

# Making Ecosystem-based Adaptation Effective

## A Framework for Defining Qualification Criteria and Quality Standards



### KEY MESSAGES

- Ecosystem-based Adaptation (EbA) is a nature-based solution that is gaining significant importance in the context of climate change (e.g. UNFCCC Paris Agreement, NDC, NAP) and biodiversity conservation policies (e.g. CBD Strategic Plan 2011-2020, Aichi targets).
- EbA links biodiversity and ecosystem conservation approaches with sustainable socio-economic development as part of an overall strategy for helping people adapt to shocks and risks associated with climate change.
- In the context of increasing political commitment and funding it is essential to sharpen the understanding among policy makers and practitioners on what qualifies as EbA, to avoid the incorrect re-packaging of “business-as-usual” conservation or development approaches.
- This paper provides a practical assessment framework for designing, implementing and monitoring EbA measures by proposing a set of 3 elements, 5 qualification criteria and 20 quality standards and example indicators.
- The Friends of EbA network (FEBA) encourages decision makers and practitioners to use this assessment framework to apply a common set of qualification criteria and standards in the context of implementing the UNFCCC Paris Agreement and NDC commitments as well as the national adaptation planning processes.

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## 1. Ecosystem-based Adaptation: Not “business as usual”

Few concepts have acquired as much prominence in such a short time span in the conservation and development sectors as Ecosystem-based Adaptation (EbA). The term EbA was coined in 2008<sup>6</sup> and officially defined in 2009.<sup>7</sup> Then in 2010 a major flagship project was initiated<sup>8</sup> and stocktakes by IUCN (2014), UN Environment (2011), UNDP (2015) and other institutions identified over 150 EbA initiatives across the globe. The CBD definition of EbA is now the most commonly accepted:

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***“Ecosystem-based adaptation is the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change.”***

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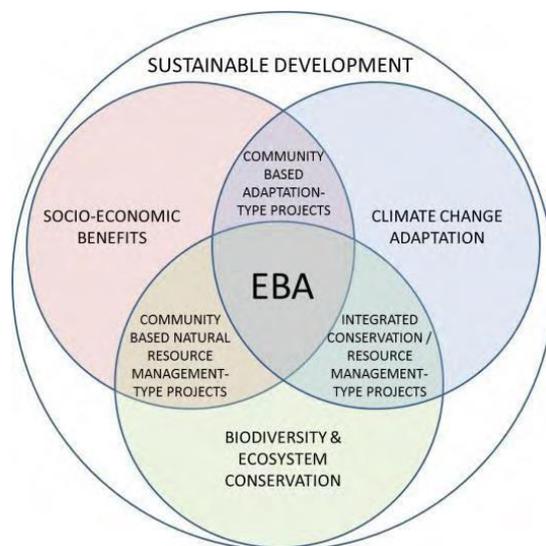
- CBD, 2009 (emphasis added)

EbA is a nature-based solution<sup>9</sup> for addressing climate change impacts; meaning it focuses on the benefits humans derive from biodiversity and ecosystem services, and how these benefits can be utilized in the face of climate change. Consequently, EbA is a people-centric concept, but one that acknowledges that human resilience depends critically on the integrity of ecosystems. Yet ecosystem health alone does not guarantee human resilience, so EbA is best implemented as an integrated element of a broader adaptation strategy.

EbA initiatives draw on a wide range of existing practices employed by the conservation and development sectors, such as sustainable natural resource management, community-based natural resource management and community-based adaptation (Figure 1). These practices include existing ecosystem or landscape level approaches, and can involve, for example, integrated watershed management, sustainable land management, or coastal zone management to secure ecosystem functions and services. One focus of EbA is “green infrastructure”, which can complement or substitute hard, or “grey”, infrastructural measures such as dykes, dams, river stabilization structures or man-made water reservoirs. EbA can also complement or offer alternatives to conventional agricultural practices (such as climate smart agriculture).<sup>10</sup> **The difference between EbA and “business as usual” is that it links biodiversity and ecosystem conservation approaches with sustainable socio-economic development as part of an overall strategy for helping people adapt to shocks and risks associated with climate change** (see Figure 1).

