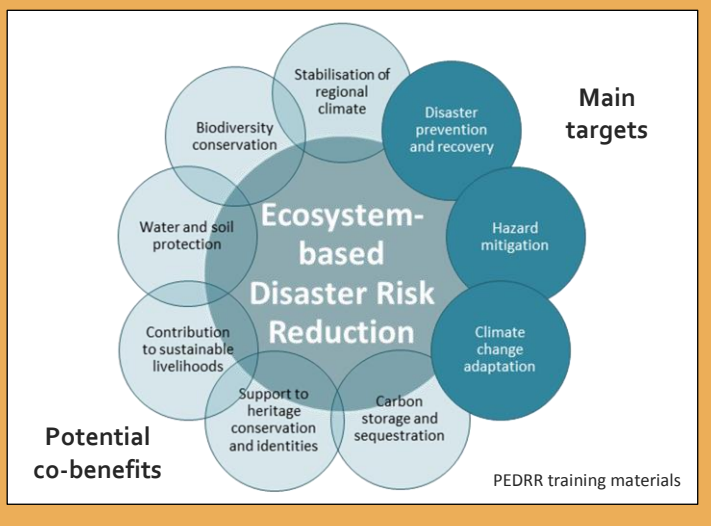
The Central American Policy of Integral Risk Management of Disasters (PCGIR) is the guiding framework for actions in the field of reduction of disaster risk in the region. This instrument seeks to be a basis for consolidate efforts to reverse and reduce the effects that disasters cause in the Central American region in both economic losses and human lives as of livelihoods, basic services and critical infrastructures.

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: Guatemala.
Hazards addressed: Hyrdometeorological.
Ecosystem-based approach: Sustainable land management to strengthen local resilience and maintain ecosystems healthy.
Objectives:

- Achieve conservation of natural resources contained Lachuá Lagoon National Park and the sustainable use of natural resources in its influence zone, in order to improve the living conditions of the local inhabitants;
- Guiding the restoration and conservation of biodiversity, sustainable products, diversification and improvements in product marketing, as well as contributing to establishing legal tenure of the land.

Lessons learned: Keeping ecosystems healthy is important to lower the secondary effects of hydro meteorological hazards and helping to maintain water supplies. Increasing the level of resilience is key in the adaptation and mitigation of climate change[11].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