SWISS NGO DRR PLATFORM
Climate & Disaster Resilience

GUIDANCE MANUAL

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

SEPTEMBER 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 (infrastructure-based) and hybrid 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. The aim is to support decision-making on prioritising 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 interventions of international and local NGOs.

[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'.

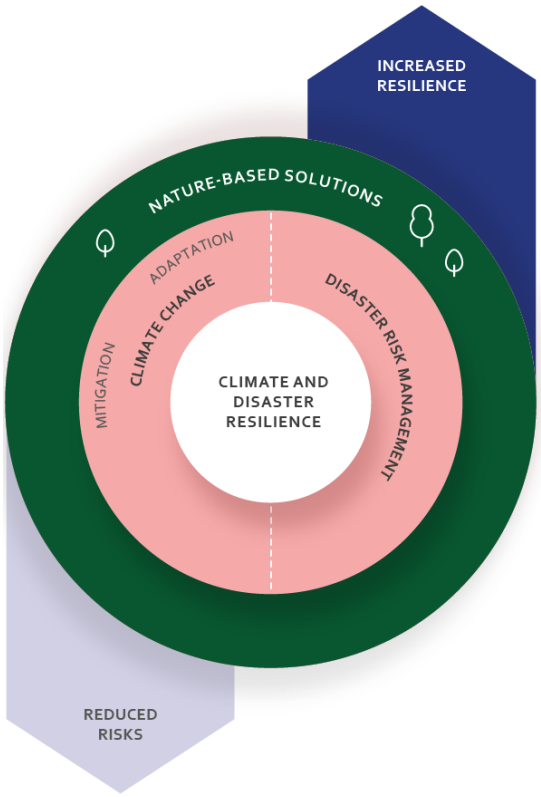


Figure 1: Adapted from HELVETAS, Water-Food-Climate Strategy 2023

Key definitions

Nature-based Solutions (NbS)
"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." (UNEA Resolution 5, 2022).

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

Climate and disaster resilience (CDR)
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." (UNFCCC, 2021).

Objectives and scope

A 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 and costs of NbS need to be valued and compared with other non-NbS, to prioritise and implement the most appropriate solutions.
- **Supporting advocacy and justification of NbS versus non-NbS with stakeholders:** The participatory process can help stakeholders understand the manifold benefits and advantages of NbS over other solutions, or the need of a combination of NbS and non-NbS.
- **Support of monitoring and evaluation of NbS:** Valuation further supports monitoring and evaluation initiatives related to NbS.

The present guide focuses primarily on the first point mentioned above, the **prioritisation and selection of the most suitable solutions for climate and disaster resilience**. There is a range of available tools contributing to assessing CDR solutions (nature-based or not), some of which are recommended by the Swiss NGO DRR Platform. This guidance proposes an integrative and participatory process that facilitates the operational integration of NbS into project life cycles. The cost of valuation work (in terms of required time, human resources and budget) will also be considered, focusing on the rapid valuation and recommending tools for the in-depth valuation.

This first version of the guidance draws from literature, field experience and a 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 organised in three modules to cover all stages of the project cycle (Figure 2).

- If the project is at the design stage, you will start at Stage A.
- If the project is at the implementation stage, you may start at Stage B, i.e. Step 4 if all steps of 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 culminates with Stage C, i.e., Step 8.

Given the emphasis on NbS valuation, **this guidance focuses on Stage B, i.e. Steps 4 and 5** of the project life cycle.

