

## Submission to SBSTA<sup>1</sup> from Conservation International regarding Indicators of Adaptation and Resilience

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### Measuring Progress on Adaptation

As countries seek to assess progress towards global goals on climate change, members of government and donor agencies as well as adaptation practitioners want to know the impacts resulting from adaptation efforts. Adaptation of human communities to climate change is a complex process, with various efforts and outcomes focused on varying scales, sectors, and stakeholders. Conservation International's (CI) research on indicators of adaptation is driven by our experience piloting and implementing ecosystem-based adaptation (EbA) projects — using biodiversity and ecosystem services as part of an overall strategy to help people adapt to the adverse effects of climate change — in marine, coastal, montane, forest and agricultural ecosystems in fourteen countries around the world. EbA offers long-term adaptation benefits by maintaining ecosystem services that are critical for enhancing resilience to climate change while simultaneously supporting mitigation efforts and enhancing social and environmental benefits.<sup>2</sup>

Monitoring and evaluation (M&E) remains a methodological challenge for adaptation projects, including EbA, for several reasons:

- There is no current consensus on *how* to measure the outcomes of adaptation projects;
- Tracking impact requires establishing a *baseline* — the starting condition of the socio-ecological system before an adaptation project begins; and
- Measuring changes in adaptation requires long-term monitoring, often of social and ecological systems that are beyond the scope or timeframe of a project.

These challenges are true for projects that that utilize an EbA approach, such as the reforestation of degraded areas to prevent floods under changing climatic conditions, or the restoration of coastal habitats such as mangroves to defend against coastal erosion and storms, because they are part of dynamic, socio-ecological processes and produce results over long timeframes.

As a result, many adaptation projects provide information almost exclusively on near-term *process-based indicators* that describe *inputs* and *outputs* of a project (e.g., number of trees planted, hectares of wetlands rehabilitated, number of farmers implementing soil conservation practices), instead of *performance-based indicators* that describe *outcomes* and *impacts*. **To better understand the benefits of adaptation efforts, projects should also track outcome indicators to demonstrate impacts of adaptation projects on socio-ecological systems over time.**

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<sup>1</sup> As invited in FCCC/SBSTA/2016/2 para. 18

<sup>2</sup> For more information, see [www.conservation.org/eba](http://www.conservation.org/eba).

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The following sections respond directly to the information requested by the Nairobi Work Programme regarding indicators of adaptation.

### Description of relevant activities/processes or research

CI reviewed 62 EbA projects globally to identify a range of adaptation outcomes resulting from existing EbA interventions. From this research, CI developed a set of performance-based indicators that could be used to guide or assess adaptation efforts that include nature-based solutions (Table 1). These indicators are related to six dimensions of human well-being: assets, livelihoods, food security, safety and security, health, and culture.

**Table 1. Example Outcome Indicators for EbA Interventions**

Six Dimensions of Human Well-being	Example Outcome Indicators for EbA Interventions
<b>Assets</b>	Damage to infrastructure during extreme weather events including: <ul style="list-style-type: none"> <li>● % of hospitals or schools damaged;</li> <li>● % of houses damaged;</li> <li>● % of km of roads damaged;</li> <li>● % of protected areas damaged;</li> <li>● % of ports damaged;</li> <li>● % of agricultural land damaged; and/or</li> <li>● Value from disruption of ecosystem services</li> </ul>
<b>Livelihoods</b>	Income or value of production per household from livelihood activities under changing climate conditions or during extreme events, including from: <ul style="list-style-type: none"> <li>● Sustainable crop and/or livestock production;</li> <li>● Sustainable marine and freshwater fisheries; and/or</li> <li>● Tourism</li> </ul>
<b>Food Security</b>	<ul style="list-style-type: none"> <li>● % of people undernourished under changing climate conditions or during extreme events</li> <li>● Prevalence of moderate or severe food insecurity in the populations, based on the Food Insecurity Experience Scale<sup>3</sup></li> </ul>
<b>Safety &amp; Security</b>	<ul style="list-style-type: none"> <li>● % of population with access to reliable, safely managed, affordable drinking water under changing climate conditions or during extreme events</li> <li>● % of deaths in various demographic groups after extreme events in the affected area</li> </ul>
<b>Health</b>	<ul style="list-style-type: none"> <li>● Disability-adjusted life years from waterborne diseases after flooding events</li> <li>● Deaths of various demographic groups from waterborne diseases</li> </ul>