Questions remain about what can be called EbA, and about how and when to implement EbA in practice. We know healthy ecosystems buffer communities against risks, but we need to explore how best a combination of adaptation options (e.g. hard and/or nature-based) should be applied based on the particular circumstances. We

**Figure 1:** In the context of sustainable development, Ecosystem-based Adaptation (EbA) encompasses the linkages among several other approaches, such as climate change adaptation, biodiversity and ecosystem conservation, and the generation of socio-economic benefits. Adapted from Midgley et al., 2012



<sup>6</sup>IUCN, working with its Members, coined the term Ecosystem based Adaptation and made a submission on to the UNFCCC AdHoc Working Group on Long-term Co-operative Action (AWG LCA) at UNFCCC COP 14.

<sup>7</sup>CBD COP 10, Decision X/33 (CBD, 2009)

<sup>8</sup>BMUB-IKI funding for Mountain EbA Flagship Project - UNEP, UNDP, IUCN (2010-16)

<sup>9</sup> IUCN (2016) defines nature-based solutions as actions to protect, sustainably manage and restore natural or modified ecosystems, which address societal challenges (e.g. climate change, food and water security or natural disasters) effectively and adaptively, while simultaneously providing human well-being and biodiversity benefits.

<sup>10</sup> FAO (2010) defines climate-smart agriculture as agriculture that sustainably increases productivity, resilience (adaptation), reduces/removes GHGs (mitigation), and enhances achievement of national food security and development goals.

need to know how cost-effective EbA approaches are, and how we can optimize the provision of additional benefits for people (for example, a nature-based solution such as a restored mangrove forest can reduce the impacts of storm surges, supports carbon sequestration and also provides a spawning ground for fish and crustaceans). Practitioners need to better understand and harness the social, environmental, and economic potentials that already exist in the system, such as traditional knowledge and local institutions. Practitioners also need to understand how to overcome policy and governance challenges that are inherent in such a cross-sectoral and inter-disciplinary approach. EbA measures should not stand alone: they should be integrated into a broader adaptation strategy; built into decision making, planning, and implementation from local to national levels. We need to better understand how EbA can be incorporated into existing policies and plans, which can be challenging given the broad and cross sectoral nature of EbA.

## 2. Objectives of this Paper

Many organizations, including members of the Friends of EbA network (FEBA)<sup>11</sup> have gained both conceptual and practical experience in designing and implementing EbA measures in various regions, ecosystems, and levels of governance. These experiences provide a rich source of lessons and are a good entry point for improving our understanding about the essential “ingredients” for EbA application and how to effectively integrate such approaches into planning and decision making processes. This paper is based on a review and analysis of more than 30 publications from FEBA members and others actors; it includes key elements, principles, criteria, and indicators for defining EbA and for strengthening its integration into policy frameworks and implementation measures at different levels.

Based on these experiences, the objective of this paper is twofold:

- a) **To sharpen understanding among policy makers and practitioners about what qualifies as EbA**, so that activities can be accurately identified. Because EbA is gaining importance under the UNFCCC Paris Agreement (e.g. in nationally determined contributions [NDCs], climate finance, national policies and budgeting), it is important to avoid the incorrect re-packaging of “business-as-usual” conservation or development approaches as EbA. Establishing qualification criteria will help to “de-mystify” EbA and to promote its systematic integration into an overall strategy by increasing focus on ecosystems across different adaptation approaches, rather than separating it from other adaptation options.
- b) **To provide guidance on the quality of EbA measures**. By proposing quality standards and example indicators, this guidance will help practitioners determine whether measures that are planned, implemented, and reviewed comprise strong EbA elements (or not).



*Photo credit: IUCN/Ali Raza Rizvi*

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<sup>11</sup> [The Friends of EbA](#) (FEBA) is an informal network of over 30 organizations with an interest in promoting collaboration and knowledge sharing on Ecosystem-based Adaptation through joint events and initiatives, as well as the development of position papers and technical documents on EbA.

### 3. What qualifies as Ecosystem-based Adaptation?

Three elements and five criteria help answer the question “*Is this approach EbA or not?*”. EbA elements reflect the 2009 CBD definition for EbA which says that EbA (i) *helps people adapt to climate change* (ii) *by an active use of biodiversity and ecosystem services*, (iii) *in the context of an overall adaptation strategy*. **All three elements of the CBD definition must be addressed in order for an activity, initiative, project, approach, strategy and/or measure to qualify as ecosystem-based adaptation.**

Each element below contains one or two criteria including a short text explanation with additional information that provides a link to the quality standard assessment framework (Tables 1a, b, and c). Not only do the five criteria help determine whether a proposed activity is actually EbA, but they also help practitioners avoid maladaptation – whereby the activity is in fact detrimental to adaptation in the long-term, in a different aspect (socially, environmentally, economically, etc.), or for a neighboring area.

