Making the right decisions for nature: a practical guide to implement Nature-based Solutions

2022

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With support from MAVA FONDATION POUR LA NATURE

FOREWORD

This document developed thanks to the financial support of the MAVA Foundation is part of a project aiming to **increase knowledge about the economic and business features of Nature-based Solutions (NbS)**. It provides tools and arguments of interest for investing resources, planning, and carrying out the necessary conditions to implement NbS. Based on the study of existing literature as well as feedback from experience in NbS assessment for operationalization, it aims to fill the gap in guidance for the implementation of NbS.

To this end, we urge decision-makers, project holders, public and private procurers to adopt the tools summarized in this document and commit to catalysing a shift in the areas of policy and decision-making. To facilitate this transition, the major levers addressed in this document are as the following:

✓**Business and economic argument** to provide solid cases for project holders to advocate for NbS before decision-makers;

✓**Capacity building** to empower project holders with tools, resources and engaged communities to create knowledge and evidence on NbS projects responding to specific issues and benefiting the public and private sectors;

✓**Investment solutions** to guide project holders to define the most suitable funding solution and source for their project;

✓**NbS Public procurement guidance** to give the keys to public and private providers to favour NbS project over conventional infrastructures in response to specific issues.

This interactive report shall be used as guidance to steer the reader towards operating these four levers.

TARGET AUDIENCE

✓**Public and private procurers:**

- who want to implement NbS projects and are looking for advice in order to do so

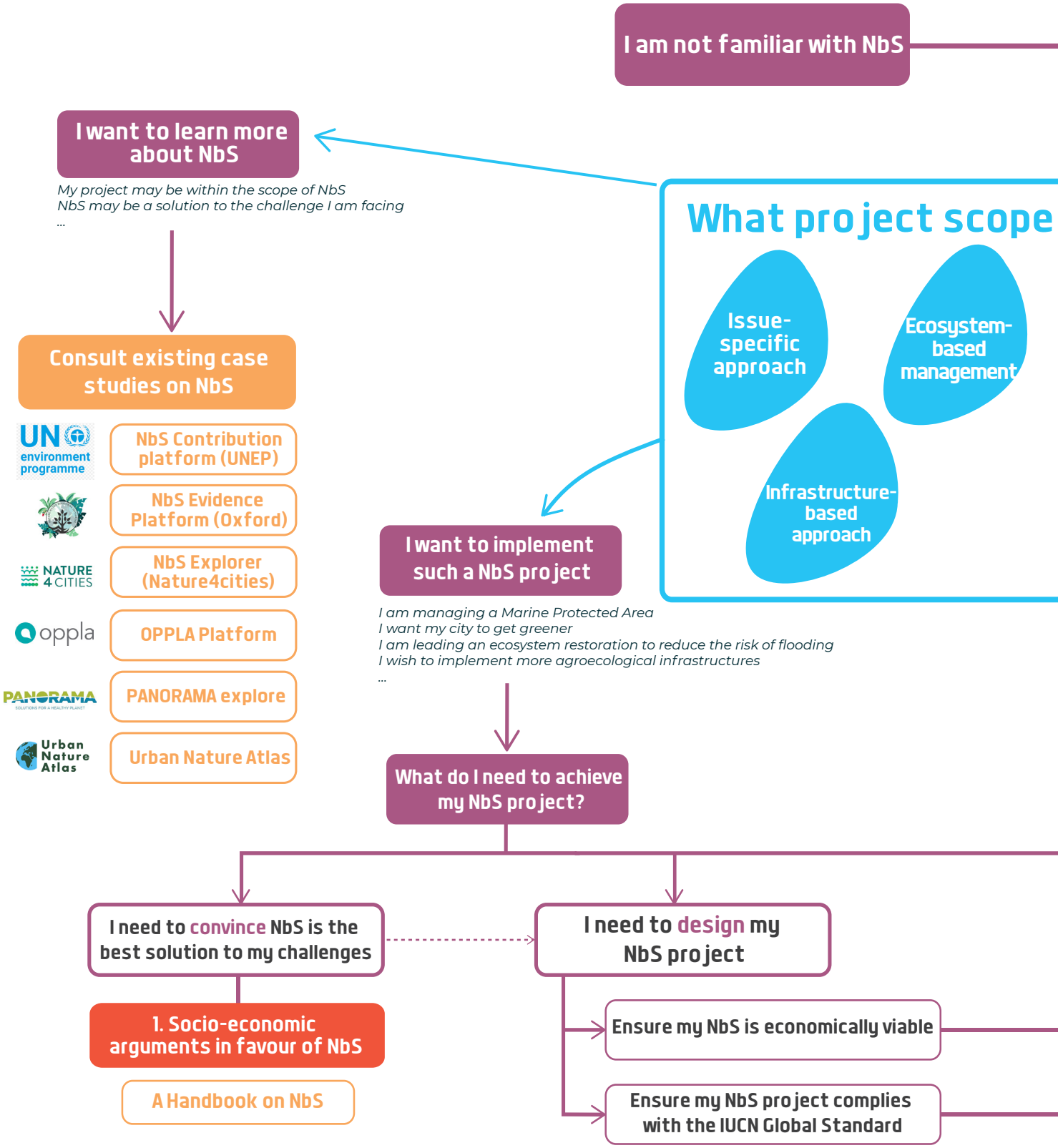
- who are not specifically familiar with NbS but who are looking for guidance to better integrate biodiversity in their procurement or willing not to exclude NbS in their procurement

✓**Planning and development project holders** aiming to define or assess their project and evaluate its fit with the IUCN Global Standard for NbS; and looking for funding solutions to make their project realistically implementable;

✓More specifically, **NbS project holders** looking for guidance to define and assess their project; and seeking the means to finance their project.

The arguments presented in this report can be more generally disseminated to the stakeholders of NbS projects to support convincing of decision-makers to implement NbS.

Mapping the decision-making, an interactive table of contents:



Please click on any of these items:

1. Section detailed in this document | External links | For more information and examples of NbS

What are NbS?

Nature-based Solutions are actions to protect, sustainably manage and restore natural and modified ecosystems in ways that address societal challenges effectively and adaptively, to provide both human well-being and biodiversity benefits (IUCN, 2016)

do NbS cover?

