



Entry Points for Mainstreaming Ecosystem-based Adaptation

The Case of Mexico

SEMARNAT
SECRETARÍA DE
MEDIO AMBIENTE
Y RECURSOS NATURALES



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INECC
INSTITUTO NACIONAL
DE ECOLOGÍA
Y CAMBIO CLIMÁTICO

Published by

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

On behalf of:

 Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

of the Federal Republic of Germany

Published by

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Registered offices

Bonn and Eschborn, Germany

Global Project "Mainstreaming EbA – Strengthening Ecosystem-based Adaptation in Planning and Decision Making Processes"

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This project is part of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag.

The present study encompasses the partner countries Mexico, Peru, South Africa, the Philippines and Viet Nam; it was carried out by AMBERO Consulting GmbH.

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Suggested citation

GIZ (2018). Entry Points for Mainstreaming Ecosystem-based Adaptation. The Case of Mexico. Author: Alejandra Calzada Vázquez Vela, Thora Amend (ed). Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Bonn.

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Cover: INECC, 2016; Figure 1: INECC, 2016; Figure 3: CONANP, 2018; Figure 4: INECC, 2016; Figure 5: Fernando Secaira, TNC; Figure 6: CMP, 2013; Figure 7: Zorrilla & Kuhlmann, 2015; Figure 6: Yven Echeverría.

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On behalf of

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)
Berlin and Bonn

GIZ is responsible for the content of this publication.

Bonn 2018

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Acronyms

AMEBIN	Alianza Mexicana de Biodiversidad y Negocios (Mexican Alliance for Biodiversity and Businesses)
BIOFIN	The Biodiversity Finance Initiative
CONABIO	Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (Mexican Commission for the Knowledge and Use of Biodiversity)
CONAFOR	Comisión Nacional Forestal (National Forestry Commission)
CONAGUA	Comisión Nacional del Agua (National Water Commission)
CONANP	Comisión Nacional de Áreas Naturales Protegidas (National Commission for Protected Areas)
EbA	Ecosystem-based Adaptation
Eco-DRR	Ecosystem-based Disaster Risk Reduction
ENSO	El Niño Southern Oscillation
DRR	Disaster Risk Reduction
CICC	Comisión Intersecretarial de Cambio Climático (Intersecretarial Commission for Climate Change)
ECCAP	Estrategia de Cambio Climático desde las Áreas Protegidas (Climate Change Strategy from Protected Areas)
FONDEN	Fondo de Desastres Naturales (Fund for Natural Disasters)
FOPREDEN	Fondo para la Prevención de Desastres Naturales (Fund for Natural Disaster Prevention)
GEF	Global Environmental Facility
INECC	Instituto Nacional de Ecología y Cambio Climático (National Institute for Ecology and Climate Change)
IUCN	International Union for Conservation of Nature
LGCC	Ley General de Cambio Climático (General Law for Climate Change)
ND-GAIN	Notre Dame Global Adaptation Initiative
PACC	Programa de Adaptación al Cambio Climático (Climate Change Adaptation Program)
PECC	Programa Especial de Cambio Climático (Special Program for Climate Change)
PACMUN	Plan de Acción Climática Municipal (Municipal Climate Action Plan)
SHCP	Secretaría de Hacienda y Crédito Público (Secretariat of Finance and Public Credit)
TNC	The Nature Conservancy
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

Executive Summary

Ecosystem-based adaptation (EbA) has proved to be in many contexts a cost-effective approach to reducing the vulnerability of people by leveraging the services that well-preserved, restored and managed ecosystems can provide. Especially in Mexico, a country rich in biodiversity and ecosystems but also highly vulnerable to climate change risks, EbA is perceived as an important and integrated element of its overall climate change policy. To fully tap the potential of this cross-sectoral approach, however, it is critical to ensure that EbA measures are adopted and implemented across sectors, and not solely promoted by agencies and organizations in charge of conservation of natural resources, who have traditionally led and implemented ecosystem-based approaches.

This paper aims to identify potential entry points that stakeholders can leverage in order to mainstream the EbA approach into decision and policy making in the government, as well as the private sector.

In order to identify potential entry points for policy change, this paper identified a combination of three key variables to create 'windows of opportunity': the problem stream (perceptions of problems that need to be addressed by taking specific action), the proposal stream (possible solutions to such problems), and the political stream (willingness to act, political interest and turnover, influence of advocacy groups) (Beland & Michael, 2016).

First, we provide an overview of the vulnerabilities (problem stream), climate change policy and governance landscape in Mexico (policy stream), as well as the instances in which policies incorporate EbA principles. We also analyze three case studies (proposal stream) in which various sectors and stakeholders have mainstreamed the EbA approach, drawing key lessons learned from these experiences:

- Grandes Islas Region: integrated landscape management,
- Gulf of Mexico: risk reduction via coastal wetland management,
- Caribbean Coast of Mexico: engaging the private sector.

Then, we identify potential entry points that have a high potential to further promote the uptake of EbA measures by the federal and local government and by the private sector:

- Leverage the context of presidential elections in 2018 by raising awareness and developing capacities to ensure mainstreaming of EbA in sectoral plans and the Special Program for Climate Change.
- Capitalize on the existing relationship with the Ministry of Finance on disaster risk reduction to incorporate ecosystem-based measures into federal policies for disaster management.
- Continue to implement, replicate and scale up climate change adaptation programs for protected areas. Seek the incorporation of the identified measures in land ordinances, municipal adaptation plans, and other local and regional policies.
- For the private sector, build on existing initiatives and partnerships that recognize the value of ecosystem services as a source of capital for business continuity.

Finally, we put forward a set of recommendations that can support the mainstreaming of EbA measures as part of the wider adaptation efforts in Mexico. Briefly, our recommendations include:

- Leverage project-based efforts to raise awareness and build capacities of stakeholders and institutions in order to secure the long-term sustainability of the EbA approach, beyond project-specific outcomes and outputs.
- Design tailor-made messages that resonate in language and needs with specific audiences to effectively convey the insight that EbA measures are cost-effective and can yield multiple co-benefits; communicate the message via outlets that the various audiences are likely to follow.
- Focus on strategic partnerships and invest the limited resources first in partners that have participated in similar efforts in the past. Additional sectors or stakeholders can be engaged once momentum has been built.

I. Introduction

Ecosystem-based Adaptation (EbA) has been recognized as a viable approach to climate change adaptation, as it has proven to be cost-effective, while yielding multiple co-benefits (Pervaiz et al, 2016). When managed adequately, ecosystems can provide valuable services that are key to sustain human systems and address the underlying causes of vulnerability that often drive the impacts of climate change on human communities, livelihoods and infrastructure. In international discussions and at country levels, there has been wide uptake of this approach specifically by the environmental sector. The conservation community has developed extensive materials making the case and communicating the many benefits of implementing EbA measures (IUCN, n.d.). In Mexico, the environmental sector has been a leader and pioneer in the design and implementation of EbA measures and various case studies have been documented in the PANORAMA Solutions for a Healthy Planet platform (CONANP, 2017). However, the challenge remains to fully mainstream the use of EbA approaches as solutions to tackle the impacts of climate change on additional sectors and disciplines, such as disaster risk reduction, food security, tourism, and others.

The purpose of this study is to identify promising points of entry for the mainstreaming process beyond the environmental sector that stakeholders can leverage to promote adoption of EbA measures across various sectors and levels of government, as well as the private sector. By looking at experiences, we intend to identify the motivations of stakeholders that have incorporated EbA into their planning and operations, what barriers and opportunities have existed for such uptake and the lessons we can learn from these case studies. Finally, we present a set of recommendations to move forward and achieve sustained mainstreaming of EbA into development planning, beyond the conservation community.

For this study, we conducted a series of semi-structured interviews with key informants. Interviewees were selected using the following criteria: a) stakeholders from the environmental sector who are working to achieve mainstreaming of EbA, and b) stakeholders from other sectors who are integrating an EbA approach into their planning and operations. We interviewed stakeholders that have been working on the public policy arena, as well as the private sector.

ACKNOWLEDGEMENTS

We would like to thank the Secretariat for Environment and Natural Resources (SEMARNAT), the National Commission for Protected Areas (CONANP) and the National Institute for Ecology and Climate Change (INECC) for their support on this study.

This paper reflects the knowledge, experience and lessons learned of the many bright practitioners who have been leaders in the design, implementation and mainstreaming of EbA measures in Mexico. We are very grateful for their valuable insights. Specifically, we would like to thank:

Andrew Rhodes Espinoza (Pronatura), Jesse M. Festa and Fernando Secaira (The Nature Conservancy), Gloria Cuevas (SEMARNAT), Margarita Caso, Luisa Alejandra Domínguez and Daniel Iura (INECC), María del Pilar Jacobo Enciso and Fernando Camacho Rico (CONANP), Mariana Bellot Rojas and Xavier Moya (UNDP), Mariana Díaz (SACBE), Miguel Ángel Diego (Asociación de Hoteles de Cancún), Camilo de la Garza, Sandra Camacho and Celia Pígueron (GIZ), and Griselda Franco Piedra (independent consultant).

Special thanks to Yven Echeverría and Aynara Aranguren for their valuable contributions and to Thora Amend for her guidance and support.

We also thank Juan Carlos Carrillo for his work on the initial phases of this project, Mariana Echániz, Mathias Bertram, Alexandra Koengeter and Valeria Petrone for their insights and feedback.

