Guidance Manual

Valuing and Promoting Nature-Based Solutions in Development Projects for Climate and Disaster Resilience

Photo credit: NWRM Project, Tajikistan

March 2025

Overview

Why these guidelines?

Despite increased recognition of the positive contribution of Nature-Based Solutions (NBS) in sustainable development and in building resilience to climate change and disaster risks, investment in such solutions is still relatively low. Reasons include:

- Difficult assessments or valuation of NBS costs and benefits that include a range of non-monetary and intangible outcomes. This complicates the comparison with non-NBS, notably the so-called grey and hybrid (grey and green) solutions[1].
- The need for more evidence and proven methods supporting the integration of NBS in development projects.
- The lack of operational guidance supporting decision-making, planning and implementation of NBS throughout the project life cycle.

This guidance manual helps to assess and value the benefits and costs of NBS in development projects aiming at building the resilience of communities to climate change and to disasters. Guidance supports decision-making on prioritizing and implementing suitable climate and disaster resilience (CDR) solutions from social, economic, environmental and governance points of view.

For whom?

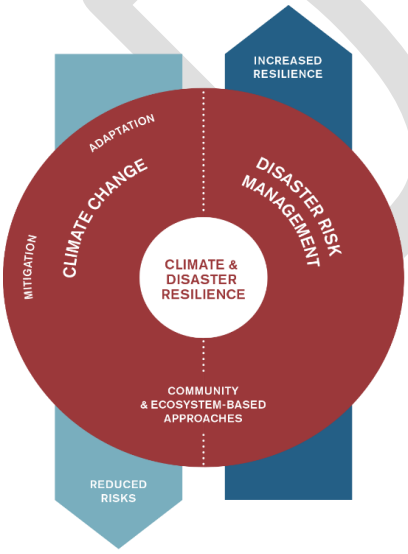
For planners, designers and implementers of development projects aiming at building or enhancing climate and disaster resilience of communities, with a focus on the work of international and local NGOs.

Key definitions

Nature-based Solutions (NBS)

"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).
See also the World Overview of Conservation Approaches and Technologies (WOCAT).

Climate and disaster resilience (CDR)



HELVETAS Water-Food-Climate Strategy 2023

Climate and disaster resilience is the ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of climate change or of a hazardous event, in a timely and efficient manner (after IPCC, 2012)

"Building climate resilience involves all actors having the capacity to prevent, anticipate, and absorb climate extremes and slow-onset events (shocks and stresses), as well as adapt and transform development pathways in the longer term." (UNCC, 2021).

[1] In this manual, 'solution' is broadly defined as an option or measure addressing identified issues. When the solution is implemented, it is called an 'intervention'.

Objectives and scope

The NBS valuation can serve various purposes and support NBS decision-making at different levels:

- **Choosing the most suitable NBS or other adaptation solutions in project planning:** To support the integration of NBS in development projects aiming at CDR, the benefits, costs and impacts of NBS need to be valued and compared with other non-NBS, in order to prioritise and implement the most appropriate solutions.
- **Supporting advocacy and justification of NBS versus non-NBS among stakeholders:** The participatory process can help stakeholders understand the manifold benefits and advantages of NBS over other solutions, or the need of the combination of NBS and Non-NBS.
- **Support of monitoring and evaluation of NBS:** Valuation further supports monitoring and evaluation initiatives related to NBS and other adaptation solutions.

The present guide focuses primarily on the first point mentioned above, the **priorisation and selection of the most suitable adaptation solutions**. This guidance does not need to be entirely new given the range of available tools contributing to assessing CDR solutions (nature-based or not), with particular attention to the ones recommended by the Swiss NGO DRR Platform. What is rather needed is an integrative and participatory process that facilitates the operational integration of NBS into project life cycles. The 'cost of valuation work' (in terms of time, human resources and budget) will also be considered, focusing on the rapid valuation with recommendation of tools for the detailed valuation.