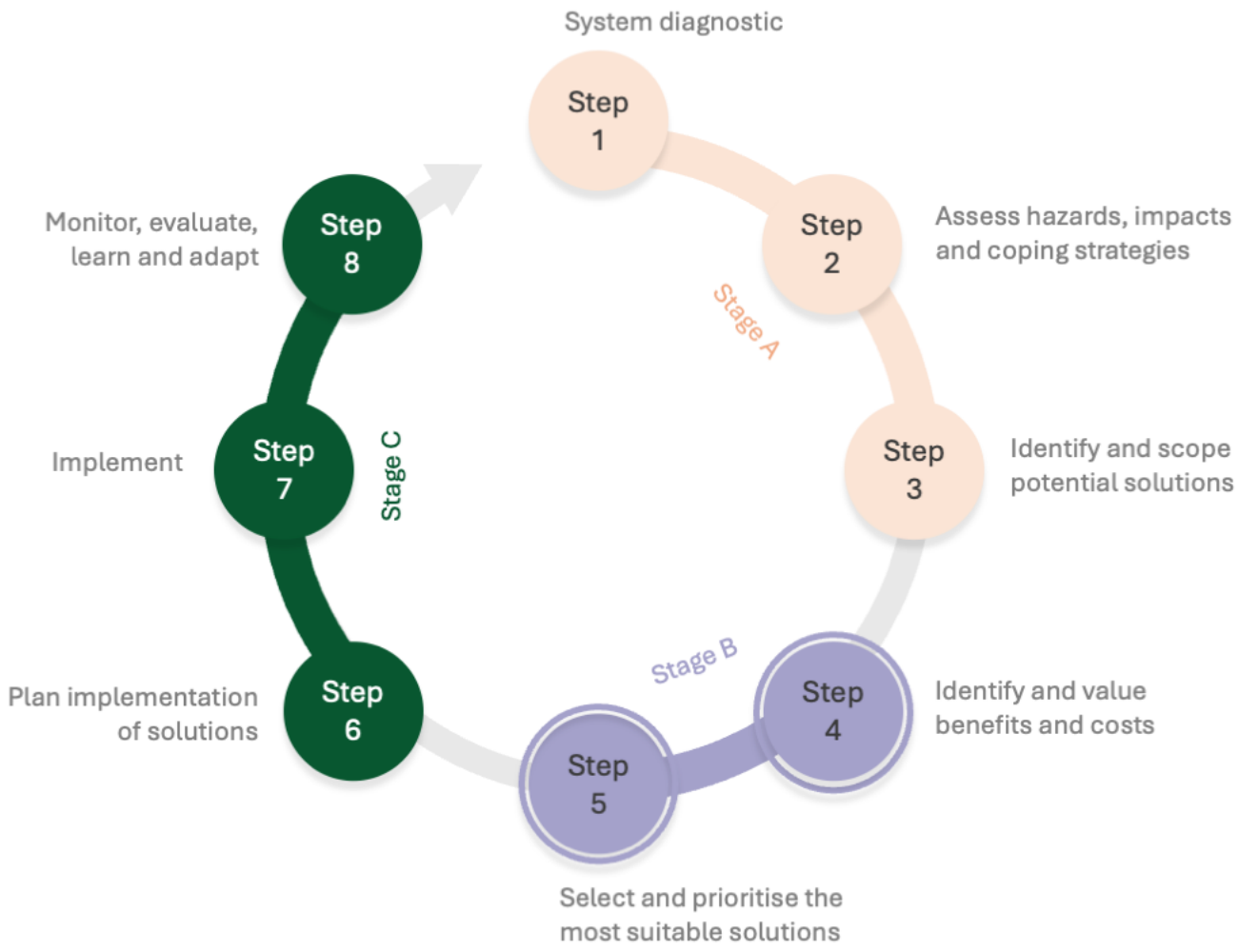
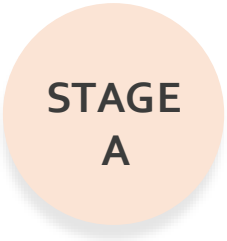
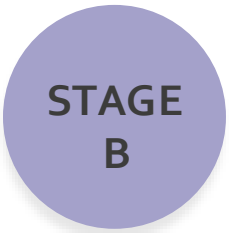


Figure 2: Integration of the valuation steps into the project cycle.



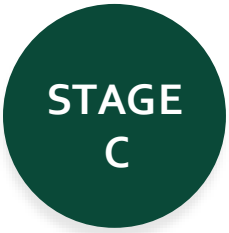
Stage A. DIAGNOSTIC and IDENTIFICATION of POTENTIAL SOLUTIONS for CDR

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 disaster risks. In Step 3, you identify solutions (based on nature or not) that may help to build the climate and disaster resilience of communities.[2]



Stage B. VALUATION of SOLUTIONS 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 valuation of each potential solution. Step 5 helps to carry out a trade-off analysis to prioritise 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 solutions. Step 6 plans the implementation of the prioritised 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 identification and valuation process. Indeed, the full process from A to C will unlikely be linear and refinement through adaptive learning and management will be needed.

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

STAGE B. VALUATION of SOLUTIONS for CDR

The valuation of solutions for CDR is the process of understanding, describing, measuring and analysing how the benefits and costs arising from the implementation of solutions for climate and disaster resilience are generated, received and perceived. While promoting nature-based solutions, 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, and climate and disaster resilience dimensions. This valuation therefore deals with multiple values that may conflict and may be difficult to translate into figures or single metrics.