II. Climate Change Adaptation in Mexico: Policy and Governance

CLIMATE RISK AND VULNERABILITY

The Notre Dame Global Adaptation Index (ND-GAIN) ranks countries according to their levels of vulnerability and readiness in terms of climate change adaptation. According to this index (ND-GAIN, n.d.), Mexico is the 56th least vulnerable (in terms of exposure, sensitivity and adaptive capacity) and 103th most ready (ability to leverage investments and convert them to adaptation actions) country in the world. Between 1997 and 2016, vulnerability in Mexico, as measured by food, water, health, ecosystem services, human habitat and infrastructure metrics shows a decreasing trend, while readiness, as measured by economic, governance and social readiness metrics shows an increasing trend. However, in spite of being a middle-income country with adaptation efforts underway, inequalities are sharp and many communities are at risk. Moreover, strategic infrastructure and productivity could also be compromised by climate change.

According to Mexico's Special Program for Climate Change 2014-2018 (PECC in Spanish), between 2015 and 2039, average temperatures in northern Mexico are expected to increase by 2°C, while the rest of the country will most likely see an increase of 1.0°C – 1.5°C. In terms of precipitation, there will likely be a reduction of between 10% and 20% in the majority of the Mexican territory, while the northwestern region could see a decrease of up to 40% (SEMARNAT, 2013).

These trends are expected to have significant impacts in the different sectors, as shown in table 1. The National Institute for Ecology and Climate Change (INECC in Spanish) is currently working on the National Atlas of Vulnerability to Climate Change, which will be published in mid 2018. The atlas will consist of a set of maps showing vulnerability (exposition and sensitivity) and adaptive capacity of the country's socio-

ecological systems in an effort to better orient adaptation measures and to integrate climate change considerations into the country's planning for development processes (Figure 1). Given the great uncertainty around probability, the atlas will not estimate risk.

GOVERNANCE

In Mexico, climate change planning at the federal level started in 2005 with the establishment of the Inter-Ministerial Commission for Climate Change (CICC in Spanish), the governing body in charge of coordinating climate change mitigation and adaptation actions taken by the different ministries at the federal level. In 2009, the federal government presented the first Special Program for Climate Change (PECC in Spanish), which outlined a series of mitigation and adaptation targets across various sectors (integrated risk management; water resources; extreme weather events; agriculture, fisheries and forestry; ecosystems; energy, industry, and services; transportation and communication infrastructure; land-use planning and urban development). This program was ambitious and one of its greatest strengths was a robust monitoring system through which entities were required to report on their progress regularly. It also was one of the first climate change strategies ever assessed by independent organization Mexican Institute for Competitivity - IMCO (Gallegos, Franco, Saul, & Jesus, 2012).

However, a major limiting factor of this policy was its non-mandatory nature. In addition, the PECC incorporated an ecosystem component, and it acknowledged the role of ecosystem services for climate change adaptation and mitigation, with an explicit mention to ecosystem-based adaptation (Comisión Intersecretarial de Cambio Climático, 2009).

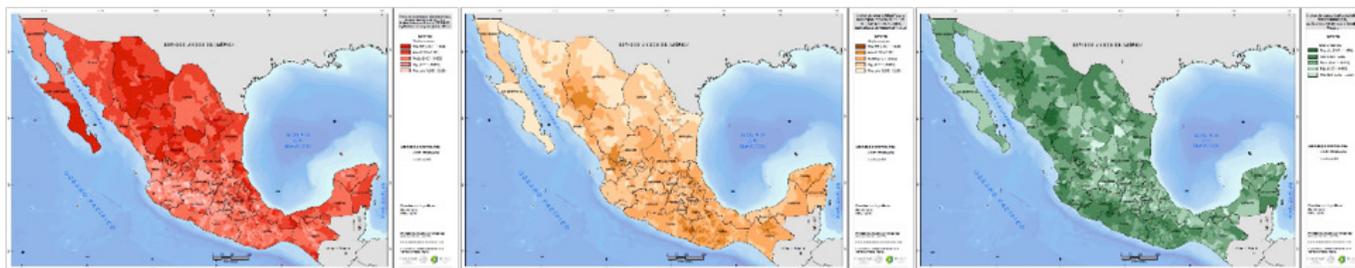


Figure 1. Example of maps of the upcoming National Atlas of Vulnerability to Climate Change. The maps in this figure show exposition (red), sensitivity (yellow), and adaptive capacity (green) of rain-fed corn harvest. Maps show projections to 2075-2099 under a RCP 8.5 scenario (INECC, 2016).

¹ A description of the upcoming Vulnerability Atlas and examples of the maps it will include can be consulted at: <https://www.gob.mx/inecc/acciones-y-programas/atlas-nacional-de-vulnerabilidad-ante-el-cambio-climatico-anvcc-80137>

Table 1: Summary of climate change impacts of priority sectors in Mexico (adapted from SEMARNAT, 2013).

Topic	Projected impacts	Degree of impact
Water	Large portions of the territory will become drier and face increasingly frequent droughts. There is a projected increase in water demand, particularly in the Northern regions and in urban areas.	Medium
	More intense precipitation events could lead to an increased risk of flood for over 2 million people, especially for populations located downstream of degraded watersheds.	Medium
Coasts	Sea level rise will threaten coastal infrastructure, while saline intrusion will affect coastal water resources and agriculture.	Low
Agriculture	Conditions will worsen for the majority of crops through 2030; poor conditions will increase through the end of the century. Especially corn productivity will be reduced by 2050.	Low
Storms and severe weather	The Northwestern Pacific and Northern Atlantic Oceans will likely see more intense storms, bringing about severe social and economic impacts.	High
Ecosystems and biodiversity	Certain terrestrial ecosystems, such as coniferous forests and arid and semi-arid regions might face a reduction in cover. Ocean productivity will likely decrease as a result of increased temperature. Terrestrial and flying mammals are projected to lose roughly 80% of their historic distribution.	Medium

In 2012, the Mexican Government passed the General Law for Climate Change (LGCC in Spanish) (DOF, 2012), the first document that seeks to regulate climate change mitigation and adaptation actions that are implemented by the Government at the federal, state and municipal levels. This document represents a framework regulation, and one of its implementation mechanisms is the Special Program for Climate Change. The rules of procedure of the Law are yet to be developed.

In 2013, the new administration presented the second Special Program for Climate Change. While this document also lacks a mandatory nature, it represents a step forward in terms of mainstreaming EbA measures into overall planning documents of the federal government. The Special Program for Climate Change establishes two objectives related to reducing vulnerability to climate change, one of which is explicitly related to restoration and management of ecosystem services for climate change mitigation and adaptation. In this context, protected areas play a key role. Contrary to its predecessor, one key flaw of this policy has been the lack of a robust monitoring system to assess progress toward completion of its stated goals and targets.

In Mexico, as in other countries, the environmental sector has spearheaded many of the efforts around climate change. In 2015, the National Commission for Protected Areas (CONANP in Spanish), for instance, launched its Climate Change Strategy from Protected Areas (ECCAP in Spanish). Building on a previous effort published in 2010, the strategy identified guidelines to strengthen the resilience of socio-ecological systems of Mexico through the conservation and management of protected areas and their surrounding landscapes. In a clear effort to mainstream EbA measures, this document is designed as an

invitation to achieve collaboration among multiple sectors and levels of government for building resilience to climate change by managing and conserving protected areas and their ecosystems, and by building long-term institutional capacities (CONANP, 2015).

To this end, the strategy outlines the following:

1. Horizontal cooperation: strengthen inter and intra sectoral management by enhancing CONANP's participation in regional and national planning efforts to reach agreements in terms of climate change and conservation; influence territorial management organisms to promote sound landscape management and increase protected area connectivity and representativity; and support implementation of climate change adaptation and mitigation measures.
2. Vertical cooperation: enhance collaboration among levels of government by coordinating actions among federal, state and protected area managers, strengthen participation of municipalities in protected area councils, and support the development of sectoral plans to ensure inclusion of conservation, resilience, and sustainability standards.
3. Institutional capacity & outreach: strengthen institutional leadership by creating a forum for knowledge exchange around climate change and protected areas, strengthen CONANP's ability to manage land at the regional level, and create communication mechanisms within and among protected areas.

The Strategy is currently being implemented, among other mechanisms, through the development of climate change

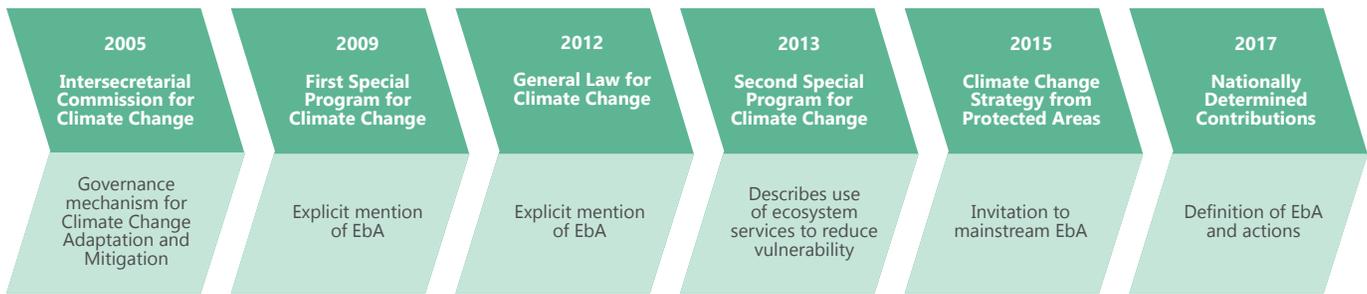


Figure 2: Federal policy and governance initiatives around climate change with relevance for EbA mainstreaming.

adaptation programs for protected areas, which aim to engage multiple sectors and stakeholders. Given the mandate and legal reach of the National Commission for Protected Areas, however, the strategy does not represent a regulatory document and lacks the mandate to govern over other agencies.