Ecosystem restoration

Ecosystem protection

I want to contribute or take part in spreading knowledge and evidence about NbS

I have implemented a NbS and want to share the knowledge I have acquired
My NbS project could be a case study to gain knowledge and evidence on NbS application
...

Pick the most useful NbS assessment tool

- Handbook for the Monetary ES assessment and Cost-benefit Analysis
- TESSA Toolkit

Join a working group to share experience and knowledge

- Nature4cities
- ThinkNature
- Naturvation
- BiodivERsa
- Network Nature
- UNAIab
- ARTISAN
- IUCN NbS Groupwork

I need funding

- 2. What financial instruments could help me in my project?
- IUCN Global Standard → 3. How to best integrate NbS in my procurement?

These three levers are discussed in more details in the publication below

1. SOCIO-ECONOMIC AND BUSINESS ARGUMENTS FOR NBS

Tackling tomorrow's challenges with NbS

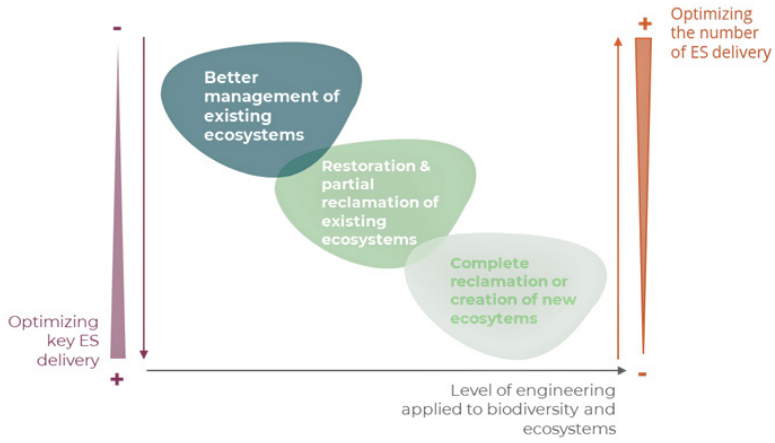
"Nature-based Solutions are actions to protect, sustainably manage and restore natural and modified ecosystems in ways that address societal challenges effectively and adaptively, to provide both human well-being & biodiversity benefits"

(IUCN, 2016)

Key message 1: The solutions to key societal challenges are in nature

NbS are multi-functional – NbS simultaneously tackle multiple major societal and environmental challenges in the long term, standing as opportunities for risk prevention. Those solutions address a wide variety of stakes - climate change mitigation and adaptation, disaster risk reduction, economic and social development, human health, food security, water security, environmental degradation, or biodiversity loss.

NbS optimize the provision of key ecosystem services (ES) – NbS deliver key ES for their context of implementation, by applying one or several actions on the concerned ecosystems. Based on the relationship between the number of ES delivered, the level of focus of certain ES provision, and the level of engineering they require, NbS can be classified in 3 major categories as shown in the graph.



Key message 2: NbS implementation provides benefits for common interest

NbS provide co-benefits to human well-being & biodiversity– NbS answer the Sustainable Development Goals (SDGs), addressing multiple socio-economic and environmental challenges, provide multiple co-benefits to humans and nature. Unlike gray infrastructures, NbS do not focus on a specific challenge. They are designed to tackle a variety of challenges, to be flexible solutions, increasing the adaptative capacity of societies.

NbS generate local socio-economic impacts – NbS have the ability to face multiple global crises: climate change, nature loss, economic and jobs crisis. NbS enable human well- being, job creation and enhancement, nature recovery, benefiting common interest. Also, NbS require local labour to achieve and maintain the works, which benefits local employment by supporting non- relocatable jobs. NbS are also designed to adapt to local natural conditions, working with local resources.

NbS require low management costs in the long term – NbS have proved they can be more cost-effective than conventional solutions: their multiple benefits outweigh their costs in the long term. Those costs cover the costs of imple- mentation, maintenance, while the benefits also include the damage costs avoided or reduced thanks to the implementation of the NbS.

Key message 3: The private sector benefits from NbS implementation

More than **50%** of the world's GDP is moderately or highly dependent on nature & its services	**Nature loss generates high risk to economies** – Our economy is highly vulnerable regarding nature loss. To address the threat, NbS have the potential to create new opportunities while participating in nature conservation and protection to slow down the tremendous loss of the last decades.
With NbS, **US$10 trillion added value** in business opportunity & **395 million jobs** can be created by 2030.	**NbS create new business opportunities to invest resources** – Facing global climate change and its consequences, private actors should anticipate policy frameworks regulating their activities by switching to NbS. As pioneers in NbS implementation, companies enhance their image for investors, associates and employees, society, and clients. This represents a highly competitive advantage for such engagement.
NbS are **50% less costly**, generate **28% more added** value than conventional solutions.	**NbS are cost-effective in the long term** – Thanks to their capacity to mitigate natural hazards consequences, NbS avoid costs while delivering similar or better services compared to conventional infrastructure. NbS imply investment, but their benefits to nature, people and businesses outweigh the costs of implementation and maintenance in the long term.
Acting now with NbS is **less costly** than carrying on conventional frames.	**NbS are tomorrow's solutions to implement today** – Implementing NbS in the upcoming critical years is part of the solution to reach high ambition planetary goals.

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2. WHAT FINANCIAL INSTRUMENTS COULD HELP ME IN MY PROJECT?

Today, **US$300 billion of funding** should be injected into projects for biodiversity and climate change while only **US$120 to US$130 billion is invested towards NbS.**

In 2022, 86% of the investment in NbS comes from public funds while only 14% comes from private investment (UNEP, 2022). Still, the green finance market presents some promising opportunities that need to be activated. More specifically, private finance instruments towards NbS projects need to be enhanced and up-scaled.

From a project holder perspective, two main steps should be considered when it comes to invest in NbS.

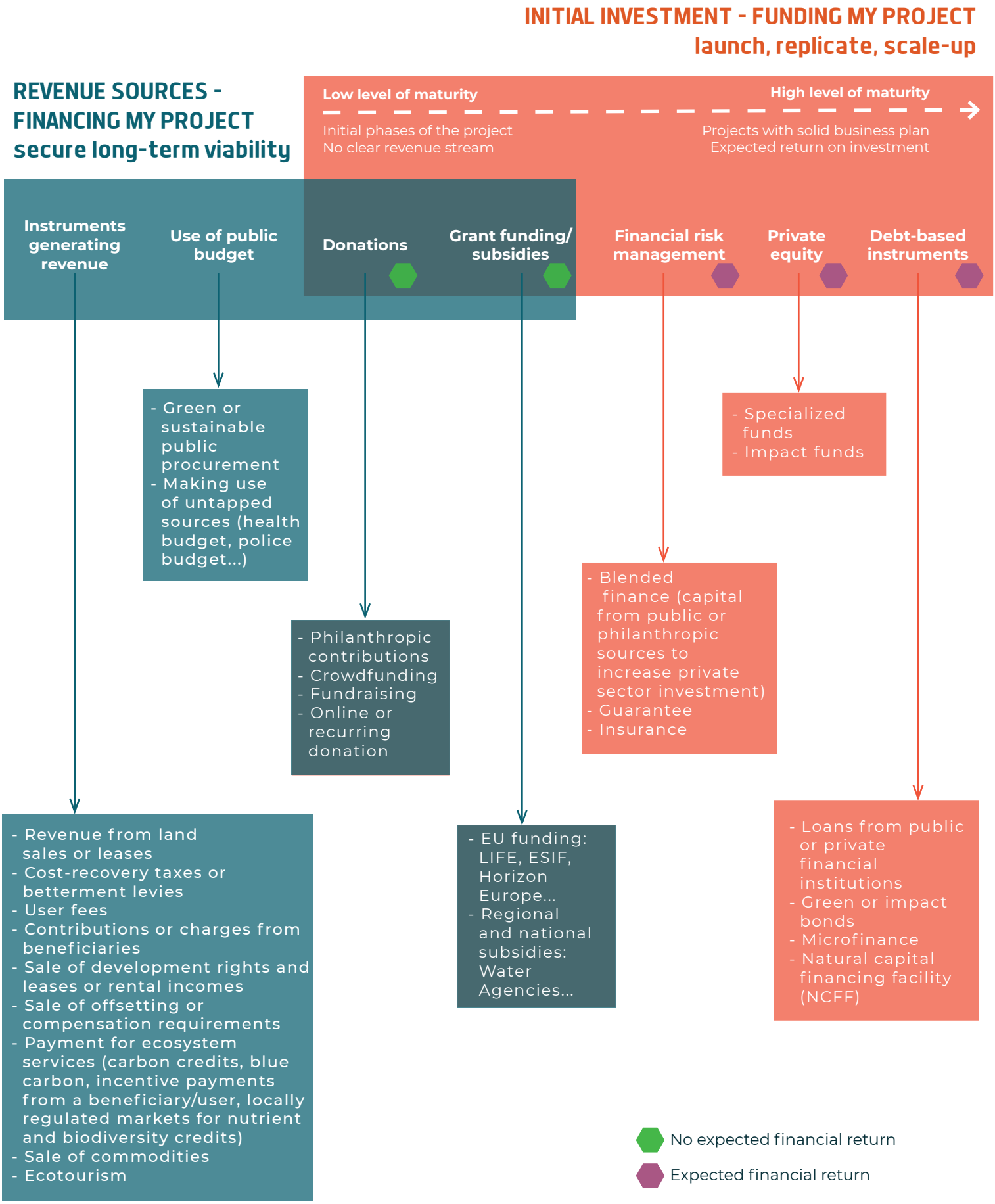
- A project of NbS might need an **initial investment** to be **launched**. Several types of instruments can then be used by project holders, depending on the maturity of the project from a business perspective, or depending on the financial return expected. This **initial investment** might also be considered when the NbS is about to be **replicated or scaled-up** and new investments are needed.

- A NbS is expected to be self-sustaining in the long-term, meaning that it needs sources of income to guarantee its **economical and long-term viability**. The project holders have to anticipate having **revenue sources** to ensure the sustainability of its NbS. Besides, NbS generate positive externalities, related to their co-benefits, which are opportunities to generate **income streams** such as:

  - **Revenues** created through the sale of commodities or ecosystem service, or through enterprise models;
  - **Cost-savings** shared with a financial beneficiary; or
  - **Capital gains** achieved on the appreciation of an asset.

For both steps, several financial instruments can be considered by the project holder to fund or finance their NbS. They are summed up in the figure below and illustrated in the appendices with case examples.

Figure 1: Overview of the funding and financing instruments which can be used for NbS projects



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3. HOW TO BEST INTEGRATE NBS IN MY PROCUREMENT?

Procurement, in particular public procurement, is a major lever for NbS implementation as it is still one of the main triggers to such projects. Not only does it provide funding for the projects, it is also key to experiment and expand NbS. Yet, despite the value and recognized benefits of NbS, it seems that providers still cope with some difficulties in using public procurement to implement NbS projects. On another hand, providers may not know of such solutions, and may favour conventional solutions due to procedures habits. The following recommandations do also appeal to them.

The last section - Activate - may more specifically apply to providers ready to take the process further, to best design a NbS project or call to foster NbS.

Support

1. Policy support is a key element for private and public authorities. By adopting a set of policies that explicitly support NbS projects, procurers can be encouraged to include NbS in their answers to the challenges they need to tackle.

2. Adding NbS requirements in procurement encourages suppliers to get information, experience, and expertise on NbS. Consequently, this enables participation in the market growth to reach more effective procedures on both the procurer and contractor sides.

3. Procurer authorities shall limit the cultural advantage given to lower price approaches to favour quality and long-term vision over pricing and short-term reasoning. Because NbS are less common and documented, a cost-based approach is often unfavourable regarding NbS.

Anticipate

1. Grouping contracts together in the same call for tender should be more attractive for suppliers as it increases the contract value. Consequently, it gives suppliers an incentive to participate in a call for tenders while bringing more efficiency to the contract.

2. A dedicated budget and responsible authority should be identified to manage each step of the project to ensure the viability of NbS as long-term solutions. This shall be clarified before the procurement is settled to guarantee the success of the operation in the long term.

