

Nature-based Solutions (NbS) are increasingly promoted by various actors to address the inter-linked crises of biodiversity loss and climate change. As key features of recent policy frameworks at global and regional levels as well as national level planning, they matter to development cooperation. NbS can play a significant role for poverty reduction by combatting environmental, social, and economic challenges when designed and applied in line with relevant standards and guidance.

This note is targeted at programme officers and thematic advisors at Sida who come in contact with the concept of NbS in contributions and dialogue, as well as project developers and implementers among Sida's partners. It will outline the main opportunities and risks related to NbS and includes references to external standards for further guidance.

The first part of the note provides a theoretical and policy background on NbS, including its definition and scope. The second part provides guidance on opportunities and risks to consider when developing an NbS project or assessing a project for support from Sida. The note ends with a few cases to illustrate the importance of the do's and don'ts of NbS.

Part 1. Theoretic and policy background

What are NbS

Nature-based Solutions (NbS) are defined by the United Nations Environment Assembly (UNEA) since 2022 as “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.”¹ The concept has evolved over time but originates in the principles of the ecosystem approach advocated by the Convention of Biological Diversity (CBD).²

NbS are innovative approaches to manage natural systems in a way that balances the benefits for both nature and society. The term NbS was used by the World Bank in 2008 and the International Union for Conservation of Nature (IUCN) in 2009.^{3,4} The first global definition of NbS was launched by IUCN 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.”⁵

The IUCN definition was further refined into the definition adopted by countries at UNEA in 2022 (Box 1). In comparison to IUCN's definition, it is more descriptive by mentioning different ecosystems, the three sustainability pillars (social, economic and environmental), ecosystem services and resilience and by emphasising several simultaneous benefits.

Box 1. The definition of NbS, agreed by governments at the UNEA, 2022.

Nature-based solutions 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”.

The definition was part of an overall UNEA resolution⁶ on “Nature-based solutions for supporting sustainable development” that calls for an upscaling of NbS, while ensuring social and environmental safeguards. These issues are central to today's discourse on NbS and the risks of misusing the concept. (See [Risks](#))

The UNEA Resolution incorporates essentials of the NbS definition by the European Commission (EC), including systemic intervention, cost-effective and resource-efficient, and locally adapted.⁷

1 UNEP/EA, 2022. [UNEP/EA.5/Res.5](#)

2 CBD, 1995

3 World Bank, 2008

4 IUCN, 2009

5 IUCN, 2016

6 [UNEP/EA.5/Res.5](#)

7 EC's definition is accessible here: [Nature-based solutions - European Commission \(europa.eu\)](#)

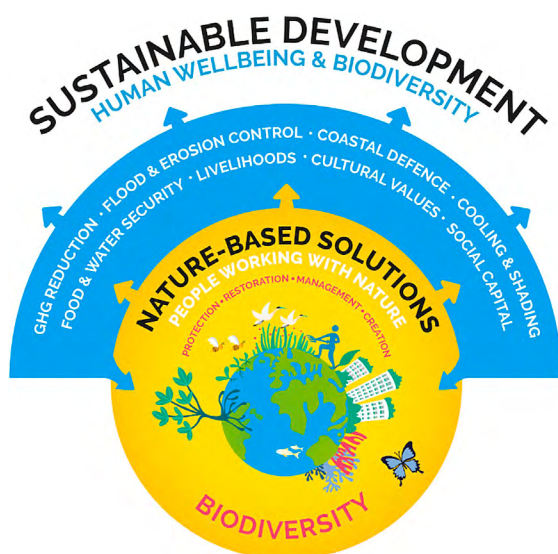


Figure 1. The underlying ideas behind the NbS concept⁸ (Illustration by the Nature-based Solutions Initiative in 2021.) Credit: Ata Tara

Key features of NbS

The application of NbS needs to be based on clearly identified needs, i.e. the problem identification comes first. Thereafter follows the assessment of a potential fit of NbS, the solution. The essence of NbS can be summarised as:

- i. NbS involve working with different types of ecosystems (natural or modified);
- ii. NbS use and work with nature in various ways, which can be broadly categorised as conservation, protection, restoration, management, and sustainable use;
- iii. NbS are solution-oriented and can be used to address a range of social, economic, and environmental challenges;
- iv. NbS are often explicitly targeted at more than one challenge, and are able to deliver benefits across a range of goals (Box 2);
- v. NbS are often combined with other solutions.
- vi. It cannot be assumed that *working with nature* will automatically provide the desired impact or benefits.⁹

Defined criteria of NbS are described in the section [Standard and Guidance](#).