Most recently, the country's most outstanding milestone with regards to mainstreaming EbA was the development of the Nationally Determined Contributions (NDCs) presented to the United Nations Framework Convention on Climate Change (UNFCCC) in 2015. This document defines EbA and determines a series of actions to be implemented between 2020 and 2030, including deforestation targets, watershed management, ecological connectivity, and protected area management and conservation (Cuevas & Echaniz, 2017; Gobierno de la República, 2015).

In addition, Mexico has endorsed international agreements that recognize the role protected areas and ecosystems more broadly can play as climate change strategies. For instance, the Climate Change and Protected Areas Declaration by REDPARQUES, the Latin American Network for Technical Cooperation for Natural Parks, Protected Areas, and Wildlife. The Declaration aims to strengthen national and regional efforts to integrate protected areas into climate change mitigation and adaptation efforts.

At the local level, there are various governance bodies that have been developed to support integrated land management. Protected areas, for instance, are managed with support of a participatory organism, the Advisory Council (SEMARNAT, 2016), which is an instrument that helps protected area managers to conserve, manage, study and strengthen the management and conservation of the land. Participants of the Council include mayors of the municipalities where protected areas are located, representatives from academic institutions, civil society and business organizations, landowners, and any person or organization related to the use and conservation of the natural resources conserved by the protected area. The councils are expected to meet regularly and make decisions regarding protected area management, conservation, finance, planning and operations, research, and others.

Watershed Councils constitute a forum that seeks to integrate citizen input in decision making for water management (CONAGUA, 2016). Mexico's Commission for Water (CONAGUA

in Spanish) first established this mechanism in 1993, and to date Mexico has 26 Councils. The goals of this mechanism are to define water use priorities and goals, promote coordination, support economic, environmental and social valuation, support finance mechanisms for water management and an efficient and sustainable use of water.

As described here, Mexico has developed a solid legal framework that, if adequately enforced, could contribute to reducing the vulnerability of the country's human systems to climate change. In the coming years and through the upcoming political transition, it will be crucial to continue to incorporate EbA principles and standards in existing and any policy to be developed.

III. Identification of entry points for mainstreaming EbA

In Mexico, there are several examples of initiatives that have incorporated EbA as part of their overall planning process. This section analyzes some of these efforts with the goal of identifying the entry points that allowed for a successful incorporation, as well as some key lessons learned that emerged from these processes.

Then, as part of a prospective exercise, we identify potential entry points that can be leveraged to further mainstream the EbA approach into decision-making process, including the regulatory and planning landscape and budget in the public sector, as well as business models of the private sector.

CASE STUDIES

The following are a set of case studies we identified by engaging experts that have worked with multiple stakeholders to successfully integrate EbA measures in planning and operations beyond the environmental sector. First, we present case studies where the federal and local governments have spearheaded processes and engaged additional stakeholders, and then we describe a case study where private sector stakeholders have mainstreamed the EbA approach in an effort to support their business objectives.

CASE STUDY 1: GRANDES ISLAS REGION: INTEGRATED LANDSCAPE MANAGEMENT

Location	Gulf of California
Sector	Multi-sectoral: fisheries, tourism, water
Climate hazard addressed	Ocean acidification, increasing ocean temperature, increasing atmospheric temperature, extreme weather events, changing precipitation patterns, changes in ENSO, sea level rise, increased radiation
Measure	Inter-sectoral planning process for climate adaptation
Leading stakeholder	National Commission for Protected Areas (CONANP)
Contributing stakeholders	Municipal, state and government agencies, scientists, civil society organizations and local communities
EbA Mainstreaming Impact	Core group achieved an inter-sectoral planning process that incorporated EbA measures to build resilience of socio-ecological systems in the region. Agencies are now incorporating these measures into their operating documents.

BACKGROUND

In 2010, Mexico's National Commission for Protected Areas published its Climate Change Strategy for Protected Areas. More recently, the Commission has been shifting the focus from solely promoting the adaptation of biodiversity to a more integrated landscape approach, in which the ecosystem services that protected areas provide are leveraged as instruments for integrated land management that build resilience of the human communities, livelihoods and infrastructure that depend on these ecosystem services.

PROCESS

One of several successful case studies of this approach is the adaptation program spearheaded by the staff of the

Grandes Islas Region in the Gulf of California, biodiversity hotspot and key site for primary productivity, home to several indigenous and traditional communities, and source of important fisheries. The process started with an extensive consultation process (more than 20 meetings) with a group of scientists in an effort to gain understanding around climate change scenarios and impacts on the region. This process resulted in the realization that many of the actions that needed to be taken to address these impacts were beyond the mandate of the National Commission for Protected Areas.

The team conducted a stakeholder mapping process to identify stakeholders who needed to be engaged in the process and consequently carried out an awareness-raising process with such groups. Then, the team worked on identifying barriers that prevented government agencies

from engaging local communities in their decision-making. Thus, the team kicked off a planning process that engaged 24 government agencies, various civil society organizations, as well as local communities and indigenous groups. The first step of the planning process was the creation of the core group, multi-stakeholder body in charge of driving the adaptation program. With the aim of achieving appropriation of the program by all participating sectors, the National Commission for Protected Areas took solely the role of coordinating agent, rather than the decision-maker in the process. Collectively, the core group defined the objective, vision, and scope of the program. Following an extensive participatory process of more than 30 workshops with government agencies and roughly 50 workshops² with local communities over 5 years, the adaptation program is currently being finalized. From the beginning of the participatory process, project leaders emphasized the importance of conserving protected areas and their biodiversity as a strategy to enhance ecosystem service provision for the communities and, therefore, reduce their vulnerability to climate change - hence, embracing all three criteria for EbA (FEBA, 2017). To support this statement, the team relied heavily on input provided by a group of academics.

MAINSTREAMING IMPACT

The program identified eight substantive, nine support and three cross-cutting strategies. The substantive strategies included the implementation of EbA measures, such as the establishment of no-go fishing areas in an effort to protect and restore commercial fisheries, which are affected by temperature increase and ocean acidification. Using GIZ's Capacity Works management model to manage cooperation systems, the core group is currently identifying detailed working plans for each strategy with the aim of enabling implementation of the strategies. So far, work plans for 4 strategies have been developed.

The success of this adaptation program will be measured in terms of the extent to which the participating sectors go beyond the current planning process and recognize the importance of incorporating EbA. So far, there is evidence that various government agencies including state institutions in charge of water and civil protection, as well as several municipalities have incorporated these strategies into their operating programs. A positive sign was the fact that the state government issued a document mandating the participation of government agencies in the adaptation program.

² The community vulnerability assessment was carried out based on CONANP's Tool for Assessing Social Vulnerability to the Impacts of Climate Change, which was developed in 2014 with support from GIZ.



Figure 3: Grandes Islas Region, Gulf of California. (Source: CONANP, 2018).

KEY LESSONS LEARNED:

- 1. Understand barriers for engagement:** Lack of resources, unclear mandates, competing priorities, unmanageably large territories are some of the factors that might prevent stakeholders from taking action. Making an assessment of such barriers can help define the scope of the process and identifying measures to address them. In this case, prior to the development of the adaptation plan, various agencies had been hesitant to engage local communities and indigenous peoples due to cultural barriers and logistical challenges, which prevented the region from having a collaborative governance in place.
- 2. Acknowledge and incorporate stakeholders' interests and needs:** Stakeholders and institutions often have competing priorities and, in many cases, their most basic needs are not met. Acknowledging this is key to gain their trust and promote engagement. Often times, indigenous and local communities lack access to water sanitation, adequate food sources and education, reducing their willingness to participate in processes that seek to address issues that appear to be longer-term concerns.
- 3. Engage both decision-makers and working-level officials:** When undertaking a multi-year process, it is crucial to engage decision-makers who will ultimately

contribute to mainstreaming EbA measures into policies, but the participation of working-level officials is key to ensure follow-up. In this case study, participation of working-level officials from various agencies was key in developing adaptation actions and following the process, while decision makers contributed to incorporating them into high level planning and operating documents.

4. Allocate staff and resources for implementation and follow-up: Once the design phase is completed, stakeholders need to ensure that there is sufficient and qualified staff in charge of ensuring that the identified measures are implemented, monitored, and incorporated into planning and operating documents in order to ensure the long-term sustainability of the process.

Source: Key informant – Griselda Franco Piedra, former project coordinator at CONANP

CASE STUDY 2: GULF OF MEXICO: RISK REDUCTION VIA COASTAL WETLAND MANAGEMENT

Location	Gulf of Mexico: Wetlands in Tabasco, Veracruz and Quintana Roo
Sector	Coastal management, disaster risk, water security
Climate hazard addressed	Extreme weather events, sea level rise, salt water intrusion
Measure	Wetland restoration and reforestation
Initiating stakeholders	National Institute for Ecology and Climate Change, National Institute for Water Technology, National Water Commission, and National Commission for Protected Areas
EbA Mainstreaming Impact	EbA measures and Eco-DRR were prioritized as part of a broader set of adaptation measures. Local civil society organizations and local communities are in the process of implementing such measures.

BACKGROUND

Between 2011 and 2015, the Global Environmental Facility (GEF) supported the implementation of the project “Adaptation of Coastal Wetlands of the Gulf of Mexico to the Impacts of Climate Change”. This project was implemented in three coastal wetlands of the states of Veracruz (Papaloapan River – Alvarado Lagoon), Tabasco (Carmen-Pajonal-Machona lagoon system) and Quintana Roo (Sian Ka’an Biosphere Reserve). The project goal was to reduce the risk of climate change related disasters and the vulnerability of the populations that depend on the ecosystem services provided by these wetlands.