#### Element A – EbA helps people adapt to climate change

##### **Criterion 1. Reduces social and environmental vulnerabilities.**

EbA must explicitly address current and future climate change and climate variability. It is based on assessments of climatic vulnerability, hazards and risks to people, as well as the adaptation benefits derived from ecosystem services. A combination of climate information (based on the best available scientific data and models *and* local knowledge) and vulnerability assessments should form the basis for implementation. EbA measures need to reduce climate vulnerability for people at an appropriate scale (e.g. at least local scale but ideally ecosystem or landscape/seascape scale).

##### **Criterion 2. Generates societal benefits in the context of climate change adaptation.**

EbA reduces vulnerabilities of people through the use of biodiversity and ecosystem services and by producing societal benefits in a fair and equitable manner. It addresses the needs of people, especially those who directly depend on or use natural resources and who are particularly vulnerable to climate change impacts. EbA delivers direct or indirect benefits that increase peoples’ resilience to climate change, including enhanced food security, shelter, risk reduction, provision of fresh water and medicine, and local climate regulation. It also often generates additional benefits essential for sustainable development including carbon sequestration, habitat provision or medicinal resource provision. In order for EbA to support adaptive capacities it needs to distribute short-, medium- and long-term benefits. Comparative analyses on the extent and scale of adaptive capacity and resilience benefits should clarify whether EbA measures are economically feasible and can complement or substitute other adaptation options. Benefits should be distributed fairly among a representative percentage of the target group.



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## Element B – EbA makes active use of biodiversity and ecosystem services

### **Criterion 3. Restores, maintains or improves ecosystem health.**

EbA restores, maintains and improves ecosystems, land- and seascapes, and is in line with the Ecosystem Approach.<sup>12</sup> It is applied at a scale that addresses the challenge of, and integrates the trade-offs resulting from climate change, meaning it supports the stability, resilience, connectivity, and multiple roles of ecosystems as part of larger land- and seascapes. EbA encompasses measures such as ecosystem management, reinforcement and restoration of natural infrastructure, as well as the management of threats associated with the effects of climate change or anthropogenic activities. Because climate change can force changes in ecosystem composition and structure, it is important that the health and stability of ecosystem services are maintained, improved, and monitored. EbA fosters appropriate land and water management practices that support climate change adaptation, prioritize the management of key ecosystem services, and foster the sustainable use of land and coastal and marine resources (e.g. by conservation and climate-smart agriculture, soil conservation, use of water retention areas, low impact fishing). It supports the diversification of land and marine use and livelihood options such as multi-cropping, agroforestry, and the use of appropriate species and varieties. For example, this can include the introduction of species that are better adapted to climate change, as long as they do not endanger the existence of native species or become invasive. Co-management approaches that involve stakeholders from communities, government and private sector should be supported.

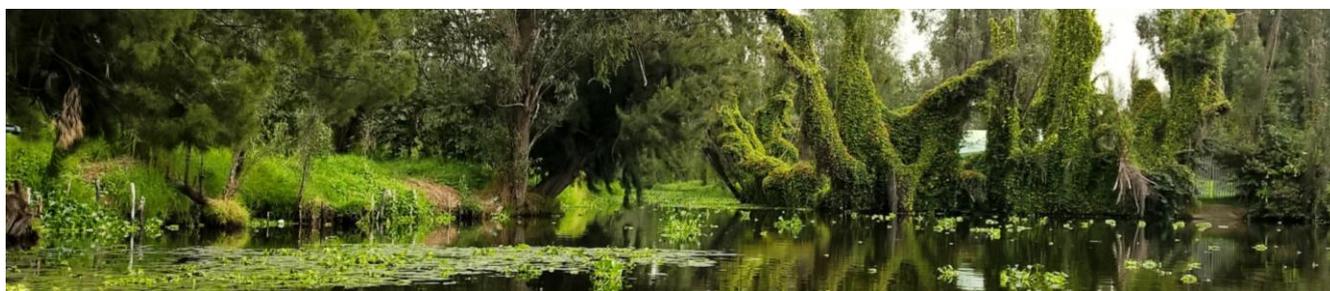


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## Element C – EbA is part of an overall adaptation strategy

