



## BRIEFING NOTE

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# National Adaptation Plans – An entry point for ecosystem-based adaptation

## Overview

This briefing note provides practical information on the planning and implementation of ecosystem-based adaptation (EbA) approaches in the agriculture sectors as part of national adaptation planning processes. It presents entry points for mainstreaming EbA throughout the four elements of the National Adaptation Plans (NAP) formulation process, as defined by the United Nations Framework Convention on Climate Change (UNFCCC) Least Developed Countries Group (LEG, 2012). The brief describes how planning and implementing EbA in the agriculture sectors as part of the NAPs process can make key linkages between increasing resilience of sustainable agricultural livelihoods and ecosystem management and conservation. EbA is part of the suite of adaptation planning options aimed at achieving the commitments and goals of the Paris Agreement on Climate Change and the 2030 Agenda for Sustainable Development. This brief is intended for national planners and decision-makers working on climate change adaptation and NAP formulation and implementation, including UNFCCC focal points, national designated authorities of the Green Climate Fund (GCF) and climate financing agencies, donor agencies, and other development practitioners.

## Key messages

1. Climate change poses medium- to long-term risks to both ecosystems and ecosystem-dependent livelihoods, and calls for the adoption of adaptation actions that can address both aspects in an integrated manner.
2. One of the ways that EbA can contribute to increasing resilience of agricultural livelihoods and ensuring food security in a more coherent way is by integrating related practices throughout the NAP process.
3. EbA can be part of NAP planning objectives as well as a means for implementation. The four elements of the NAP process provide entry points for integrating EbA measures in adaptation planning at the sectoral and national levels, from preparation to implementation and monitoring of adaptation activities.
4. Integrating in EbA in NAPs, focusing on agriculture sectors, should build on and use approaches that are already tested in the fields of climate-smart agriculture, agroecology, sustainable natural resource management, biodiversity, sustainable ecosystem management and preservation, and climate change adaptation and livelihood development in the agriculture sectors.
5. The barriers to mainstreaming EbA into NAPs include lack of evidence-based knowledge on EbA, including evidence based on robust monitoring systems; limited understanding on the economic viability and benefits of EbA, including when comparing EbA with other adaptation options; potential lack of cross-sectoral and sub-national adaptation planning structures and mechanisms; and lack of funding.
6. These barriers can be addressed by improving cross-sectoral coordination; strengthening capacities and knowledge on the social and economic benefits and trade-offs of EbA; making available methodologies for monitoring and for assessing costs and benefits; provision of dedicated funding, including in the context of national budgeting processes.