PROCESS

Federal agencies spearheaded the project (National Institute for Ecology and Climate Change, National Institute for Water Technology, National Water Commission, and National Commission for Protected Areas) but engaged state and municipal governments, local civil society organizations, and local communities (INECC, 2017). Although there were varying degrees of stakeholder engagement in the different project sites, project managers agreed that engaging local stakeholders in the design of adaptation measures was key to ensure uptake and appropriation.

MAINSTREAMING IMPACTS

The project identified climate risk adaptation strategies in consideration of the local social and environmental context, as well as the most pressing climate change impacts at the local level. EbA measures were combined with Eco-DRR (ecosystem-based disaster-risk reduction) in an effort to reduce coastal vulnerability to extreme weather events and sea level rise. They include: mangrove and riparian reforestation, coral reef restoration, water flow rehabilitation, design of a local land management plan in combination with the installation of weather stations and the development of an outreach strategy.

The project invested in resources to raise awareness about the impacts of climate change, as well as about the importance of conserving and adequately managing the ecosystem services that wetlands provide, including the reduction of climate change related disaster risks. Community members were engaged in the design of adaptation measures in an effort to enhance appropriation. The project was implemented between 2011 and 2016 but the adaptation measures are currently being sustained by local communities.



Figure 4: Local communities participating in waterflow rehabilitation. Source (INECC, 2016b).

KEY LESSONS LEARNED:

1. Combine EbA and Eco-DRR: In locations that suffer from climate change related disaster risk (e.g. storm surges, hurricanes) coordinate actions and together with DRR actors, develop coherent plans and interventions, building on synergies and complementarities of actors.

2. Leverage project funding for long-term planning: International sources of funding are often an excellent opportunity to encourage stakeholders to come together and identify management strategies in a coordinated way.

However, project planning must take into account the limited time and resources of project finance, requiring long-term thinking for sustainability of EbA measures.

3. Bottom-top governance is important for appropriation: Participation of local civil society organizations and local communities is key to guarantee long-term sustainability and implementation of the identified strategies. Political support from local jurisdictions (i.e. municipalities) is also crucial.

Source: Key informants – Margarita Caso, *Adaptation to Climate Change Coordinator* and Luisa Alejandra Domínguez, *Deputy Director of Conservation of Species and Habitat for Climate Change Adaptation*, INECC

More information available at: INECC-SEMARNAT. (2017). *Adaptación en humedales costeros: A nuevos tiempos, nuevas acciones*. <https://www.youtube.com/watch?v=1bxCfOXSmX0&t=6s>

CASE STUDY 3: CARIBBEAN COASTS OF MEXICO: ENGAGING THE PRIVATE SECTOR

DESIGN OF AN INSURANCE POLICY PILOT FOR CORAL REEFS TO PROTECT TOURISM INFRASTRUCTURE

Location	Caribbean Coast of Mexico
Sector	Tourism and infrastructure
Climate hazard addressed	Beach erosion, resulting from sea level rise and storm surge
Measure	Insurance policy for coral reef restoration
Initiating stakeholders	The Nature Conservancy, hotel owners association, reinsurer company
EbA Mainstreaming Impact	Restoration and management of natural resources as a private sector strategy to minimize climate risks

BACKGROUND

The coast of Quintana Roo, Mexico is highly biodiverse, as well as a hotspot for tourism. In fact, it is Mexico's number one destination for international tourism. In recent decades, however, poor land use planning has impacted the conservation of the natural resources of this region, and future development will further put this biodiversity at risk. In addition, climate change is already having an impact on the natural resources and will continue to do so in the coming decades. So far, some of the most visible impacts of climate change have been coral bleaching and beach erosion from hurricanes and sea level rise.

PROCESS

Hotel owners in Mexico are required to pay a government fee in exchange for the right to build infrastructure on coastal territory. In 2005, hurricane Wilma hit the region, with an overall impact of over US\$ 1.5 billion (\$18,000 million pesos) dollars in direct and indirect costs (CENAPRED, 2006). As a result, hotel owners decided to voluntarily increase this fee by 25% in order to cover for beach filling efforts with sand from foreign locations, given that eroded beaches tend to drive tourism away. In an effort to maximize efficiency in the use of such resources, hotel owners are now resorting to a different finance scheme. The Nature Conservancy, Swiss Re (global reinsurer) and the hotel owner's association, in coordination with CONANP, are currently working on the design of an insurance policy pilot to cover for the potential beach erosion that could result from a hurricane category 4 or 5.

The final scheme of the insurance and agreement to implement is currently being drafted, but a decision has been made to create a tripartite board to make decisions with regards to resource management and allocation. A key requirement demanded by the insurance company (SwissRe) for the tripartite secretariat was the presence of a

non-profit organization to provide oversight to the use of resources (TNC) and an academic institution (Engineering Institute of the National Autonomous University of Mexico) to provide a solid technical foundation to the process.

MAINSTREAMING IMPACT

Among other measures such as transferring sand from external sand banks to address the immediate problem but not the long-term vulnerability of the coast, the policy insurance would include the allocation of resources for the restoration of certain portions of coral reefs, which would have a longer-term effect in terms of beach protection. The incorporation of this EbA was only possible because of the availability of solid technical evidence that demonstrated that well-preserved coral reefs have the ability to reduce wave energy by 97% (The Nature Conservancy, 2017), hence the erosion of beaches and damage of infrastructure.

This case study represents the mainstreaming of an EbA measure (restoration of coral reefs) to protect coastal infrastructure and the tourism industry from the impacts of climate change. While this measure was in part driven by a conservation organization, it has been well-received by private business people, as well a reputable financial reinsurer. By partnering with this insurer, The Nature Conservancy is managing to convey the message that well-preserved ecosystems represent a source of capital well beyond the conservation community and into the private and financial sectors. This case study has been published in media sources that are well-respected by the financial community (e.g. Bloomberg Businessweek, Forbes México). The article highlighted the coverage of a natural structure by an insurance company, possibly for the first time, as well as the backing of one of the world's prominent insurance companies (Flavelle, 2017). While the success of this specific effort is yet to be determined, it has already contributed significantly to calling the attention of sectors traditionally unaware of environmental needs, or ecosystem services provided.



Figure 5: Coastal erosion in Quintana Roo, Mexico. Photo by Fernando Secaira. Source: (TNC, 2017)

KEY LESSONS LEARNED

1. Effective and two-way communication can help reach agreements: Listen to stakeholders' interests and needs. In this specific case, it was key to acknowledge that hotel owners are highly concerned with the current and immediate threat that beach erosion represents to their businesses.

2. A solid technical foundation is key for stakeholder engagement: Provide a robust scientific base (technical, socio-economic and ecological) that demonstrates the adequacy of the restoration of coral reefs as a measure to address climate change vulnerability. Previous studies demonstrating the effectiveness of coral reefs for preventing beach erosion were key to prompt the acceptance of this EbA measure as a cost-effective choice.

3. Agreed upon governance arrangements are important: Different stakeholders can provide different contributions for enhanced implementation and evaluation of measures. In this case, for instance, academic institutions provide a solid technical foundation, while non-profit organizations support with oversight for transparency in the use of resources.

4. Establishing partnerships with pioneers can motivate other stakeholders to join: Although the EbA approach is yet to be effectively mainstreamed, it is important that well-informed and engaged individuals spearhead processes within their organizations. Once these pioneers achieve positive results, other stakeholders will likely follow.

Source: Key informants – Fernando Secaira, Coastal Risk and Resilience Lead, Jesse M. Festa, Marketing and Communications Manager, TNC, and Miguel Angel Diego, Secretary, Asociación de Hoteles de Cancún

More information available at:

The Nature Conservancy. Global Solutions. Insuring Nature to Ensure a Resilient Future. Can working with the insurance industry help protect people, economies and nature? <https://global.nature.org/content/insuring-nature-to-ensure-a-resilient-future#insights-undefined>

Flavelle, C. 2017. A Coral Reef Gets an Insurance Policy of Its Own. Bloomberg Businessweek. <https://www.bloomberg.com/news/articles/2017-07-20/a-coral-reef-gets-an-insurance-policy-of-its-ow>

Table 2: EbA governance matrix highlighting the starting point and sequence for EbA entry points and mainstreaming

Governance type	Governance by Government			Shared Governance		Private Governance			Indigenous peoples & local community governance	
	Federal ministry or agency	State or sub-national	Local gov.	Collaborative or joint management	External agents (e.g. donors)	Individual land owner	Non-profit organization	For profit organization / company	Indigenous peoples	Local communities
1. Adaptation programs for protected areas	① ② ③ CONANP	② State gov.	③ Municipal gov.				② Local NGOs		② ③	② ③
2. Adaptation in coastal wetlands	① INECC	② State gov.	③ Municipal gov.		① GEF		③ Local NGOs			③
3. Policy insurance including provisions for coral reef restoration							① TNC		② ③ Hotel owners and reinsurance company	

Legend ① Stakeholder who initiated the EbA process ② Stakeholder who followed ③ Stakeholder who sustained the process

For the design of EbA measures, as well as for their implementation and long-term maintenance, it is important to establish governance arrangements that clearly define the roles and responsibilities each stakeholder will be taking on. Building on the case studies described here, table 2 shows the diversity of governance structures that can exist in different initiatives, including a wide range of stakeholders, from national, subnational and local governments to private entities, international donors, and indigenous and local communities. As can be read in the table, federal government agencies and non-government organizations often initiate processes

and identify the overall direction of the process, while local agencies, organizations and communities tend to have a crucial role in the implementation and long-term maintenance of the measures. However, there is no established formula, and innovative mechanisms should be designed as needed. For instance, as case study 3 shows, the private and financial sectors can also be leaders and early adopters.