Many problems cannot be solved based solely on purely green solutions. For example, in highly urbanised settings, there is usually a lack of space to implement entirely “nature based” solutions. Thus, traditional infrastructure (“grey” engineered solutions) must be implemented alongside green solutions.

Box 2. Example of the NbS potential to provide multiple benefits in the water sector.

Protecting, restoring or constructing wetlands can support the provision of clean water for drinking water needs and other uses, thus NbS offer a critical tool for achieving SDG 6 (Clean Water and Sanitation). At the same time, NbS targeted at improved water security can (and shall) provide additional benefits such as protecting infrastructure, supporting decent work and sequestering carbon, and increasing habitat connectivity, thus having a positive impact on biodiversity.^{10 11}

What is not NbS

Innovative interventions that effectively resolve societal and ecological problems cannot be referred to as NbS simply because they are inspired by nature. Examples are NbS that use solar, wind or wave energy, or contain materials and structures that are modelled on biological processes but are not directly grounded on functioning ecosystems.¹² Other interventions that should not be categorised as NbS include:

- Purely grey interventions¹³ (Hybrid green-blue-grey interventions, e.g., green roofs and walls can be regarded as NbS).
- Actions that benefit only one of the main three pillars of sustainability, or minimising the importance of any of them.
- Solutions that cannot be implemented by local people, which is often the case in developing countries (lack of opportunities, resources and/or competence).
- Application of solutions based on a previous successful solution without ensuring that it fits the local context.
- For public NbS financed with public resources, a decision-making approach is used in which national or local authorities decide what types of green actions should be applied and where to do so without consulting local communities.
- Financial expenses disproportionate to benefits – a solution that requires the constant replacement of plants for example or needs technical infrastructure to undergo continuous repairs.
- Solutions that are managed at a smaller scale or in isolation (without a landscape lens) and that are focused on a narrow group of stakeholders.¹⁴

⁸ The illustration was made before the NbS definition was adopted by UNEA, but illustrates the key components.

⁹ List adapted from UNEP, 2022a. [Nature-based Solutions: Opportunities and Challenges for Scaling Up \(unep.org\)](#)

¹⁰ UN Environment-DHI, UN Environment and IUCN, 2018

¹¹ Cassin and Matthews, 2021

¹² IUCN, 2020b

¹³ Grey infrastructure involves engineered assets that provide one or multiple services required by society, such as transportation or wastewater treatment.

¹⁴ List adapted from Sowińska-Świerkosz and García, 2022.

Related approaches

NbS is often referred to as an umbrella concept where other approaches fit. They share a common focus on ecosystem services and aim to address societal challenges, but have their own related terms and institutional histories, and areas of focus. Box 3 provides an overview of related approaches, to help distinguish between these and NbS.

Box 3. A selection of approaches related to NbS. (Adapted from UNEP, 2022a)

Ecosystem-based adaptation (EbA) is a commonly used definition and means “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”.

Nature-positive actions is a term increasingly being used. Although there isn’t yet a widely agreed definition, its meaning is rather different from NbS. It refers to actions that have a positive, rather than a negative, impact on nature. Actions can be “nature-positive” in this sense without necessarily being “nature-based”.

Natural Climate Solutions (NCS) have been defined as “actions that avoid greenhouse gas (GHG) emissions and increase carbon storage in forests, grassland and wetlands”.

Ecosystem-based Disaster Risk Reduction (Eco-DRR) is a term that has gained traction. It recognises that environmental management is a key component that can reduce disaster risk and increase resilience. The term can be treated as broadly equivalent to NbS for Disaster Risk Reduction.

Natural infrastructure (or blue-green infrastructure) is meant to strategically plan and manage networks of natural lands, water and soil, such as forests and wetlands, working landscapes and other open spaces that conserve or enhance ecosystem values and functions and provide associated benefits to human populations. It can be treated broadly as an equivalent to NbS that are focused on infrastructure.

NbS in the policy agenda

There has been a growing policy uptake and recognition of NbS at global, regional and national levels, meaning that they are relevant in bilateral, regional as well as global cooperation. They are likely to be proposed by a range of actors.

Overall, about 50%¹⁵ of the targets of the Sustainable Development Goals (SDGs) of the Sustainable Development Agenda, are dependent on nature for their achievement. NbS have therefore a vital role in supporting a range of SDGs and have the potential to deliver multiple benefits across a range of SDGs and commitments.