3. Identifying suppliers prior to the procedure enables to ensure that demands are able to meet the offer, encourage suppliers to comply with NbS and reassure them. Anticipating the offer is particularly significant when it comes to vegetation, as plants may take time to grow, which is a parameter to consider in the procedure. The qualified authority can identify and list the appropriate contractors regarding landscape management, horticulture or architects in order to facilitate the procurement process.

Cooperate

1. Public-private cooperation is a key factor for the success of NbS. Private actors bring expertise or financial support, while public authorities may be the owner of land or dedicated to respond to specific need. Private sector stakeholders could bring more efficient solutions and additional resources for NbS implementation. For instance, limited public budgets can be combined with external fundings; or public and private could join for a pilot project.

2. NbS are cross-sectorial. They often concern more than one activity sector, or department inside a unique authority. Breaking up silos thinking and procedures can help to (i) get a larger budget for the NbS implementation and (ii) facilitate the long-term management of the solution.

3. Communication is key. All stakeholders of the project should make sure they have effective communication. Suppliers and project holders should get opportunities to communicate with procurers at the earliest stage possible: the sooner the options and NbS are introduced in the design of the project, the easiest it shall be for the procurer to be open to such solutions. For that, procurers can seize the opportunity to make a prior information notice to identified all stakeholders, including NbS'. Suppliers are as well encouraged to use Cost-Benefit Analysis or any economic analysis to promote, convince and communicate on NbS.

Activate

1. A set of criteria can be integrated in public procurement procedures, building on the IUCN Global Standard for NbS criteria. As authorities, you should require the projects you wish to select to engage in fitting the Global Standard for NbS by including:

- The identification and characterization of major societal challenges tackled by the project (**Criterion 1**),
- The planned design of the project, in regard to economy, society and ecosystem interactions, and the anticipated risks and management resources (**Criterion 2**),
- The measurement of biodiversity and the ecosystem 's current state and outcomes after the project, including a clear monitoring and assessment plan (**Criterion 3**),
- The existence of an economic assessment of the project including costs and benefits -monetary and non-monetary benefits- in the long term (**Criterion 4**),
- The proof of the social and societal inclusion of the project in the local environment and community, as well as pragmatic measures to involve people in the decision-making to maximize well-being (**Criterion 5**),
- The qualitative or quantitative assessment of possible adverse costs and benefits of the project linked to trade-offs (**Criterion 6**),
- The clear setting of and measures for an adaptative management plan of the project aimed at maximizing benefits for biodiversity, people and the planet (**Criterion 7**),
- The establishment of a feedback mechanism to learn from the project and be able to replicate and foster mainstreaming in similar contexts (**Criterion 8**).

2. Follow or get inspiration from new sets of practices arising in public procurement to better select contractors and align with growing environmental awareness. Green Public Procurement[1] (GPP); Sustainable Public Procurement[2](SPP); Public Procurement Innovation Procedures. Those practices are useful to NbS implementation as NbS satisfy both GPP and SPP, and GPP and SPP can support the successful procurement of NbS. Because some NbS may lack replicability features, due to their close adaptation to local environmental conditions, their purchase may be integrated into PPI procedures. Indeed, PPI procedures are intended to support early-stage innovative solutions which are not yet available on large-scale commercial basis.

1. Green Public Procurement (GPP) aims to introduce environmental consideration to the public purchase of goods and services throughout their life cycle.
2. Sustainable Public Procurement (SPP) seeks to support both environmental and social goals, in accordance with the three pillars of sustainable development (economic, social, environmental).

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APPENDICES: SOME MORE INFORMATION

NbS definition: what is the scope of NbS?

According to IUCN Global Standard criteria 1 and 2, the scope of an NbS can be defined by any combination of societal challenges (in addition to ecosystem degradation and biodiversity loss) with one or multiple ecosystems in a landscape at the scale at which the solution should be designed to effectively address these challenges (see Figure 2). The type of challenges being addressed will influence whether an issue-specific approach needs to be taken as the entry point for action (e.g., climate change or disaster risk reduction) or a link to a specific sector established through an infrastructure-based approach (e.g., water, agriculture, health, etc.). The scale of the challenges, including whether the context is urban or rural, will inform the design of the type of intervention required (i.e., whether restoring, managing, protecting or creating an ecosystem and/or any combinations of these, including hybrid approaches). An example for each NbS in this mosaic of solutions can be found in Table 1 and, selectively, below with more details[3].