## Climate change and the agriculture sectors

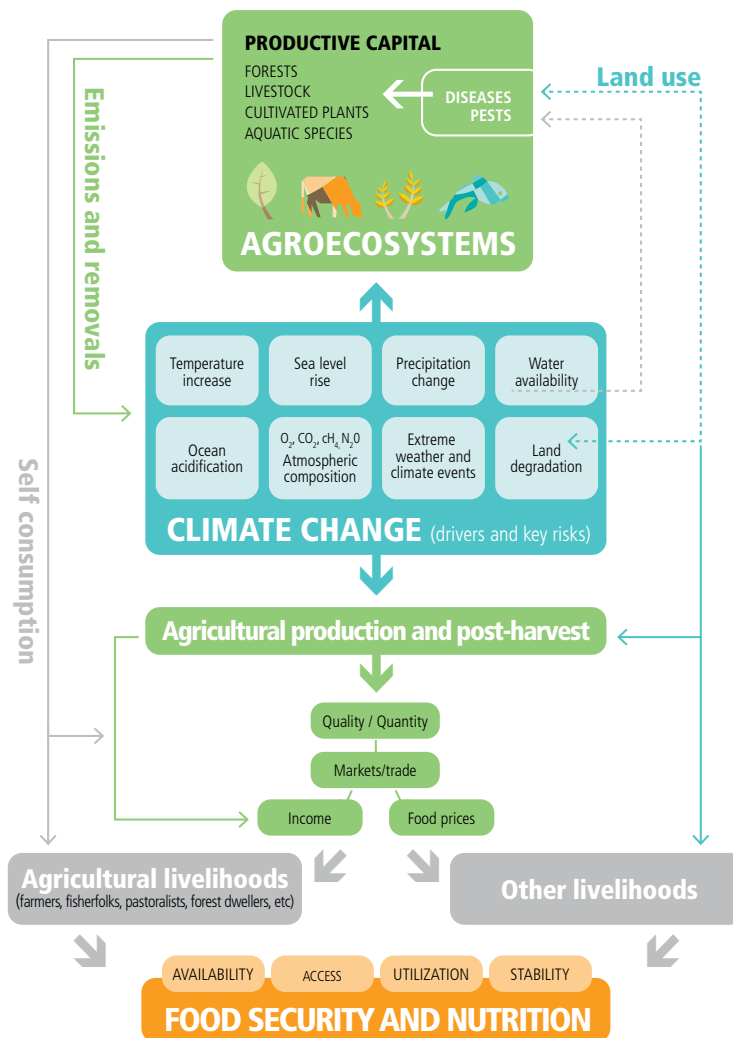
Climate change affects the agriculture sectors (crops, livestock, fisheries, aquaculture, and forestry) and their functions and capacity to provide many benefits and services to people, such as the ability of ecosystems to regulate water flows and nutrients cycling (FAO, 2017). In this vein, climate change is considered a significant "hunger-risk multiplier" and a "fundamental threat to global food security", affecting the availability, access, stability, and utilization of food (Porter *et al.*, 2014, FAO, 2016a). For instance, increased frequency and intensity of extreme climate events such as droughts, floods and heat waves leads

to losses of agricultural infrastructure and livelihoods. Sea-level rise and coastal flooding can lead to salinization of land and water impacts on fisheries and aquaculture (Figure 1, FAO, 2016a).

According to the Global Report on Food Crises, 124 million people suffered from acute hunger in 2017, more than the 108 million the year before. The main drivers of acute food insecurity are conflict and climate shocks (FSIN, 2018). Furthermore, the agriculture sectors in developing countries absorbed about 26 percent of total damage and loss caused by climate and weather-induced disasters between 2006 and 2016 (FAO, 2018a).

Figure 1

Pathways of climate change impacts on food security



Source: FAO, 2016a

Climate change impacts on agricultural production and livelihoods are expected to intensify over time and vary across countries and regions (FAO, 2016a). The negative effects of climate change will further exacerbate poverty, jeopardize food security, increase unemployment rate, and ignite conflicts and violence among and within rural communities, causing migration and forced displacement. It is estimated that with climate change, the population living in poverty could increase by between 35 and 122 million by 2030 compared to a future without climate change, largely due to negative effects on household incomes in the agriculture sectors (FAO, 2016a). Additionally, food supply shortages would lead to major increases in food prices while increased climate variability would accentuate price volatility.

Adaptation to climate change should begin by addressing present risks and vulnerabilities and restoring the natural resource base and ecosystem services, to enable ecosystems and people to better adapt to climate impacts (FAO, 2016c). The impact of climate change on agriculture sector livelihoods can be mediated through EbA.

## What are the National Adaptation Plans?

The National Adaptation Plan (NAP) process, established under the UNFCCC Cancun Adaptation Framework, enables Parties to formulate and implement NAPs as a means of identifying medium- and long-term adaptation needs, and developing and implementing strategies and programmes to address those needs. It is a continuous, progressive and iterative process that follows a country-driven, gender-sensitive, participatory and fully transparent approach (UNFCCC, 2010). In their nationally determined contributions (NDCs), 55 countries had highlighted that they have been designing, are finalizing a NAP or intend to start the NAP process. Fifty-three of these countries mention at least one of the agriculture sectors as priority area for adaptation or within their adaptation actions (FAO, 2016b).

NAPs vary in terms of form and priorities across countries, but the UNFCCC Least Developed Countries Expert Group (LEG) has developed guidelines (UNFCCC, 2012) to assist

countries in systematically addressing climate change adaptation through NAPs in the following ways:

- linking adaptation priorities to development needs;
- laying a pipeline of interventions with clear objectives and priorities;
- strengthening a long-term perspective and institutional coordination;
- building on and helping to synthesize existing work;
- capturing resources: public, private, national, international;
- identifying needs: knowledge, capacity, institutional, funding;
- developing a monitoring and reporting framework.