NbS is a key feature of the Kunming-Montreal Global Biodiversity Framework¹⁶ under CBD. Relevant targets include 8, 11, and 12¹⁷ (Box 4). NbS are also increasingly visible in the discussion under the United Nations Framework Convention on Climate Change (UNFCCC)¹⁸, which has the potential to ensure stronger synergies between action and financing for biodiversity and climate change. NbS are seen as a bridging element between the Paris Agreement and the Kunming-Montreal Global Biodiversity Framework¹⁹, since biodiversity loss and climate change have several drivers in common and therefore also have shared solutions.^{20 21}

Box 4. NbS as a vital element of the Kunming-Montreal Global Biodiversity Framework and its targets.

Key targets:

Target 8: “Minimize the impact of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, including through nature-based solutions and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.”

Target 11: In short, to “restore, maintain and enhance nature’s contributions to people”.

Target 12: In short, to “enhance green spaces and urban planning for human well-being and biodiversity”.

A review in 2019 showed that at least 66% of Paris Agreement signatories include NbS to help achieve their climate change mitigation and/or adaptation goals.²² The majority of Nationally Determined Contributions (NDCs) include NbS in some form. Efforts under the Sendai Framework for Disaster Risk Reduction 2015-2030²³ call for governments at both the national and local level to develop disaster risk reduction strategies, where NbS should be a vital element.²⁴

The Green Deal of the European Union (EU)²⁵ underscores NbS in policies. As elements of the EU Biodiversity Strategy²⁶, the EU Nature Restoration Law²⁷ sets binding targets to restore degraded ecosystems and its regulations on deforestation-free products²⁸ are expected to reduce biodiversity loss.

16 CBD, 2022

17 [2030 Targets \(with Guidance Notes\) \(cbd.int\)](#)

18 UNEP/EA, 2022

19 Seddon, 2022

20 The two scientific bodies of CBD and IPCC, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Panel on Climate Change (IPCC), acknowledge the benefit of NbS in addressing the linkages of the biodiversity and climate crises. IPBES-IPCC, 2021.

21 UNFCCC, 2022 (Marrakesh partnership)

22 Seddon et al., 2019. (The figure is changing along with revised NDCs).

23 UN, 2015

24 UNDRR, 2021

25 EC, 2019 [European Green Deal](#)

26 EC, [2020 Biodiversity Strategy](#)

27 EU, 2024 [Nature Restoration Law](#)

28 EU, 2023 [Regulation on deforestation-free products](#)

15 84 targets out of the total number of 169 targets. For 24 targets the relationship is *obvious*, either the target’s language relates to nature itself or explicitly references the sustainable use of nature. Hole et al., 2022

Horizon Europe²⁹ supports research and innovation on biodiversity.

The policies and strategies together with other commitments require a significant increase in funding for NbS. (Box 5)

Box 5. Investing in NbS to achieve global commitments and protect global public goods

It is considered that commitments within climate change, biodiversity, and land degradation will be unachievable unless funding for NbS rapidly increases to USD 384 billion per year by 2025—more than twice as much as it was in 2022, at USD 154 billion annually. It is necessary to phase out, repurpose, or reform nature-negative flows from public sources, which are three to seven times bigger than investments in NbS. It is estimated that only 17% of all investments in NbS come from private capital. In the upcoming years, this will need to increase significantly in order to utilise nature's potential.^{30,31}

Economic evaluations of specific NbS have rarely been conducted but studies on the economic benefits of NbS are growing.^{32,33} NbS for water supply could save USD 140 billion per year in providing clean and safe drinking water for 1.4 billion people by 2030.³⁴

Part 2. Guidance

Assessing Nature-based Solutions

As a Sida programme officer or thematic advisor assessing proposals containing NbS, carrying out dialogue and following up on implementation of the same, you will need to take the opportunities and risks outlined in this section into consideration. The same goes for project developers and implementers. Reference to further technical guidance is found in the section [Standards and guidance](#).

NbS have the potential to support poverty reduction by promoting vital ecosystem services, biodiversity, access to fresh water, improved livelihoods, healthy diets and food security from sustainable food systems and a variety of other benefits across sectors. As such, they can be a powerful tool to provide a range of benefits. They are also coupled with concerns. There are uncertainties about when, where, how, and for whom NbS are effective. Controversies surround the misuse of the term, violations of human rights, and threats to biodiversity.³⁵ Questions that need to be addressed when developing a project or assessing a contribution

therefore include if there is an opportunity for NbS and whether NbS is used for greenwashing or whether it is applied in line with the UNEA definition and existing standards and guidelines.