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

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

Benefits and costs of the solutions identified in Stage A occur across different dimensions. It is important that all relevant stakeholders understand the diversity of how benefits and costs of solutions can materialise. This common understanding can be achieved through a multi-stakeholder workshop. To account for limited time and resources (human and financial), a 'rapid valuation' can be conducted. Rapid assessments will likely bear more uncertainty and less accuracy in the results. If resources allow (and uncertainty of results of the rapid valuation are too high), an 'in-depth valuation' can then be conducted. The outcomes of the rapid and in-depth valuations will help to pre-select the most suitable solutions, based on nature or not.

4.1 Understand the Benefits and Costs

Each solution provides benefits and incurs costs that can be direct and indirect, as well as 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 solutions, 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 (e.g., 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 people or groups, valuation of traditional practices, knowledge and culture.	Social costs encompass a wide range of factors, including impacts on community and human welfare, equity, cultural values, and the distribution of burdens among different societal groups. 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, or 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 processes and cross-level governance, as well as potential recommendations on 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. Climate and disaster resilience benefits include the economic losses avoided or mitigated through the solution, such as reduced damage to property and preserved livelihoods.	The solution or its implementation may affect CDR, reducing or constraining it if risks of economic and non-economic losses and damages remain or materialise only after a long time. CDR costs also refer to the creation of new risks (e.g. if new settlements are built in hazardous zones after the implementation of the solution).

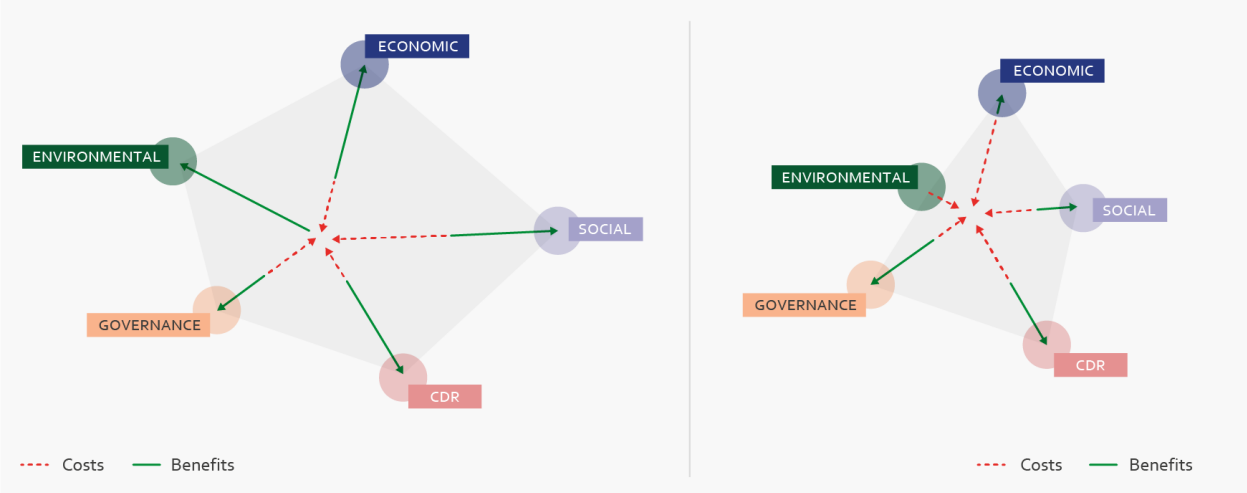


Figure 3: Costs and benefits are identified across 5 dimensions. For example: agroforestry (left) and check dams (right).

4.2 Rapid Valuation

For the rapid valuation, we propose a **tool developed in Excel** (Rapid NbS Valuation Tool) and annexed to this document. The tool is introduced in the first worksheet of the Excel file.

The results of the rapid valuation are provided in two ways: a) Overview of the scores given to costs (negative figures) and benefits (positive figures) of each solution. The scores are either green (positive) or red (negative), with colours being more intense the higher the positive or negative value. b) Summary of all costs (left of the '0' value) and benefits (right of the '0' value) of all solutions across the five dimensions.