The LEG Technical guidelines propose four elements for the formulation and implementation of national adaptation plans: A) lay the groundwork and address gaps; B) preparatory elements; C) implementation strategies; D) reporting, monitoring, and review. The elements comprise 17 steps and several indicative activities under each step to provide further guidance for decision-makers.

NAP processes are also undertaken at the sectoral level, with guidelines on health, agriculture, and water sectors available.<sup>1</sup> In order to address agricultural sub-sectors' concerns in adaptation planning, FAO developed the Addressing agriculture, forestry and fisheries in NAPs Supplementary Guidelines. The guidelines aim to support developing countries in: (1) reducing vulnerability of the agriculture sectors to the impacts of climate change by building adaptive capacities and resilience; (2) addressing agriculture in the formulation and implementation of NAPs; and (3) enhancing the integration of adaptation in agricultural development policies, programs and plans. The development of a NAP must invariably intersect with existing development plans and policies, as well as efforts to account for the value of ecosystem services and for other actions taken to combat poverty and improve the resilience of populations against changing environments.

<sup>1</sup> More info on NAP Central, available at <http://www4.unfccc.int/nap/Guidelines/Pages/Supplements.aspx>

## What is ecosystem-based adaptation?

Healthy agro-ecosystems play a major part in increasing the overall resilience of vulnerable people to adapt to climate change, and in reducing climate related risks and vulnerabilities (FAO, 2017). Climate change affects agro-ecosystems and their functions, such as the ability of ecosystems to regulate water flows and nutrient-cycles (FAO, 2017).

The United Nations Convention on Biological Diversity defines ecosystem-based adaptation as "the use of biodiversity and ecosystem services as part of any overall adaptation strategy to help people to adapt to the adverse effects of climate change" (CBD, 2009:41). The Convention emphasises the "sustainable management, preservation and restoration of ecosystems" and actions that address the potential for adaptation actions to deliver "multiple social, economic and cultural co-benefits for local communities" (CBD, Decision X/33).<sup>2</sup> EbA approaches use biodiversity and ecosystem services as an entry point for the development of overall adaptation strategies to climate change (FAO, 2017).

EbA is also recognised under key climate change agreements. The UNFCCC Decision 1/CP.16 invites Parties to enhance action on adaptation by "building resilience of socio-economic and ecological systems, including through economic diversification and

sustainable management of natural resources". (UNFCCC, 2010b). Paragraph 12 of the Cancun Adaptation Framework affirms that enhanced action on adaptation should be undertaken taking into consideration ecosystems, where appropriate. Moreover, paragraph 14 invites Parties to build resilience of socio-economic and ecological systems, including through economic diversification and sustainable management of natural resources.

The need for EbA is recognized in the Article 7 of the Paris Agreement: "Each Party shall, as appropriate, engage in adaptation planning processes and the implementation of actions, including the development or enhancement of relevant plans, policies and/or contributions, which may include:

- (c) the assessment of climate change impacts and vulnerability, with a view to formulating nationally determined prioritized actions, taking into account vulnerable people, places and ecosystems;
- (e) building the resilience of socioeconomic and ecological systems, including through economic diversification and sustainable management of natural resources".

Additionally, other major international conventions - including the United Nations Convention to Combat Desertification (UNCCD) and the Ramsar Convention - have incorporated EbA into their texts since 2010 (Seddon *et al.*, 2016).