It is critical to determine, in collaboration with stakeholders, the most important priorities in a particular context and the foreseen effects of NbS, keeping in mind that giving priority to some impacts may result in the reduction or non-realization of other advantages. Using NbS involves making decisions about how to best integrate NbS and other techniques, whether to use NbS over alternative strategies, and how to maximise advantages while minimising trade-offs.³⁶ Box 6 below includes key questions that Sida staff need to address during assessment of proposals.

Box 6. Key aspects for Sida's review and dialogue with partners when assessing a project proposal.

Review of proposal addressing NbS

- How have NbS been interpreted – is there a clear understanding of NbS?
- Have standards and guidance on NbS been followed and are these referred to, especially the IUCN Global Standard for Nature-based Solutions and its eight criteria (notably the involvement of local communities and indigenous people)?
- Are there means to monitor and report the results of NbS?
- How can the interventions contribute to the knowledge base of lessons learned and best practice?

Review of proposal without NbS

- Has the proposal considered NbS and what were the results of such dialogue with relevant stakeholders?

Opportunities with Nature-based Solutions

As a partner to Sida who is developing an NbS project, you should aim to capture the opportunities presented by the approach. As a programme officer or thematic advisor at Sida, you should aim to support and enhance the same opportunities by addressing them in assessment, dialogue and follow-up of contributions. Opportunities³⁷ include the following:

Biodiversity NbS can contribute to the protection of ecosystems and the sustainable management and restoration of ecosystems. By protecting existing natural spaces and elements (such as existing trees, green spaces, wetlands, and waterways) or through the establishment of new natural elements (such as community gardens, urban parks, or mangroves), NbS support ecosystems and the provision of ecosystem services.

²⁹ EC, 2021 [Horizon Europe](#)

³⁰ UNEP, 2022(b)

³¹ IADB, 2021

³² Dasgupta, 2021

³³ Zanten et al., 2023

³⁴ WEF, 2022

³⁵ Seddon, 2022

³⁶ IUCN, 2022a (Criterion 6)

³⁷ Part of text adapted from [Nature-based Solutions and Food | Geneva Nature-based Solutions Dialogues – Geneva Environment Network](#)

Climate change adaptation and mitigation NbS have the possibility to tackle both climate adaptation and mitigation challenges while delivering multiple other benefits for people and nature. The Intergovernmental Panel on Climate Change (IPCC) cites NbS as exemplary in demonstrating how innovative ideas can expand the climate solution space.³⁸ NbS that can help people adapt to climate change impacts include community-led protection, restoration, and management of natural and semi-natural ecosystems within river catchments, sustainable management of lands to sustain or enhance crop yields during unpredictable growing conditions, and creation of wetlands to reduce flood risk. Most evidence for nature's role in supporting adaptation refers to reducing exposure to the immediate impacts of climate change.³⁹ Nature based mitigation of climate change include the restoration of natural forests under community management and promotion of agroforestry for carbon storage and diversified local livelihoods.

DRR and building resilience Healthy ecosystems can support livelihoods, foster resilience, and aid in coping with and recovering from disasters. They can also serve as a buffer against risks and the effects of climate change. The stabilisation of slopes by vegetation cover can lower the likelihood of landslides. Mangroves, sand dunes, and coastal vegetation can shield an area from cyclones, winds, and storm surges. Healthy coral reefs can lessen the intensity of the waves. Thus, protection, sustainable management, and restoration of these ecosystems strengthen disaster and climate risk management and resilience.^{40 41}

Health NbS can influence human health and well-being in various ways. For example, the Covid-19 pandemic demonstrated how human's growing harmful effects on the environment endanger human and ecosystem health. Ecosystem degradation through changes in land use, intensification of agriculture, unsustainable trade, production, and consumption, increase the contact between humans, wildlife, and disease. NbS can be used to address the human-animal-environment interface⁴², thus averting future pandemics and preserving human health. Greening urban areas can also reduce air pollution and have the potential to enhance mental and physical wellness while lowering stress levels.⁴³

Food security NbS can enhance food systems and help fulfil the basic human right to food and provide other advantages for the most vulnerable and poor households, including small scale farming households. NbS can support agricultural production and resilience by

providing hydrological services and maintaining ground cover, reducing erosion, and managing soil, water and nutrients. NbS such as agroforestry provide shade, shelter, fuel, food, fodder, and other products, increasing food security and nutrition.⁴⁴ Other examples are NbS for aquaculture and fisheries and NbS benefits for restoring rangeland for livestock and support pastoralism.^{45 46}

Employment Ecosystems are an essential part in supporting employment. As many as 1.2 billion jobs in industries including agriculture, fishing, forestry, and tourism depend on the sustainability and efficient management of healthy ecosystems.⁴⁷ Investing in policies that support NbS can generate significant employment opportunities, and protect existing jobs, particularly in rural areas. (Box 7)⁴⁸ ILO's Green Work Programme addresses how so called green works can increase the impact of NbS. "Just green transition" policies are needed to ensure a human rights perspective.