5 dimensions:	Economic		Social		Governance		Environmental		CDR	
	Benefits	Costs	Benefits	Costs	Benefits	Costs	Benefits	Costs	Benefits	Costs
Agroforestry	8	-5	5	-5	5	-7	7	-1	6	-2
Afforestation and reforestation in upper watershed	7	-3	6	-6	4	-5	8		6	-2
Terracing in slopes around village	8	-6	4	-2	6	-5	7		7	-4
Riverbank revitalization	2	-6	1	-2	6	-4	3	-3	6	-4
Check dams and gabion close to the village	1	-6	2	-3	5	-2		-2	5	-3

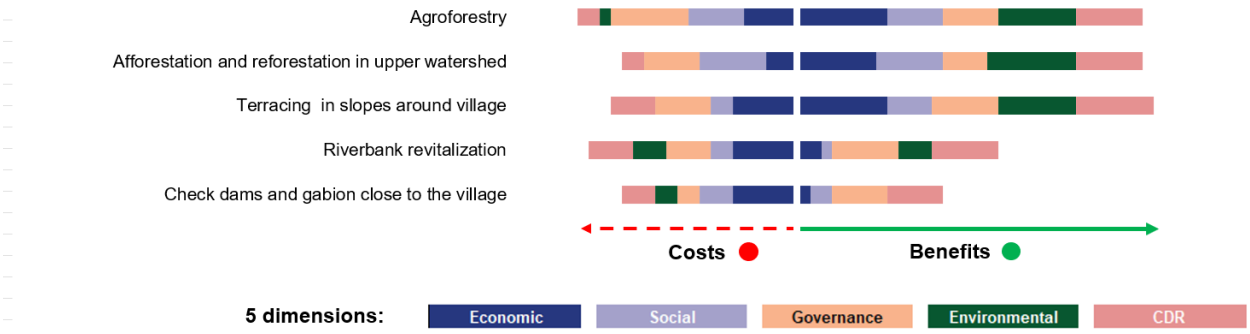


Figure 4: Comparison of the benefits and costs of each solution across the five dimensions.

How to Apply the Rapid Valuation Tool?

1) Contextualise and adapt your Rapid Valuation

- **Contextualise and adapt the criteria descriptions in your Rapid Valuation:** For each dimension, three main criteria are proposed and described to define costs and benefits. Since the descriptions cannot encompass all types of contexts and projects, they can be adjusted and specified by the 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 descriptions to facilitate understanding before scoring. The Excel tool can be revised accordingly.

- **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 0,9) of selected 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 examples below).

5 dimensions:	Economic		Social		Governance		Environmental		CDR	
No adjustment of weights:	1	1	1	1	1	1	1	1	1	1
	Benefits	Costs	Benefits	Costs	Benefits	Costs	Benefits	Costs	Benefits	Costs
Agroforestry	8	-5	5	-5	5	-7	7	-1	6	-2
Afforestation and reforestation in upper watershed	7	-3	6	-6	4	-5	8		6	-2
Terracing in slopes around village	8	-6	4	-2	6	-5	7		7	-4
Riverbank revitalization	2	-6	1	-2	6	-4	3	-3	6	-4
Check dams and gabion close to the village	1	-6	2	-3	5	-2		-2	5	-3

Benefits Costs

By default, each dimension is weighted 1.

5 dimensions:	Economic		Social		Governance		Environmental		CDR	
Adjusted weights:	0.25	0.25	1	1	0.5	0.5	0.5	0.5	1	1
	Benefits	Costs	Benefits	Costs	Benefits	Costs	Benefits	Costs	Benefits	Costs
Agroforestry	2	-1.25	5	-5	2.5	-3.5	3.5	-0.5	6	-2
Afforestation and reforestation in upper watershed	1.75	-0.75	6	-6	2	-2.5	4		6	-2
Terracing in slopes around village	2	-1.5	4	-2	3	-2.5	3.5		7	-4
Riverbank revitalization	0.5	-1.5	1	-2	3	-2	1.5	-1.5	6	-4
Check dams and gabion close to the village	0.25	-1.5	2	-3	2.5	-1		-1	5	-3

Benefits Costs

Figure 5: Equal weights (1) (above) or adjusted weights, e.g. economic (0,25), governance (0,5) and environmental (0,25) (below).