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**Figure 2**

### Planting cacti for avoiding soil erosion on steep slopes in Myanmar



<sup>2</sup> More info available at [www.cbd.int/decision/cop/?id=12299](http://www.cbd.int/decision/cop/?id=12299)



Figure 3

### Rehabilitation of degraded and abandoned terraces for preventing soil erosion and reintroduction of agricultural crop cultivation in Yemen



## An ecosystem-based adaptation approach to agricultural development

Compared to other sectors affected by climate change, the agricultural sectors are highly dependent on the proper functioning of ecosystems. Healthy ecosystems play a critical role in the provision of long-term sustainability of food production, enhancing buffering capacities against extreme weather events, mitigating climate change and increasing the overall resilience and diversification of livelihoods to cope with climate change impacts. The long-term sustainability of ecosystems depends on their utilisation in a way that avoids degradation, takes into account current and future vulnerabilities and maintains resilience (Epple *et al.*, 2016). However, increased agricultural productivity and intensification are often considered to be in conflict with ecosystem conservation and long-term sustainability.

The difference between EbA and 'business as usual' adaptation practices is that EbA links traditional biodiversity conservation and ecosystem management approaches with sustainable socio-economic development as part of an overall strategy for helping people adapt to shocks and risks associated with climate change (FEBA, 2017). In agriculture, EbA is often prioritized as an adaptation option because it tends to rely on existing resources and livelihood sources, provides co-benefits, and avoids maladaptation, for example through forest and landscape restoration. Thus, EbA implementation

in agriculture can dissolve the divides between agricultural development, ecosystem preservation and sustainable resource management. It can be also comparatively cost-effective and provide several economic and other benefits (Emerton, 2017; Rossing *et al.*, 2015). Moreover, an EbA approach can build on existing natural resource management practices, such as climate-smart agriculture (CSA), agroecology, sustainable land management (SLM), sustainable forest management (SFM), and the ecosystem-based approach to fisheries (EAF) and aquaculture (EAA) (FAO, 2017). The sustainable use of resources promoted by these approaches aims to increase the resilience of ecosystems and ecosystem-dependent livelihoods against climate change impacts (FAO, 2017, **Figure 3**). Some examples of EbA interventions that increase resilience of livelihoods against climate change include (Lo, 2016, Reid *et al.*, 2017; FAO, 2015; FAO, 2017):

- conservation and restoration of forests and other natural vegetation to stabilize slopes, prevent landslides, erosions and regulate water flows preventing flash flooding;
- establishment of healthy and diverse agroforestry systems to cope with increasingly variable climatic conditions;
- application of residue covers, cover crops and mulching protects the soil surface, improves water infiltration rates, and reduces both erosion and evaporation, thus improving soil moisture compared to bare soils, even under low rainfall;
- harvesting of rainwater through planting pits which can rehabilitate degraded land by

improving infiltration, reducing downstream flooding and increasing nutrient availability;

- applying conservation agriculture which employs the three principles of minimal soil disturbance, permanent soil cover and crop rotations to improve soil conditions, reduce land degradation and boost yields;
- restoration of mangroves to prevent increased floods, storm surges and maintain water flow and water quality, enhance carbon sequestration, and provide habitats for coastal fisheries and fish nursery grounds for wild caught and farmed species.

EbA implementation in the agriculture sectors as part of National Adaptation Plans processes generates the following benefits:

### Addresses climate and non-climate risks

EbA contributes to reducing vulnerability and increasing resilience to both climate and non-climate risks (Colls *et al.*, 2009). The proper implementation of EbA in agriculture can support countries to meet their commitments under the Paris Agreement on Climate Change. 109 NDCs indicate eco-system-oriented visions for adaptation, and 23 of the 162 Intended nationally determined contributions (INDCs) explicitly refer to EbA, (Seddon *et al.*, 2016). Among the 131 countries that include priority areas for adaptation and/or adaptation actions related to the agriculture sectors, 97 percent refer to crops and livestock, 88 percent refer to forests and 64 percent refer to fisheries and aquaculture (FAO, 2016b). NAPs in the agriculture sectors that integrate EbA can support the achievement of numerous interlinked sustainable development goals (SDG), in particular:

- **SDG 2** zero hunger by improving and diversifying agriculture management practices;
- **SDG 5** gender equality by mainstreaming gender in adaptation planning and considering gender-differentiated impacts of climate change on women who make up to 43 percent of the agricultural labor force in developing countries;
- **SDG 6** clean water and sanitation by increasing water-use efficiency and addressing water scarcity in rural areas;
- **SDG 15** life on land by adjusting silvicultural practices, composition of species and varieties to climate change;

- **SDG 16** peace justice and institutions by improving institutional coordination and cooperation between the Ministries of Agriculture, Environment and Finance, and relevant non-state actors.