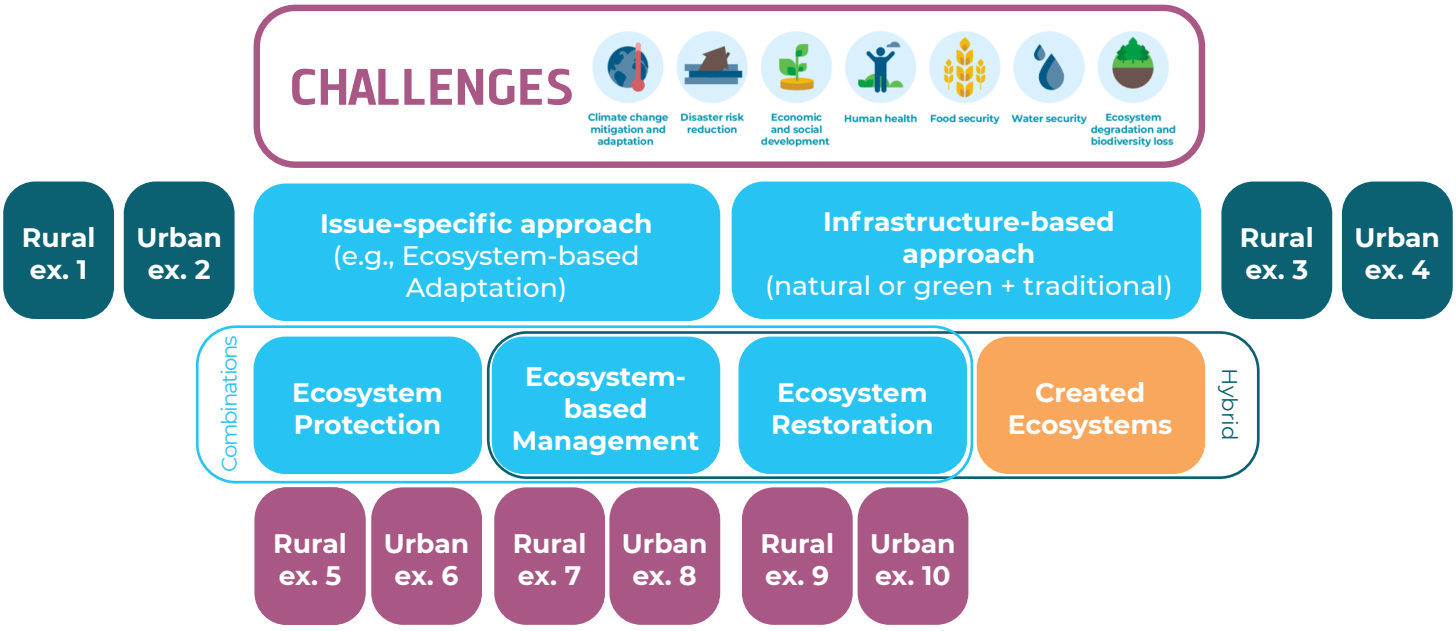

Figure 2. Scope of NbS as defined by type and scale of interventions (partly based on Chausson et al., 2020)[4]

3. While the other six criteria of the Global Standard are equally important to define the scope of an NbS e.g., the extent to which it is designed and implemented by local communities, we only focus on the first two for simplicity here.
4. https://doi.org/10.1111/gcb.15310

Table 1. Examples of NbS classified by type of intervention and context (Balzan et al. 2022[5]; IUCN, 2021[6]; Solheim et al., 2021[7]; World Bank, 2022[8])

Ex. #	NbS approach	Context	Type of intervention	Location	Web reference
Ex. 1	Ecosystem-based adaptation	Rural	Integrated Coastal Zone Management	NE Morocco	https://naturebasedsolutions.org/projects
Ex. 2	Ecosystem-based adaptation	Urban	Dune restoration for coastal protection	Barcelona, Spain	https://oppla.eu/casestudy/17274
Ex. 3	Natural/green infrastructure	Rural	Healthy river corridors as environmental assets	Sava & Drina Rivers	https://naturebasedsolutions.org/projects
Ex. 4	Natural/green infrastructure	Urban	Agricultural and semi-natural land covers	La Valletta, Malta	https://oppla.eu9/casestudy/19309
Ex. 5	Ecosystem restoration	Rural	Restoring marshland in the former saltworks	Camargue, France	https://oppla.eu/casestudy/19325
Ex. 6	Ecosystem restoration	Urban	Reconnecting river and green urban areas	Ljubljana, Slovenia	https://oppla.eu/casestudy/19461
Ex. 7	Ecosytem-based management	Rural	Invasive wetland vegetation control	Prespa Lake, Greece	https://renature-project.eu/compendium/117
Ex. 8	Ecosytem-based management	Urban	Ecosystem service and land use scenarios	Grenoble, France	https://oppla.eu/casestudy/17272
Ex. 9	Ecosystem protection	Rural	Buffers strips and constructed wetlands	Serchio River, Italy	https://phusicos.eu/case_study/serchio-river-basin-italy/
Ex. 10	Ecosystem protection	Urban	Functioning wildlife habitat in a city park	Jerusalem, Israel	https://www.gazelle-valley.com/eng/

5. https://doi.org/10.1016/j.nbsj.2022.100029
6. https://portals.iucn.org/library/node/49779
7. https://doi.org/10.3390/su13031461
8. https://documents1.worldbank.org/curated/en/253401551126252092/pdf/Booklet.pdf

Issue-specific approach

Taking an **issue-specific approach** means designing an NbS with a specific goal, for example, tackling climate change and its impacts such as extreme weather. Established nature-based approaches to this issue are:

- Ecosystem-based mitigation (EbM);
- Ecosystem-based adaptation (EbA);
- Eco-disaster risk reduction (Eco-DRR).

These approaches concern interventions that aim to protect, restore, or manage natural forests and wetlands or coastal ecosystems (saltmarshes, mangroves, seagrass meadows or coral reefs). Those are done to secure and regulate water supplies, mitigate flood risk, and/or reduce soil erosion in upper catchment areas, and to defend against storm surges and seal level rise, respectively. Nature-based agricultural practices such as agroforestry (i.e., planting trees among crops or vice versa), the rehabilitation of degraded semi-arid rangelands or community-based natural resources management in pastoral or gatherer communities in developing countries can also be used to achieve EbA (Seddon et al., 2020)[9].

Specific examples: The city of Barcelona in Spain restored the dunes behind some of its heavily used beaches to a semi-fixed (stabilized) state to protect against coastal erosion instead of concrete barriers. Restoring the dunes achieves this goal of coastal erosion protection while also optimizing the flow of other ecosystem services such as: groundwater recharge, high-value recreation, tourism, provision of rare dune habitat. This intervention is “hybrid” as it combines natural and artificial processes (e.g. recolonization by indigenous vegetation and mechanical sand cleaning, respectively).

The value of nature-based recreation under improved natural beach conditions was similarly assessed for the S’Ena Arrubia Lagoon of Sardinia[10].

Infrastructure-based approach

Taking an **infrastructure-based approach** means designing an NbS with the goal of tackling a specific issue, but through the lens or practice of the specific sector in charge of delivering the corresponding life-improving services, by developing and maintaining a dedicated infrastructure. Ecosystems perform several of the same services that man-made infrastructure does (e.g. creation of fertile soil for the agricultural sector or disease control from carrion-eating fauna for the health sector). Particularly, in the water sector, conventional ’grey’ infrastructure is contrasted, but often also paired, with natural or green infrastructure.

Natural infrastructure may include any ecosystem performing the services of water storage (forested catchments, aquifers), conveyance (streams and rivers), filtration (wetlands), or peak flow regulation (floodplains). These are the same set of functions that an EbA approach as described above would aim to strengthen where climate change has disrupted the water cycle.

Green infrastructure is more commonly used when the goal is to enhance the ecosystem conditions that deliver the services of interest, rather than restoring their original condition as for natural infrastructure. This is most often in an urban context where the juxtaposition with grey infrastructure is also most apparent. A green infrastructure approach may thus entail: (i) creating green roofs and/or planting trees and increasing green spaces in and around urban areas to regulate extreme, unpredictable water flow but also (ii) moderate other potentially worsening climate change impacts such as heat waves (UNEP-DHI, 2014) [11].