Be aware, it is not about precise absolute scoring! The potential lack of data and information may involve some level of subjectivity and arbitrary assessment. The focus of the rapid valuation is engaging multiple stakeholders in a participatory process to 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 most relevant solutions for your project or program area. We recommend including at least five solutions, and no more than 15 for a meaningful comparison. Try to be specific enough to differentiate solutions for different geographic locations (e.g. tree plantings on an identified 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
    - Scale of the intervention (in hectares, kilometres, 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 landowners (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 upstream 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 stabilise slopes.	
5	**Riverbank revitalisation**	Planting native grasses, shrubs, or trees (willow) with deep root systems to stabilise 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.	
9	***Enter NbS Title***		
10	***Enter NbS Title***		

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

- **Assess the cost and benefit of each solution for each dimension:** For each solution, participants respond to the six criteria descriptions on the costs and benefits of each dimension.
- As introduced, you **can adjust the criteria description** of any dimension according to the context and priorities of the stakeholders.

How to "value" or "score" your solution?

- Scoring of benefits: for no clear benefits choose 0; low benefits 1; medium-high benefits 2; high benefits 3.
- Scoring of costs: for no clear costs, choose 0; low costs -1; medium-high costs -2 and high costs -3.
- The process is ideally substantiated by quantitative assessments of costs and benefits where possible.
- In case of disagreement between stakeholders, contact a specialised facilitator or conduct an in-depth valuation.

A more in-depth valuation should also be conducted in the following situations:

- The cost-assessment reveals impact risks that are substantial and/or unknown.
- There is a general lack of information on benefits and costs of some solutions.
- Some scoring results have raised disagreements or conflicts, leaving stakeholders perplex over the most suitable solutions.

- The comparison of two solutions with similar scorings is not conclusive.
- The special values that NbS bring need quantification or more accurate qualitative assessment.

In such cases, a more detailed in-depth valuation will complement the rapid valuation outcomes.

4.3 In-Depth Valuation

The rapid valuation of benefits and costs gives a first overview of the value of NbS compared to grey and hybrid solutions. More comprehensive or specialised tools are available for an in-depth valuation of each dimension. All presented tools are suggestions, therefore do not hesitate to contact the authors if you experience unsatisfactory outcomes with some of the tools.

The Economic Dimension

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

- The **cost-benefit analysis (CBA)** is used when the project interventions and effects can be clearly attributed; and when costs and benefits can be monetised (e.g. agroecological practices increase the yields and incomes of farmers).
- The **cost-effectiveness analysis (CEA)** is applied to compare different project approaches for a specific project goal, but where the monetary benefits are difficult to assess. The cost-effectiveness analysis compares the costs of different solutions producing the same set of outcomes; in other words, it compares relative monetary costs with quantified non-monetary outcomes.
- The **least-cost analysis (LCA)** identifies the most economical alternative for achieving specified benefits.

Economic tools often compare situations ‘with vs. without' the intervention, ideally a control site. As the latter may be difficult to identify or survey, a comparison ‘before vs. after' implementation of the solution is often conducted. The economic and financial assessment (e.g. EFA) may also be used in the evaluation of adaptation strategies for project appraisal and planning.

Economic and Financial Analysis (EFA)

Publishing Organisation	Languages 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 reveals financial incentives or constraining factors for participants.

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
- Facilitator with experience in economic and financial analysis recommended.

Required Time

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

Links

EFA Method_SDC

The Social Dimension

Compared to the other dimensions, much fewer tools are available to support the in-depth valuation of social costs and benefits, with particular attention to NbS. Valuing social aspects such as human wellbeing, life sustaining, social welfare, equity and justice is often complex and resource consuming. While methods like the social cost-benefit analysis have their limitations in quantifying - and sometimes monetising - social and cultural values, few key principles (SEI, 2022) can be applied to ensure that the selected solution can lead to just and equitable outcomes.

In addition, the context of the project or the valuation process itself may require tools to support consensus building and the resolution of conflicts between stakeholders, such as the "Do No Harm Analysis" of SDC, the Good Practice Note on Conflict, Sensitivity Peacebuilding and Sustaining Peace of the UNSDG, or a simple Divider and Connector Analysis on ireenees.net.

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 the 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
- Facilitator with experience in social assessments

Link

Social CBA_NEF & CARE

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 a solution 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 solutions 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.

Links

Methodic Tip Sheet SDC

Required Time

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

The Environmental Dimension

A range of tools are available for in-depth assessment of the environmental dimension. While NbS generally outperform other solutions (like grey ones) on the environmental benefits, it should nevertheless be noted that also NbS can have negative effects on the environment, i.e. incur environmental costs.