### Provides a cost-effective mechanism

EbA can be cost-effective compared to certain other adaptation options such as hard infrastructure. It can also be considered a preventative measure to avoid maladaptation or the cost of restoration and rehabilitation of degraded areas. For example, the integration of SLM practices (e.g. improved water management, integrated soil fertility management, conservation agriculture, and improved rangeland management) into adaptation planning processes reduces the need for costly ex post coping measures and diversifies agricultural income (such as agroforestry and non-timber forest products), thereby increasing resilience of livelihoods to climatic shocks (FAO, 2017).

### Supports participation from state and non-state stakeholders

Methodologically, EbA supports a participatory approach to the design of plans and prioritization of adaptation options. It entails a broader understanding of the ecosystem and stakeholders directly or indirectly linked to a particular agricultural practice. It requires balancing the opinions and needs of these different groups, based on priorities and trade-offs. For example, during the mainstreaming of EbA into Thailand's NAPs (Ngamsing, 2018), a steering committee with different stakeholders was put in place.

### Generates multiple co-benefits:

EbA generates social, economic and cultural co-benefits, and contributes to the preservation of biodiversity, overall ecosystem health and sustainable natural resources management (Seddon *et al.*, 2016; FAO, 2017). For example, the implementation of CSA in smallholder farming systems through an integrated crop-livestock-tree farming system in Kaptumo, Kenya and a cereal-based upland farming system in Koleru in the United Republic of Tanzania. The establishment of terraces and tree plantations resulted in higher yields and raised farm income, while contributing to the conservation of soil and water in the face of climate change impacts on precipitation pattern and temperature (FAO, 2016c).

## Entry points for integrating ecosystem-based adaptation in national adaptation planning, including in the agriculture sectors

There are several ways in which EbA can help achieve NAP objectives:

- NAPs aim to reduce vulnerability by enhancing adaptive capacity and resilience, while EbA can help achieve this by focusing on reducing vulnerability of ecosystems, livelihoods, and communities that depend on them.
- NAPs aim to facilitate the integration of climate change adaptation into relevant new and existing policies, programmes and activities, within all relevant sectors and at different levels, as appropriate. EbA can be integrated into a range of new and existing policies, at different scales and sectors ranging from: international commitments such as NDCs and NBSAPs (National Biodiversity Strategies and Action Plans), to national plans and policies (e.g. National Development Plans and Climate Change Policies), sectoral policies (e.g. agriculture policies) or local plans (e.g. Coastal Zone Management Plans). EbA programmes and activities are particularly relevant at the local and landscape scales.
- NAPs focus on medium- to long-term planning horizons, which are also relevant for EbA. Adaptation through ecosystem management can require time – for example, changes in agricultural practices or watershed management take time to show results while soil nutrients or water flows adjust.
- Like NAP processes, EbA aims to engage a range of stakeholders, including decision-makers and practitioners from relevant ministries, academia, civil society and the private sector. When implementing NAPs in agriculture sectors with EbA approaches, further stakeholders such as local and indigenous communities, farmers, herders, fisherfolk need to be part of the process.
- Implementing EbA in the context of NAPs can further support the achievement of the goals and commitments of international agreements: the Paris Agreement on Climate Change, the Sendai Framework for Disaster Risk Reduction, and the 2030 Agenda for Sustainable Development.

Given that EbA should always be formulated within a wider adaptation strategy that takes into consideration cultural, political and economic contexts, NAPs can provide a valuable entry point and framework for mainstreaming EbA principles and practices into broader adaptation and development strategies. EbA can be part of NAPs as an adaptation planning objective and as a concrete approach for implementation. EbA can be integrated throughout all four NAP formulation and implementation elements of the UNFCCC Least Developed Country Group NAP Guidelines. There is a need for data on the economic, social and environmental effectiveness of EbA, funding sources and institutional capacity. EbA integration in NAPs should build upon and use EbA approaches that are already tested and piloted, while strengthening data or capacity gaps on EbA can be built into the NAP process as capacity building or research actions. Below are proposed actions that can be useful for integrating EbA into NAPs processes. As with NAPs and NAP guidelines, this is not a prescriptive list. Considering the varying climate change adaptation needs of between and within countries, it is important to develop country- and context-specific NAPs and related EbA goals and actions.