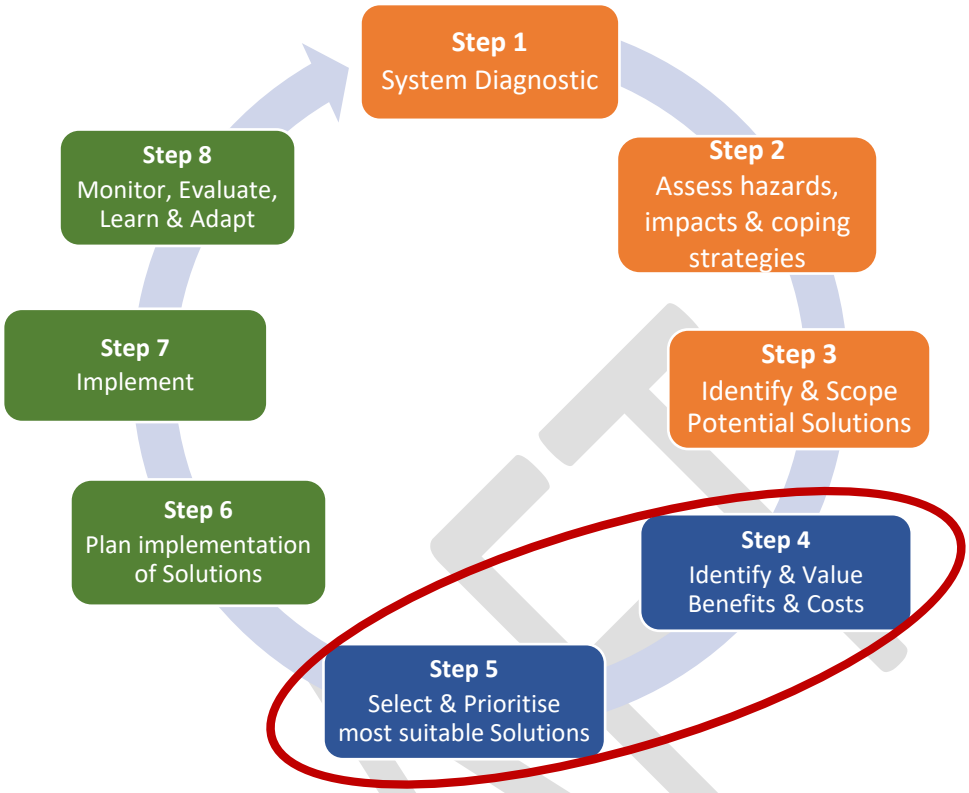
This first version of the guidance draws from literature, field experience and few case studies. Testing of the whole process is expected in the next step to learn, adapt and improve both guidance and practice.

At which stage of the project life cycle?

A process of eight steps is organized in three modules to cover all stages of the project cycle.

- If the project is at the design stage, you will start at Stage A (orange boxes in the figure below).
- If the project is at the implementation stage, you may start at Stage B (blue boxes) i.e. Step 4 if all steps of the Stage A have already been implemented. Otherwise, you will start with Step 1.
  Since NBS valuation can also support monitoring and evaluation, Steps 4 and 5 can be applied in combination with Step 8.
- Whatever the starting point, the process ends with Stage C (green boxes) i.e., Step 8.

Given the emphasis on NBS valuation, **this guidance focuses on Stage B, i.e. Steps 4 and 5** of the process.



Stage A. DIAGNOSTIC and IDENTIFICATION of POTENTIAL NBS for CDR

Stage A starts with the definition and diagnostic of the system under study. In Step 1, you define the boundaries and characteristics of the system: social, economic, environmental and governance-related (institutions, rules and policies), as well as key actors and stakeholders. In Step 2, you assess the vulnerability of the defined system to climate and disasters' risks. In Step 3, you identify solutions (based on nature or not) that may help to build the resilience of communities to climate and disasters' risks.[2]

Stage B. VALUATION of NBS and non-NBS for CDR

Stage B supports the valuation of the benefits and costs of the identified solutions and the selection of the most suitable ones, giving particular attention to NBS. Step 4 guides the identification and valuation of each potential solution. Step 5 helps to carry out a tradeoff analysis to prioritize and select the most suitable solutions for climate and disaster resilience in the given context.

Stage C. PLAN, IMPLEMENT and 'MELA'

Stage C supports the planning and implementation of the selected CDR solutions. Step 6 plans the implementation of the prioritized solutions and Step 7 helps to implement these. Step 8 designs a MELA (Monitoring, Evaluate, Learn and Adapt) system to improve the implementation of NBS as well as the integration and valuation process. Indeed, the full process from A to C will unlikely be linear and refinement through adaptive learning will be needed.

Detailed guidance is now provided for the implementation of Stage B.

[2] Optional climate and disaster risk assessment tools include e.g. CEDRIG (SDC developed), PACDR (Participatory Assessment of CLimate and Disaster RIsks), or VCA (Vulnerability and Capacity Assessment).

STAGE B. VALUATION of NBS and non-NBS for CDR

What is the Valuation of Nature-based Solutions?

NBS valuation is the process of understanding, describing, measuring and analyzing how the benefits, costs and impacts arising from the implementation of nature-based solutions for climate and disaster resilience are generated, received and perceived. This valuation goes beyond traditional analyses that focus primarily on monetary or biophysical aspects. Instead, it aims at comprehensively considering people's perceptions, attitudes, and preferences across social, economic, environmental, governance, as well as disaster and climate resilience dimensions. NBS valuation thus deals with multiple values that may conflict and may be difficult to translate into figures or single metrics.

