



TECHNICAL BRIEF

Good Practices for Designing Effective, Inclusive, and Sustainable Nature-Based Solutions for Adaptation

Guiding questions for practitioners

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The twin crises of climate change and biodiversity loss negatively impact communities and ecosystems worldwide. We must adapt as climate risks and subsequent impacts continue to increase in frequency and severity. Nature-based solutions (NbS) are a promising tool, as they harness the power of nature to strengthen the resilience of ecosystems and communities to both crises. NbS are “actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits” (United Nations Environment Assembly, 2022, p. 2).¹

As the role of nature and healthy ecosystems in providing critical adaptation benefits is increasingly recognized, a subset of NbS projects that focus on climate change adaptation have started to gain traction among communities, environmental organizations, and national and subnational governments across the globe. With increased recognition and financing for NbS for adaptation, it is essential to understand how to design effective, inclusive, and sustainable projects for target communities and ecosystems. This checklist for practitioners synthesizes multiple internationally recognized principles, criteria, and standards for NbS for adaptation. It provides an easy-to-use assessment framework to help determine the extent to which projects meet those principles, criteria, and standards. It helps practitioners and policy-makers

¹ This definition builds off the International Union for Conservation of Nature’s (IUCN’s) definition of NbS that was first introduced in 2016: “Actions to protect, sustainably manage, and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits” (IUCN, 2016).



design, evaluate, and implement adaptive management of NbS for adaptation projects. It also assists them in assessing whether their project follows good practices for gender-responsive, socially inclusive, and conflict-sensitive approaches to NbS for adaptation interventions.

What Are NbS for Adaptation?

NbS for adaptation are actions to protect, conserve, restore, sustainably use, and manage natural ecosystems to strengthen the resilience of communities and ecosystems to the impacts of climate change. They involve first assessing how climate change will affect ecosystems and communities and then designing and implementing interventions to address or better manage these risks. Examples include the following:



protect: Protecting grasslands from land degradation and land-use change (to agricultural and urban land) addresses climate change-induced water insecurity while providing wildlife habitat, protecting soil and groundwater recharge.



conserve: Establishing and managing forest reserves protects communities from more frequent storms and other natural hazards, while enhancing connectivity, provides habitat for species, and increases overall resilience of people and ecosystems.



restore: Restoring coral reefs in areas affected by bleaching helps rehabilitate marine ecosystems and acts as a natural buffer to protect coastal communities from intense waves and flooding due to intensified cyclones.



sustainably manage: Working with diverse community members to develop and implement a river basin management strategy that equitably and sustainably manages water resources strengthens their resilience against drought and protects upstream water from pollution.