POTENTIAL ENTRY POINTS

For policy change, three variables have been identified as key to create 'windows of opportunity': the problem stream (perceptions of problems that need to be addressed by taking specific action), the proposal stream (possible solutions to such problems), and the political stream (willingness to act, political interest and turnover, influence of advocacy groups) (Beland & Michael, 2016).

We identified a series of entry points that stakeholders could leverage to contribute to mainstreaming the EbA approach into the government procedures and operations, both at the federal and at the local level, as well as in processes led by the private sector. These entry points were identified as a result of an analysis of ongoing processes and policies, and by engaging practitioners who have been involved in similar processes.

MAINSTREAMING EBA INTO THE FEDERAL GOVERNMENT

Political buy-in and ownership is a key enabling factor of change. In this respect, 2018 and 2019 will be critical years, given that elections will take place in July 2018 and the new administration will take over the federal government in December 2018. Considering that at this time it is not possible to determine what the priorities of the future administration will be, it is important to prepare for this uncertainty and take steps to ensure that EbA is acknowledged as a priority.

A. Sectoral plans

In Mexico, the planning document that serves as the umbrella document for the federal government is the National Plan for Development (PND in Spanish). This document is developed every 6 years by the incoming administration. It outlines the overall strategy for the administration and all the federal government agencies. Once the National Plan for Development has been drafted, all agencies from the federal government have the responsibility of developing sectoral plans, which, in turn, will guide their programming for the six-year term. Hence, these plans represent a key entry point for mainstreaming EbA and will likely have a ripple effect.

Suggested next steps

1. Identify key institutions to accompany in the formulation of EbA strategies, considering the most vulnerable sectors, as well as the most relevant for EbA. Consider starting by engaging institutions or sectors where there is broad consensus and lower levels of contention, for instance, agencies and organizations charged with disaster risk management for vulnerable communities.
2. Draft sector-specific policy briefs that identify the sector's needs and sector-specific benefits of integrating EbA measures. Consider the following elements:
 - a. Compile a set of policies and regulations that show that EbA is defined and mandated by government regulations and international agreements (e.g. the General Law for Climate Change and the

Nationally Determined Contribution). Therefore, these interventions represent compliance with the law, and not just an additional undertaking beyond institutional commitments.

- b. Compile a set of technical arguments to support the importance and benefits of integrating EbA measures into overall adaptation planning frameworks. Consider including potential costs, effectiveness, and co-benefits.
3. Organize multi-sectoral and/or sector-specific training and awareness-raising workshops for working-level officials as well as decision makers.
4. Engage in bilateral conversations with specific agencies and identify a work plan and mechanisms to integrate EbA options

B. Special Program for Climate Change

Since 2009, the Special Program for Climate Change has represented a key instrument for climate action (mitigation and adaptation), as well as in terms of interinstitutional collaboration. Moreover, since the enactment of the General Law for Climate Change, the Program was identified as one of the key mechanisms for implementation of this regulation and is mandated to be updated with every federal administration.

Suggested next steps

1. Ensure that all relevant agencies participate in the drafting process to ensure that the program reflects their priorities and needs and that they have the financial, legal and technical capacities to actually implement the mandated actions.
2. Emphasize the fact that EbA is mandated by the General Law for Climate Change and the Nationally Determined Contribution presented to the United Nations Framework Convention on Climate Change and therefore must be adopted.
3. Establish a robust monitoring system that ensures that agencies are in fact making progress in the implementation of the established actions.

C. Federal Budget

Developing tools, capacities and evidence in support of EbA is critical for effective implementation. However, these efforts are unlikely to be sustainable in the long term if there is no budget to support continuous implementation. Furthermore, while funding from international donors and other external sources of funding can be beneficial and support project-based initiatives, mainstreaming will only occur if the government allocates financial resources to EbA and ecosystem-based disaster risk reduction (Eco-DRR) efforts. In Mexico, the Secretariat for Finance and Public Credit (SHCP in Spanish) is charged with allocating and managing the federal budget. A specific component of the federal budget that can be targeted for incorporating Eco-DRR is the Fund for Disaster Prevention

(FOPREDEN in Spanish), which is part of the larger Fund for Natural Disasters (FONDEN in Spanish).

A potential entry point for engaging the Ministry for Finance and Public Credit and encouraging the agency to allocate funding for ecosystem-based measures is the global initiative on disaster risk management, supported by GIZ (GIZ, 2017). In Mexico, this initiative is currently in its initial stages and the Ministry for Finance and Public Credit is the key political partner. The fact that GIZ is collaborating with this agency (through the global initiative for disaster risk management) on the one hand, and with the Secretariat for Environment and Natural Resources (SEMARNAT), the National Institute for Ecology and Climate Change (INECC), and the National Commission for Protected Areas (CONANP) on the other through the Mainstreaming EbA initiative, represents an excellent opportunity for incorporating ecosystem-based approaches into the Fund for Disaster Prevention. A key element for this engagement can be to make the case that EbA measures are cost-effective strategies for disaster risk reduction. The project partners SEMARNAT, INECC and CONANP have all implemented EbA measures at different levels, from the local to the federal and therefore have documented the process and, to a certain extent, outcomes of implementing EbA measures. These efforts could be leveraged as arguments that EbA can be effective. For this, stakeholders can leverage and build on efforts implemented so far, for instance, work carried out by the United Nations Development Programme.

Disaster risk reduction is one possible entry point for engaging the Secretariat for Finance and Public Credit for allocating resources for EbA and Eco-DRR measures.

Once political buy-in has been gained and evidence has been gathered that EbA measures are cost-effective, this momentum can be leveraged to continue to mainstream EbA and secure budget in other sectors, such as agriculture, tourism, infrastructure development and others.

Suggested next steps:

1. Establish a partnership with GIZ's initiative for disaster risk management and raise awareness in the team about the benefits of incorporating EbA and Eco-DRR measures as part of disaster risk management strategies. Consider the upcoming Guidelines for Ecosystem-based Approaches to Climate Change Adaptation and Disaster Risk Reduction currently being developed by the Convention on Biological Diversity³
2. Prepare policy briefs or other communication materials for Mexico that gather evidence-based support to include ecosystem-based approaches to disaster risk management.
3. Engage stakeholders with experience around

implementation of ecosystem-based approaches for disaster risk management (e.g. United Nations Development Programme) and establish a task force or working group to devise a plan to incorporate EbA and Eco-DRR in Mexican policies.

4. Engage decision makers and senior officials in the Secretariat for Finance and Public Credit to initiate a conversation on how to incorporate EbA into the federal budget, more specifically, the Fund for Natural Disasters.
5. In the medium term, once a positive relationship has been established, encourage the inclusion of EbA in other sector budgets of the federal government, such as agriculture, tourism, infrastructure development, etc.

LOCAL & REGIONAL LEVEL: PROTECTED AREAS AND MUNICIPAL CLIMATE ACTION PLANS

In Mexico, federal policies dictate the overall direction for the country. However, local level institutions and policies are designed based on the local context and implemented directly on the ground. So far, there have been two main instances in which climate change adaptation plans have been designed at the local level:

- First, the National Commission for Protected Areas has designed ten adaptation programs for a number of protected areas. As described above, and as mandated by the Climate Change Strategy for Protected Areas, these programs are intended to represent integrated landscape management efforts and leverage the ecosystem services that protected areas provide to the broader landscape. Given the National Commission for Protected Area's primary mandate to protect natural resources and ecological processes, not all strategies identified in these programs can be considered EbA. However, in a serious screening effort, several EbA measures that meet the criteria established by Friends of EbA in 2017 (Echeverría, 2017; FEBA, 2017) were identified and significant progress has been achieved in terms of implementation. Leveraging the governance structure of Mexico's federal protected areas, the approach can be replicated in all regions of the country.
- The second climate change adaptation process that occurs at the local level are the Municipal Climate Action Plans, which include both mitigation and adaptation components.

Suggested next steps:

1. Identify the lessons learned from experiences so far, to replicate good practices and avoid repeating mistakes.
2. Leverage local governance structures, such as protected area advisory councils or watershed councils. Engage municipal governments in the process.
3. Focus on the ecosystem services that can help build socio-ecological resilience for key sectors.

³ The draft guidelines are currently available online at <https://www.cbd.int/sbstta/sbstta-22-sbi-2/EbA-Eco-DRR-Guidelines-en.pdf> (CBD, 2018).

4. Ensure that the results of the adaptation measures and programs are incorporated into binding or regulatory documents (e.g. land ordinance documents, operation plans, management plans, subsidy programs, municipal climate action plans) to ensure the sustained implementation in the long-term, as well as secure allocation of resources for implementation and monitoring.

MAINSTREAMING EBA MEASURES AS COST-EFFECTIVE SOLUTIONS FOR BUSINESS CONTINUITY

Federal, state and local government determine regulations around the use of resources, and are in charge of enforcing the law. However, the private sector also plays a key role in this matter, as in many cases they are directly in charge of managing the land. Certain stakeholders in the business community have recently started to turn their attention to ecosystems as an important source of capital. The case study presented above describes an example of a group of business people acknowledging the role that ecosystems play for business continuity: well-preserved coral reefs have the ability to protect the coast from beach erosion, hence their major asset for tourism.

These and other instances where businesses have established successful partnerships with government agencies or civil society organizations to protect and use ecosystem services that help build resilience in the face of climate change are entry points for mainstreaming EbA into the private sector. Major examples include the agribusiness sector, water supply companies, or some banks analyzing the potential of conditioned microcredits for farmers, encouraging them to minimize climate-related risks by applying EbA measures and combining their loans with insurance schemes to cover residual risks (UN Environment, 2018).

