

Ecosystems Restoration Opportunity Mapping for DRR and CCA (EcoDRR)

Start Date: April 2016

End Date: September 2016

Objectives:

The objectives of the opportunity-mapping tool are:

- To cross map ecosystem restoration/conservation potential with human exposure to hazards in each country
- To provide a tool for the identification of suitable areas for ecosystem conservation and/or restoration to reduce exposure to the highest number of people
- To provide a powerful visual tool for promoting Eco-DRR at a global scale

Rationale:

Ecosystems are providing a range of services such as carbon sequestration, supporting biodiversity, economic benefits (e.g. fisheries), providing recreational opportunities, as well as provision of food, fibre and other resources. Ecosystems are also increasingly recognised for their role in reducing disaster risk and the harmful impacts of climate change. Mangroves, sea grasses and corals have been proven to reduce wave energy and related impacts from storm surges; wetlands can buffer hazardous flood events by absorbing excess water; forests and other vegetation can reduce landslide susceptibility by removing excessive soil water content and stabilizing the soil through root networks; forests can also buffer drought by regulating humidity and increasing precipitations, through albedo, roughness, shadow, heat absorption and evapotranspiration processes.

UNEP/GRID-Geneva has an extensive experience in generating data on hazard exposure, since the Disaster Risk Index, PREVIEW and the Global Assessment Report on Disaster Risk Reduction (GAR 2009, 2011, 2013 and 2015).

In parallel, global datasets have also been compiled on various ecosystems; for example, WRI forest and forest opportunity dataset, UNEP/WCMC datasets on sea grasses, mangroves and coral reefs, the Red List of Ecosystems and the World Database on Protected Areas (IUCN).

The availability of global datasets provides an opportunity to compare the restoration and conservation potential of various ecosystems to population exposure to hazards in order to find opportunity areas where ecosystem management can be used to protect the highest number of people.

Description:

UNEP/GRID-Geneva and UNEP/PCDMB are developing a new methodology and global interactive tool for mapping areas where ecosystems can reduce disaster risk. The methodology is crossing human exposure to natural hazards (Flood, tropical cyclones, landslides and tsunami), with presence/absence of ecosystems. It allows to prioritize areas where ecosystems should be protected and areas where ecosystems should be restored. This project will also include capacity building.

A global opportunity-mapping tool will be timely as countries are now faced with the challenge to operationalize Eco-DRR and Ecosystem-based adaptation. In 2015 a number of major global agreements were adopted which recognize the key role of ecosystems and ecosystem services in helping achieve reduction in disaster risk, sustainable development and climate change adaptation; these include the Sendai Framework for Disaster Risk Reduction (SFDRR), the Sustainable Development Goals (SDGs), the Paris Agreement of UNFCCC CoP21 and the Ramsar Convention Decision XXII.13. As international attention moves from passing global agreements to actual implementation, governments, practitioners and development agencies are seeking to translate these global goals into coordinated national action plans, legislations, and development programs. The opportunity-mapping tool will add value by guiding the implementation of ecosystem-based aspects of these agreements.

The target of the global product is high-level decision makers and practitioners within governments and development agencies. UNEP will initially service a number of priority countries to test the prototype. The initial list will be aligned with the priority countries within the 5-10-50 global initiative, whereby UNDP and partners will support 50 countries over 10 years to deliver better disaster risk-informed developed on 5 critical areas. At a later stage the online opportunity-mapping platform will be made available to the public as an open access tool.

Outputs/Results:

The key outputs of the project will be:

- An interactive online application which displays a global map overlaying ecosystems, hazards and human population
- A global analysis of Exposure/Ecosystem ratio at 10*10 km scale for all relevant hazard/ecosystem relevant combinations
- Summary tables of Exposure/Ecosystem ratio for each country
- Developed methodology for downscaling Exposure/Ecosystem ratio at sub-national level
- A training module on how to use the opportunity-mapping tool