Briefing

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Ecosystem-based climate adaptation: building on the positives in El Salvador

The governments of developing nations — which are disproportionately affected by climate change — must identify effective ways to help their people adapt to the new and evolving climate realities. Ecosystem-based adaptation (EbA) is an increasingly popular approach, which has been applied in El Salvador to help restore mangrove ecosystems in the Paz River, while strengthening community livelihoods at the same time. This briefing looks at the Adaptation, Vulnerability and Ecosystems Project in El Salvador; through it we explore how to judge EbA effectiveness and discuss some of the policy, institutional and capacity-related hurdles — and opportunities — to rolling out EbA more fully across the country. We suggest key next steps needed to overcome the challenges and so to maximise the potential EbA has already shown in the Paz River project.

Policy pointers

The government needs to raise awareness and build capacity to deliver EbA, as well as invest and mobilise investment in effective implementation at local and national levels.

Citizens need support to participate in decision making at local and national levels, and to have a voice in decisions affecting ecosystem services. This requires participatory, open and multisectoral governance mechanisms.

Local and national government must seek better, more innovative ways to ensure collaboration between sectors, stakeholders, and also between government bodies and communities. Real dialogue and learning mechanisms are needed to secure socially inclusive adaptation policies under development programmes.

Environmental legislation needs improving locally and nationally. El Salvador needs a water law, and legal frameworks for climate change and water basin management; municipal regulations and enforcement need strengthening on environmental issues, so that EbA actions are not undermined by external factors.

Ecosystem-based adaptation (EbA) approaches draw on biodiversity and ecosystem services to help people adapt to climate change, within an overall national strategy of adaptation. They are becoming a popular response to the linked challenges of climate change and poverty in developing countries. Through the IKI funded project *Ecosystem-based approaches to adaptation: strengthening the evidence and informing policy*, IIED and partners[1] have looked at 13 sites around the world to learn more about EbA's effectiveness, what the opportunities and challenges for implementation are, and how these challenges can be overcome. One of the sites involved mangrove ecosystem restoration and responsible fishing practices in the Paz River, El Salvador.

EbA along the Paz River

The IUCN-BMU/IKI funded *Governance for Ecosystem-based Adaptation: Transforming Evidence into Change* project (Go4EbA)[2] learning site in El Salvador is in the lower basin and coastal area of the Paz River. The project — known locally as the Adaptation, Vulnerability and Ecosystems Project (AVE) — uses action learning to enhance local capacities, and improve governance frameworks and institutions, taking bottom-up approaches. Activities have involved the coastal communities of Garita Palmera, El Tamarindo and Bola de Monte. A number of local EbA interventions were used to improve mangrove management and restore water flows:

Channel unblocking and removal of silt in mangrove canals. The communities cleared river channels to recover the ecosystem's hydrodynamics, letting fresh water restore optimum salinity levels for the mangrove ecosystem health (fresh water levels have decreased due to drought periods and mismanagement of the upper water basin).

Go4EbA activities have improved resilience and adaptive capacity, and reduced vulnerability to climate change

Reforestation of degraded mangrove areas. Community activities included managing hydrodynamics, natural regeneration and reforestation so as to recover areas degraded by indiscriminate felling and/or areas that had been used for livestock grazing.

Community surveillance. Community members, chosen for their understanding of local needs and of ecological declines, were deployed in rotation to check on key sites. Their role was to prevent indiscriminate felling of mangroves and excessive extraction of crabs, fish, etc. Their oversight also helped protect the newly planted seedlings in reforested areas.

Local Plan for Sustainable Extraction. This was established under an existing Ministry of Environment and Natural Resources (MARN) policy. The plan seeks to regulate fishing and hunting in the mangrove ecosystem, to ensure that it, and the services that it provides, are not compromised.

Criteria for effectiveness

So do EbA approaches work? Effectiveness can be tested[3] against three criteria:

1) **For people:** does the initiative allow communities to maintain or improve their adaptive capacity, and/or reduce their vulnerability in the face of climate change, while offering additional benefits (co-benefits) that promote wellbeing?

2) **For ecosystem function:** does the initiative restore, maintain or enhance ecosystems' capacity to continue producing services for local communities, and does it allow ecosystems to withstand climate change impacts and other stressors?

3) **Finances:** is it economically viable?

Effective in El Salvador?

In terms of **effectiveness for people**, our research[4] has shown that the Go4EbA activities have improved resilience and adaptive capacity, and vulnerability to climate change has been reduced. Short-term improvements from restored and protected mangrove areas are already apparent, and further improvements are expected in the medium to long term as people's behaviour changes and the ecosystem is better able to deliver ecosystem services. Women, poor and vulnerable people, and those who participate in the local environmental organisation Istatén experience the most improvements, although benefits are widely distributed.