STEP 4. Identify and value the benefits and costs of each solution

After the diagnostic of the context and the identification of potential solutions (Steps 1 to 3), all benefits and costs of each solution are identified with the relevant stakeholders, e.g. through a multi-stakeholder workshop. Then, depending on available time and resources (human and financial), a 'rapid valuation' and/or a 'detailed valuation' can be conducted, being aware that rapid assessments will likely bear more uncertainty and less accuracy in the results. Finally, the valuation outcomes will help to pre-select the most suitable solutions, NBS or non-NBS.

4.1 Identify the Benefits and Costs

Each solution provides benefits and incurs costs that can be direct and indirect, tangible and intangible. The table below characterises the different types of benefits and costs according to **five dimensions:** economic, environmental, social, governance-related, and climate and disaster resilience.

These dimensions were selected to provide a comprehensive understanding and assessment of the range of benefits and costs of both NBS and non-NBS, and to support a more informed comparison between the two types of solutions.

Dimension	Benefits	Costs
Economic	Monetary and non-monetary increase in individual or household economic and financial resources such as income, savings, and creation of small- or medium-enterprise. Noting the need to consider temporal aspects, i.e. how quickly these benefits will be received and how long they can be secured.	**Direct costs:** project installation (investment phase) and operation and maintenance during productive life. **Indirect costs:** costs affecting the project indirectly (environmental costs or the population's free time). **Tangible costs:** expected costs of the project (salaries, lease, operational inputs). **Intangible costs:** difficult to value in monetary terms (i.e., costs related to relationships with other communities that will favour access to markets). **Opportunity costs:** costs that society must forgo to produce a good or service.
Social	Improvements in social welfare such as community cohesion and empowerment, equal access to natural resources independent of gender and societal status, the potential to strengthen societal connectors that reduce tensions between	Social costs encompass a wide range of factors, including impacts on community/human welfare, equity, cultural values, and the distribution of burdens (and benefits) among different societal groups.

	people or groups, valuation of traditionalpractices, knowledge and culture.	Both the tangible and intangible social impacts need to be valued, with the aim of informing decision-making processes that prioritise sustainable and equitable outcomes for communities and ecosystems alike.
Environmental	Positive impacts of the solution on the environment, such as the strengthening of key regulating and supporting ecosystem services including the protection and enhancement of biodiversity, as well as benefits at the landscape scale. , such as minimisation of pollution, reduction of raw material consumption.	Include the creation, detection, remediation, and prevention of environmental degradation caused by a project, encompassing both direct and indirect impacts: loss of biodiversity, pollution, depletion of natural resources, the disruption of ecosystem services, as well as carbon emissions.
Governance	Contribution of the solution to inclusive and cross-sectoral governance for CDR, including multi-stakeholder and cross-sectoral governance as well as the contribution to national and sub-national policies.	Refer to the potential exclusion of some relevant sectoral groups (e.g. water in forestry interventions) reinforcing silo approaches, or the potential exclusion of community groups such as the more vulnerable (e.g. poor, women, youth). Governance costs also encompass intangible factors such as transparency, accountability, stakeholder engagement, and the capacity-building necessary to support sustainable management practices.
CDR	Enhanced climate adaptation and/or mitigation, as well as reduced likelihood and impact of hazards on people, ecosystems, food systems, property and infrastructure, considering also the scale of the risk reduction.	The solution or its implementation may affect CDR, reducing or constraining it. Climate and disaster resilience costs also include the economic losses avoided or mitigated through the NBS/Non-NBS solution, such as reduced damage to property and preserved livelihoods.

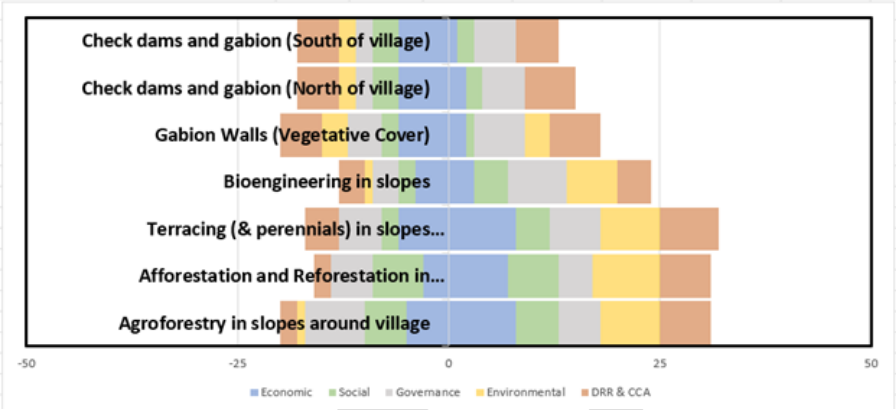
4.2 Rapid Valuation

For the rapid valuation, we propose a **tool developed in Excel** and annexed to this document. The tool is introduced in the first worksheet of the Excel document.

The table 1 below gives an overview of the scores given to costs (negative figures) and benefits (positive figures) of each solution. The scores have different colours, from highly positive in green, to highly negative in red. For each solution, the table 2 provides a summary of all costs (on the left side) and benefits (on the right side) across the five dimensions.

Nature-based Solution	Economic		Social		Governance		Environmental		DRR & CCA		Weights
	1	1	1	1	1	1	1	1	1	1	
	Benefits	Cost	Benefits	Cost	Benefits	Cost	Benefits	Cost	Benefits	Cost	
Agroforestry in slopes around village	8	-5	5	-5	5	-7	7	-1	6	-2	
Afforestation and Reforestation in upper catchment (mountains)	7	-3	6	-6	4	-5	8		6	-2	
Terracing (& perennials) in slopes around village	8	-6	4	-2	6	-5	7		7	-4	
Bioengineering in slopes	3	-4	4	-2	7	-3	6	-1	4	-3	
Gabion Walls (Vegetative Cover)	2	-6	1	-2	6	-4	3	-3	6	-5	
Check dams and gabion (North of village)	2	-6	2	-3	5	-2		-2	6	-5	
Check dams and gabion (South of village)	1	-6	2	-3	5	-2		-2	5	-5	
Max Points with weighting	9	9	9	9	9	9	9	9	9	9	

Hide Rows you don't want to have in the graph!



Comparison of the benefits and costs of each NBS and non-NBS across the 5 dimensions

How to Apply the Rapid Valuation Tool?

1) Contextualize and adapt your Rapid Valuation

- **Contextualize and adapt the statements in your Rapid Valuation:** In each dimension, 3 main criteria are proposed and described in statements to define costs and benefits. Since the statements cannot encompass all types of contexts and projects, they can be adjusted and specified by project team and key stakeholders, preferably with the support of a facilitator. For example, the social criteria 'community cohesion' and 'traditional practices and culture supported' may need more specific statements to facilitate understanding before scoring. The Excel table tool can be edited accordingly. Noting that a maximum of 3 statements is recommended for each benefit and cost of each dimension.

- **Use weighted scores to account for the importance of the dimensions:** While the dimensions are equally weighted by default (1), it is possible to change the weight (from 0,1 to 1) of some dimensions to give different emphases, depending on the project objectives and the local context. For example, a project aiming at social justice in distributing the benefits of climate adaptation may lower the importance of the economic dimension (e.g. to one fourth of the other dimensions, i.e. 0.25) and if the governance and environmental dimensions weight half of the other dimensions, you replace 1 by 0.5 (see tables below).

Nature-based Solution	Economic		Social		Governance		Environmental		DRR & CCA		
	1	1	1	1	1	1	1	1	1	1	*Weights*
	Benefits	Cost	Benefits	Cost	Benefits	Cost	Benefits	Cost	Benefits	Cost	
Agroforestry	8	-5	5	-5	5	-7	7	-1	6	-2	
Afforestation and Reforestation in upper catchment (mountains)	7	-3	6	-6	4	-5	8		6	-2	
Terracing (& perennials) in slopes around village	8	-6	4	-2	6	-5	7		7	-4	
Bioengineering in slopes	3	-4	4	-2	7	-3	6	-1	4	-3	
Riverbank Revitalization	2	-6	1	-2	6	-4	3	-3	6	-4	
Gabion Walls (Vegetative Cover)	2	-6	2	-3	5	-2		-2	6	-3	
Check dams and gabion (North of village)	1	-6	2	-3	5	-2		-2	5	-3	
Max Points with weighting	9	9	9	9	9	9	9	9	9	9	

By default, each dimension is weighted 1.

Nature-based Solution	Economic		Social		Governance		Environmental		DRR & CCA		
	0.25	0.25	1	1	0.5	0.5	0.5	0.5	1	1	*Weights*
	Benefits	Cost	Benefits	Cost	Benefits	Cost	Benefits	Cost	Benefits	Cost	
Agroforestry	2	-1.25	5	-5	2.5	-3.5	3.5	-0.5	6	-2	
Afforestation and Reforestation	1.75	-0.75	6	-6	2	-2.5	4		6	-2	
Terracing (& perennials) in slopes	2	-1.5	4	-2	3	-2.5	3.5		7	-4	
Bioengineering in slopes	0.75	-1	4	-2	3.5	-1.5	3	-0.5	4	-3	
Riverbank Revitalization	0.5	-1.5	1	-2	3	-2	1.5	-1.5	6	-4	
Gabion Walls (Vegetative Cover)	0.5	-1.5	2	-3	2.5	-1		-1	6	-3	
Check dams & gabions (North)	0.25	-1.5	2	-3	2.5	-1		-1	5	-3	
Max Points with weighting	2.25	2.25	9	9	4.5	4.5	4.5	4.5	9	9	

Adjusted weights (0.25 for economic, 0.5 for governance, 0.5 for environmental)

Be aware, it is not about the exact score! The purpose of this tool is not about obtaining absolute figures as the weighting and lack of information may involve some level of arbitrary assessment. It is rather about engaging in a participatory process to identify and compare the proposed solutions among themselves.