To explore the positive interactions a solution may have on the environment, the NBS Benefits Explorer can be used. The tool also helps to identify calculation methods to further assess these benefits. More specifically on local biodiversity, the B-INTACT tool helps to compare different scenarios. Finally, the TESSA tool proposes methodologies to analyse the influence of solutions on the natural capital and on a 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

Links

Website (EN)

Required Time
From minutes to hours.

How to Use the Tool
PDF-Guide

Toolkit for Ecosystem Service Site-Based Assessment (TESSA)

Publishing Organisation
BirdLife International and others

Languages available
EN

Publishing year
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.

Link

TESSA V2.0 (EN)

Biodiversity Integrated Assessment and Computation Tool (B-INTACT)

Publishing Organisation
FAO

Langages available
EN

Publishing year
2020

For what is the tool used?

To show the difference in biodiversity intactness between two scenarios – with and without project implementation. This can be used to assess one adaptation option more in-depth or to compare different options with their effects on biodiversity.

How is the tool applied?

The Excel tool provides masks for the input of context-specific data and analyses the outcomes on biodiversity from land use changes, habitat fragmentation, infrastructure and human encroachment. The 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 CDR solutions 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

B-INTACT website (EN)
Flyer
PDF-Guide

The Governance Dimension

In-depth assessment of the governance dimension encompasses processes, conditions and factors playing a role in how government and stakeholders organise to make governance decisions at different stages of the intervention (precondition, planning and design, implementation). The NBS Governance Enablers tool helps to build or contribute to a framework enabling successful NbS implementation.

To understand the influence of a solution on various forms of power, you may also assess the political economy and identify hidden patterns that shape behaviours and relationships between actors.

NBS Governance Enablers

Publishing Organisation:	Languages 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 (organised 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 organise 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

- Experience in governance of natural resources
- Multi-stakeholder facilitation

Links

Catalyzing Innovation: Governance Enablers of Nature-Based Solutions

Required Time

Depending on depth of assessment, 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 Swiss Intercooperation	EN	2021

For what is the tool used?

To analyse more in-depth how and 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 a solution 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 flexibly for different levels of analysis.

Required Skills

- 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 for detailed analysis with an external consultant.

Links

PEPA Manual_HSI (EN)

The Climate and Disaster Resilience Dimension

The in-depth assessment of climate and disaster resilience encompasses aspects influencing the capacity of people and communities to anticipate, accommodate, or recover from the effects of climate change or of a hazardous event, as well as adapt and transform development pathways in the longer term.

The benefits of risk reduction can also be valued by quantifying the avoided damages due to climate change and hazards. Tools range from GIS applications (e.g. MiResiliencia), local high-resolution data and modelling, to stated preferences and hedonic pricing.

MiResiliencia

Publishing Organisation:
"Open Source Developer". Version 1.2.0 developed by Christoph Suter-Burri and commissioned by the Swiss Red Cross

Languages available:
English, Spanish

Publishing year:
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 or 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 intervention) 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

Guidelines for Hazard and Risk Assessment

STEP 5. Select and prioritise the most suitable CDR solutions

In the previous step, the valuation 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. In addition, 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 potential trade-offs generated by the implementation of the solution.

5.1 Rapid Valuation

A very light form of participatory trade-off 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 three (+) or (–) can be used to weight the intensity of the effect, (+++) for strongly positive and (---) for strongly negative. The highest net scores give an indication of the solutions to prioritise for implementation.

5.2 In-Depth Valuation

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

Trade-off Analysis

Publishing Organisation	Languages available	Publishing year
Grenfell Campus, NL, Canada	EN	2023

For what is the tool used?

To assess the trade-offs and synergies in ecosystem services (ES) 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
Trade-off Analysis Le et al. 2023

Required Time
From 1 to 2 days (to be confirmed through case studies)

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 to Step 4 to deepen the analysis of identified solutions and/or the valuation of their costs and benefits.

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About the Swiss NGO DRR Platform

The Swiss NGO DRR Platform is a network of professionals from non-government organisations (NGOs) dedicated to increasing the resilience of women and men, communities and governments through disaster risk reduction and climate change adaptation. It strives to enhance the quality of services delivered by Swiss NGOs related to disaster risk and climate change, promotes the development of know-how and experience, provides guidance to increase effectiveness and advocates for risk-informed development, disaster risk reduction and climate change adaptation in order to increase resilience.

Under the Swiss NGO DRR Platform's 2019–2025 work programme, a working group on Nature-based Solutions (NbS) has been operating since 2020 with the aim of enhancing the understanding and improving the practices of NbS.

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