### Element A: lay the groundwork and address the gaps

Element A sets the foundation at the country level for initiating a medium- to long-term adaptation planning process. It also provides an opportunity to assess how best to integrate EbA measures in the agriculture elements of the NAP process. This element includes stocktaking of ongoing adaptation and development activities, gaps analysis and participatory assessment of capacity development needs. In order to mainstream EbA in Element A, it is suggested to:

- identify and assess if EbA is part of the medium- to long-term adaptation goals as defined in existing policies, strategies, plans and laws, at national, sectoral and local levels. For example, in Nepal, EbA focuses on building climate resilience of watersheds in mountain eco-regions as one of the components of the Strategic Program for Climate Resilience approved by the Government of Nepal in 2011 (Government of Nepal, 2012). This program aims to combat water scarcity and strengthen livelihoods of 37 612 households. In Kenya, the NAP includes resilient ecosystems in its vision, and EbA in sectoral actions;
- evaluate coordination mechanisms and engage EbA-relevant experts and institutions in adaptation.



## Element B: preparatory elements

Element B focuses on carrying out or reviewing existing in-depth climate change scenario analyses and vulnerability, risk and impact assessments, and identifying and assessing adaptation options. It presents various options for prioritization that agricultural stakeholders and other participants should consider when undertaking adaptation planning. To integrate EbA during the preparation of a NAP, including agriculture-sector specific NAPs, it is recommended to:

- analyse current and future climate scenarios for predicted impacts on ecosystems, agroecosystems and ecosystem services;
- use vulnerability assessments of ecosystems and ecosystem services for informing adaptation planning, including in the agriculture sectors;
- employ appropriate methods for weighting EbA actions during prioritization (FAO, 2018b);
- include ecosystem-based interventions as part of the adaptation options being assessed and prioritised;
- review integration of EbA into existing development planning processes; and
- compile and communicate EbA perspectives as they relate to the agriculture sectors to relevant policymakers as part of national adaptation planning processes.

For example, causes of land degradation and water scarcity vary among regions and across contexts in a country. Analysis of climate scenarios and vulnerability assessments can help identify sustainable EbA actions that can contribute to achieving adaptation goals in the agriculture sector.

Indigenous, traditional and local knowledge can complement science and bridge gaps in information for identifying sustainable agricultural practices and climatic, weather and biodiversity changes. Therefore, engaging indigenous communities, local government units, and academic and research institutions in assessments is vital for preparing NAPs that integrate EbA. During the implementation phase, local communities and farmers should be involved from the beginning of the process. Furthermore, gender mainstreaming should be included into EbA planning and implementation processes in order to ensure long-term success

and sustainability, recognising the different roles women play, and opportunities they provide to ecosystem management and agricultural practices.

Different approaches exist for weighting adaptation and EbA actions for prioritization. In Nepal, the FAO-UNDP NAP-Ag programme piloted a climate change risk and vulnerability assessment in agroecological zones, which was used to identify EbA actions. As the next step, a cost-benefit analysis was applied to help prioritize between the proposed EbA actions in the target watersheds.

## Element C: implementation strategies

Element C includes steps towards the development of implementation strategies for adaptation, including sector-specific adaptation plans e.g. in the agriculture sectors. This element builds closely on earlier steps. EbA inclusion in implementation should equally be informed by the previous elements e.g. vulnerability, risk and impact assessments and prioritisation exercises that can help to prioritize EbA in adaptation implementation. Within Element C, the following actions are proposed:

- ensure appropriate priority for EbA as part of adaptation actions in NAPs and/or related implementation strategies, including agriculture-specific plans;
- identify options for scaling-up and leveraging climate finance for implementing EbA actions;
- implement EbA actions such as integrated landscape management, mangrove restoration, agro-forestry, integrated watershed management etc;
- strengthen institutional frameworks and coordination for vertical and horizontal integration of EbA across adaptation planning scales, including in Ministries of Agriculture, Environment, Planning and Financing.

