LESSONS LEARNED

Ecosystem-based adaptation (EbA) is the use of ecosystem services and biodiversity as part of an overall strategy to adapt to the adverse effects of climate change. EbA uses the sustainable management, conservation and restoration of ecosystems to provide services that enable people to adapt to the impacts of climate change.

Conservation International assessed the potential for Ecosystem-based Adaptation (EbA) solutions in three contrasting regions: 1) the Verde Island Passage in the southern Philippines; 2) the Discovery Coast and Abrolhos regions of northeast Brazil; and 3) the Namakwa Municipality District in northwestern South Africa. After conducting climate change vulnerability assessments in each region, CI used the results to implement two EbA demonstrations in each country. Throughout the project, CI communicated results and experiences to inform the potential contribution of EbA to adaptation efforts at regional and national levels, as well as to engage policy makers in EbA at the international level. The lessons learned through this project will inform the implementation and amplification of EbA in other regions. Key lessons are presented in this document.

ECOSYSTEM-BASED ADAPTATION

IMPLEMENTATION

The vulnerability assessments optimized selection of the EbA interventions implemented in each country, summarized on this map.

Key Lessons from EbA Implementation:

- The selection of the EbA intervention and the site where it was to be implemented was informed by a vulnerability assessment, but additional factors should also be taken into consideration, including socio-political issues, finer-scale physical context and the level of receptiveness of the municipal government and communities.

- Any effective and robust monitoring and evaluation (M&E) framework for EbA should be underpinned by a 'theory of change' approach and should be developed immediately after the vulnerability assessment as a means of aiding selection of appropriate EbA interventions.

Findings from Vulnerability Assessment:

- Decline in near-shore fisheries
- Increased vulnerability of coastal areas to erosion
- Decline in water yield in certain areas along the coast
- Decline in areas suitable for coffee growing

Implementation:

- Increase the resilience of coral reefs to promote coastal protection for communities in southern Bahia
- Incorporate climate change adaptation needs in the municipal plan for conservation and restoration of the Atlantic Forest in Porto Seguro

Brazil

Findings from Vulnerability Assessment:

- Reduced livestock productivity due to increasing temperature and aridity
- Uncertain and highly variable rainfall, exacerbating the negative impacts on livestock productivity

Implementation:

- Rehabilitate wetlands and improve management of rangelands in the Leliefontein area, Kamiesberg, to help local farmers cope with the negative impacts of climate change on water and fodder resources for livestock.
- Improve land management in the Steinkopf area, Nama Khoi, to promote resilience of local farmers to the negative impacts of climate change on water resources.

South Africa

Philippines

Findings from Vulnerability Assessment:

- Increased vulnerability of coastal areas to storm surges
- Increased vulnerability of fisheries, especially species that need different habitats throughout their life stages

Implementation:

- Restore and protect mangroves to reduce coastal erosion and increase the resilience of coastal communities to storm surge and flooding
- Improve fishing practices and design and implement climate-smart marine protected areas, to promote climate-resilient fisheries management in the Verde Island Passage

VULNERABILITY ASSESSMENTS

A vulnerability assessment is a critical element of a successful climate change adaptation strategy. Assessments are conducted to identify the likely impacts of climate change and the consequences of those impacts on human populations, ecosystems and ecosystem services such as fresh water provision, coastal protection and crop pollination. These assessments guide us in the identification of appropriate EbA actions needed to address those impacts.

Key Lesson from the Vulnerability Assessments:

Clear, robust guidance derived from vulnerability assessment that assesses the applicability and risks associated with use of specific science and participatory methods, helps optimize site selection for EbA interventions.

COST EFFECTIVENESS

Cost-effectiveness analyses were used to compare the EbA solutions with traditional, engineered solutions for climate change adaptation.

Key Lessons Emerging from Application of Cost Effectiveness Analysis:

- One of our two analyses completed to date showed that, in the Philippines, the EbA option is more cost effective that the engineered alternative. In contrast, our analysis completed in South Africa concluded that the EbA option was less cost effective than the engineered alternative. This is likely because this EbA intervention focused on restoration and rehabilitation activities in an ecosystem that is in a highly degraded condition, and because co-benefits were not taken into account in our cost effectiveness analyses.

- Cost-benefit analyses are likely a better way of assessing the economic case for EbA versus alternative adaptation options.

POLICY ENGAGEMENTS

- In Brazil, the project provided input into three local adaptation policies, programs and frameworks: i) the Municipal Plan of Restoration and Conservation of the Atlantic Forest in Porto Seguro, which was the first of its kind in Brazil to include climate change adaptation; ii) the National Adaptation Plan of Brazil, and iii) the Coral Reef National Action Plan, which included information generated through the vulnerability assessment.

- In the Philippines, the project facilitated the development of three village adaptation-related policies and provided inputs to municipal-level adaptation policies for the municipalities of Calapan and Calatagan, as well as to national climate change adaptation policy discussions.

- In South Africa, the project provided input into eight local adaptation policies, programs and frameworks: National Natural Resources Management. Expanded public works programs; Integrated Development Plans at the local and district Levels; Namakwa Green Economy Strategy; Namakwa Disaster Risk Management Plan; Northern Cape Climate Change Response strategy; long-term adaptation scenarios; National Disaster Management Bill; National Water Resources Strategy.

- At the international level, eight policy-making entities with relevance for EbA were engaged through project activities: Nairobi Work Program; national adaptation planning processes; loss and damage international mechanism; UNEP global support program for adaptation; UNFCCC; GEF; and Adaptation Fund.

Key Lesson Learned on Policy Engagement:

Involve policy makers at the beginning of the project and ensure they receive brief, accessible and relevant information throughout the lifetime of the project, in a format that facilitates its inclusion directly into the policy-making process.

RECOMMENDATIONS FOR FUTURE STUDIES

- Identify more appropriate methodologies for assessing the costs and benefits of EbA, relative to alternative adaptation options.

- Continue to innovate and develop optimal monitoring and evaluation approaches for EbA, that better address core challenges including extended time horizons and the limits to adaptation.

- Development of synthesis map highlighting priority areas for EbA interventions in a given region is likely desirable for many stakeholders.

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