Box 7. NbS in job creation.

- Estimates suggest that half of the global GDP is derived from natural resources.
- NbS could unlock an estimated USD 10 trillion of business opportunities and have the ability to create 395 million jobs in 2030, beyond providing important biodiversity, climate mitigation, and adaptation outcomes.⁴⁹

Urban development Rapid city expansion and insufficient planning, land management, and housing strategies in the global south tend to push the most vulnerable into informal areas. NbS in informal settlements and cities can address interconnected problems, including the lack of urban services, loss of biodiversity and increasing vulnerability to climate change.⁵⁰ In urban areas in general, NbS such as tree-covered areas along streets or parks can reduce the urban heat island effect and in-door cooling needs through natural shading. Wetlands can manage run-off water resulting in fewer flooding events. Around cities, NbS interventions can help with watershed management, recreational space, managing wildfires, improving drinking water quality, reducing, and capturing CO₂ emissions, and reducing the impact of sand and dust storms.

Human rights and democracy Human rights are dependent on a healthy and safe environment, and the recognition of human rights is itself essential for restoring and protecting healthy ecosystems. If correctly applied, NbS shall sustain the rights of indig-

38 IPCC, 2022

39 Seddon, 2022

40 Sisay et al. 2023

41 UNDRR, 2021

42 Aikat et al., 2024

43 Bayulken et al. 2021

44 Telwala (2023)

45 IUCN (2022)

46 Quintero-Angel et al. 2023

47 ILO, 2018

48 WEF, 2020

49 WEF, 2020

50 UN-Habitat, 2023a

enous peoples and local communities to access, benefit from and govern land, water and other natural resources. NbS activities also need to be firmly anchored in community- and local governance structures and allow for diversity in governance and management arrangements.⁵¹

NbS and peace-building NbS can be used in conflict-affected areas for contributing to peace and security and be applied along the conflict cycle. By protecting, managing and restoring ecosystems, and doing so with a conflict-sensitive approach, NbS can help to prevent environmental linked conflicts and mitigate the risk of resources loss resulting from conflicts. NbS can improve the conditions at home locations, providing opportunities for return of displaced people.^{52 53}

Risks with Nature-based Solutions

As a partner to Sida who is developing an NbS project, you should aim to address risks and avoid negative trade-offs. As a programme officer or thematic advisor at Sida, you should assess and follow-up that risks have been sufficiently addressed and mitigated. Risks include the following:

NbS ambiguity An overall challenge is that the term may be misinterpreted or misused by decision-makers and stakeholders, thus risking negative effects. There is also a problem with the different interpretations that exist. A number of actions today and in the past, especially before 2020, that have been branded as NbS may not fulfil the requisite criteria to truly be NbS.⁵⁴

Greenwashing⁵⁵ Misuse of NbS can harm biodiversity and negatively impact the flow of ecosystem functions and services and undermine resilient and adaptive ecosystems. Though greenwashing can be intended (malice), it can also be a result of ignorance of environmental issues and environmental laws.⁵⁶ It may be problematic to differentiate genuine commitment from green washing. For example, companies involved in the fossil fuel industry may invest in activities labelled as NbS with honest intent, but if they do not simultaneously decarbonize their operations, it does not have the intended effect.⁵⁷

Unclear poverty perspective and benefits for the most vulnerable groups Wide-ranging development outcomes have been reported from NbS. The most frequent are local economic development (jobs and income) and food security, while the least frequent are social cohesion and

security and energy security. To exemplify the issue, a collection of evidence from 70 countries (a majority in sub-Saharan Africa) showed that the poorest or most marginalised people were least likely to benefit.⁵⁸ If NbS are not designed correctly, women, persons with disabilities, low-income households, and other marginalized groups may face barriers to accessing these benefits.