Overall, a wide range of socioeconomic co-benefits emerged from the project. For example, the following have all improved: disaster risk reduction; livelihood provision or diversification; food security; health benefits; number of instances of inter-community conflict over resources; natural resource management policies and governance, and institutions; awareness and capacity; and conditions needed for sustainable water provision.[4] Although these benefited some social groups more than others, the co-benefits were still widespread. However, natural resource use restrictions in mangrove areas did disadvantage some people.

Go4EbA project activities incorporated local knowledge in various ways, mainly to understand drivers of environmental degradation, the impacts of climate change, wetland hydrodynamics, and local biodiversity. The project adopted a range of participatory approaches, and these built adaptive capacity as the EbA project was implemented.

In terms of **effectiveness for ecosystem function**, the Go4EbA project improved ecosystem resilience and ecosystem service provision. Ecosystem services were maintained or restored at the mangrove level and at the local village/area level. Synergies arose from safeguarding different ecosystem services at different geographic scales. Ecosystem services related to food and timber provision were restored, derived from mangrove sustainable management. Further improvements to ecosystem resilience and freshwater provision, however, require a more comprehensive watershed-level intervention. This requires binational coordination as the Río Paz basin falls in both El Salvador and Guatemala.

In terms of **finances**, interviewees (community members, project implementers, local and national government and other stakeholders) felt that the project was more cost-effective than other adaptation approaches. However, cost-effectiveness is hard to prove, as no evidence has been collected to verify the perceptions. Costs included project implementation, and opportunity costs where other land use options are not taken up. Some implementation cost are ongoing. On the financial benefit side, there was some enhancement of local incomes; losses associated with disaster risks may have been avoided; the costs of using human-made systems instead of ecosystem services were avoided; and land or service values increased.

Challenges and enablers

A number of policy, institutional and capacity-related barriers have made implementing EbA in El Salvador challenging:

- Further local awareness raising about and capacity building for EbA is needed, through training, government investment and formal education
- Despite a rising government interest in EbA (see below), many ministries still have no idea what EbA is and few adaptation projects in the Mesoamerican region channel effort and resources into measuring effectiveness
- Communities lack the authority they need to influence policies and challenge the influential sugar cane agroindustry and its damaging environmental practices (such as mangrove cutting and high levels of water consumption)
- Capacity and financial and technical resources are often insufficient for EbA project implementation: local institutions — both government and non-government — need strengthening in this respect
- Collaboration across sectors and between institutions is insufficient at local and national levels
- Municipal regulations and legislation are weak on environmental issues, and national environmental legislation also needs improving
- Low political interest in environmental issues, and ingrained government ways of managing the territory block progress and change.

Despite these challenges, a number of enabling factors support implementation, scaling up, and making EbA part of mainstream policy approaches ('mainstreaming' EbA) in El Salvador:

- Local people are motivated and there is great social capital (associations, NGOs, cooperatives): people can organise themselves to address ecosystem deterioration
- There are various strong local institutions — such as the microbasin committee in Aguacate — that work to address environmental challenges, often in collaboration with municipal governance structures, policies and legislation
- Communities are sharing their learning on adaptation, for example a 'Mangrove Alliance' has been proposed to build on community activities and implement adaptation
- The national government increasingly prioritises environmental issues and EbA-related solutions, and a wide range of national policies and strategies — such as the National Climate Change Strategy (2013), the National Climate Change Plan (updated in 2017) and the National Ecosystems and Landscape Restoration Programme — should facilitate EbA implementation
- Further supportive policy and legislation is being formulated
- Policymakers and planners are beginning to see the potential of EbA, and stronger links are being forged between some government bodies to support the cross-sectoral planning needed for effective EbA
- With increasing government interest in EbA, donor support will likely follow.

These factors suggest that the Go4EbA project (and others like it) will deliver sustained benefits over the long term. Box 1 summarises some of the tools available to further replicate EbA, and signposts useful reports and policy documents. UNEP-WCMC, together with IIED and partners[1] are currently developing an 'EbA Tools Navigator' that will soon help practitioners, planners and policymakers alike choose which tools might be useful in particular contexts, making these more useful and accessible to all. Around 20 out of roughly 250 tools the navigator will cover are already available in Spanish.

Next steps in El Salvador

The Go4EbA project demonstrates the potential for EbA to help tackle climate change in El Salvador. There are, however, a number of policy, institutional and capacity-related challenges, as well as opportunities, to implementing EbA more broadly in El Salvador. Key next steps are:

- Local and national government urgently needs to invest in awareness raising on EbA, at both local and national government levels, and to invest in implementing projects well. For example, investing in measuring EbA effectiveness, perhaps by improving evidence gathering on cost-effectiveness, would generate the knowledge needed to underpin sound policy.
- El Salvador's government, and other organisations active in the area, should support and foster citizen participation in decision making at local and national levels, including decision making by the private sector, that affects critical ecosystem services.
- Government (local and national) must improve its collaboration across sectors, and also between government bodies and communities. For example, more collaboration is needed

Box 1. Tools for mainstreaming and replicating EbA

Mainstreaming EbA into adaptation planning and decision making. Conservation International and IUCN have developed the Tool for Integrating Ecosystems into Climate Change Adaptation Planning: Linking Biodiversity and Ecosystems into the National Adaptation Planning Process[5] to support decision makers' consideration of ecosystems throughout the National Adaptation Plan process.

GIZ's online training course on Mainstreaming Ecosystem-based Adaptation into Development Planning[6] aims to strengthen EbA measures as part of an overall adaptation strategy, guiding users through a four-part 'mainstreaming cycle'.

Replicating and scaling up EbA. The organisation EbA South has produced a Mainstreaming EbA and Accessing Finance[7] policy brief, presenting resources and examples of opportunities. These cover 'entry points' for EbA, how to align EbA with sectoral priorities, ways to build a business case, and information on securing finance for EbA projects.

The PANORAMA Solutions[8] platform presents case studies of protected areas, marine and coastal environments, and for EbA projects. These identify replicable key factors for success, and describe the context for each solution. A case study from Rio Paz will be published on the platform soon.

Integration with other sectors and programmes. The World Bank has produced Guidance Notes on Mainstreaming Adaptation to Climate Change in Agriculture and Natural Resources Management Projects,[9] which provide lessons learned, best practices, recommendations, and useful resources for integrating climate risk management and adaptation into development projects.

The OECD's Integrating Climate Change Adaptation into Development Co-operation: Policy Guidance[10] is aimed at helping policy makers and practitioners in development agencies to mainstream climate change considerations into their work.

An EbA Tools Navigator is now available for download, with a request for feedback from UNEP-WCMC and the other creators. The navigator catalogues tools for ecosystem-based adaptation planners and practitioners. See: www.iied.org/help-pilot-navigator-tools-for-ecosystem-based-adaptation

More information regarding the regional Go4EbA project, results and tools developed can be found in at the IUCN project site: www.iucn.org/node/594

between the Treasury and the Ministry of Environment and Natural Resources to tackle climate change. Socially inclusive policies are needed under programmes such as the National Ecosystems and Landscape Restoration Programme. This needs real dialogue between national public institutions, local governments and community stakeholders to foster cross-sector learning and innovative solutions.

- Environmental legislation needs improving at national and local levels. For example, a water law is needed to better regulate water use, because if upstream basin/water management is not taken into account, downstream EbA measures will fail. The planned adoption of a Climate Change Law Framework would benefit further EbA implementation. Municipal regulations and legislation also need strengthening on environmental issues, and better enforcement is needed.

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Notes

[1] www.iied.org/ecosystem-based-approaches-climate-change-adaptation / [2] www.iucn.org/regions/mexico-central-america-and-caribbean/project-ave / [3] Reid, H, Seddon, N, Barrow, E, Hicks, C, Hou-Jones, X, Raza Rizvi, A, Roe, D and Wicander, S (2017) Ecosystem-based adaptation: question-based guidance for assessing effectiveness. IIED, London. http://pubs.iied.org/17606IIED / [4] Reid, H, Pérez de Madrid, M and Ramírez, O (2018) Ecosystem-based approaches to adaptation: strengthening the evidence and informing policy. Research results from the Governance for Ecosystem-based Adaptation: Transforming Evidence into Change project, El Salvador. IIED, London. http://pubs.iied.org/17628IIED / [5] www.conservation.org/publications/Documents/NAP-Ecosystems-Tool-FINAL-2015.pdf / [6] www.adaptationcommunity.net/trainings/training-course-mainstreaming-ecosystem-based-adaptation-development-planning-updated-2016/ / [7] http://ebasouth.org/sites/default/files/attachments/EbA%20South%20Policy%20Brief%201.pdf / [8] https://panorama.solutions/en / [9] www.preventionweb.net/publications/view/17066 / [10] www.oecd.org/env/cc/44887764.pdf

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