## Element D: reporting, monitoring, and review of the process

Element D focuses on monitoring the NAP process and in this context reviewing NAP processes based on assessments of progress, effectiveness and gaps. Progress in adaptation planning and implementation should be communicated and inform evidence-based learning and revisions. Monitoring and



reviewing allow implementers to make adjustments if deviations from policy and planning objectives, goals or standards appear, and develop a knowledge base on those initiatives that are optimal and can be scaled-up, including EbA initiatives. A solid monitoring and evaluation (M&E) system can also detect unintended negative impacts and allow for adjustments of practices, where needed. In order to reflect agriculture sector-related EbA results in the NAP Element D focusing on reporting, monitoring and review, it is recommended to:

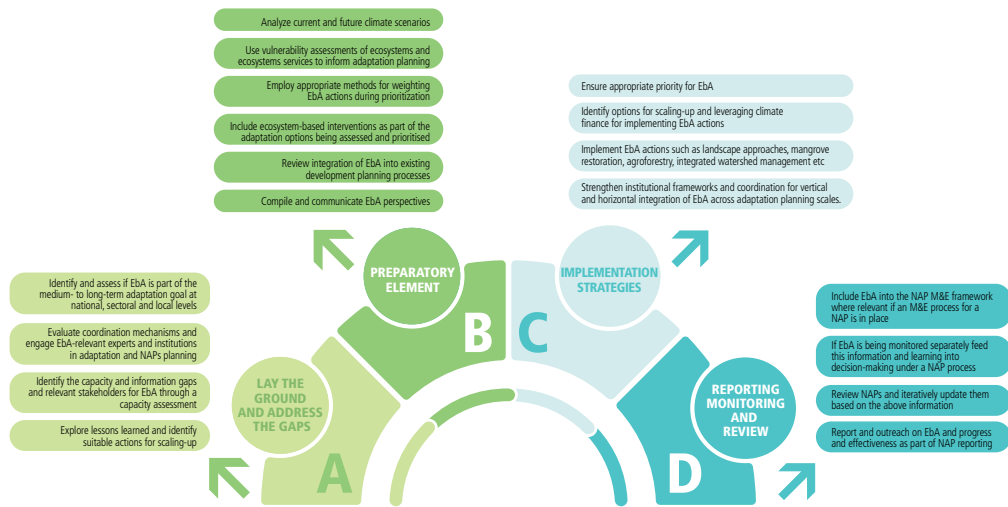
- include EbA into the NAP M&E framework where relevant (e.g. as part of indicators) if an M&E process for a NAP is in place or for example as part of sectoral agriculture M&E frameworks;
- if EbA is being monitored separately as part of sectoral adaptation project portfolios (for example, agriculture EbA projects) or in larger national programmes, feed this information and learning into decision-making under a NAP process;

- review NAPs and iteratively update them based on the above information; and
- report and conduct outreach on EbA progress and effectiveness as part of NAP reporting, e.g. in the context of National Communications and Adaptation Communications.

Lessons learned are emerging on how to carry out effective monitoring and evaluation of EbA. In order to assess EbA effectiveness, a question-based process proposed by Reid *et al.* (2017) can be used. Given the local and context specific-nature of EbA, it requires stakeholder ownership which can be achieved through participatory approaches of data collection (FAO, 2017). EbA indicators should aim to provide information on issues such as ecosystem health and services, agricultural productivity and socio-economic benefits to local communities.