Human rights and engagement of Indigenous Peoples and local communities (IPLC) If not managed well, NbS can risk the security of land tenure rights and access to natural resources of IPLC. Adverse impacts on local communities are associated with governance challenges, especially because they impact diverse stakeholders and interact with many political issues, like conflicting regulations, opposing interests and policy incoherence, which might disrupt efforts for inclusive participation.⁵⁹ NbS may be implemented through top-down governance structures that do not respect local people's rights, fail to account for local voices, values, and knowledge in decision-making, perpetuate power asymmetries and underestimates the IPLC role in managing ecosystems sustainably.

Jeopardising urgent actions and ecosystem imbalance

NbS can decrease attention to urgent actions. It is argued that a focus on the role of NbS in mitigating climate change diverts attention from the need for massive and rapid decarbonisation of economies.^{60 61} There is also an over-emphasis on planting trees for carbon sequestration rather than investing in a wide range of ecosystems and a failure to ensure biodiversity and social benefits.⁶² One of the more contentious aspects of NbS relates to the carbon market⁶³ and involves both opportunities and limitations.⁶⁴

Leakage The risk of leakage in the overall carbon market also refers to any consideration of NbS in this area. It means that scaling up of NbS in one location should not result in ecosystem loss and damage to another.⁶⁵

Unclear attribution of NbS to results There is lack of monitoring and evaluation for NbS interventions. Measurement and reporting frameworks are associated with a variety of approaches, which result in a complex and often ambiguous landscape to assess the levels of impact and quality of NbS. This underpins the scepticism about the suitability of NbS as a solution.

51 Forest Peoples Programme, 2021; Danish Institute for Development Studies, 2022.

52 UNEP, 2024

53 Webinar series by [Geneva Nature-based Solutions dialogues](#): NbS and peacebuilding.

54 Sowińska-Świerkosz and García, 2022

55 For definition of greenwashing, see Nemes et al., 2022

56 Nemes et al., 2022

57 Seddon, 2022

58 Roe et al., 2022

59 Seddon et al., 2020

60 Price, 2021

61 Anderson et al., 2019

62 Seddon et al., 2021

63 The compliance and voluntary carbon market.

64 Johnstone, 2024

65 Filewod and McCarney, 2023

Case studies

To illustrate good NbS practice and also show examples when the concept is used in a way that does not meet the NbS criteria, five cases are introduced below. Their effectiveness against four selected domains are illustrated.



GOOD PRACTICE, NBS

A pilot project on forest landscape restoration in Gledić, City of Kraljevo, Serbia as part of ADAPT: Nature-based solutions for resilient societies in the Western Balkans.⁶⁶ Implemented by IUCN, funded by Sida.

NbS: Forest landscape restoration (FLR)
(Conducted at landscape scale)

Beneficiaries: Rural communities

Overall result, expected: To enhance the protection of ecosystems, increase forest stability and reduce erosion and flood risks. Collectively, these measures are anticipated to contribute to community resilience.

Environmental outcomes, expected:

- 180 ha of forest on degraded land in Gledić restored.
- Stabilised soil and reduced erosion.
- Increased forest stability and resilience.
- Enhanced biodiversity.

Social outcomes, expected:

- Improved community resilience to flood risks.
- Increased security of existing and create conditions for additional income from non-timber products for local inhabitants.
- Improved livelihood conditions, especially for women and vulnerable groups.
- Slow depopulation from the priority area.

Economic outcomes, expected:

- Risk of disaster for 30,000 inhabitants along the watercourse reduced.
- A local civil protection unit established and trained to react timely to degradation and disaster risks.
- Equal economic development enabled.

Case effectiveness, expected on:



Lessons learned: Time needs to be built in for addressing complicated private land ownership and to ensure availability of seeds and seedlings of native species. The engagement from the municipality in these locations was very helpful.



Photo by
Titta Lassila, Sida.

GOOD PRACTICE, NBS

Indigenous council practices community-based conservation and natural resource management (Abel Iturralde Province, La Paz Department, Bolivia)⁶⁷ Implemented by the Wildlife Conservation Society Bolivia and the Equator Initiative.

NbS: Conservation and natural resource management

Beneficiaries: Indigenous people

Overall result: Indigenous Council of Tacana People manage 390k ha of ancestral lands.

Environmental outcomes:

- Projected 13 Mt avoided CO₂ emissions.
- Reported deduced slope erosion / adaptive capacity of local communities and ecosystems.
- Deforestation in the Tacana-managed territory is 4.6 times lower.
- Improved ecosystem composition/functioning, landscape structure, ecosystem functioning and habitat quality.
- Habitat for more than 50 endangered species.