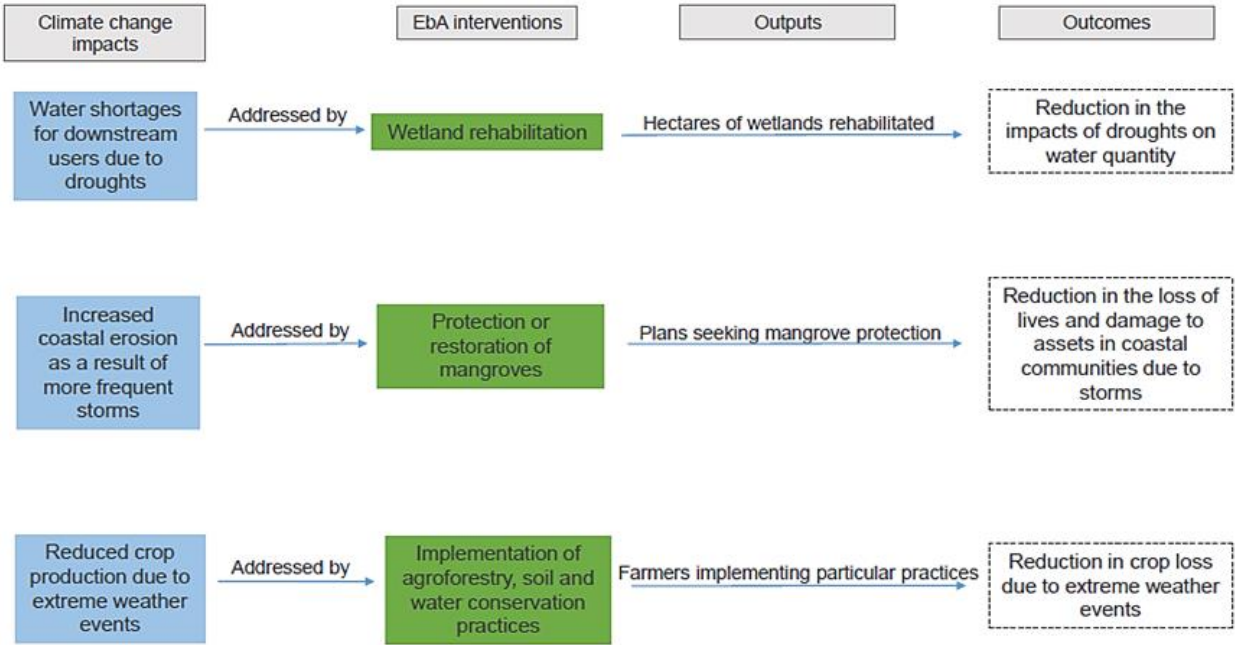
<sup>3</sup> Food and Agriculture Organization. 2017. The food insecurity experience scale. <http://www.fao.org/in-action/voices-of-the-hungry/fies/en/>. This indicator tracks self-reported food insecurity.

<b>Culture</b>	<ul style="list-style-type: none"> <li>Value of damage to cultural sites and recreation areas under changing climate conditions or during extreme events</li> </ul>
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**Description of relevant methods**

To identify EbA interventions and their reported outcomes and possible indicators, we reviewed EbA projects available in four major donor project databases. Those project databases included United Nations Framework Convention on Climate Change (UNFCCC), the Global Environment Facility (GEF), the United Nations Environment Program (UNEP) and the United States Agency for International Development (USAID). Projects were included in the review if they were a) self-assigned as EbA projects (i.e. the term EbA was in the project title or in the project description), b) included as examples of EbA projects in a compilation of information provided by the UNFCCC<sup>4</sup> or c) categorized as EbA projects by donors. Once projects were identified, we then accessed project documents available from project databases or other online platforms. Projects had to have an EbA implementation component to be included in the review. The 62 projects we reviewed reported 14 distinct adaptation outcomes that can be achieved through EbA (see Annex), which can be grouped according to one of the six dimensions of human well-being. Each of these adaptation outcomes was then linked to proposed indicators. Adaptation outcomes are defined here as the effects on ecological or social systems resulting from interventions.<sup>5</sup>

**Figure 1. Examples of climate impacts, EbA interventions, project outputs and outcomes**



**Key outcomes of the activities/processes undertaken**

A complete list of outcomes and resulting indicators identified from the 62 EbA projects is available in the annex of this document. Here we provide examples of 10 indicators that can be used to measure the

<sup>4</sup> UNFCCC. 2011. Ecosystem-based approaches to adaptation: Compilation of information. Subsidiary Body for Scientific and Technological Advice. United Nations Framework Convention on Climate Change.

