Ecosystem-based Adaptation

An approach responding to climate hazards

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Climate change is a reality and adaptation to it a need. Some of the adverse impacts on natural and human systems of this phenomenon include climate extremes such as the increased frequency of droughts, storms and frostings, as well as more intense and/or unpredictable rains. Extreme events will also have great consequences in the sectors with close links to climate, such as water, agriculture and food security, forestry, health and tourism[1].

The most vulnerable populations to the adverse impacts of climate change live in developing countries; experiencing lower abilities to respond to the pressures caused by climate variability and climate changes[2]. In South America, the diversity and agro-ecosystems of the Andean and Amazon ecosystems are being highly threatened; therefore, populations face problems regarding availability and access to natural resources.

It is worth mentioning that climate change adaptation (CCA) is not a novelty. For generations, indigenous peoples and local communities have developed many practices and traditional knowledge that has allowed them to adapt to environmental and climatic changes. However, the socio-ecological systems are dynamic; for instance the transition to other livelihoods such as the intensification of certain productive activities such as livestock farming and the lack of community organization or migration, are factors that can accentuate the negative impacts of climate change.

Adapting to climate change means the process of adjusting ecological, social or economic systems in response to actual or expected climate changes and their impacts. It refers to changes in processes, practices and structures facing potential damage or in order to benefit from the opportunities of climate change (IPCC, 2007).

Therefore it becomes clear that adaptation is not an option but a necessity. According to the UNFCCC, adaptation measures are vital in order to reduce the impacts of climate change and increase resilience to future impacts. Successful adaptation is a process that requires the commitment of a wide range of stakeholders, at various levels and in multiple sectors; it does not only depend on governments but also on the active and sustained involvement of a variety of actors.

Thus, adaptation approaches are wide-ranging, focusing on the role of communities, infrastructure to reduce the risk of extreme events, or ecosystems. The ecosystem approach, understood

[1] IPCC, 2012: Summary for Policymakers. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation [Field, C.B., et al. (eds.)]. A Special Report of Working Groups I and II of the IPCC. Cambridge University Press, Cambridge, UK, and New York, USA, pp. 1-19.

[2] IPCC,2007: Cambio climático 2007:Informe de síntesis.Contribución de los Grupos de trabajo I, II y III al Cuarto Informe evaluación del Grupo Intergubernamental de Expertos sobre el Cambio Climático, Ginebra,Suiza, pp. 104.

[3] CBD COP5 Decision V/6: http://www.cbd.int/decision/cop/default.shtml?id=7148

as a strategy that favors the integrated management of land, water and natural resources, promotes conservation and sustainable use in a fair and equitable way[3] , setting the premises and principles for **Ecosystem-based Adaptation (EbA)**.

EbA is defined as the **use of biodiversity and ecosystem services,** as part of a broader adaptation strategy. It should be cost-effective and generates social, economic and cultural co-benefits, while contributing to biodiversity conservation. It integrates sustainable management, conservation and restoration of ecosystems to provide services that allow people to adapt to climate change impacts[4]. It aims to maintain and increase ecosystems and people's resilience and to reduce their vulnerability to climate change impacts.

The role of ecosystems and the traditional knowledge of local communities are crucial in the design of CCA, EbA and Disaster Risk Reduction (DRR) measures. EbA actions that are planned and designed appropriately can improve livelihoods, assure food security, reduce impacts of extreme weather events, and promote biodiversity conservation and carbon sequestration.

Some examples of EbA[5] actions include:

- Integrated Water Resource Management (IWRM), recognizing the important role of watersheds, forests and vegetation associated to the regulation of water systems.

- Establishment and effective management of protected areas to ensure the provision of ecosystem services.

- DRR through ecosystem restoration or the assuring water availability through infrastructure such as reservoirs or water channels.

Principles of the EbA approach [6]

1. Promotes multi-sectorial approaches.
2. Operates at multiple geographical scales.
3. Integrates flexible management structures that allow an adaptive management.
4. Minimizes the trade-offs and maximizes the benefits related to development and conservation objectives to prevent undesirable environmental and social impacts.
5. It is based on the best scientific and local knowledge; it should create further knowledge and its dissemination.
6. Promotes resilient ecosystems, using nature-based solutions promoting benefits for people, especially for the most vulnerable.
7. It should be participatory, transparent, responsible, and culturally appropriate, while actively considering equity and gender issues.

Among the nature-based solutions promoted by IUCN, the **Ecosystem-based Adaptation (EbA)**[7] in mountain ecosystems Programme is being implemented. This is a collaborative initiative of UNEP, IUCN and UNDP, financed BMUB. In Peru, the EbA programme[8] is commissioned by the Ministry of Environment of Peru (MINAM for its Spanish acronym) and is implemented in the Nor Yauyos Cochas Landscape Reserve with the support of the National Service of Natural Protected Areas (SERNANP for its Spanish acronym). The activities under IUCN's responsibility are implemented in partnership with The Mountain Institute (TMI) in the communities of Canchayllo and Miraflores.

[4] CDB, 2009. Connecting Biodiversity and Climate Change Mitigation and Adaptation: Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climat Change. Montreal, CBD Technical Series No. 41.
[5] Mayor información sobre AbE: https://portals.iucn.org/library/efiles/edocs/2012-004.pdf.
[6] Andrade, A, et al. 2011. Draft Principles and Guidelines for Integrating Ecosystem-based Approaches to Adaptation in Project and Policy Design: a discussion document. IUCN-CEM, CATIE. Turrialba, Costa Rica. XXp.
[7] Página Web del Programa AbE: www.ebaflagship.org.
[8] UICN-Sur, información proyecto AbE: http://iucn.org/es/sobre/union/secretaria/oficinas/sudamerica/sur_proyectos/?11615/AbEPeru

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