2) Define the Solutions to be Assessed in the Rapid Valuation

- **Define the most relevant solutions based on your risk assessment (Step 2 & 3):** Take the 5 to 15 most relevant solutions for your project or program area. Try to be specific enough to differentiate solutions for different geographic locations (e.g. tree plantings in slope; tree plantings in river fan).

- **Describe your solution as precisely as possible** (see table below) including information on, for example:
  - Location of the intervention (or solution to be implemented)
  - Scale of the intervention (in hectares, kilometers, etc.)
  - Targeted beneficiaries: distribution, number, location, socio-economic status, etc.
  - Approximate time required to provide benefits
  - Plant species (e.g. for trees, grasses, etc.)
  - Land titles and land use rights
  - Potential risks
  - Etc.

No.	Intervention Title	Description	Additional Comments
1	**Agroforestry in hills around village**	50 ha of agroforestry orchards: Mix of (productive) trees, shrubs, and crops to enhance soil structure, reduce surface runoff, and improve water absorption.	private land owners (land plots > 5 ha)
2	**Afforestation and Reforestation in upper catchment (mountains)**	200 ha of afforestation and reforestation (native trees) in slopes: Increasing forest cover upstreams through native tree species and shrubs.	land owned by Forest department
3	**Terracing (& perennials) in slopes around village**	Terracing in slopes (20 ha), combined with perennial plants.	community managed land
4	**Bioengineering in steep slopes**	Bioengineering for Slope Stability (on 5 ha): bioengineering techniques such as the use of vetiver grass, bamboo, and other vegetation to stabilize slopes	
5	**Riverbank Revitalization**	Planting native grasses, shrubs, or trees (willow) with deep root systems to stabilize soil and control erosion along riverbanks (2 km).	
6	**Gabion Walls (Vegetative Cover)**	500 m of Gabion walls North of village (wire cages filled with rocks as a structural barrier) with vegetative cover for additional stability and erosion control.	
7	**Check dams and gabion (North)**	Check dams and gabion structures in riverbed (North of village) to slow down water flow in streams and rivers, reducing the risk of flash floods.	
8	**Check dams and gabion (South)**	Check dams and gabion structures in riverbed/channel (South of village) using natural materials to slow down water flow in streams and rivers, reducing the risk of flash floods.	
10	***Enter NbS Title***		
11	***Enter NbS Title***		

It is helpful to define your solutions already as precisely as possible (e.g. on tree species to be planted), so that the cost-benefit valuation can be done more accurately.

3) Value the Pre-selected Solutions in a Participatory manner

- **Assess the cost and benefit of each solution for each dimension:** For each solution, respond to the criteria statements on costs and benefits for each dimension, with the relevant stakeholders.
- As introduced, you **can adjust the cost-benefit statements** of any dimension according to the contextual relevance and priorities of the stakeholders.

How to "value" or "score" your solution (NBS or non-NBS)?

- For the scoring of benefits: for no clear benefits choose 0; for low benefits choose 1; for medium-high benefits choose 2; for high benefits choose 3.
- For the rating of costs: for no clear costs, choose 0; low costs -1; medium-high costs -2 and high costs -3.
- The process is ideally accompanied by quantitative assessments of costs and benefits where possible.
- In case of disagreement between stakeholders, contact a specialized facilitator or conduct a detailed assessment.

In the following situations, more detailed in-depth assessments should be additionally conducted:

- The **cost-assessment** reveals **impact risks that are substantial and/or unknown**.
- There is a general lack of information on benefits and costs for some solutions.
- There are **conflicts or disagreements** on some scoring results leaving stakeholders perplexe over the most suitable solutions.
- Two similar scorings require more in-depth assessment.
- The special values that NBS bring need some quantification or more accurate qualitative assessment.

In such cases, the valuation of the concerned solutions will add results of a more detailed in-depth valuation.

4.3 In-Depth Valuation

The rapid valuation of benefits and costs can give a first overview of the different solutions, and of the value of NBS compared to non-NBS. More comprehensive or specialised tools will be suggested for detailed valuation of each dimension (see Tools Mapping). In the case of the economic valuation, more explanation will be given on the tool, as it is very specific to NBS. All presented tools are only suggestions, therefore do not hesitate to contact the authors if you experience unsatisfactory results with some of the tools.

The Economic Dimension

A cost-benefit analyses compares the situation with the intervention to the situation without the intervention, ideally a control site. As the latter may be difficult to identify or survey, a "before vs. after" comparison is often conducted, comparing the situation before NBS implementation with the situation after the NBS implementation. The assessment of economic factors typically forms an important element in evaluating adaptation strategies, often mandated in project appraisal and planning.

Economic and Financial Analysis (EFA)

Publishing Organisation	Langages available	Publishing year
SDC	EN, FR	2015

For what is the tool used?