Specific example: In the city of La Valletta on Malta, agricultural land and semi-natural green areas such as gardens and landscaped spaces have been mapped and categorized based on their green infrastructure potential to function as ecosystems. This was made with a view to forming a strategically planned and managed network of land covers that can enhance provision of associated benefits to the human population (e.g., air quality and local climate regulation, noise reduction, cultivated crops).

9. https://doi.org/10.1098/rstb.2019.0120
10. See study summary at https://birdlife-hatch.org/topics/30877/news/750503
11. https://www.unepdhi.org/green-infrastructure-guide-for-water-management/

Ecosystem restoration

The types of NbS interventions differ whether they prevailingly aim to restore, manage, or protect an ecosystem. Among these, **ecosystem restoration** has its roots in the science and practice of ecological engineering and ecological restoration. These disciplines study and use the principles of ecology to rehabilitate certain depleted ecosystem functions or assist with the recovery of a degraded ecosystem as a whole.

For example, ecosystem restoration could be the reintroduction of particular plant species that contribute to treating wastewater by recycling nutrients or trapping sediment for coastal protection of a sandy shore. At a larger scale, forest and river restoration have been shifting the focus from native species composition and natural hydrological regime to regulating service provision and multiple benefits at the landscape and catchment level, respectively. Restoration objectives may include enhancing connectivity between protected areas, protecting water and soil resources, and reinforcing cultural values (IUCN, 2016) [12]. When tackling a specific issue such as climate change mitigation, ecosystem restoration may target natural specific types of high carbon-sequestering forests and wetlands (e.g., mangroves, peatlands).

Specific example: In the Rhône delta region of Camargue in southern France, the former system of artificial evaporation ponds for salt production is being reconverted to the types of ecosystems originally found in this coastal area such as lagoons, dunes, and saltmarshes, together with a more natural hydrological regime. The socioeconomic benefits of the regained hydrological connectivity of these habitats from this intervention range from enhanced flood protection further inland, to the development of fish nurseries for commercially valuable species.

Ecosystem-based management

Ecosystem-based management relates to a type of NbS interventions that differ from the more traditional forms of regional planning of natural resources or environmental management, by focusing on entire landscapes or ecosystems including humans and the associated aspects of governance. As a transdisciplinary science and practice, this derivative of the Ecosystem Approach (EA) pursues integrated management of land, water and living resources that promotes both conservation and sustainable use in an equitable way.

Some examples include: ecosystem-based fishery management, integrated water resources management (IWRM), and integrated coastal zone management (ICZM), the interventions for which target maintenance of ecosystem functions and viability through policies and regulation. Similar to natural infrastructure, IWRM or ICZM can be adopted as part of a climate change strategy. Notably, healthy natural forests, grasslands and wetlands may store more carbon than their managed equivalents while managed and hybrid systems such as city parks or green roofs contribute to urban cooling, storm-water management, and bring mental and physical health benefits (Seddon et al., 2020)[13].

Specific examples: In the Small Prespa Lake of Greece, one of the conservation actions is the clearance of invasive wetland vegetation in the face of climate change that is projected to reduce available bird habitat even further due to lower water levels. Some of the co-benefits of this action for people will be the associated vegetation control in drainage ditches, biomass utilization for soil conditioning, and transboundary coordination of wetland management efforts with neighbouring Albania.

Improved ecosystem-based fishery management was also valued for the Ghar El Melh Lagoon of Tunisia[14].

12. https://portals.iucn.org/library/sites/library/files/documents/2016-036.pdf
13. https://doi.org/10.1098/rstb.2019.0120
14. See study summary at https://birdlife-hatch.org/topics/30877/news/750504

Ecosystem protection

Ecosystem protection is mostly related to NbS interventions that support area-based conservation approaches including protected area management. Designation of a protected area may still include restoration and management of parts of the ecosystems found in the area, but the majority of these will be pristine or relatively unharmed ecosystems. Ecosystem creation is not included in the IUCN overview of NbS approaches (IUCN, 2016)[15]. However, examples of created ecosystems that still perform notable services for people are wastewater treatment wetlands, aquaculture ponds, or saltpans.

Specific examples: The cultural values of Ulcinj Salina in Montenegro were assessed in connection with their designation as a protected area[16]. Ecosystem creation could be considered part of a hybrid approach to e.g., water infrastructure where ecosystem restoration interventions are meant to complement, augment, or replace conventional built infrastructure such as reservoirs, dams, levees, and canals. As such, hybrid approaches are more commonly found in or near urbanized areas.

In the lower Serchio River Basin of Tuscany, vegetated buffers strips and constructed wetlands serving as a sedimentation retention basin are being strategically placed to curb the runoff of sediments and other pollutants from the agricultural district into Lake Massaciuccoli. This body water is an important tourist area that will thus also benefit from a reduced risk of flooding.

Examples of financial instruments: illustrative cases

Table 2. Examples of NbS classified by type of financial instruments*

Added description below	Name of the project or instrument	Type of NbS	Financial instrument(s)	Country / location	Link
Debt-based instrument					
X	Athens Resilient City and Natural Capital	Urban, Green infrastructures	EIB loan, Natural Capital Financing Facility (NCFF)	Greece	https://www.eib.org/en/projects/pipelines/all/20180050
	Seychelles Blue Bonds	Marine,	Blue Bonds	Seychelles	https://www.worldbank.org/en/news/press-release/2018/10/29/seychelles-launches-worlds-first-sovereign-blue-bond
X	Dutch Green Bond	Coastal, Ecosystem-based Management	Green Bonds	Netherlands	https://english.dsta.nl/subjects/green-bonds#:~:text=By%20issuing%20the%20Green%20Bond,this%20bond%20%E2%82%AC%2015.96%20billion
	DC Water Bond	Urban-rural, Green infrastructure	Pay-for-success investment	USA	https://www.nrdc.org/experts/alisa-valderrama/pay-performance-meets-green-infrastructure
	Rewilding Europe Capital	Not specific	Loans	Netherlands	https://rewildingeurope.com/rewilding-europe-capital/
Private equity					
X	Sumatra Merang Peatland Project	Rural, Ecosystem restoration	Impact investment	Indonesia	https://ecosphere.plus/sumatra-merang-peatland/
	Ecosystem Investment Partners	Wetland, Ecosystem restoration	Private equity	USA	https://ecosystempartners.com/