Once a series of successful experiences with companies have been implemented and documented, one could expect that other businesses could follow.

It is crucial to consider that, given that one of the private sector's main objectives is to maximize profit in their operations, they tend to privilege decisions that are efficient and cost-effective. Therefore, it is particularly important in these cases to provide solid evidence that EbA measures actually yield the results they are designed to produce.

Note that the term "private sector" can encompass a wide range of stakeholders (e.g. private land-owners, businesses, insurance companies, investors), each of which will require a specific engagement strategy that takes into account their specific needs, interests, and potential role in the implementation of EbA.

Suggested next steps

1. Compile a set of case studies of instances where businesses or other private sector entities have integrated EbA approaches into their planning and operations (e.g. insurance policy that contemplates mangrove reforestation or coral reef restoration, or the agricultural sector with The Nature Conservancy's Water Funds⁴).
2. Seek to communicate the message in forums and media outlets that directly speak to the business community, and ensure that the messages are adequately aligned to the target audience's needs and priorities (a good example of this is the publication of the coral reef insurance project in Bloomberg Businessweek).
3. Engage stakeholders that have already participated in processes related to the conservation of natural resources (e.g. members of the Mexican Alliance for Biodiversity and Businesses – Alianza Mexicana de Biodiversidad y Negocios – AMEBIN) as a starting point.
4. Monitor the Green Climate Fund and other sources of potential international funding that focus on investments for the private sector⁵.

EMERGING TOOLS FOR MAINSTREAMING EBA

The following are tools developed by practitioners who have participated in the design, implementation and documentation of climate change adaptation measures. The purpose of these tools is to facilitate and provide a framework to guide stakeholders on the best ways to mainstream the EbA measures into existing or new adaptation planning processes. These approaches are based on the Open Standards for the Practice of Conservation, a set of concepts, approaches and terminology used to strengthen project design, management and monitoring (CMP, 2013).

PRIORITIZING CLIMATE CHANGE ADAPTATION MEASURES - INCORPORATION OF THE EBA APPROACH

The Methodology for Prioritizing Climate Change Adaptation Measures was jointly developed in 2015 by the Secretariat of Environment and Natural Resources and the adaptation team of the Mexican-German Climate Change Alliance, with the participation of the National Institute of Ecology and Climate Change and the National Commission of Protected Areas.

Purpose of the tool

The aspiration to create this tool emerged from the need to prioritize adaptation measures adequately while better allocating human and financial resources for adaptation in a transparent way. It was created with two aspirations: to

⁴ While The Nature Conservancy's Water Funds' objective is not explicitly intended to build resilience in the face of climate change, the projects are excellent examples for partnerships between government agencies, civil society organizations, and businesses coming together with the common goal to secure provision of ecosystem services through conservation and restoration of watersheds and their ecosystems.

⁵ The Green Climate Fund aims to stimulate private finance in developing countries, as a contribution towards their climate change mitigation and adaptation (GCF, 2017). For more information, visit: <http://www.greenclimate.fund/who-we-are/about-the-fund>

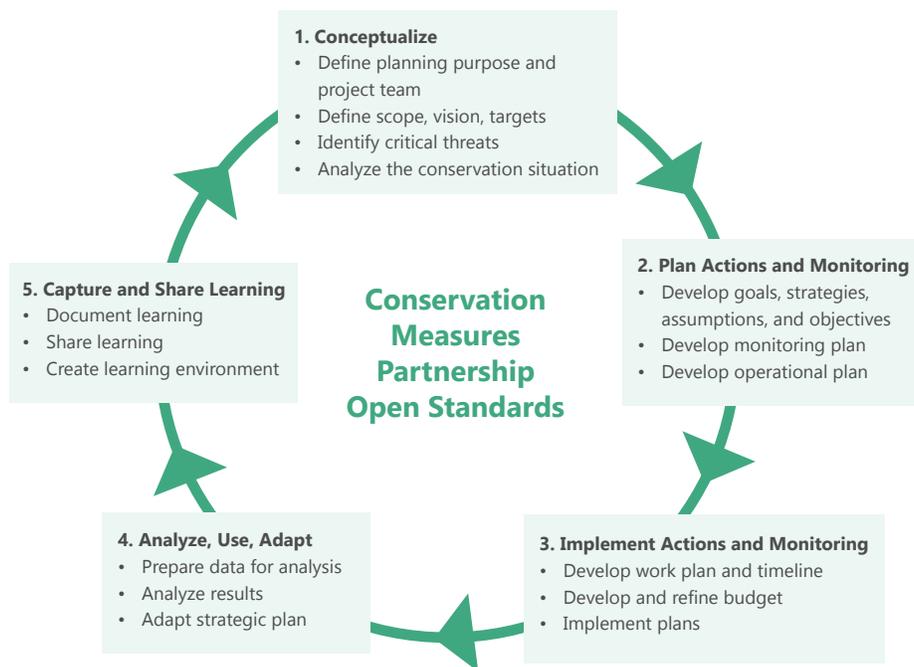


Figure 6: Open Standards Project Management Cycle by Conservation Measures Partnership (CMP, 2013).

adequately prioritize adaptation measures, and to allocate human and financial resources in a transparent way.

In 2017, GIZ’s Global Project Mainstreaming EbA identified the need to update and complement the methodology by integrating EbA criteria.

The updated methodology is currently being revised by the Mexican counterparts and will be available for use in 2018. Like the first edition, this version will be supported by the Secretariat for Environment and Natural Resources and GIZ. The use of this methodology is proposed in the “Minimum elements of good practice to create state climate change programs”, drafted by the Secretariat for Environment and Natural Resources and the National Institute for Ecology and Climate Change. The main users of the methodology so far have been state and federal agencies that have stated the objective to implement adaptation measures. Up to now, four regional workshops have been conducted in which state governments have been trained in the use of the tool.

Components and steps

The tool builds on the adaptive management cycle (Figure 4) and includes multi-criteria and cost-benefit analyses. It is designed to be used in the step of “Prioritization and selection of adaptation measures”; subsequent to the design of measures and prior to their implementation. The tool consists of seven steps: design the process, select criteria, identify adaptation measures, review and make adjustments, prioritize, conduct economic valuation, and monitor the process (Zorrilla & Kuhlmann, 2015).

The second edition, which will be published in 2018, contains elements for identifying and valuing the benefits that EbA measures can provide as well as support materials on the use of biodiversity and ecosystem services for sustainable development. Specifically, the tool contains suggestions of criteria (with definitions and scoring ranges) to evaluate measures, elements to identify co-benefits of EbA measures and how to integrate them in the cost-benefit analysis.

One recommendation is to value ecosystem services (in monetary and non-monetary ways) to support the appropriate valuation of EbA measures, particularly with regards to the cost-benefit analysis. It is also crucial to design participatory processes to gather input from various experts, decision makers and the civil society.

Strengths and challenges

Main attributes of the tool are that it is flexible and adaptable to different contexts, and that it encourages participation, constant reflection and capacity development of participating actors.

The tool involves several steps that aim to strengthen the robustness of the identified adaptation measures, such as the economic valuation (cost-benefit analysis). However, this step requires specific technical knowledge and skills, so stakeholders might have to undergo specialized training before being able to fully leverage the potential benefits of the tool.

Note: information in this section was provided by Aynara Arangueren (GIZ consultant involved in the 2nd edition of the tool)

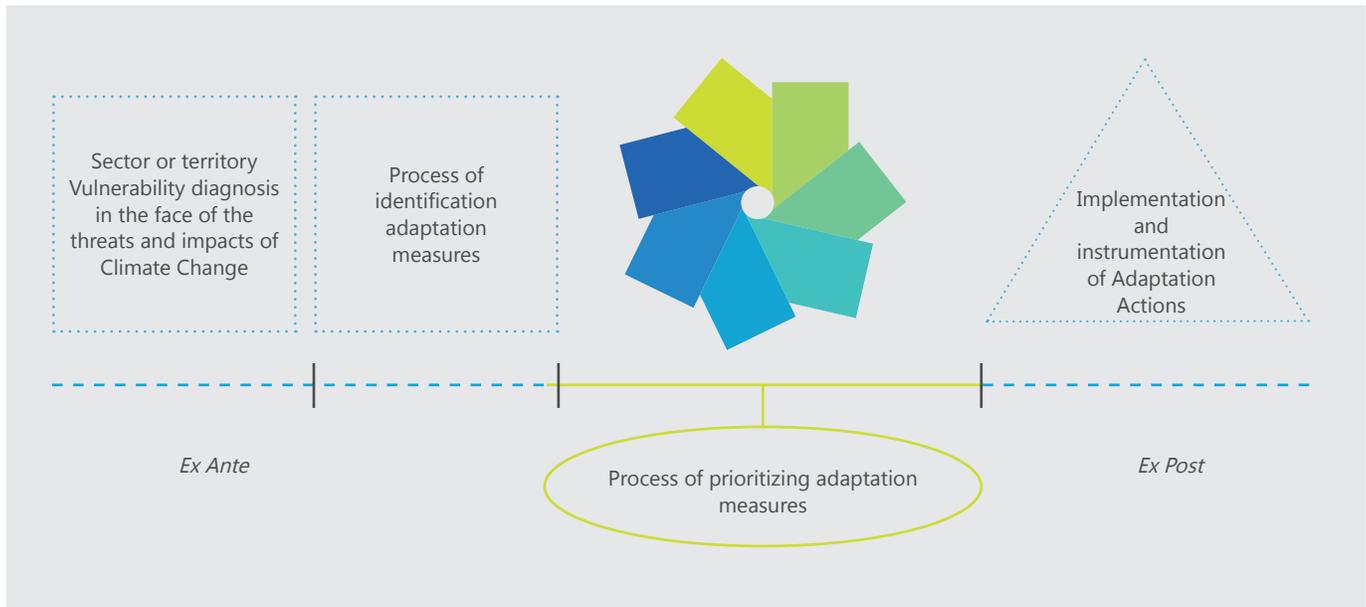


Figure 7: Scope of the methodology (Zorrilla & Kuhlmann, 2015).