Figure 4

Examples of entry points of ecosystem-based adaptation in National Adaptation Plans processes



Seeking entry points within the NAP process for EbA activities can help to identify and address barriers to mainstreaming EbA into adaptation planning. These barriers may include lack of evidence-based knowledge on EbA options in the context of medium- to long-term adaptation planning, including lack of evidence based on robust M&E systems (UNDP, 2015). Further, there may be limited

understanding on the economic viability and benefits of EbA, including with regards to assessing multiple benefits provided and in the context of climate uncertainties (FAO, 2017; Lo, 2016; UNDP, 2015). This can be an issue when comparing EbA with other adaptation options, in the context of NAP prioritisation processes. Ecosystem management and conservation tend to be carried out across sectors. This requires

cross-sectoral coordination, something that NAP processes are well placed to provide, but which can remain challenging. EbA is often implemented at sub-national, ecosystem scales and therefore require adequate bottom-up adaptation planning processes that feed in, for example, local and traditional knowledge. Lack of such governance systems can prove to be a barrier. Limited funding can be a barrier, however experience is emerging on the potential provided by integrating EbA into national budgeting processes (UNDP, 2015), which is well aligned with NAPs that aim to integrate adaptation into national planning and budgeting.

## Financing ecosystem-based adaptation and National Adaptation Plan processes

Both the development of NAPs, in terms of support for e.g. capacity strengthening, assessments and institutional arrangements, and above all for implementation requires adequate funding. Funding is required for the implementation of EbA interventions as well as for improving understanding among policy makers and practitioners on what could be counted as EbA practices, and how such interventions should be designed and implemented.

NAP processes and EbA interventions can be financed from international, bilateral, national and private sources of funds. Currently, the largest international climate funding sources – the Green Climate Fund (GCF) and Global Environmental Facility (GEF) – provide targeted NAPs support. The GCF has a specific allocation under the Readiness Programme to support NAPs and/or other national adaptation planning processes. For example, the Gambia was awarded funds for a project under the GCF general window on “Large-scale ecosystem-based Adaptation in the Gambia River Basin: developing a climate resilient, natural resource-based economy”. At the implementation phase, the project will adopt a strong focus on alignment with emerging national priorities related to climate change. This project’s activities will also be assessed and reviewed periodically to assess alignment and coherence with the NAP process (GCF, 2017).

## Conclusions and recommendations

There is a need to tap into the potential of ecosystem-based adaptation in the agriculture sectors. National adaptation plans can provide an opportunity to integrate EbA in sectoral adaptation planning, thereby contributing to sustainable development and ensuring food security in the long run, and address barriers to coordination, data collection, and prioritisation. EbA implementation in the agriculture sectors as part of national adaptation planning can break the silos between agricultural development and sustainable ecosystem management objectives, as well as provide options for achieving the commitments and goals of the Paris Agreement on Climate Change and the 2030 Agenda for Sustainable Development. Integrating EbA in NAPs and agriculture sector adaptation planning should build on and use approaches that are already tested.

To address the barriers of mainstreaming EbA into NAPs, towards the goal of increasing resilience of agricultural livelihoods and ensuring food security, the following recommendations are proposed:

- identify entry points of EbA in adaptation planning through its inclusion in all four elements of the NAP process, from preparation to implementation and monitoring;
- strengthen skills and evidence-based knowledge on environmental and socio-economic benefits and trade-offs of EbA through lessons sharing based on existing case studies;
- provide methodologies for understanding economic viability, monitoring and evaluation and how the benefits and costs of EbA are distributed;
- integrate EbA in NAPs focusing on approaches that are already tested in the fields; and
- ensure active multistakeholder and cross-sectorial participation and integration of local, traditional knowledge in adaptation and NAPs planning.

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## Integrating agriculture in National Adaptation Plans

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### ➤ Food and Agriculture Organization of the United Nations

[www.fao.org/in-action/naps](http://www.fao.org/in-action/naps)  
FAO-NAPs@fao.org | Julia.Wolf@fao.org

### ➤ United Nations Development Programme

[www.adaptation-undp.org/naps-agriculture](http://www.adaptation-undp.org/naps-agriculture)  
Rohini.Kohli@undp.org

### ➤ Germany’s Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

[www.bmu.de/en](http://www.bmu.de/en)

### ➤ International Climate Initiative (IKI)

[www.international-climate-initiative.com](http://www.international-climate-initiative.com)

For more information, please contact [FAO-NAPs@fao.org](mailto:FAO-NAPs@fao.org)

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