To 1) assess the contribution of project interventions to the economic and social welfare in a region and country (called economic analysis); and 2) to examine the financial return for different project stakeholders (e.g. project participants, community members, public and private institutions, governments etc) that reveal financial incentives or constraining factors for participants – called financial analysis.

How is the tool applied?

A variety of EFA methods exist, and they should be used according to the project's context, content, approach, time scale and available resources. The most well-known EFA is the Cost-Benefit Analysis (CBA) applied when a clear attribution of costs and monetised benefits can be established. If not, the Cost-Effectiveness Analysis (CEA) compares alternative project approaches towards an objective that is difficult to estimate in monetary terms.

Required Skills

- Knowledge of local community and context
- One facilitator with experience in conflict sensitive program management recommended.

Required Time

Depending on depth, 1 to 2 days of literature study, workshop

Links

https://www.shareweb.ch/site/EI/Documents/Topics/CBA/how-to-note-efa-part-1-introduction.pdf

Various economic tools and methodologies assess solutions in monetary terms and compare them with alternative solutions.

- **Cost-benefit analysis (CBA)** used when the project interventions and effects can be clearly attributed; and when costs and benefits can be monetised (for example – agroecological practices increase the yields and incomes of farmers).
- **Cost-Effectiveness Analyses (CEA)** are applied to compare different project approaches for a specific project goal, but where the monetary gains/benefits are difficult to assess (link to SDC, 2015). Cost-effectiveness analysis compares the costs of different options producing the same set of

outcomes; or said differently, it compares relative monetary costs with quantified non-monetary outcomes.

- **Least-cost analysis (LCA)** identifies the most economical alternative for achieving specified benefits.

Net results

Valuation usually consists of assessing the net benefits of an intervention for a given period (years, months, quarters) and estimating, through appropriate indicators, how recommendable these actions may or may not be. For this purpose, costs, and benefits are identified and broken down into their most important components, resulting in the difference between the two: the net income. For the cost-benefit analysis of a project, the cost flow consists of the investment flow and the operating flow, which are prepared for the economic horizon of the project. If the cash flow subtracts the cost of financing (principal and interest) from this result and if the remaining amount remains positive, then the project will generate enough profit during that year to cover all production costs, as well as credit costs, and still leave an amount of profit.

The Social Dimension

The social dimension is about the influence of an adaptation option on the social mesh present in a local community. Social valuation may use so-called "social prices", representing the genuine cost to society of a given product or service used or produced in the project. The pollution produced by activities which implies social costs do not always coincide with private costs. These costs, in economic evaluation, are obtained by multiplying the quantities of resources used by their respective social prices or shadow prices. This implies that taxes, subsidies, and any other element that alters the price actually paid (or earned) by society must be subtracted or added to market prices, as appropriate.

If a more in-depth assessment of the influence on conflict is necessary, a conflict analysis such as the “Do No Harm Analysis” of SDC can be used (see below). Alternatives can be the Good Practice Note on Conflict, Sensitivity Peacebuilding and Sustaining Peace of the UNSDG (see here) or a simple divider and connector analysis such as described on ireenees.net (see here).

Social Costs and Benefits Analysis		
Publishing Organisation NEF and CARE	**Langages available** EN	**Publishing year** 2014
For what is the tool used?		
To assess social costs and benefits in a simplified manner with a focus on climate change adaptation projects at local scale. Through identification of the most efficient and effective solutions in generating social benefits for the population and communities. The simplified framework aims at building the capacity of local governments and NGOs to undertake such analyses.		
How is the tool applied?		
Through a step-by-step process: 1) scoping for CBA; 2) ways to define outcomes and impacts (benefits) against which the success or failure of an intervention is to be evaluated; 3) data collection systems to monitor change in a useful and robust way; 4) quantitative analysis. Case study-based approach.		
Required Skills • Knowledge of context including local communities • One facilitator with experience in social assessments		**Link** https://careclimatechange.org/wp-content/uploads/2014/08/CostBenefit.pdf
Required Time Depending on depth, 1-2 days of context analysis and multi-stakeholder workshop		

Conflict Sensitive Programme Management: Do No Harm Analysis

Publishing Organisation	Languages available	Publishing year
SDC	EN, ES, FR	2005

For what is the tool used?

To analyse more in-depth how an adaptation option influences the existing connecting and dividing factors in a community. Can be used for single interventions up to whole programs.

How is the tool applied?

In a workshop, dividers and tensions as well as connectors and local capacities for peace are analysed. The adaptation options can then be assessed in how they influence these connectors and dividers positively or negatively.

Required Skills

- Knowledge of local community and context
- One facilitator with experience in conflict sensitive program management recommended.