EBA MAINSTREAMING DECISION MAKING TOOL

In 2017, the Climate Change Strategies Office of the National Commission for Protected Areas commissioned an analysis of the implementation of measures that were defined in the climate change adaptation programs for protected areas in Mexico. This project was also supported by GIZ's Mainstreaming EbA initiative. As part of this analysis, the consultant developed a conceptual tool that consisted of a strategic framework to guide the incorporation of the EbA approach into the climate change adaptation programs for protected areas (Echeverria, 2017).

Purpose of the tool

The purpose of this tool is that it can be leveraged by practitioners of all sectors and governance levels, who are leading adaptation planning processes. In doing so, they identify stakeholders who:

1. are vulnerable to the impacts of climate change, and
2. have the ability to contribute to the implementation of EbA measures.

Components and steps

The diagram identifies six entry points during the adaptive management cycle of the adaptation programs (Figure 8):

- Participatory community and institutional processes [EP1]
- Multi-sectoral collaboration objectives [EP2]
- Support of the regulatory framework and alignment of governance instruments [EP3]
- Learning at different levels, including the quality of the

policies that supported the EbA measures and level of buy-in by key stakeholders [EP4]

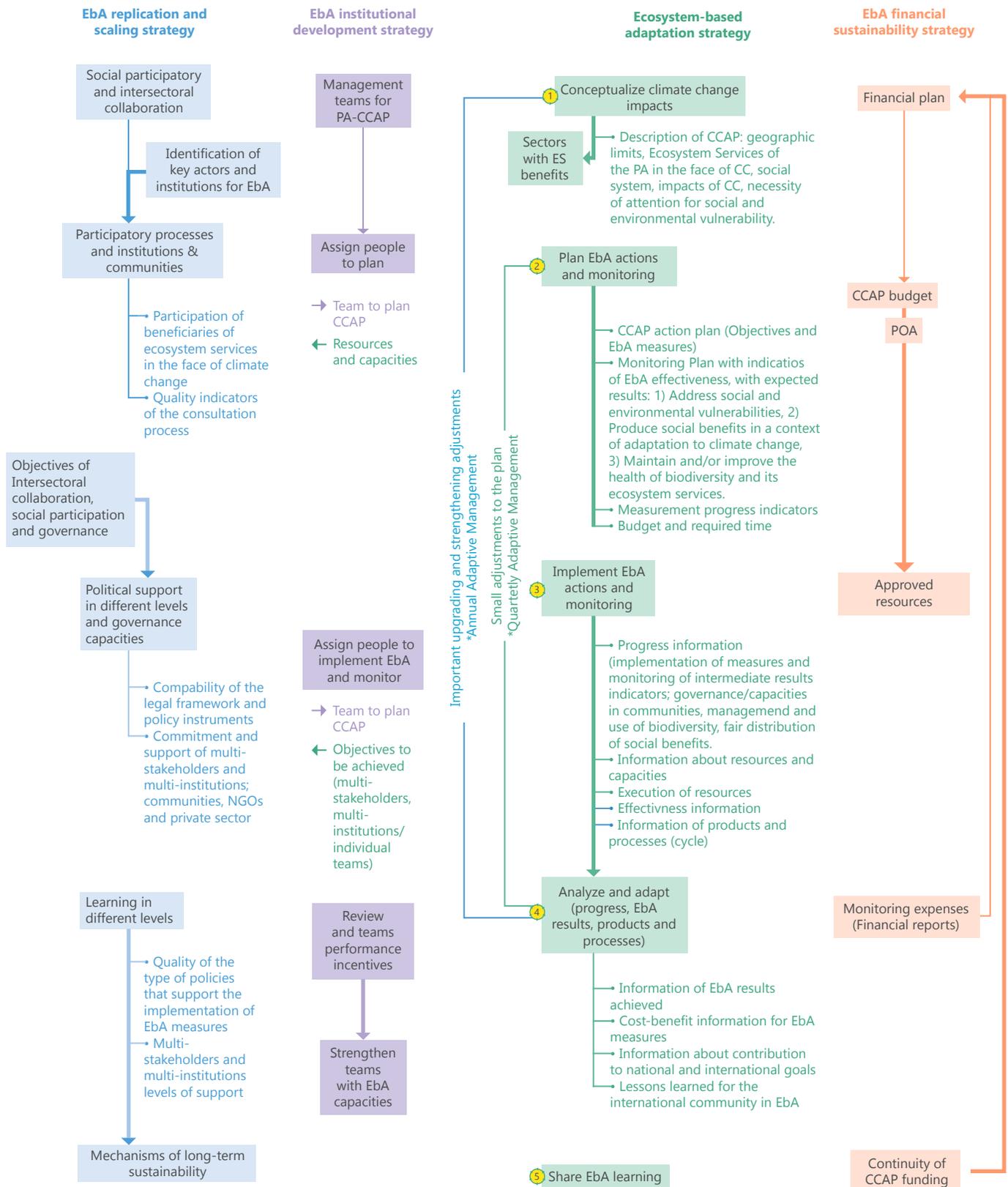
- Mechanisms for long-term sustainability: replicability and scaling up [EP5]
- Mechanisms for long-term sustainability: financial sustainability [EP6]

The development of the mainstreaming decision-making tool was based on four key elements:

1. The overall structure consisted of a "high-level" organizational scheme (decision points, individuals and necessary information to coordinate processes between different teams in a company);
2. The decision-making points process and information flux (between key stakeholders and during mainstreaming) were designed taking into account the adaptive management cycle of the "open standards for the practice of conservation";
3. The deliverables were taken from the "Guide to design climate change adaptation programs for protected areas" (CONANP, 2011);
4. A key input to identify entry points: outputs-verification processes of mainstreaming EbA and mechanisms for long term sustainability were identified according to the technical brief published by FEBA for UNFCCC-SBSTA (FEBA, 2017).

Strengths and challenges

In addition to identifying relevant stakeholders in adaptation planning processes, the tool can help determine what are



Echeverría, 2017. Análisis sobre la implementación de medidas de los Programas de Adaptación al Cambio Climático (PACC) en Áreas Naturales Protegidas (ANP) Federales de México. GIZ-CONANP. México.

--- Mainstream EP=Entry Points ● Step of Adaptive Management Cycle

Figure 8: Entry points to mainstream EbA into Climate Change Adaptation Programs for Protected Areas

the best ways and moments in which stakeholders should be engaged. If this process is carried out correctly, institutional and community stakeholders are likely to not only design and validate EbA measures, but most importantly to take ownership and therefore incorporate them into their own sectoral planning and operation documents, and allocate resources to implement such measures. In this sense, besides from setting adaptation objectives, participants in the process should set out to identify objectives of inter-institutional collaboration.

One key challenge to take into account in the use of this tool is that stakeholder engagement and interinstitutional collaboration is a time- and resource-intensive process that requires significant resources in order to secure long-term relationships and uptake by stakeholders. Collaboration requires trust-building, solid engagement, and institutional support.

Note: the information in this section was provided by Yven Echeverría (GIZ consultant for the design of the tool)

IV. Promoting and Hindering Factors, Opportunities

STAKEHOLDER ENGAGEMENT: PIONEERS AND FOLLOWERS

The integration of EbA measures into new or existing processes is often driven by few sectors, institutions or even individuals. In Mexico, examples of these pioneer stakeholders have been government institutions, such as the Secretariat for Environment and Natural Resources, the National Institute for Ecology and Climate Change, the National Commission for Protected Areas, and civil society organizations such as The Nature Conservancy. These entities have spearheaded the processes and managed to successfully engage stakeholders that, otherwise, would not consider the EbA approach as a viable alternative. In addition to incorporating the EbA approach, these stakeholders often play the role of coordinating and mediating agents.

Followers are considered sectors who might initially not be acquainted with concepts such as 'ecosystem' but who were informed about the significance and cost-effectiveness of EbA measures and were willing to incorporate them into their processes. Examples of these are the federal, state, and local government institutions that agreed to participate in the climate change adaptation program of the Gulf of California, led by the National Commission for Protected Areas.

A third set of stakeholders are the entities that are responsible for the continued implementation of the identified measures. For instance, in the case of the coastal watershed management project, local communities and local civil society organizations are now implementing adaptation strategies, including EbA measures, such as mangrove and coral reef restoration (INECC-SEMARNAT, 2017).

A key element identified in establishing these partnerships is having a relationship of trust and communication, rather than a condescending one. It is also important to identify and acknowledge the interests and needs of all participating entities, and to draft messages that directly speak to their needs.

MOTIVATIONS FOR INCORPORATING EBA

Especially stakeholders whose mandate is not to conserve or manage natural resources need to have a robust technical foundation that supports the argument that EbA measures actually are effective and can be more cost-effective than grey measures. For many, the conservation of natural resources might not be a priority per se, but when solid evidence is provided that ecosystem services can truly build resilience of infrastructure and livelihoods, they are significantly more likely to adopt the approach, or combine it with other 'grey' adaptation measures (e.g. buildig of dykes and dams, contention walls) to provide so-called 'hybrid solutions'.

In the case of the policy insurance that includes provisions for coral reef restoration (case study 3), for instance, previous scientific and technical work carried out by The Nature Conservancy was key to convey the importance of the conservation of coral reefs in reducing beach erosion. For the adaptation program for the Gulf of California region (case study 1), project leaders showed that well preserved marine ecosystems are key to sustain economic activities. These statements were endorsed by a group of local scientists.