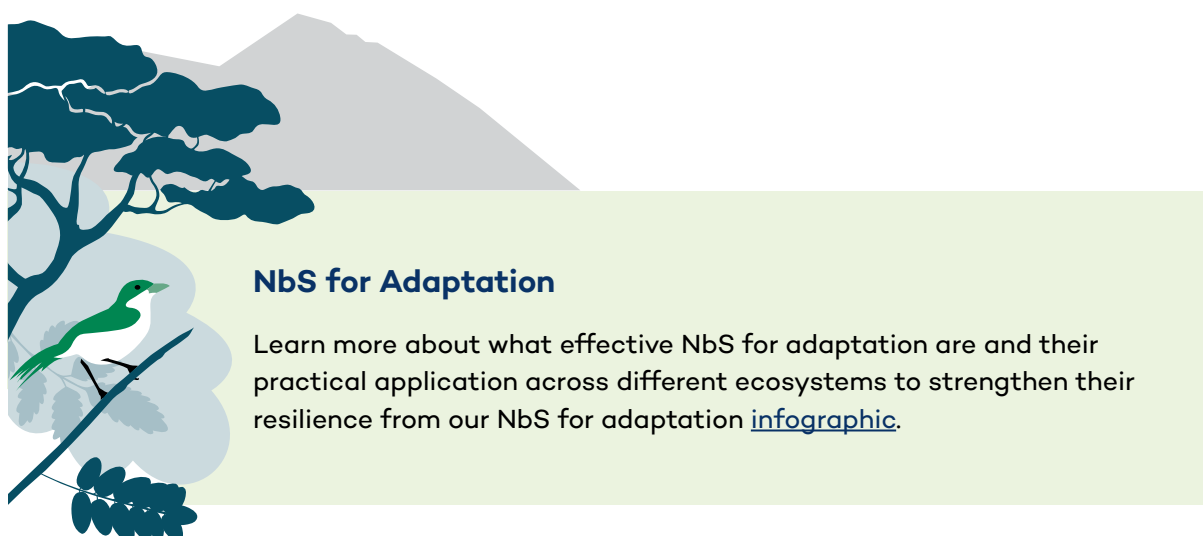




Figure 1. NbS for adaptation



NbS for adaptation is a subset of NbS that focuses on reducing the effects of and adapting to climate change while supporting biodiversity (see Figure 1). It is also known as ecosystem-based adaptation (EbA). EbA is defined by the UN Convention on Biological Diversity (CBD) as “the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people adapt to the adverse effects of climate change” (CBD, 2009).

Source: Authors.

Existing Frameworks and Approaches

This checklist was developed based on three existing frameworks that guide the design and implementation of NbS for adaptation.

First, the **IUCN’s Global Standard for NbS** is a high-level framework for the verification, design, and scaling up of NbS (including NbS for adaptation). In 2016, the World Conservation Congress adopted a resolution on defining NbS (IUCN, 2016). Within this resolution, IUCN members established eight preliminary principles that set the criteria for what actions can be considered NbS. Given the need to ensure the NbS concept is clearly communicated, understood, and implemented in accordance with the principles (and properly differentiated from business-as-usual conservation activities), the IUCN’s NbS Group developed guidance and standards of practice to operationalize the Defining NbS resolution. The Global Standard was then launched in 2020 and was formally adopted with a majority vote at the World Conservation Congress Marseille in 2021.

Second, the **CBD’s Voluntary Guidelines for the Design and Effective Implementation of Ecosystem-based Approaches for Climate Change Adaptation and Disaster Risk Reduction** provides guidance on the planning and implementation of EbA and ecosystem-based disaster risk reduction (Eco-DRR) (CBD, 2019). In 2016, parties to the CBD requested the development of these voluntary guidelines in the context of strengthening the linkages between climate adaptation, disaster risk reduction, and biodiversity protection and conservation (CBD, 2016). The guidelines were developed under the direction of a technical reference group of experts and practitioners and underwent an extensive peer-review process. The guidelines provide a set of principles, safeguards, and overarching considerations for planning and implementing EbA and Eco-DRR. This high-level guidance uses a step-by-step



approach to explain how to design and implement EbA and Eco-DRR, accompanied by a list of tools that can be used under each step and short briefs on mainstreaming EbA and Eco-DRR across sectors. The voluntary guidelines were adopted by parties at CBD COP14 in 2018 (CBD, 2018).

Third, the **Friends of EbA (FEBA) network's Making Ecosystem-based Adaptation Effective—A Framework for Defining Qualification Criteria and Quality Standards (EbA Qualification Criteria)** provides a framework for policy-makers and practitioners to identify and evaluate whether a project qualifies as EbA (FEBA, 2017). It is based on the 2009 CBD definition of EbA and strengthens the understanding of EbA. It also helps users determine whether a proposed activity is actually EbA and how to avoid maladaptation. It contains three elements corresponding to the CBD definition and five criteria ranging from vulnerability assessment and societal benefits to policy synergies and governance qualities. The EbA Qualification Criteria was developed and reviewed by FEBA members in 2017.

To ensure effective, inclusive, and sustainable projects, this checklist underscores key aspects of NbS for adaptation in alignment with the frameworks above:

- **NbS for adaptation should provide adaptation benefits:** All projects should be designed and implemented with the primary goal of increasing the resilience of communities and ecosystems to the impacts of climate change.
- **NbS for adaptation should generate biodiversity co-benefits:** Projects should generate measurable benefits for biodiversity and ecosystems by integrating considerations for biodiversity through all stages of the project lifecycle.
- **A gender-responsive and socially inclusive approach to NbS for adaptation should be used** that advances the rights of underrepresented populations and improves their ability to respond and adapt to climate change and biodiversity loss (Caswell & Jang, 2024; Dazé & Church, 2019; Dazé & Terton, 2021).

Moreover, this checklist fills a gap in the existing frameworks by highlighting the importance of adopting a **conflict-sensitive approach** to NbS for adaptation. A conflict-sensitive approach considers how adaptation actions can impact and be impacted by past, present, and future conflict and how to design and implement adaptation actions that minimize the risks of creating or exacerbating conflict and maximize opportunities for peacebuilding (Hammill et al., 2009).



Guiding Questions for Assessing the Effectiveness, Inclusivity, and Sustainability of an NbS for Adaptation Project

Good practice	Explanation	Guiding questions
<p>1. The project seeks to reduce the vulnerability of people and ecosystems to identified climate risks and impacts.</p>	<p>NbS for adaptation manage current and future climate risks to enhance the resilience of people and ecosystems. They are informed by a climate vulnerability and risk assessment that utilizes robust climate information, data, projections, scenarios, and local and Traditional Knowledge throughout the life cycle of the project. The assessment should also consider how gender and social differences, as well as conflict dynamics, can influence vulnerabilities and project activities.</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Has a climate risk and vulnerability assessment been completed? Are project activities informed by historical and current climate data and information, as well as future climate projections and scenarios? <input type="checkbox"/> Does the project assess conflict risks and ensure activities—at a minimum—avoid creating or exacerbating tensions, grievances, or conflict? <input type="checkbox"/> Does the project consider how gender and social differences influence climate vulnerabilities and adaptive capacities? Do project activities seek to accommodate these differences? <input type="checkbox"/> Does the project intentionally target activities for vulnerable communities, groups, and ecosystems identified through the risk assessment? <input type="checkbox"/> Do project activities aim to reduce the vulnerabilities of specific groups or communities to climate impacts by enhancing biodiversity and ecosystem resilience?
<p>Notes:</p>		



Good practice	Explanation	Guiding questions
<p>2. The project generates adaptation benefits and co-benefits and considers how these are distributed across communities, genders, and social groups.</p>	<p>NbS for adaptation can contribute to human well-being through the provision of economic, social, health, and cultural benefits. These benefits are generated by enhancing ecosystem resilience through protection, conservation, restoration, and sustainable use and management, as well as the avoidance of ecosystem degradation and climate-related losses and damages.</p> <p>The design and implementation of NbS for adaptation projects must produce and distribute societal benefits in a fair and equitable manner.</p> <p>Notes:</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Does the project identify the adaptation benefits and any associated co-benefits (e.g., mitigation, biodiversity, health, disaster risk reduction) it intends to provide through a valuation or decision support tool? <input type="checkbox"/> Does the project identify how benefits will be equitably distributed across communities, genders, and social groups?



Good practice	Explanation	Guiding questions
<p>3. The project focuses on the protection, conservation, restoration, and sustainable use and management of biodiversity and ecosystems with the goal of improved ecosystem health and functionality.</p>	<p>NbS for adaptation achieve benefits for biodiversity and ecosystems through the protection and restoration of natural ecosystem processes and services. This enhances resilience to climate change and supports the adaptive capacity of ecosystems.</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Does the project identify and prioritize key species, ecosystems, and ecosystem services within its activities? <input type="checkbox"/> Are project activities focused on sustainably managing, protecting, conserving, and restoring key ecosystems to enhance the provision of ecosystem services? <input type="checkbox"/> Do project activities respect environmental safeguards and avoid compromising biodiversity and ecosystem health? <input type="checkbox"/> Does the project have appropriate targets and indicators to monitor biodiversity and ecosystem health and functionality (e.g., productivity, seedling survival rate, size of area protected, size of area restored, species indicators, land-use change)?
	<p>Notes:</p>	



Good practice	Explanation	Guiding questions
<p>4. The project is based on equitable, inclusive, and participatory governance processes that increase agency.</p>	<p>NbS for adaptation must respect the rights of Indigenous Peoples, local communities, and people of all genders and social groups.</p> <p>NbS for adaptation projects should ensure that participation processes are gender-equitable, based on mutual respect, and include underrepresented voices, such as women, youth, Indigenous Peoples, and people with disabilities, among others. Furthermore, projects should aim to advance gender equality and social inclusion as well as empower underrepresented groups to lead and influence NbS for adaptation governance and decision-making processes.</p> <p>Notes:</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Does the project include an intersectional gender analysis? <input type="checkbox"/> Is the project being implemented with the right of Indigenous Peoples to Free, Prior and Informed Consent (FPIC) and respect for relevant treaties and agreements? <input type="checkbox"/> Has the project made every effort feasible to consult and involve all actors directly and indirectly affected by the NbS for adaptation project through equitable participation? <input type="checkbox"/> Does the project work to increase the agency of underrepresented voices in these processes? <input type="checkbox"/> Does the project refer to and follow NbS principles and safeguards (e.g., the CBD's Voluntary Guidelines for EbA, IUCN's Global Standard for NbS, and FEBA's EbA Qualification Criteria)?



Good practice	Explanation	Guiding questions
<p>5. The project is designed with the larger ecosystems and their interactions with communities and people in mind.</p>	<p>Many NbS for adaptation interventions intend to be implemented at an ecosystem scale. This requires understanding the interactions between communities, people, and their livelihoods within the target ecosystem(s). This requires a “systems” framing that considers the wider landscape or seascape, potential trade-offs of planned NbS for adaptation interventions (e.g., negative impacts on one area or group of actors over another), and understanding the interactions between different actors and aspects in the wider environment and acknowledging them in the design process.</p> <p>Notes:</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Are the interactions between people, ecosystems, and the economy well understood and considered as part of the project’s design (e.g., land use change, non-climatic drivers)? <input type="checkbox"/> Has the project team identified, assessed, communicated, and minimized the limitations and potential trade-offs of NbS for adaptation interventions within the larger ecosystem/ landscape?



Good practice	Explanation	Guiding questions
<p>6. The project is managed adaptatively, based on evidence.</p>	<p>The long-term stability and sustainability of NbS for adaptation depend on implementation plans that enable adaptive management and iterative learning. Projects must incorporate mechanisms that facilitate adaptive management and active learning, including continuous monitoring and evaluation at all stages of planning and implementation.</p> <p>Project planning should also anticipate and be responsive to climate change, as well as changes in biodiversity, ecosystems, and the broader operational context that may impact performance.</p> <p>Notes:</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Does the project have a monitoring, evaluation, and learning framework in place that measures both direct and indirect benefits from the project? <input type="checkbox"/> Does the project include regular monitoring and evaluation that draws from scientific data as well as Traditional, Indigenous, and local knowledge? <input type="checkbox"/> Are mechanisms in place to facilitate adaptive management (e.g., regular progress reports, mid-project reviews)?



Good practice	Explanation	Guiding questions
<p>7. The project is supported by policies at one or multiple levels.</p>	<p>For NbS for adaptation projects to be scaled up and have broad influence, it is essential to seek synergies and align them with national and subnational policies and strategies, including national adaptation plans (NAPs), national biodiversity strategies and action plans (NBSAPs), and protected area management plans. Making these linkages explicit will strengthen buy-in and secure support for NbS for adaptation.</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Does the project align with identified priorities in the project countries' climate change, adaptation, biodiversity, protected areas, sectoral, and/or regional plans, policies, or strategies? <input type="checkbox"/> Is the project supported by relevant national, regional, and/or local authorities?
	<p>Notes:</p>	



Good practice	Explanation	Guiding questions
<p>8. The project is locally appropriate.</p>	<p>NbS for adaptation projects must consider local environmental, economic, social, and cultural contexts. This includes, but is not limited to, designing project activities with local gender, social, governance, and cultural norms, behaviours, roles, and inequalities in mind, considering the characteristics of local ecosystems, and examining potential conflict risks and peacebuilding opportunities associated with NbS for adaptation.</p> <p>Ideally, NbS for adaptation projects should be locally led, meaning that they should move beyond local engagement and consultation to local leadership and ownership of NbS for adaptation. This can help contribute to the long-term sustainability of a project.</p> <p>Notes:</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Does the project engage and seek to learn from the local and Traditional Knowledge of Indigenous Peoples and local communities to inform the design and implementation of NbS for adaptation? <input type="checkbox"/> Have identified NbS for adaptation been vetted by multiple actors and rights holders, especially Indigenous Peoples and local communities, to ensure proposed solutions are locally and contextually appropriate?

Sources: Caswell & Jang, 2024; CBD, 2019; Dazé & Church, 2019; Dazé & Terton, 2021; FEBA, 2017; Hammill et al., 2009; IUCN, 2016; Lo & Rawluk, 2023.



Conclusion

As NbS for adaptation projects gain momentum, it is more important than ever to ensure they are effective, inclusive, and sustainable. This assessment framework helps policy-makers and practitioners assess NbS for adaptation projects based on eight best practices summarized from existing criteria and guidelines. It could also help practitioners design and implement NbS for adaptation projects in accordance with well-recognized guidance and best practices.

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Climate Adaptation and Protected Areas (CAPA) Initiative

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