Required Time

Depending on depth, 1 - 2 days of literature study, workshop

Links

- Methodic Tip Sheet (EN)
- Overview and more languagesOverview and more languages

The Environmental Dimension

There are several tools to go into more depth of the environmental aspects of adaptation options. These are probably also one dimension, where NBS generally outperform e.g. grey solutions - nevertheless, it should be noted that also NBS can have negative effects on the environment.

To explore the positive interactions an adaptation option can have on the environment, it helps to use the NBS Benefits Explorer. The tool highlights what potential benefits an intervention can have and also helps in identifying calculation methods to further analyse these benefits in-depth. If you want to go more in-depth into local Biodiversity, the B-INTACT tool can help to compare different scenarios. Finally, the TESSA tool covers methodologies to analyse the influence of adaptation options on natural capital and a wide variety of ecosystem services.

NBS Benefits Explorer

Publishing Organisation	Languages available	Publishing year
Pacific Institute and others	EN	2020

For what is the tool used?

To provide a high-level overview over the type of NBS activities that can be undertaken and their benefits. It additionally presents a variety of indicators and calculation methods.

How is the tool applied?

First one specifies the mode of exploration (from Activities → Benefits or Benefits → Activities) and the local habitat as well as the planned general intervention. After this, activities and benefits which are applicable are shown and can be explored and exported.

Required Skills

- No special skill required

Required Time

From minutes to hours.

Links

- Website (EN)
- How to Use the Tool
- PDF-Guide

Toolkit for Ecosystem Service Site-Based Assessment (TESSA)

Publishing Organisation	Languages available	Publishing year
BirdLife International and others	EN	2022 (V3.0)

For what is the tool used?

To identify significant eco-system services and stocks of underlying natural capital (especially soil, water, biodiversity), to measure them and to communicate results.

How is the tool applied?

Six steps are followed (Preparation, Preliminary Scoping, Determination of Alternative State, Planning of assessment, Data Collection, Data Analysis and Communication). Based on the context and goal of the assessment, different natural assets (soil, water, biodiversity) and eco-system services (in the areas of climate, cultivated goods, recreation, water, wild goods, cultural, coastal) can be analysed.

Required Skills

- Designed for people without substantial technical expertise and financial resources
- Some specific knowledge in natural capital, ecosystem services can help.

Required Time

Depending on the dimension to analyse, it can take from days to months.

Link

- Website where the tool can be downloaded (EN)

Biodiversity Integrated Assessment and Computation Tool (B-INTACT)

Publishing Organisation	Langages available	Publishing year
FAO	EN	2020

For what is the tool used?

To show the difference in biodiversity intactness between two scenarios – one with, one without the implementation of a project (adaptation option). This can be used to assess one adaptation option more in-depth or to compare different options with their effects regarding bio-diversity.

How is the tool applied?

The Excel-tool provides masks for the input of context-specific data and analyses from this the outcomes on biodiversity from land use changes, habitat fragmentation, infrastructure and human encroachment. The final result is expressed in a “Mean Species Abundance (MSA)” metric which can be compared between different scenarios.

Required Skills

- Basic Excel Knowledge
- Knowledge of the context and planned activities and of possible influence of different adaptation options on land use changes
- To acquire some of the inputs, experts may have to be consulted.

Required Time

One to several days, depending on the complexity and availability of context information.

Links

- Website (EN)
- Flyer
- PDF-Guide

The Governance Dimension

Governance enablers are defined as processes, conditions or factors playing a positive role in how government and stakeholders organize to make policy decisions on NBS at different stages (precondition, planning and design, implementation).

Within this scope, you may assess the political economy and interactions of political and economic processes and hidden patterns that shape actors' behaviours and relationships to understand the influence on positive and negative forms of power a solution entails can be analysed. The "Political Economy and Power Analysis" (PEPA

NBS Governance Enablers

Publishing Organization	Langages available	Publishing year
IIASA and GEDT	EN	2021

For what is the tool used?

To build or contribute to a governance framework that enables successful NBS implementation. Critical governance enablers for NBS include: polycentric governance (multiple institutional scales and/or sectors); co-design (innovative stakeholder participatory processes); pro-NBS interest and coalition groups (organized pressure groups that advocate for NBS); and financial incentives (esp. for community-based implementation).

How is the tool applied?

Identify governance enablers defined as processes, conditions or factors playing a positive role in how government and stakeholders organize to make policy decisions on NBS at different stages (precondition, planning and design, implementation). Analyse different categories of enablers (political, socio-cultural, financial, human resources, legal and institutional) through stakeholder participation and literature review to define the most critical governance enablers needed in the given context and project.

Required Skills

- Governance of natural resources
- Multi-stakeholder facilitation

Link

https://careclimatechange.org/wp-content/uploads/2014/08/CostBenefit.pdf

Required Time

Depending on depth, 1 to 3 days of context analysis and multi-stakeholder workshop or other form of participation

Political Economy and Power Analysis PEPA

Publishing Organisation:	Languages available:	Publishing year:
HELVETAS	EN	2021

For what is the tool used?

To analyse more in-depth how what interactions between political and economic processes exist and what shapes the local actors behaviours and relationships. This gives a foundation to analyse the influence an adaptation option might have on the context.

How is the tool applied?

A 5-step process is followed, including identification and mapping of actors and agents, resource flows, spaces, exogenous factors, structural factors and the power relation between actors. Discussion is held based on the mapping and identified relations. The tool can be used flexible to go more or less in-depth.

Required Skills

Links

- For basic analysis: Personal experience and local context knowledge is enough
- For an in-depth assessment: Expertise in Power Analysis recommended

Required Time
Flexible: 1h analysis for basic overview over the system, One-Day Workshop for more in-depth mapping, One-Month detailed analysis with external consultant.

- Article on PEPA (EN)
- Manual (EN)
- Why political economy matters in the water sector (EN, RésEAU Network, 2023)

The Climate and Disaster Resilience Dimension

Risk reduction benefits can be valued using process-based physical models and damage assessment to quantify the avoided damages of climate impacts and natural hazards. Quantifying the avoided damage cost, the preferred approach, may involve local high-resolution data and modelling. Other methods can be considered, such as stated preferences and hedonic pricing.

MiResiliencia

Publishing Organisation:	**Languages available:**	**Publishing year:**
"Open Source Developer". Version 1.2.0 developed by Christoph Suter-Burri and commissioned by Swiss Red Cross	English, Spanish	2024

For what is the tool used?

Web-GIS application and methodological guidelines for risk analysis. The Web-GIS application facilitates the quantification of risk of natural hazards and cost-benefit ratio of risk mitigation measures through a user-friendly interface.

How is the tool applied?

To calculate the risks and cost-benefit ratio, hazard information (with and without measures, incl. information on intensity and frequency) and information on existing buildings, roads, agricultural land, etc. is uploaded or digitalized in the web-GIS. Parameters to assess the possible damage/impact on infrastructure and people (e.g. value of a building, physical vulnerability of a building for a specific hazard and its intensity) are predefined for the specific context but can be changed. Additionally, the resilience level of the system (with and without measure) can be indicated and considered in the calculation.

Required Skills & Resources

- Basic GIS skills
- Hazard information
- Good knowledge about hazard and risk analysis

Required Time
Flexible, depending on participants' skills and familiarity with the tool.

Link

- The App can be downloaded from the SRC website Guidelines for Hazard and Risk Assessment

STEP 5. Select and prioritise the most suitable CDR solutions

In the previous step, the valuation has appraised the costs and benefits of each solution for each of the 5 dimensions The total scoring has led to the pre-selection of the most suitable solutions for CDR in the given context and project area. However, even the best solutions may come with trade-offs and side effects that are sometimes hidden. Besides, the pre-selection may not have led to a clear-cut and agreed decision on the priority solutions proposed for implementation.

For these reasons, Step 5 further refines the selection and considers potential interactions, direct and indirect effects (including between dimensions of the solution itself), and trade-offs generated by the implementation of the solution.

5.1 Rapid Valuation

A very light form of participatory tradeoff analysis is proposed for the rapid valuation. For each pre-selected solution, the participants list all types of implementation effect or interaction, direct and indirect. To facilitate the discussion, all effects and interactions can be mapped out on a flipchart and listed in a table with (+) for a positive effect and (–) for a negative effect. Up to 3 + or – can be used to weight the intensity of the effect, strongly positive for (+++) and strongly negative for (- - -). The highest net scores give an indication of the solutions to prioritise for implementation.

5.2 Detailed Valuation

The following trade-off analysis tool is proposed for the detailed valuation.

Trade-Off Analysis		
Publishing Organisation Grenfell Campus, NL, Canada	**Languages available** EN	**Publishing year** 2023
For what is the tool used?		
To assess the trade-offs and synergies in ecosystem services for sustainability. Through a framework analysing the ES types, drivers and integrated approaches. To understand key factors and relationships at play in minimising ES trade-offs and maximising positive ES synergies.		
How is the tool applied?		
Supports comprehensive understanding of the core ES determinants and their relationships affecting ES trade-offs and synergies. Analytical framework linking the major factors concerned, their relationships and dynamics: A) ES types; B) Demand types; C) Drivers; D) Coordinating approaches; E) Trade-offs and Synergies; F) ES win-win outcomes; and G) Sustainability of the Environment, Society and Economy.		
Required Skills Good understanding of ES, their interactions and potential synergies	**Link** https://www.frontiersin.org/articles/10.3389/fsrma.2023.1129396/full	
Required Time From 1 to 2 days (to be confirmed through testing)		

Given that the process is iterative and adaptive, in case no agreement can be reached on the final selection of solutions, the participants have the possibility to go back to Step 3 to revisit the proposed solutions, or Step 4 to deepen the analysis of identified solutions and/or the valuation of their costs and benefits.