The uptake of the EbA approach can take place organically when stakeholders acknowledge that this type of adaptation measures can be cost-effective and yield co-benefits. However, having a robust legal framework that mandates the inclusion of EbA criteria in the selection of adaptation measures is a key enabling factor to ensure the adoption of this approach. As described in chapter 1, there are several policies that currently include EbA principles and criteria. However, there still are opportunities to ensure that the legal framework further recognizes the importance of the EbA approach. The following are examples of policies that can still be further strengthened:

- Adaptation rules of the General Law for Climate Change,
- Sectoral subsidy programs,
- Mexico's Climate Change Fund,
- Regional and local land ordinances,
- Payment for ecosystem service programs.

HINDERING FACTORS FOR INCORPORATING EBA

Especially on the longer term, EbA measures tend to be more cost-effective than measures that incorporate built infrastructure. Specifically, the EbA approach does not entail large public works and contracts. Therefore, some government agencies could be prone to favor public works over conservation of natural resources, given that the former can represent an opportunity for misuse of resources and corruption practices. Even though this issue goes beyond the scope of this study and is difficult to address, it is important that practitioners acknowledge the existence of this unfortunate situation.

Effective mainstreaming by institutional and community stakeholders is a resource intensive and long-term process. However, project timelines and budgets rarely take this into account. Oftentimes project leaders are forced to initiate the adaptation planning process in a vacuum. Case study 1 is an example of a process that actively engaged local communities, researchers, and a set of agencies from the three levels of government. The adaptation planning process in this case was a multi-year project that aimed at securing trust and establishing long-term relationships among the participating individuals and institutions. It is clear, however, that few practitioners have the availability, (long-term) mandate, and willingness to engage in such a time-consuming process.

V. The way forward: Recommendations

PROJECT-BASED INITIATIVES AND LONG-TERM SUSTAINABILITY

Projects financed by international donors offer excellent opportunities to achieve results on the ground, gather evidence of the impacts and co-benefits of EbA measures, and initiate collaboration processes with stakeholders that are traditionally not involved in climate change adaptation efforts. When international finance is available, stakeholders tend to be more easily engaged. Projects can also help stakeholders develop and test tools to support better integration and use of EbA measures. However, projects are by nature time-bound and, once resources are exhausted, it is difficult for project managers to follow up and monitor the implemented measures, and interest from stakeholders often fades.

For this reason, we recommend that projects harness the opportunity to secure long-term impacts and contribute to effective mainstreaming by:

- a. Raising awareness and building capacities of the participating institutions and stakeholders to better understand the significance of EbA, as well as technical details on how to design and implement these measures. Efforts should target working-level officials, given that they will be key in implementing and monitoring actions.
- b. Engaging high-level officials and decision makers who can influence creation of planning and regulatory documents, such as sectoral plans, and budgets.

EFFECTIVE COMMUNICATION

As in any collaboration effort, communication is key for effective mainstreaming of EbA. In recent years, the global conservation community has escalated its communication and awareness raising efforts by harnessing the concept of “natural solutions” in an effort to gain buy-in from other sectors for the conservation of natural resources (IUCN-CEM, n.d.). The Natural Solutions message aims to capitalize on the services that ecosystems provide and promotes engagement beyond agencies and stakeholders whose mandate is the conservation of natural resources (Dudley et al, 2010). Building on this concept, EbA will only appeal to other sectors if we manage to convey the message that EbA measures are cost-effective and can build resilience and reduce vulnerability of human systems while yielding multiple co-benefits.

In order to achieve effective communication, we recommend the following:

- a. When approaching a specific institution, individual or community, it is important to understand that their

aspirations, views and knowledge are valuable and need to be taken into consideration in the planning of an EbA project or an awareness raising process. In order to avoid conveying a message of authority, it is key to listen to the audience’s needs and to try to build on their experience.

- b. Design messages that are tailored specifically for each audience. Rather than claiming that EbA measures are cost-effective across the board, it is important to identify the specific reasons why EbA can and should be incorporated into specific sectors. It is critical to use language that is reflective of each sector’s priorities as well as an understanding of their motivations and driving forces. For this, careful selection of words will be needed, making sure to use terms that resonate most with each stakeholder. For instance, using terms such as drought or floods might be more effective than climate change or changing precipitation patterns, given that the former resonate with a tangible issue that stakeholders are already facing, whereas the latter can often be seen as uncertain, abstract or longer-term impacts.
- c. In addition to traditional outlets, publish findings and advocacy messages in media and news sources that target the specific audience where EbA is expected to be integrated. Publishing communication materials in traditional outlets (such as the PANORAMA platform, www.adaptationcommunity.net, other portals of the International Union for Conservation of Nature, or sources that the conservation community frequently refers to) will help strengthen the EbA community and build an integrated front and community of practice. However, if the message is expected to be communicated beyond the usual suspects, messages will need to be published in sources trusted by the target audience. The article published by Bloomberg is an example of an EbA measure promoted by a news outlet that is read and respected by the business community.

STRATEGIC ENGAGEMENT

Full mainstreaming of EbA will not be achieved overnight and different stakeholders can be expected to respond in a differentiated manner. Therefore, when undertaking efforts, we recommend to identify strategic allies in the sense of stakeholders that have acted as partners in the past first, as well as those sectors which have historically participated in conservation initiatives, rather than trying to engage all institutions and sectors at once. Additional sectors or stakeholders can be approached once momentum has been built.

BUILD SYNERGIES WITH ONGOING EFFORTS

Efforts to mainstream the EbA approach compete with many agendas to become a priority for high-level decision makers and those stakeholders who ultimately determine the direction that national development agendas and international agreements will take. Given this context, initiatives that are able to successfully identify synergies with parallel efforts are more likely to succeed than those that take place in an isolated manner. The EbA approach does not represent a hindering factor for other efforts and can be integrated with them. In Mexico, there are many ongoing initiatives that are addressing climate

change mitigation and adaptation, biodiversity conservation and ecosystem restoration, or disaster risk reduction, to name a few. In many cases, parallel initiatives are being driven by the same institutions. However, these initiatives are not always fully integrated with each other.

In table 3, we summarize examples of initiatives that could be used to build synergies with mainstreaming EbA efforts. Also, in terms of monitoring and evaluation, it would be beneficial to align reporting systems and to encourage the development of an integrated system with joint indicators. This could enhance the effectiveness and efficiency of the implemented measures.

Table 3: Examples of possible synergies that EbA mainstreaming efforts could build with ongoing initiatives in Mexico.

Project	Goal	Project leader	Funding source	Timeframe	Possible synergies
EcoValor Mx	Economic valuation of ecosystem services provided by protected areas as an innovative financial mechanism for biodiversity and climate change	SEMARNAT CONANP GIZ	International Climate Initiative (IKI)	2013-2018	Economic data provided by EcoValor can be leveraged as the technical basis to present stakeholders with evidence that ecosystems (and protected areas) contribute to building socio-ecological resilience to climate change. For instance, Izta-Popo National Park's contributions to erosion control, watershed regulation and associated economic value could represent solid arguments for EbA.
Global Initiative on Disaster Risk Management (GIDRM)– Mexico	Identify strategies for improved disaster risk management, provide solutions that are relevant to the local context	Secretariat of Finance and Public Credit (SHCP in Spanish), GIZ	German Federal Ministry for Economic Cooperation and Development (BMZ)	2017-2020	GIDRM currently does not incorporate a climate change lens. The project is currently in its initial stages. This project represents an excellent opportunity to introduce EbA and Eco-DRR approaches to SHCP and the National Office for Civil Protection. For this, GIDRM staff can coordinate with the EbA team (including SEMARNAT, INECC and CONANP counterparts).
Resiliencia Resiliencia Strengthening management effectiveness and resilience of protected areas for protecting biodiversity threatened by climate change	Strengthen management effectiveness of protected areas and strategically expand protected areas' cover to protect biodiversity and reduce the negative impact of climate change.	CONANP CONAFOR CONABIO GEF	Global Environment Facility (GEF)	2014-2018	"Resiliencia" is developing climate change adaptation plans for protected areas. In addition to protecting biodiversity from the impacts of climate change, these plans are designed to set an inter-sectoral agenda to address the impacts of climate change and maintain ecological services. Lessons learned from this approach can be used to replicate this scheme in other locations including land with no protected area designation.

<p>C6: Conservation of coastal watersheds in a context of climate change</p>	<p>Promote integrated management of selected coastal basins to conserve their biodiversity, contribute to climate change mitigation and strengthen the sustainable use of their natural resources</p>	<p>SEMARNAT CONANP CONAFOR INECC FMCN GEF World Bank Group</p>	<p>Global Environment Facility (GEF) and The Leone M. and Harry B. Helmsley Charitable Trust.</p>	<p>2014- 2019</p>	<p>This project includes a technical component that identifies key sites for intervention by identifying supply and demand of watershed services. This scheme can be replicated and scaled up and used as evidence that adequate watershed management is a viable choice to address issues related to water availability exacerbated by climate change- induced drought.</p>
<p>BIOFIN</p>	<p>Explore innovative financial solutions for environmental protection beyond public budget</p>	<p>UNDP</p>		<p>2015- 2018</p>	<p>BIOFIN Mexico has achieved some degree of success with regards to mainstreaming biodiversity into the country's overall processes and budgets and strengthening the National Climate Change Fund. These outcomes have been achieved by directly engaging SHCP staff. The establishment of this communication channel and relationship can be capitalized on in order to include the EbA approach in the National Climate Change Fund, as well as the Federation's Expenditure Budget.</p>

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