15. https://portals.iucn.org/library/sites/library/files/documents/2016-036.pdf
16. See study summary at https://birdlife-hatch.org/topics/30877/news/750501

Added description below	Name of the project or instrument	Type of NbS	Financial instrument(s)	Country / location	Link
Financial risk management					
	Blue Finance	Marine, Ecosystem protection	Blended finance including PPP	Marine Protected Areas	https://blue-finance.org/dominican-republic/
X	Ljubljana Connects	Urban, Green infrastructures	Blended finance including EU funding and public private partnership (PPP)	Slovenia	https://oppla.eu/casestudy/19461
Grant funding / Subsidies					
	Grey to Green Project Sheffield				
X	Life Anillo Verde	Coastal, Green and blue infrastructures	EU LIFE Programme	Spain	https://webgate.ec.europa.eu/life/publicWebsite/index.cfm?fuseaction=search.dspPage&n_proj_id=5325
Donations					
	Ghent crowdfunding platform for climate adaptation	Urban	Crowdfunding	Belgium	https://climate-adapt.eea.europa.eu/en/metadata/case-studies/ghent-crowdfunding-platform-realising-climate-change-adaptation-through-urban-greening
	REGREEN, Nature Solutions Platform	All types	Crowdfunding	All region	https://nature-solutions.eu/
	MAVA Foundation	Coastal	Foundation	Mediterranean	https://mava-foundation.org/grants/nature-based-solutions-to-tackle-societal-changes/v
Public budgets					
X	Connecting Nature, Poznań	Urban, Green infrastructures		Poland	https://connectingnature.eu/poznan
Instruments generating revenue					
X	Sebou Water Fund in Morocco	Rural, Ecosystem-based Management	Payment for Ecosystem Services	Morocco	https://medwet.org/2019/11/official-launch-of-the-sebou-water-fund-morocco/
	Green areas inner-city agreement (GAIA)	Rural-Urban, Green infrastructure	Carbon footprint compensation	Italy	https://ec.europa.eu/environment/europeangreencapital/wp-content/uploads/2018/05/BLUEAP.pdf
X	San Francisco Green Benefit Districts	Rural, Green infrastructure	Tax, Green Benefit District	USA	https://www.dnwph-gbd.org/what-is-a-gbd
	Maryland Conservation Finance Act	Not specific	Compensation credits	USA	https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/sb0348?ys=2022RS

* It is worth mentioning that the practices analysed have been assessed as potential Nature-based Solutions despite the fact that they may not have been designed or assessed as such in the first place.

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Eight detailed case examples*

Debt-based instruments

Project name:
Athens Resilient City and Natural Capital

Project holder:
The City of Athens

LINK: eib.org

Type of NbS:
Urban, Green Infrastructures

Funding instrument(s):
EIB loan and NCFF

Short description:
The European Investment Bank (EIB) provides a EUR 55 million loan to the City of Athens to support investments totaling EUR 190 million in transport, waste, energy efficiency, culture and urban rehabilitation schemes across Athens. This includes EUR 5 million from the NCFF to invest in green and water-related infrastructure. It will support the Municipality of Athens Resilience Strategy for 2030. The NCFF of the European Investment Bank is contributing to the resilience portfolio of the City of Athens, Greece with the capital for more innovative green infrastructure solutions that would otherwise be considered too risky. European Structural and Investment Funds will provide additional grant financing. The NCFF contribution to the bigger portfolio allows Athens to improve its overall investment plan by including more innovative Green Infrastructure solutions that would otherwise have been considered as too risky. Besides, Within the framework of the NCFF, a technical assistance of EUR 500 000 is required (included in the NCFF loan) to help the city in the steering, design and development of the project.

References: EIB (2019), Trinomics and IUCN for Grow Green Project (2019)

Project name:
Dutch Green Bond

Project holder:
The State of the Netherlands

LINK: english.dsta.nl

Type of NbS:
Coastal, Ecosystem-based Adaptation

Funding instrument(s):
Green bond

Short description:
The Netherlands was the first country with a triple-A rating to issue a green bond in 2019. The bond was designed to fund projects to cope with current and future climate change impacts and an advanced low-carbon economy. As such, much of the bond focuses on using coastal and river ecosystems as a protection against negative climate impacts e.g., high floods. Investors quickly oversubscribed the issuance of the bond by more than € 15.2 billion, the total amount currently standing at € 15.96 billion. The Dutch Green Bond is also the first globally to certify NbS using the Water Infrastructure Criteria of the Climate Bonds Standard. Water resilience bonds criteria were launched by a consortium of organizations in May 2018 to inform investors about both climate risks and solutions embedded in the green bonds market. Globally, the green bonds market reached about 168 billion USD in 2018.

References: AGWA (2019)

* It is worth mentioning that the practices analysed have been assessed as potential Nature-based Solutions despite the fact that they may not have been designed or assessed as such in the first place.

Private equity

Project name:
Sumatra Merang Peatland Project

Project holder:
Forest Carbon

LINK: ecosphere.plus

Type of NbS:
Rural, Ecosystem Restoration

Funding instrument(s):
Impact investment

Short description:
Forest Carbon, in partnership with Global Alam Lestari, is actively managing more than 22,000 hectares of vulnerable peatland in Indonesia to reduce the risk of forest fire, strengthen the rural economy, and protect habitat for the Sumatran tiger. In 2017, the Althelia Climate Fund invested €5.1m (~$6m equivalent) for the restoration and protection of the peatland forest. Investor returns will be paid through the sale of verified carbon credits

References: Finance Earth (2021)

Financial risk management

Project name:
Ljubljanica Connects

Project holder:
The City of Ljubljana

LINK: oppla.eu/casestudy

Type of NbS:
Urban, Green Infrastructure

Funding instrument(s):
Blended finance including EU funding and PPP

Short description:
The main goal of this intervention was to restore the Ljubljanica River corridor and improve the river flow regime while connecting two Natura 2000 sites i.e., Ljubljansko Barje (the Ljubljana Marshes) and Sava–Medvode–Kresnice. However, this project was implemented within the framework of the broader Vision Ljubljana 2025, a sustainability strategy for the city hinged on key documents such as the Urban Master Plan (i.e., the most important planning instrument for green spaces in Ljubljana) and the Environment Protection Programme 2014-2020. With this programmatic approach, the city was able to manage financial risk against achieving its 2025 vision by mobilizing finance for the different NbS projects from a mix of sources. These included the ordinary city budget, different EU funds (e.g., the LIFE project to restore the Ljubljanica River) and a private-public partnership (PPP) for the renovation of the banks of the Ljubljanica river that were lying in a state of neglect. The municipality of Ljubljana had been at the forefront of PPP development in Slovenia since 2017, with the contract signed between the city and a consortium of energy companies Petrol and GGE for the upgrading of the energy efficiency of several public buildings such school and libraries.

References: IUCN (2021)

Grant funding / subsidies

Project name:
LIFE Anillo Verde

Project holder:
Fundación Naturaleza y Hombre

LINK: webgate.ec.europa.eu

Type of NbS:
Coastal, Green and Blue Infrastructures

Funding instrument(s):
EU LIFE (subsidies)

Short description:
The LIFE programme is the EU's funding instrument for the environment and climate action as it provides co-funding for projects in the area of the environment. The LIFE Anillo Verde aims to contribute to nature conservation around the Bay of Santander in Spain by restoring ecosystems and creating blue and green infrastructures (called "Green Belt of Bay of Santander"), as well as to halt loss of biodiversity and degradation of ecosystem services. Seven municipalities are included in the LIFE project as the Bay of Santander is the largest estuary on the north coast of Spain. The project budget was over €2.5 million including €1.5 million funding from European Union through the programme LIFE. The co-financers of the project are the Department of University and Research, Environment and Social of the government of Cantabria, the public company MARE (Environment, Water, Waste and Energy of Cantabria) as well as the coordinating beneficiary, Fundación Naturaleza y Hombre. The Fundación Naturaleza y Hombre is a foundation dedicated to conservation, protection and restoration of natural ecosystems.

References: Project's website (2022), Fundacion Naturaleza y Hombre (2022)

Use of public budget

Project name:
Connecting Nature, Poznan

Project holder:
The State of the Netherlands

LINK: connectingnature.eu/poznan

Type of NbS:
Urban, Green infrastructure

Funding instrument(s):
Public budget

Short description:
The challenge for Poznań is to improve the quality of life in those areas that do not have equitable access to greenspace due to being very urbanized and with higher population densities. The Poznań nature-based solution exemplar aims to implement small-scale nature-based solution interventions across the city. The Project Coordination and Urban Regeneration Office entered into an innovative collaboration with the Department of Education to introduce nature-based solutions in the gardens of state-run pre-schools in the densely populated city center area. A hybrid financing model was developed for the nature-oriented playgrounds. It involves an agreement with pre-schools to make their grounds available as space for small-scale nature-based solutions, the costs of ongoing maintenance and management being taken up by kindergarten managers who access direct and in-kind contributions from a variety of sources to cover ongoing stewardship costs. The design, planning and upfront development costs of these nature-based solutions are financed through a combination of funding from different public sector departments and community budgets. Each year the Department of Education of Poznań City Hall and the Poznań Civil Budget fund the renovation of up to 10 pre-school gardens. The Project Coordination and Urban Regeneration Office offered to 'top-up' the Department of Education grant with specialized landscape design, technical support and resources to encourage pre-schools to de-seal hard surfaces, introduce more biodiversity and create nature-based gardens connecting with other urban green corridors. The team is now looking for similar opportunities with other departments such as Health or the Department of Business Activity and Agriculture in relation to allotment gardens.

References: Connecting Nature (2020)

Instruments generating revenue

Project name:
Sebou Water Fund

Project holder:
WWF North Africa

LINK: https://medwet.org/

Type of NbS:
Rural, Ecosystem-based Management

Funding instrument(s):
Payment for Ecosystem Services

Short description:
The Sebou Water Fund is a sustainable financing mechanism based on Payments for Ecosystem Services (PES), which allows the conservation of water resources, the restoration of biodiversity and the preservation of the socio-economic and cultural activities that depend on them. Six priority lakes in the Middle Atlas of Morocco, whose water resources are under serious threat were identified for the pilot phase of the project, which is being deployed at the scale of the Sebou river basin in the medium term. Water funds are a financial, institutional, and biophysical model that link water services users to providers through payments based on the valuation of those services. Specifically, a water fund is a PES approach that uses a trust fund managed by an external entity to unite public, private and civil society stakeholders around a common goal to contribute to water security through NbS and sustainable watershed management. Planned NbS interventions in the Sebou river basin therefore include: i) improved water and soil conservation practices such as rainwater harvesting, increased water storage, agricultural tillage, and soil fertility management, ii) implementation of sustainable farming methods and agricultural practices such as wetland and watercourse protection and restoration, and iii) sustainable management of natural resources such as reforestation, eradication of invasive plant species, maintenance and rehabilitation of riverbanks, and promotion of indigenous crop varieties.

References: MIO-ECSIDE (2019)

Project name:
San Francisco Green Benefit District

Project holder:
Dogpatch and Northwest Potrero Hill Green Benefit District

LINK: https://medwet.org/

Type of NbS:
Urban, Green infrastructure

Funding instrument(s):
Tax, Green Benefit District

Short description:
In 2012, a group of residents from the San Francisco neighbourhoods of Dogpatch and Northwest Potrero Hill (in collaboration with a local non-profit organisation) took the US Community Benefit District model and modified it to raise funds for the ongoing maintenance of their green spaces. The proposed Green Benefit District requires the owners of commercial, residential and industrial properties within the democratically determined boundary to pay a tax, to be used specifically for the maintenance of the green spaces within the boundary. The tax would be collected via the City Tax collector and the funds transferred to the Green Benefit District. Importantly, the City would remain responsible for providing an agreed level of baseline maintenance. The Green Business District levy would then be used to support enhanced maintenance works, as well as provide seed capital for small green space projects and build local capacity for green space maintenance and creation.

References: Policy Exchange (2014)

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We gratefully acknowledges the financial support from the European Commission and the MAVA Foundation.
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