### **Criterion 4. Is supported by policies at multiple levels.**

As part of a larger adaptation strategy, EbA operates at one or more levels (i.e. local, national, regional, landscape, and sectoral levels), and can involve supporting sectoral adaptation and multi-sectoral approaches at multiple geographic scales. It is, or becomes, an integral part of key policies and implementation frameworks targeted towards sustainable development, agriculture, land use, poverty reduction, natural resource management, climate change adaptation, and disaster risk reduction. EbA should be integrated into existing policy frameworks so that interventions can be sustainable and scalable, rather than short-term and stand-alone.

### **Criterion 5. Supports equitable governance and enhances capacities.**

EbA enhances governance of natural resources with respect to the use of biodiversity and ecosystem services, by following a community-centered, participatory and gender-sensitive approach; it embraces transparency, empowerment, accountability, non-discrimination and active, meaningful and free participation at the local level. It should support fair and equitable sharing of user access, rights and responsibilities. The ability to adapt to climate change hinges on the ability of local people (comprising different groups, genders, customary bodies, etc.) to take on their rights and responsibilities and to be represented by officials who are accountable to them. Ownership by the people responsible for ecosystem management and by people who are using and benefiting from biodiversity can ensure that benefits emerge and are sustainable. Strong local governance needs to be embedded in higher level governance structures, which can facilitate and stimulate local action through the right policies and enabling environment.

<sup>12</sup> The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way (CBD, 2016)

#### 4. Defining the quality of Ecosystem-based Adaptation: Quality standards and applying an assessment framework

In addition to the question “*what qualifies as EbA?*” this paper provides an assessment framework that helps answer the questions “*what makes EbA effective?*”, and “*how strong is this EbA initiative?*” Tables 1a, b, and c propose a continuum for assessing the quality of EbA initiatives along a set of quality standards. Each standard is directly linked with one of the five qualification criteria and allows an assessment along four categories (from very weak to very strong EbA).

The assessment framework also proposes example indicators by which the quality of an EbA initiative can be measured. These indicators are neither comprehensive nor complete but can serve as an inspiration for how to monitor the quality of an EbA initiative. The assessment of a particular EbA initiative should assign at least one measurement (or indicator) to each of the categories. While many indicators could be considered, a minimal and practically implementable set of indicators is needed for effective monitoring and evaluation, as well as actual planning. Indicators should be measurable. For some EbA initiatives, data might be available to measure in absolute terms, for example an area of land restored, household earnings, or the makeup of community livelihoods. For other aspects of EbA, data can be more qualitative, for example whether a community relies heavily on indigenous knowledge and institutions to manage their landscapes, or the results of a qualitative assessment of the status of governance.

The framework helps to assess whether an approach or strategy is weak or strong in terms of EbA quality, and provides a baseline on how an EbA strategy can be improved, for example by working to ensure the local governance arrangements are more downwardly accountable. It can therefore be applied during the initial planning phase of an EbA initiative, as well as implementation, and monitoring and evaluation.



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**Table 1a: Assessment framework for EbA quality standards including example indicators, *Element A – ‘Helping people to adapt’***