<sup>5</sup> Conservation International. 2012. Constructing theories of change for ecosystem-based adaptation projects. 21p.

adaptation outcomes of EbA, organized by domains of human well-being. These indicators of adaptation outcomes are listed in Table 1 above and indicate measures of human well-being that could be impacted by EbA projects.

### **Description of lessons learned and good practices identified**

- Monitor adaptation projects before, during, and after implementation. Prior to implementation, a baseline of key performance-based indicators should be determined and measured to serve as a reference for the implementation and post-implementation phases.
- Develop recommended practices around establishing adaptation baselines for both projects and programmes.
- Link outcome indicators to a project's Theory of Change and ensure a logical progression between project activities, outputs, and outcomes.
- Include communities in the monitoring process and development of an integrated baseline, including socio-ecological components and key ecosystem services. Consider the appropriate levels of effort and time needed to develop baseline measurements and monitoring.
- Conduct ongoing monitoring beyond the lifetime of the project. Project proposals and budgets for EbA should reflect the long-term nature of monitoring for these initiatives, including a Theory of Change to explicitly state the links between activities, outputs, outcomes and project goal (see Figure 1, above).<sup>6</sup> Concrete examples of the long-term outcomes of EbA activities can help justify increased investments and make a business case for this important adaptation strategy.
- National and sub-national governments, as well as donors, should include adaptation outcome indicators in monitoring and evaluation systems, accompanied by long-term financial support to undertake outcome assessments for multiple years after project completion. This is particularly important for nature-based solutions due to the longer, ecological timeframe of the interventions.

### **Description of key challenges identified**

Many adaptation projects, including EbA interventions, simply measure the implementation of project activities, or outputs (e.g., hectares of wetlands rehabilitated, farmers implementing particular practices), but do not assess the actual adaptation outcomes. While measuring outputs allows project implementers and donors to track whether or not activities have been completed, it does not provide any information on whether or not the project actually led to adaptation. For example, a project may restore a mangrove forest, and track output indicators of hectares restored, but outcome indicators would address whether

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<sup>6</sup> McKinnon, M. C., & Hole, D. G. (2015). Exploring program theory to enhance monitoring and evaluation in ecosystem-based adaptation projects. In D. Bours, C. McGinn, & P. Pringle (Eds.), *Monitoring and evaluation of climate change adaptation: A review of the landscape*. *New Directions for Evaluation*, 147, 49–60.

the project resulted in lower impacts of climate change on the nearby community. Omitting outcome indicators leads to a lack of information on the outcomes and benefits of adaptation efforts.

Currently, there is no general agreement on how to measure the adaptation outcomes of EbA. The lack of a strong evidence base on the extent to which EbA delivers adaptation outcomes may be one of the reasons why investments in EbA are insufficient.

EbA activities result in a suite of benefits beyond adaptation (e.g. mitigation benefits or biodiversity conservation) that can be difficult to value or document. These missing benefits result in a systematic undervaluing and under-investment in nature-based solutions to climate change.

Monitoring that extends beyond the life of the project requires planning, continued engagement, and long-term funding to capture the full benefits of EbA, which is not common in project funding. The benefits from EbA projects may result over years or decades because of the long-term growth of living systems like forests or wetlands, which is a longer timeframe than other adaptation measures.

### **Planned next steps**

CI plans to undertake future work to further refine and expand measurable and reliable adaptation indicators for EbA activities, including:

- Working with project implementers and local communities to choose and test outcome indicators for monitoring and evaluating the impacts of EbA activities, including the development of sub-indicators and technical recommendations, which may need to be context specific.
- Sharing information on adaptation outcomes that can be achieved through EbA and indicators that can be used to measure them, as well as case studies, with policy makers, donors and practitioners, to encourage their adoption;
- Discussing those indicators with technical advisory bodies and advocating for the inclusion of indicators in monitoring and evaluation systems used by governments and in monitoring frameworks required by donors; and
- Advocating for the inclusion of adaptation outcomes indicators in monitoring and evaluation systems already used by governments at the national and subnational levels, and in monitoring frameworks required by donors.

## Annex

Examples of EbA interventions that could lead to adaptation outcomes, and suggested indicators that could be used to measure such outcomes. All indicators should be compared to the baseline condition, prior to EbA implementation.