Social and economic outcomes:

- Profits from enterprises and sustainable livelihoods (e.g. agroforestry), increased investments in infrastructure and healthcare.
- Tourism has grown.
- Rights, empowerment and equality benefits and conflict reduction.

Case effectiveness, expected on:



Lessons learned: Although the initiative was successful in coming up with alternate livelihood methods, initial financing constraints hindered how quickly alternate livelihood methods could be scaled up and expanded.



Photo by Amy Rollo.

⁶⁶ IUCN, Adapt and Sida, 2023

⁶⁷ A [case study](#) of the NbS Initiative; [UNDP, 2018](#).

GOOD PRACTICE, NBS

NbS for enhanced climate resilience of informal settlements: Honiara, Solomon Islands. A pilot of the integration of NbS in country level operations, the Resilient Settlements of the Urban Poor (RISE UP) Programme, UN-Habitat, supported by Sida.^{68 69}

NbS: Urban environment and resilient settlements

Beneficiaries: Urban communities

Overall result: Improved food security through urban gardens and flood defense and landslide prevention, based on local community ownership.

Environmental and social-economic outcomes:

In Central Valley Community, Koa Hill Riverbank and Koa Hill Zone, e.g.:

- 146 m² of urban gardens.
- Landslide prevention / slope stabilization.
- Raised footpaths for the rainy season and allowing transportation across the river being the main access route for community members.
- Play area for children.
- Awareness raised for discouraging house-building in high-risk areas of floods.

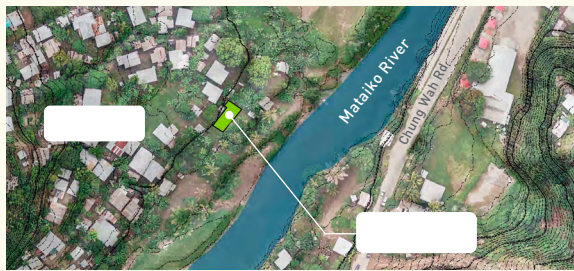
Case effectiveness, expected on:



Lessons learned: This pilot emphasised on the active participation of community members of Koa Hill in the development and implementation of NbS, contributing 50% of labour as well as traditional ecological knowledge and cultural management practices, and can be considered representative of a successful 'community-led' initiative to reduce disaster risk and improve local food security through NbS.



Koa Hill community members discussing riverbank protection issues. Photo by Yuyun Qomariyah/PacSol and UN-Habitat



Urban garden on riverbank. Photo by Yuyun Qomariyah/PacSol and UN-Habitat

POOR SOCIAL ECOLOGICAL OUTCOMES⁷⁰

Anonymous project and organisation

Exclusion of indigenous people and afforestation with non-native monoculture.

An area declared a wildlife sanctuary.

Increase in illegal logging as indigenous people were denied access.

Technology company was granted rights to "reforest" 50 ha for climate mitigation, replacing old growth forest with Acacia only. Negative outcomes for biodiversity and climate change mitigation. Further displacement and marginalization of local people.

Case effectiveness, expected on:



POOR SOCIAL ECOLOGICAL OUTCOMES⁷¹

Anonymous project and organisation

Controversial reforestation for carbon offsetting

A project was promoted as a "triple win" by a company that sells carbon credits to offset aviation emissions aims to sequester 3.7 Mt CO₂ emissions in 1994-2034 by "reforesting" 25K Ha.

Relied on uncompensated dispossession and violent eviction of local people. Local conflict and negative international publicity. Project abandoned after 10 years.

Case effectiveness, expected on:



Further resources

For scientific evidence on NbS and its application at policy level, access www.nbsguidelines.info (policy guidelines for sustainable NbS, endorsed by research, conservation and development organisations).

For best practice and role cases of NbS, access the NbS Case Study Platform: [Nature-based Solutions case studies \(naturebasedsolutionsinitiative.org\)](http://naturebasedsolutionsinitiative.org)

⁶⁸ UN-Habitat, 2023b

⁶⁹ The particular project involved the RMIT University and the Pacific Solomon Engineering and Consultancy Limited. UN-Habitat, 2023c

⁷⁰ Seddon, 2022. The project and organisation are not named in this brief.

⁷¹ Ibid.

Standards and guidance

To maximize the benefit of NbS while avoiding their potential pitfalls, various standards and guidance are available. (Box 8). These resources can be used by Sida's partners when considering NbS, and by Sida's

programme officers when assessing NbS projects at the initial project concept stage or in a project proposal.

Box 8. NbS standards and guidance

The IUCN Global Standard for Nature-based Solutions^{72 73} with its guidelines⁷⁴ contains eight criteria and addresses the pillars of sustainable development and project management. A project needs to meet all criteria, at least partially to qualify as an NbS. There is a self-assessment tool with interconnected criteria and indicators. (For each criterion, an example of indicator is given below).

Criterion 1: NbS effectively address societal challenges. Indicator e.g. C1:1 The most pressing societal challenge(s) for rights-holders and beneficiaries are prioritized.

Criterion 2. Design of NbS is informed by scale. Indicator e.g. C2:3 The design of the NbS incorporates risk identification and risk management beyond the intervention site.

Criterion 3: NbS result in a net gain to biodiversity and ecosystem integrity. Indicator e.g. C3:2 Clear and measurable biodiversity conservation outcomes are identified, benchmarked and periodically assessed.

Criterion 4: NbS are economically viable. Indicator e.g. C4:1 The direct and indirect benefits and costs associated with the NbS, who pays and who benefits, are identified and documented.

Criterion 5: NbS are based on inclusive, transparent and empowering governance processes. Indicator e.g. C5:2 Participation is based on mutual respect and equality, regardless of gender, age or social status, and upholds the right of Indigenous Peoples to Free Prior and Informed Consent (FPIC).

Criterion 6: NbS equitably balance trade-offs between achievement of their primary goal(s) and the continued provision of multiple benefits. Indicator e.g. C6:2 The rights, usage of and access to land and resources, along with the responsibilities of different stakeholders, are acknowledged and respected.

Criterion 7: NbS are managed adaptively, based on evidence. Indicator e.g. C7:2 A monitoring and evaluation plan is developed and implemented throughout the intervention lifecycle.

Criterion 8: NbS are sustainable and mainstreamed within an appropriate jurisdictional context. Indicator e.g. C8:2 The NbS informs and enhances facilitating policy and regulation frameworks to support its uptake and mainstreaming.

EC's Handbook for Evaluating the Impact of NbS⁷⁵. refers to EU's work, but is applicable more widely. It addresses the effectiveness of NbS from several decision-making problems:

- Choosing - what is the most effective NbS?
- Sorting - to which category of effectiveness or impact (low, medium, or high) does the NbS belong?
- Ranking - what is the effectiveness of NbS ranking from the worst to the best (or vice versa)?

World Bank's guidance Assessing the Benefits and Costs of Nature-based Solutions for Climate⁷⁶. is aimed at informing investments at project level. It underlines engagement to scope locally relevant benefits, address uncertainty, and that NbS benefits and cost assessments should be an integral part of investment projects.

Examples of guidance per sector

Building with nature/green infrastructure/ nature-based infrastructure

- [Green Infrastructure Planning Principles: An integrated literature review](#) (Monteiro et al, 2020)
- [Integrating Building with Nature Principles into water infrastructure development](#) (EcoShape)

Ecosystem restoration

- [International Principles & Standards for the Practice of Ecological Restoration, 2nd Edition](#) (Society for Ecological Restoration)
- [Forest Landscape Restoration Principles](#) (World Resources Institute–Global Restoration Initiative)
- [Principles for Ecosystem Restoration to Guide the United Nations Decade 2021-2030](#) (FAO and UNEP)
- [The 4 Returns Framework for Landscape Restoration](#) (Commonland, Wetlands International and IUCN)

⁷² IUCN, 2020a

⁷³ Some countries object to the IUCN standard as a tool for supporting the UNEA definition, among others, because IUCN is not a body that has universal membership (unlike UNEA). (Pers. comm. UNEP, January 2024).

⁷⁴ IUCN, 2020b

⁷⁵ EC, 2021

⁷⁶ Zanten et al., 2023

DRR

- [Nature-based Solutions for Disaster and Climate Risk Management - a tool kit](#) (UNDRR and UNU-EHS, 2023)
- [Nature-Based Solutions for Disaster Risk Management](#) (World Bank)
- [Natural and Nature-Based Flood Management: A Green Guide](#) (World Wildlife Fund for Nature, WWF)

Urban settings

- [Urban Nature Based Solutions: Cities Leading The Way case studies](#) (WWF)⁷⁷
- Especially for informal settlements, RISE-UP: Resilient Settlements for the Urban Poor, including a tool for assessing and quantifying NbS options (UN-Habitat)

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