| Qualification Criteria   | Quality Standards  | Continuum of EbA quality  |        |      |                            | Example indicators  |
|--|--|---|--------|------|----------------------------|---|
|  |  | Very strong   | Strong | Weak | Very weak                  |   |
| <b>#1. Reduces social and environmental vulnerabilities</b>                        | 1.1 Use of climate information   | Yes, short-, medium-, and long-term   |        |      | Very limited or not at all | <ul style="list-style-type: none"> <li>Extent of information about future climate change used</li> <li>Quality of climate data sources</li> </ul>   |
|  | 1.2 Use of local and traditional knowledge                                       | Yes   |        |      | Very limited or not at all | <ul style="list-style-type: none"> <li>Extent and relevance of local resources consulted (individuals, communities, NGOs)</li> <li>Participation of affected natural resource users during planning process</li> <li>Quality of consultation process</li> </ul>   |
|  | 1.3 Taking into account findings of vulnerability assessment                     | Yes, clearly integrating findings of climate change vulnerability assessments |        |      | Yes, but only marginally   | <ul style="list-style-type: none"> <li>Extent to which information from VA is being considered</li> <li>Consideration of climate risk reduction potential</li> <li>Extent to which ecosystem services are assessed by the VA</li> </ul>   |
|  | 1.4 Vulnerability reduction at the appropriate scale                             | Land/seascape scale or larger   |        |      | Local scale                | <ul style="list-style-type: none"> <li>n or % of population with reduced vulnerability</li> <li>Effects from different scales of ecosystems are considered</li> </ul>   |
| <b>#2. Generates societal benefits in the context of climate change adaptation</b> | 2.1 Quantity & quality of societal benefits compared to other adaptation options | Very high   |        |      | Comparable                 | <ul style="list-style-type: none"> <li>Quantity of monetary &amp; non-monetary benefits provided (e.g. income, resource access, reduced risks)</li> <li>Quantity &amp; quality of provisioning ecosystem services (e.g. water, food, fiber), regulating ES (e.g. erosion prevention, extreme event buffering, climate regulation) as well as supporting and cultural ES</li> <li>Extent of physical asset damage or destruction avoided (e.g. <i>Saved Wealth</i> index)</li> <li>Extent of avoided deaths and injuries (e.g. <i>Saved Health</i> index)</li> </ul> |
|  | 2.2 Timescale of societal benefits demonstrated                                  | Short-, medium, and long-term   |        |      | Short- and/or medium-term  | <ul style="list-style-type: none"> <li>Sustainability of provided benefits</li> <li>Estimated or projected benefits</li> </ul>  |
|  | 2.3 Economic feasibility & advantages compared to other adaptation options       | Very high   |        |      | Low                        | <ul style="list-style-type: none"> <li>Positive economic &amp; non-economic assessments (taking into account a quantification of ecosystem services benefits)</li> </ul>  |
|  | 2.4 Number of beneficiaries  | High  |        |      | Low                        | <ul style="list-style-type: none"> <li>n or % of benefitting people</li> </ul>  |
|  | 2.5 Distribution of benefits   | Fair and transparent  |        |      | Distribution questionable  | <ul style="list-style-type: none"> <li>Distribution of benefits within and between different groups</li> </ul>  |

Table 1b: Assessment framework for EbA quality standards including example indicators, *Element B – ‘Making active use of biodiversity and ecosystem services’*

| Qualification Criteria                                      | Quality Standards   | Continuum of EbA quality      |        |      |                      | Example indicators  |
|---|---|-------------------------------|--------|------|----------------------|---|
|   |   | Very strong                   | Strong | Weak | Very weak            |   |
| <b>#3. Restores, maintains or improves ecosystem health</b> | 3.1 Appropriate scale of management                                       | Land/seascape scale or larger |        |      | Small scale          | <ul style="list-style-type: none"> <li>Size of the area (e.g. in ha) under management</li> </ul>  |
|   | 3.2 Prioritization of key ecosystem services within management            | Yes, clear                    |        |      | Very low             | <ul style="list-style-type: none"> <li>n of indicator species (e.g. IUCN Red list) showing the quality of ecosystem and its services</li> <li>Valuation of n ecosystem services (esp. supporting, regulating &amp; cultural) over time</li> </ul> |
|   | 3.3 Monitoring of ecosystem services health & stability                   | Yes                           |        |      | No                   | <ul style="list-style-type: none"> <li>Results of IUCN Red List of Ecosystems categories and criteria</li> <li>Results of ecosystem risk assessments</li> </ul>   |
|   | 3.4 Protection and management area coverage / diversification of land use | High coverage                 |        |      | Very little coverage | <ul style="list-style-type: none"> <li>Size or % of protected area</li> <li>Size or % of restored area</li> <li>Size or % of sustainably management area</li> <li>Size or % of different land use systems</li> </ul>                              |
|   | 3.5 Level of co-management (government, communities, private sector)      | Very high                     |        |      | Limited              | <ul style="list-style-type: none"> <li>n of (community) management plans</li> <li>n of stakeholders engaged in management</li> <li>Level of cooperation between government, local stakeholders and private sector</li> </ul>                      |

**Table 1c: Assessment framework for EbA quality standards including example indicators, *Element C – ‘Part of an overall adaptation strategy’***

| Qualification Criteria   | Quality Standards  | Continuum of EbA quality  |        |      |   | Example indicators  |
|--|--|---|--------|------|---|---|
|  |  | Very strong   | Strong | Weak | Very weak   |   |
| <b>#4. Is supported by policies at multiple levels</b>           | 4.1 Compatibility with policy and legal frameworks & policy support                    | Very high<br>← [ ] →  | [ ]    | [ ]  | Limited<br>→ [ ] ←  | <ul style="list-style-type: none"> <li>• n of direct links between EbA measure with policies and legal frameworks</li> <li>• Quality and type of policies that support the implementation of the EbA measure as well as its replication and upscaling</li> <li>• n of political decision makers engaged in the process</li> </ul> |
|  | 4.2 Multi-actor & multi-sector engagement (communities, civil society, private sector) | Very high, with different actors / sectors<br>← [ ] →               | [ ]    | [ ]  | Limited<br>→ [ ] ←  | <ul style="list-style-type: none"> <li>• Level or % of civil society engagement in policy discussions</li> <li>• Level or % of private sector engagement in policy discussions</li> <li>• n of sectors involved</li> <li>• n or % of people participating in activities</li> </ul>  |
| <b>#5. Supports equitable governance and enhances capacities</b> | 5.1 Accountability & group representation  | Clearly demonstrated (up and down) at the relevant scale<br>← [ ] → | [ ]    | [ ]  | Very little demonstrated, with decisions made externally<br>→ [ ] ← | <ul style="list-style-type: none"> <li>• Level of accountability &amp; transparency</li> <li>• Level or % of civil society engagement in governance</li> <li>• Level or % of private sector engagement in governance</li> <li>• n or % of people participating in awareness raising or training sessions</li> </ul>               |
|  | 5.2 Consideration of gender balance and empowerment                                    | Explicit part of the proposal<br>← [ ] →                            | [ ]    | [ ]  | None<br>→ [ ] ←   | <ul style="list-style-type: none"> <li>• Gender balance within each benefiting group</li> </ul>   |
|  | 5.3 Status of indigenous and local knowledge and institutions                          | Respected and incorporated<br>← [ ] →                               | [ ]    | [ ]  | Not respected or incorporated<br>→ [ ] ←                            | <ul style="list-style-type: none"> <li>• n or % of indigenous or local people represented in the governance structure</li> </ul>  |
|  | 5.4 Long-term capacity to ensure sustainable governance                                | Very strong<br>← [ ] →  | [ ]    | [ ]  | Little or none<br>→ [ ] ←   | <ul style="list-style-type: none"> <li>• n or % of individuals in a group of beneficiaries directly involved in governance framework</li> </ul>   |

## 5. What comes next? Applying the assessment framework in practice

For years, the many organizations engaged in Ecosystem-based Adaptation have been using varied principles and criteria for EbA. Most of them share a vision as to how EbA should be implemented based on the commonly accepted CBD definition. However, in some instances, the five qualification criteria for EbA are not apparent in all initiatives cited in NDCs (Seddon et al., 2016). For example, few NDCs acknowledge the importance of local community involvement in designing and implementing adaptation activities, and the increasing interest in EbA is not accompanied by a set of robust targets and indicators to ensure and demonstrably measure effective implementation.

The assessment framework defined in this paper proposes a minimum standard and will help practitioners and decision makers to design high quality EbA measures during the planning phase of a project (which should include developing EbA-oriented monitoring and evaluation). It helps practitioners to course-correct – i.e. improve the quality of measures – during the implementation phase. The framework also provides a basis for reporting in the context of a broader adaptation strategy linked to national and subnational commitments. The framework is still flexible enough to be further refined and adapted to specific national contexts and project needs.

The authors encourage decision makers and practitioners beyond the Friends of EbA (FEBA) network to use this assessment framework to apply a common set of qualification criteria and standards. IUCN and GIZ intend to streamline the framework into a tool, complete with instructions tailored for targeted users, for pilot testing, and to support selected partner countries in the piloting, to support further integration of Ecosystem-based Adaptation into national and subnational policies especially in the context of implementing the UNFCCC Paris Agreement and NDC commitments as well as the national adaptation planning processes.



*Photo credit: GIZ*

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## About the Friends of EbA

FEBA is an informal network of over 30 organizations with an interest in promoting collaboration and knowledge sharing on Ecosystem-based Adaptation through joint events and initiatives, as well as the development of position papers and technical documents on EbA.



**This document is an output of the FEBA Working Group on Criteria and Standards.**

The below FEBA member organizations have been involved in its development:

