

# **Governance, Business Models, and Investment Strategy for Up- Scaling Large-Scale Nature-Based Solutions**

*Deliverable D5.2*



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Abstract (for dissemination, 100 words)	This report examines the relationship between governance, business models and investment strategies to identify opportunities to scale investment in NbS. Moreover, it develops a practical tool – the Investment Framework (IFW) - to bridge the gap between project owners and the full range of financial sector stakeholders. The IFW is a first step in closing the funding gap as it enables NbS project owners to tailor the value proposition of their project to financial sector stakeholders beyond the public sector, and it can therefore contribute to a wider implementation of NbS.
Keywords	Nature-based Solutions; Funding gap; Governance; Business Models; Investment Strategies; Financial flows; Business Model Framework; Sustainable finance

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# Executive Summary

This report seeks to examine the relationship between governance, business models and investment strategies, as well as to develop a practical tool – the *Investment Framework (IFW)* - that builds the capacities of Nature-based Solution (NbS) project owners to strategically communicate the value of their NbS to financial sector stakeholders.

To reach these goals, this report was developed through a combination of desk research and interviews. A literature review was conducted to understand key themes and trends on the topic of governance, business models, and investment strategies for NbS. The literature was analyzed thematically and was used to provide a foundation for the development of the IFW. Furthermore, the IFW was developed through inputs extracted from a series of interviews with NbS project owners (RECONNECT Collaborators) and financial sector stakeholders, including Multilateral Financial Institutions, Asset Managers, Private Banks, and Guarantee Funds.

One of the most significant barriers to the implementation and upscaling of NbS is funding. Thus, this report supports a wider NbS implementation as it focuses on systematically identifying opportunities for scaling investments in NbS, especially targeting financial stakeholders beyond the public sector.

The four key findings obtained through the development of the IFW are the following:

1. From a financial standpoint, NbS lack a built-in revenue stream. To access funds for NbS implementation from sources beyond public budgets necessitates innovative collaborations among stakeholders, often pooling investments from various sources. Three investment strategies that have been identified as having upscaling potential are: NbS as part of a larger development strategy; NbS supported by private sector investment; NbS funded/financed through Climate Adaptation Grants and Loans.
2. NbS project owners have limited awareness of different types of investment opportunities outside the public sector, which might be due to several factors (e.g., perception of NbS as a public good, lack of knowledge on funding mechanisms, etc.). The IFW is proposed as a support to provide a foundation for NbS project owners to strategize beyond public sector funding and explore opportunities for collaboration with the private sector and non-government stakeholders.
3. Demonstrating measurable value of NbS through monitoring and evaluation is essential for attracting investment. The use of the IFW, among other actions, can be used to help NbS project owners identify the value proposition of their NbS and more effectively align the value proposition with the needs of diverse stakeholders. This includes identifying what is of value to different stakeholders and selecting an appropriate monitoring mechanism.
4. The EU Taxonomy has the potential to address common barriers to value creation of NbS. The EU Taxonomy functions as a standard that harmonizes, guides, and enhances the attractiveness of NbS as a disaster risk reduction tool, thus contributing significantly to upscaling.

This deliverable is intended for public distribution and use. It is designed to bridge the gap between project owners and financial sector stakeholders and is therefore targeted at a wide audience of NbS project owners, academics, financial sector stakeholders, and policy makers.



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# Glossary of Key Terms

Term	Acronym	Explanation
Barriers	-	Conditions that can hamper the development of NbS.
Business case	-	Document that clearly communicates the benefits of a project, thus providing the arguments for initiating a project. A strong business case is essential in overcoming barriers.
Co-benefits	-	Additional benefits to the main benefit, which is often related to reducing the flood risk. These bring additional value for nature, people and/or economy.
Co-creation	-	Collaborative approach to engagement which allows stakeholders to collectively design and build more inclusive and sustainable mechanisms for change. RECONNECT social innovation approach is underpinned by co-creation processes involving researchers and other stakeholders iteratively throughout the stages of co-assessment and planning; co-design; co-implementation, operations, and maintenance; and co-monitoring and evaluation.
Collaborators	-	Cases where large-scale NbS are to be developed and where proof-of-concepts and methodologies developed within RECONNECT are tested.
Cost-benefit analysis	CBA	Evaluation method that compares the costs and benefits of a project in monetary terms, and often used as documentation for a business case.
Demonstrators	-	Cases of large-scale NbS in Europe that provide proof-of-concept to the knowledge base of NbS developed through RECONNECT.
Enablers	-	Conditions that can facilitate the development of NbS.
Financing	-	The process of funding business activities through debt or equity.
Funding	-	The act of providing financial resources to an organization, program, or project.
Green Bond	-	A fixed-income financing instrument designed to raise money for climate and environmental projects. Green bonds can be issued by banks and national governments.
Guarantees	-	A financial instrument designed to provide a form of credit enhancement or risk mitigation for lenders or investors. These funds are typically established by governments, development agencies, financial institutions, or private sector entities to encourage lending and investment in specific sectors or projects by providing a guarantee or insurance against potential losses.
Hydro-meteorological risk	-	Natural phenomenon related to water and caused by atmospheric pressures and extreme weather conditions which result in floods, erosion, and/or droughts.

Investment	-	An umbrella term to describe the mobilization of funds towards NbS.
Key Performance Indicators	KPI	Measurable values that demonstrate how effectively a company is achieving its objectives.
Large-scale NbS	-	NbS located either in rural areas or in combination with urban areas, as they adopt a larger regional system approach comprising of river basins and coastal landscapes. What makes an NbS large-scale is its system approach, holistically connecting multiple water features instead of being a standalone, separate solution.
Multilateral financial institutions	MFI	Supranational institutions set up by sovereign states to foster economic and social development through financing projects, supporting investment, and generating capital.
Nature-Based Solution	NbS	Collective term for innovative solutions to solve different types of societal and environmental challenges, based on natural processes and ecosystems.
Replication	-	Implementation of a similar NbS intervention based on previous project experience, in an area with similar challenges that the NbS can solve.
Upscaling	-	Process related to the diffusion of information, knowledge, and experiences from NbS case-studies. It is a scale-related progression to reach greater impact.
Value Proposition	-	A statement which identifies clear, measurable, and demonstrable benefits of a particular product or service.

# 1 Introduction

## 1.1 Overview of RECONNECT

This report is created as part of the European Commission's (EC) Horizon 2020 program RECONNECT – Regenerating Ecosystems with nature-based solutions (NbS) for hydro-meteorological risk reduction (September 2018 – August 2024).

RECONNECT aims to rapidly enhance the European reference framework on Nature-Based Solutions (NbS) for hydro-meteorological risk reduction by demonstrating, referencing, upscaling and exploiting large-scale NbS in rural and natural areas. In an era of Europe's natural capital being under increased cumulative pressure, RECONNECT aims to create a new culture of co-creation of 'land-use planning' that links the reduction of hydro-meteorological risk with local and regional development objectives in a sustainable and financially viable way. To do this, RECONNECT draws upon a network of carefully selected demonstrator and collaborator cases that cover a wide and diverse range of local conditions, geographic characteristics, institutional/governance structures, and socio-cultural settings to successfully upscale NbS throughout Europe and beyond (RECONNECT, 2018).

This deliverable, situated within RECONNECT Work Package 5 (WP5), seeks to examine the relationship between governance, business models and investment strategies so to identify opportunities to scale investment in NbS. This deliverable also aims to develop a practical tool that builds the capacity of NbS project owners to strategically communicate the value of their NbS to the full range of financial sector stakeholders.

## 1.2 Definition and significance of Nature-based Solutions

NbS are interventions that use natural processes and ecosystems to address diverse societal and environmental challenges. It is considered an “umbrella concept” covering a range of different ecosystem-related approaches and interconnected concepts, offering an integrated perspective to solve different issues simultaneously (European Environment Agency., 2021; European Environment Agency, 2023). The International Union for Conservation of Nature (IUCN) defines NbS as:

***“Nature-based solutions are actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously benefiting people and nature”*** (IUCN, 2016a)

The European Commission defines NbS as:

***“Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions”***

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Panel on Climate Change (IPCC) both acknowledge the significance of nature-based solutions in tackling the interconnected challenges of biodiversity loss and climate change (European Commission, 2023b).

### 1.3 Purpose and Scope

This deliverable explores different channels for investment in NbS and considers how NbS project owners can better communicate the value of large-scale NbS to financial sector stakeholders.

Key objectives of this report include:

- Bridge the knowledge gap between project owners and financial sector stakeholders, thereby contributing to efforts to close the funding gap and contributing to the knowledge base on how to advance private sector investment in NbS.
- Support project owners in communicating the value of NbS to financial sector stakeholders through the utilization of the Investment Framework, thus aiming to render the services of nature visible and attract investment.
- Identify different models for financing NbS through the inclusion of both public and private financial sector stakeholders.
- Understand from the perspective of financial sector stakeholders how governance regulations such as the EU Taxonomy contribute to upscaling investment in NbS.

In this deliverable, the term *investment* is used as an umbrella term to describe a spectrum of different financial arrangements, including both financing and funding from private and public sources.

Ultimately, this deliverable contributes to efforts to upscale NbS. Upscaling within RECONNECT refers to the systematic process of disseminating information, knowledge, and experiences derived from NbS case-studies. In this context, upscaling denotes a scale-related progression, and involves a mechanism where information from one scale is transferred to another, thereby reaching a higher level of scale and a greater impact. Thus, it's about transforming successful small-scale approaches into more impactful strategies on a larger scale. Accordingly, the focus will be on systematically identifying opportunities for scaling investment in NbS.

### 1.4 Methodology

This report was developed through a combination of desk research and interviews. A literature review was conducted to understand key themes and trends on the topic of governance, business models, and investment strategies for NbS. The literature was analyzed thematically and was used to provide a foundation for the development of the *Investment Framework (IFW)*. The IFW is a tool developed to bridge the gap between financial sector stakeholders and NbS project owners and is intended to be used by NbS project owners to better understand how to communicate the value of their project to financial stakeholders. The IFW was developed through inputs extracted from a series of interviews with NbS project owners (RECONNECT collaborators) and financial sector stakeholders. Annex A contains the results of the collaborator interviews, but results from the financial sector stakeholder interviews were not included in the Annex so to protect the privacy of interviewees. However, Annex B contains the interview questions that were posed to the financial sector stakeholders. Interview transcripts were analyzed by the project team to identify models for NbS investment as well as key recommendations for upscaling private sector financing in NbS. The project also builds off other deliverables completed under RECONNECT, particularly D5.7 (Business Models and

Roadmaps – a strategic approach to NbS upscaling). Table 1 summarizes RECONNECT deliverables reviewed for this project.

*Table 1: Review of relevant WP deliverables within RECONNECT*

	<b>Policy and Governance</b>	<b>Business Models</b>	<b>Investment Strategies</b>
<b>NbS in Europe and beyond</b>	D1.4, D2.2, D5.5,	D5.3	
<b>Funding Gap</b>	D5.7		D5.7
<b>Barriers to funding NbS</b>	D1.7, D4.3, D5.5, D6.3, D6.4	D5.5,	D4.3
<b>Drivers of NbS</b>	D1.7, D5.5	D5.5,	
<b>Investment mechanisms</b>		D4.3, D5.7	
<b>Business Model</b>		D5.3, D5.7	

## 1.5 Target Audience

This deliverable is intended for public distribution and use. It is designed to bridge the gap between project owners and financial sector stakeholders and is therefore targeted at a wide audience of NbS project owners, academics, financial sector stakeholders, and policy makers. Specifically, project owners can better understand the landscape of financial sector stakeholders while also gaining an understanding of how to communicate the value of large scale NbS to the private sector. At the same time, financiers are sensitized to the needs and contexts of NbS project owners, thereby contributing to closing the knowledge gap between financial sector stakeholders and NbS project owners. Finally, the findings and recommendations of this deliverable point to opportunities to support the upscaling of investment through policy making and regulations and are therefore also relevant to policy makers and politicians working at the local, national, and regional level.

# 2 Literature Review

## 2.1 The role of NbS in addressing global challenges

Nature-based solutions (NbS) mimic or use natural processes to address various environmental and societal challenges while simultaneously offering multiple benefits to people and nature (Debele et al., 2019; European Environment Agency, 2023; IUCN, 2016b, 2020; King, 2022; Kumar et al., 2021; Sahani et al., 2019; Somarakis et al., 2019) (Figure 1). NbS are designed to work with local ecosystems to address challenges, such as flooding, land degradation, and drought, while enhancing biodiversity, improving the landscape, and developing more climate resilient societies (Johnson et al., 2022; Liu et al., 2021). Rather than using large structural measures, i.e., traditional grey infrastructure such as dikes and pumps, NbS work with existing landscape features to provide flexible and cost-effective solutions to societal challenges. NbS also provides a wide range of co-benefits including health promotion, economic development opportunities, beautification, and enhanced public space (European Environment Agency., 2021).

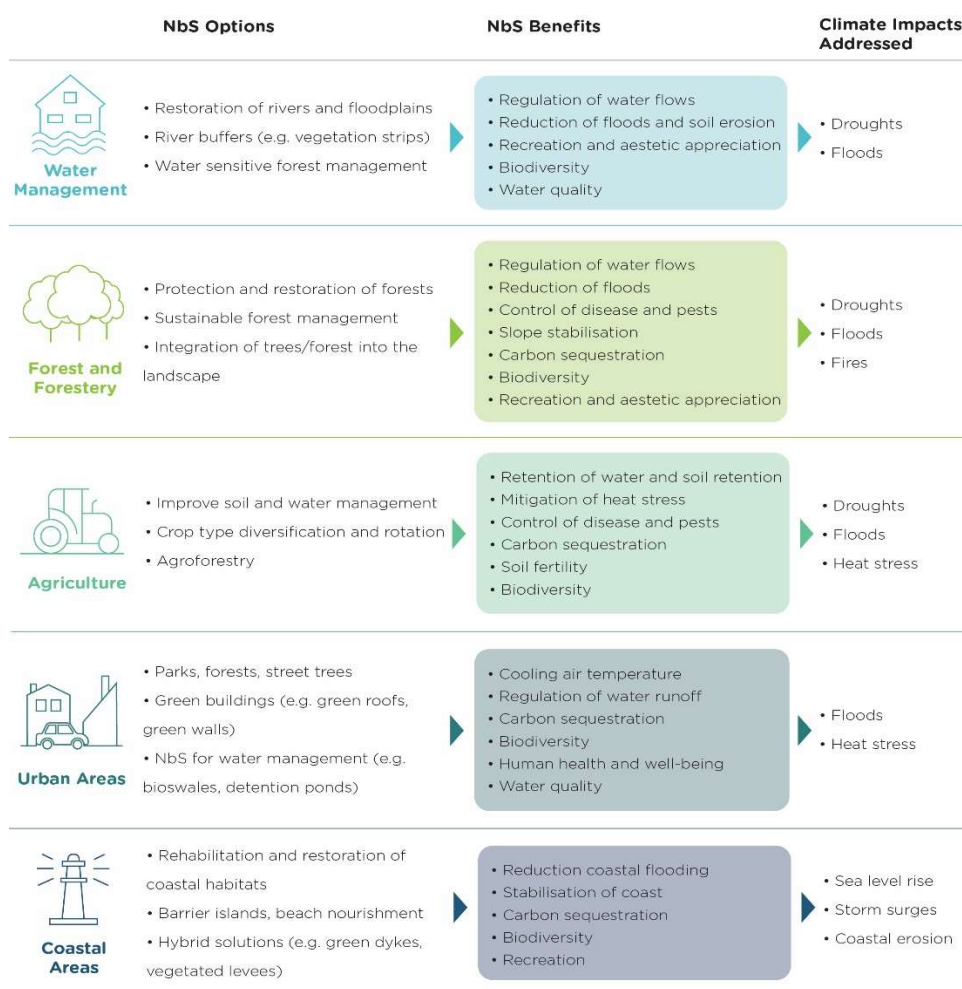


Figure 1: Benefits of NbS across ecosystems and sectors.

Source: EEA Report No 1/2021: Nature-based solutions in Europe (European Environment Agency., 2021)

As part of a wider effort to prepare communities for the impacts of climate change, there has been a push to “mainstream” NbS as an alternative to grey infrastructure. Some examples of efforts to mainstream NbS include the development of global standards for NbS (IUCN, 2020), the inclusion of NbS in global policy documents such as the Kunming-Montreal Global Biodiversity Framework (2022) and explicit mention of the role of NbS in the European Green Deal through the EU Sustainable Finance Taxonomy (European Commission, 2019b). The United Nations also recognizes NbS as a key pathway for achieving the Sustainable Development Goals (United Nations, 2022).

A push at the international policy level to integrate NbS into land use planning and infrastructure development aligns with both the growing demand and need for NbS at the local and regional level (European Environment Agency., 2021). This demand has been studied in more detail in Deliverable D5.1 (Catalogue defining regions with comparable demands and characteristic features of NbS). The inclusion of NbS at the international level presents an opportunity and justification to prioritize NbS over traditional infrastructure interventions (such as grey infrastructure) (Babí Almenar et al., 2021; European Commission. Directorate-General for Research and Innovation, 2015; European Environment Agency, 2023; European Investment Bank, 2023; Ruangpan, Vojinovic, Di Sabatino, et al., 2020; Ruangpan, Vojinovic, Plavšić, et al., 2020; Sarabi et al., 2019) and include NbS in local land use planning and decision making.

## 2.2 The NbS Funding Gap

One of the most significant barriers to the implementation and upscaling of NbS is funding. According to the report *State of Finance for Nature* (UNEP, 2021) an investment of \$4.1 trillion USD in NbS by 2050 is needed to meet targets related to climate, biodiversity, and land degradation (UNEP, 2021). Currently, an estimated 133 billion USD per year is invested in NbS. If the world is to meet climate related targets, investment in nature must increase fourfold from current levels by 2050 (World Economic Forum, 2022).

The majority of NbS are funded through public sources (European Investment Bank, 2020, 2023). This is largely driven by the belief that the benefits derived from large-scale NbS are a public good and are therefore not easily monetized. Public institutions, however, often lack the resources and/or political will to fund NbS at the scale required to address the climate crisis and associated societal challenges (Droste et al., 2017; European Investment Bank, 2023; Green Purposes Company & Finance Earth, 2021; Hagedoorn et al., 2021; Papari et al., 2024; UNEP, 2021). Common challenges to securing investment in NbS include lack of political will, budget constraints, lack of knowledge around the benefits of NbS, regulatory barriers, and land ownership challenges. Despite this, there is demonstrated evidence for both the demand from cities and regions for NbS as well as the need for NbS for disaster risk reduction which cannot be met through current levels of public sector investment (Bockarjova et al., 2020, 2022). This is also known as the **funding gap** (Bassi et al., 2021; European Investment Bank, 2020, 2023; Hagedoorn et al., 2021).

One of the primary reasons why the majority of large-scale NbS are publicly funded is because the value they generate is not easily quantified in monetary terms (Bassi et al., 2021; Dasgupta, 2021; European Investment Bank, 2023; Small et al., 2017). While there are examples of NbS projects with a revenue model, these projects are typically in urban environments or in ecosystems related directly to supply chains, such as forestry or agriculture where it is possible to commodify a product (European Investment Bank, 2023). In contrast, large-scale NbS do not have an inherent revenue model as the benefits are

shared between many stakeholders and are therefore more difficult to monetize (European Investment Bank, 2023). While extensive research has been conducted on different methodologies for valuing the benefits and services nature provides, there is still a gap between recognizing this value in theory and capturing it into the current economic paradigm (Crossman et al., 2012; Dasgupta, 2021; de Groot et al., 2010; Papari et al., 2024; Pauchet, 2021). In other words, while almost every sector of the economy relies on nature and its services, the market fails to adequately value these services, thus making it difficult to attract private sector investment towards NbS (*The Business Case for Nature — Business For Nature*, n.d.). If the right incentives are in place, however, the private sector is well positioned to allocate capital towards climate adaptation projects, including NbS.

Governance factors, such as incentives, regulations, plans, and policies play a fundamental role in creating an enabling environment for private sector investment in climate adaptation including NbS (Alessi et al., n.d.; Brears, 2022; den Heijer & Coppens, 2023; European Investment Bank, 2020, 2023; Green Purposes Company & Finance Earth, 2021; Papari et al., 2024). At the same time, private sector actors are increasingly exposed to climate related hazards and are therefore looking for opportunities to enhance resilience through investment in risk reduction. Moreover, the private sector has significant influence over large swaths of land particularly via forestry or agricultural commodity chains (European Investment Bank, 2023). Direct influence over land positions private sector actors to deploy capital towards NbS without having to navigate the same level of stakeholder or regulatory complexity as public sector actors (European Investment Bank, 2023). In the EU, the *Sustainable Finance Action Plan* (2018) is an example of a governance initiative designed to direct private capital into activities that align with Europe's climate action commitments.

There are many different types of financial instruments used to direct investment towards NbS (European Environment Agency., 2021; European Investment Bank, 2023). The European Investment Bank (2023) found that across Europe, grants, loans, and equity are the most common investment instruments for NbS (European Investment Bank, 2023). Guarantees were also identified as an emerging tool to de-risk investment in climate adaptation projects.

- **Grants** are financial aid given by an organization, government agency, foundation, corporation, or trust to an individual, group, or institution for a specific purpose. Grants are typically non-repayable funds, meaning that they do not have to be paid back, although they often come with conditions or requirements that the recipient must fulfill, such as achieving certain goals, or adhering to specific guidelines.
- **Loans** are a financial transaction in which one party, typically a lender such as a bank or financial institution, provides money to another party, known as the borrower, with the expectation that the borrower will repay the amount borrowed along with any agreed-upon interest or fees within a specified period. Loans can take the form of market rate or concessional.
- **Equity** refers to the ownership interest or ownership stake that shareholders hold in a company. Equity in a company is typically represented by shares of stock, which give shareholders certain rights, such as voting rights in corporate decisions and a claim to a portion of the company's profits through dividends.
- **Guarantees** are financial instruments designed to provide a form of credit enhancement or risk mitigation for lenders or investors. These funds are typically established by governments, development agencies, financial institutions, or private



sector entities to encourage lending and investment in specific sectors or projects by providing a guarantee or insurance against potential losses.

NbS projects often involve multiple stakeholders and in many cases are funded through more than one source (European Investment Bank, 2023). This means that a project may be financed through a combination of different financial tools over its lifecycle (i.e. a grant may be awarded to complete a pre-feasibility study and a loan for construction). Combining different financial tools, such as funding, financing, and project revenue streams has been shown to be an effective strategy for mobilizing investment in NbS (European Investment Bank & European Commission, 2023).

### 2.3 Governance and the role of sustainable finance in upscaling NbS

Governance, including laws, regulations, and policies, plays a key role in mobilizing investments in NbS. Through policy and regulatory measures, governance sets standards, enforces rules, and guides societal processes. By establishing a framework that recognizes the value of nature's services and incentivizes investments, governance actions channels both public and private capital towards NbS.

In recent years, the European Union (EU) has undertaken a series of policy initiatives aimed at facilitating the transition to a sustainable economy, with the European Green Deal (2019) as its cornerstone. The Green Deal is a comprehensive initiative that aims to transform various sectors, including climate, environment, energy, transport, industry, agriculture, toward a low-carbon economy (European Commission, 2019a).

Recognizing the key role of the financial system, the Green Deal underscores the potential of sustainable finance in addressing these challenges by redirecting private finance towards sustainable investments, though significant transformations are needed in the operational framework of the financial system. This is where the EU's Sustainable Finance Strategy assumes significance as a framework for operationalizing the redirection of private investment towards sustainable companies and projects (European Commission, 2018).

In 2021, the EU launched its strategy for financing the transition to a sustainable economy, building upon the groundwork established by the EU's *Action Plan: Financing Sustainable Growth* (2018). With clearly defined objectives, this action plan seeks to:

- Redirect capital flows towards sustainable investments, nurturing sustainable and inclusive growth.
- Mitigate financial risks stemming from climate change, resource depletion, environmental degradation, and social issues.
- Promote transparency and foster long-term perspectives in financial and economic activities.

The *Action Plan: Financing Sustainable Growth* emphasizes environmental, social, and governance (ESG) factors in investment decisions, thus encouraging sustainable and long-term investments. These considerations encompass climate change mitigation and adaptation, as well as broader environmental issues such as pollution, water management, and associated disaster risks (European Commission, 2018).

The *Action Plan* lays the foundation for the EU's policies for sustainable finance by integrating sustainability considerations across various levels of the economy. The action plan also introduces significant regulatory frameworks such as the *EU Taxonomy for Sustainable*

Activities, the *Corporate Sustainability Reporting Directive (CSRD)*, and the *Sustainable Finance Disclosure Regulation (SFDR)* (Figure 2). Together, these regulations serve as the foundation for sustainable and inclusive growth, complementing and reinforcing each other (European Commission, 2018).

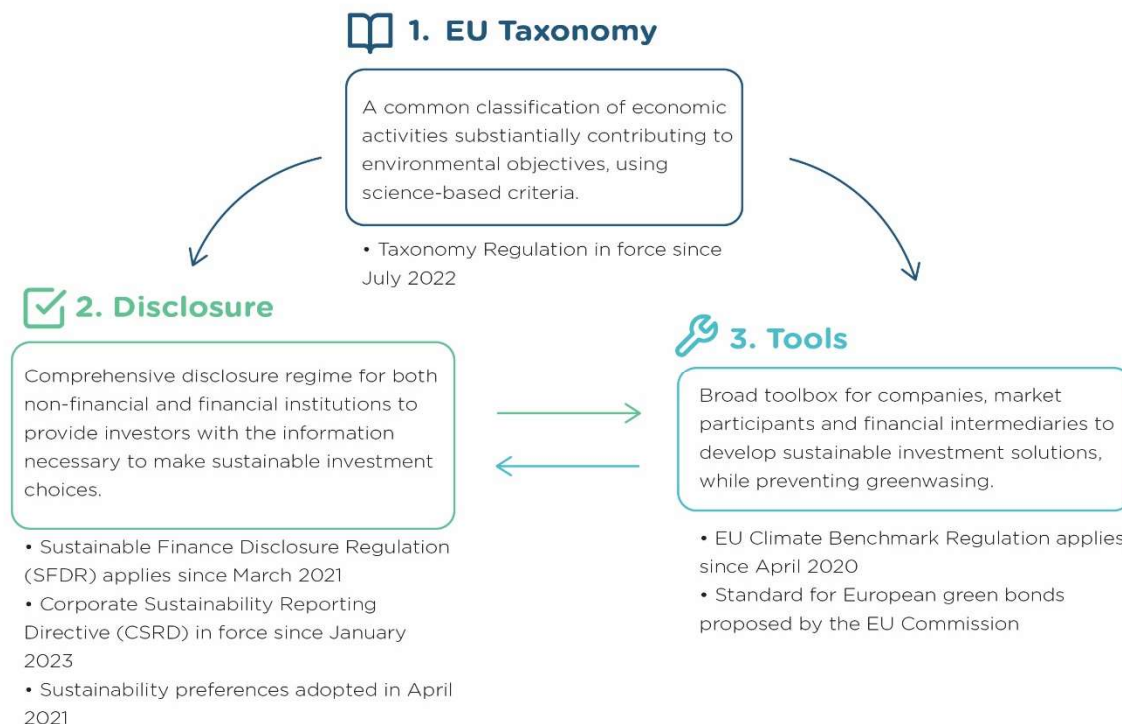


Figure 2: The foundation of the EU Sustainable Finance Framework. Source: *Strategy for Financing the Transition to a Sustainable Economy* (European Commission, 2021)

### How disclosure drives market interest in sustainable investments

While the EU Taxonomy functions as a classification tool for sustainable investments, the Corporate Sustainability Reporting Directive and Sustainable Finance Disclosure Regulation serve as disclosure mechanisms. All three regulations drive market change across the economy, where CSRD<sup>1</sup> is aimed at large companies across and SFRD is directed towards financial market participants, i.e., asset managers, institutional investors, insurance companies, and pension funds, among others.

The aim of the CSRD is to elevate sustainability reporting to the same level of scrutiny as financial reporting. This is accomplished by integrating sustainability and financial reporting into a single, audited annual report, which undergoes auditing and third-party verification to ensure accuracy and credibility. The goal of this is to initiate a dialogue with investors and

<sup>1</sup> All listed companies on the EU regulated market, including listed SMEs (but not micro-enterprises), all large companies that exceed two of the three following criteria: 250 employees during the financial year, balance sheet of more than EUR 20 million, net turnover of more than EUR 40 million and non-EU companies generating a net turnover of more than EUR 150 million and having a subsidiary in the EU that follow the criteria applicable to EU companies or a branch in the EU generating more than EUR 40 million net turnover <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013L0034&from=EN>

stakeholders, allowing for an evaluation of the company's sustainability strategy and the effectiveness of its implementation. Reliable and accurate sustainability reporting is essential to bolster investor confidence and attract investments (European Commission, 2022).

The CSRD explicitly references NbS in various disclosure requirements. NbS is mentioned in the ESG disclosures for E1 climate change and E3 water and marine resources. In E1, NbS is specifically listed as a potential investment opportunity to be considered during the Impact Risk Opportunity (IRO) process and as a solution to be evaluated for greenhouse gas (GHG) removals and storage (European Commission, 2023a).

Like CSRD, the Sustainable Finance Disclosure Regulation (SFDR) serves as a disclosure framework, its directed towards the financial market participants, mandating extensive disclosure regarding the adverse impacts of investments at both entity and product levels. Sustainable investments are categorized into different levels, namely articles 6, 8, and 9, with article 9 representing the most sustainable fund (European Commission, 2019c).

### **The EU Taxonomy – defining and directing capital towards sustainable investments**

The EU Taxonomy defines what can be considered a sustainable activity, enabling disclosure under both the SFDR and CSRD. Large companies and financial market participants will report according to the Taxonomy, which classifies sustainable economic activities, thereby setting a standard for sustainable investments.

By providing a unified definition of sustainable investment, the taxonomy contributes to the upscaling of sustainable investments. The regulation helps investors assess whether the economic activities in which they invest meet robust sustainability standards and are aligned with high-level policy commitments, such as the European Green Deal and EU climate law (PRI UNEP FI, 2022).

To qualify as sustainable according to the Taxonomy, an economic activity undergoes screening against six environmental objectives. Two of these objectives are related to climate, focusing on climate mitigation and adaptation. The remaining four objectives address the sustainable use and protection of water and marine resources, transitioning to a circular economy, pollution prevention and control, and the protection and restoration of biodiversity and ecosystems (European Commission, 2023d).

Nature-based solutions are explicitly referenced in the Taxonomy for addressing both climate mitigation and adaptation, as a Do No Significant Harm criteria for climate adaptation across all sectors. In terms of meeting the environmental objective of climate adaptation, NbS are identified as measures addressing flooding and stormwater management. It is emphasized that adaptation solutions *should prioritize NBS or rely on blue or green infrastructure to the extent possible* (European Commission, 2023d). Urban NBS are highlighted in specific measures for climate mitigation, such as green roofs to enhance energy efficiency, and for carbon capture and storage, such as protection and restoration of wetlands (Papari et al., 2024).

### **Large-scale Nature-based solutions is a sustainable economic activity under disaster risk management**

Large-scale NbS is also, on its own, a sustainable economic activity under disaster risk management, specifically under 3.1 *“Nature-based solutions for flood and drought risk prevention and protection”*. Referring to Nature-based projects involving activities such as planning, building, expanding, and maintaining large-scale nature-based projects to manage floods, droughts, and coastal, transitional, or inland aquatic ecosystems. These projects aim

to prevent and protect against floods or droughts while improving natural water retention, biodiversity, and water quality (European Commission, 2023d).

The eligible large-scale NbS categories are “*river or lake measures*”, “*wetland measures*”, “*coastal measures*” and “*river basin-wide management measures*.” **The technical screening criteria** introduce clear criteria of what the NbS project needs to achieve in order to substantially contribute to the environmental objective of “*sustainable use and protection of water and marine resources*.” Some of its key points are summarized below:

- It requires NbS owners to **measure the impacts and effectiveness of their projects**. The absence of standardized metrics for measuring NbS project impact and effectiveness is frequently cited as a major barrier to their scalability. It's essential for investors to be able to evaluate the impact and Environmental, Social, and Governance values created by NbS projects.
- It requires that the project establishes **clear and binding goals for nature restoration or conservation** over a specified time period, along with measures **detailing how these targets will be achieved**. It's important to involve local communities early in the planning phase and it emphasizes the importance of working together with stakeholders such as local communities and other affected parties.
- The project should adhere to the global NbS standard developed by IUCN, which is based on self-assessment, it's a guide that helps project owners at various stages of the project, such as designing new NbS, expanding pilot projects, and evaluating past and future proposals. It's an important criterion as it promotes **an assessment of how well a project aligns with best practices**.

Further details on the technical screening criteria are reported in Annex D.

It requests the projects to focus on **monitoring and evaluation, assessing the performance of the NbS solution**. This includes checking if it's improving the condition of the water body, ensuring it meets conservation and restoration goals, and adapting to climate changes over time. The monitoring plan should be regularly reviewed and integrated into broader river basin management plans, which also address strategies for handling droughts and floods when they occur. This aspect is crucial for **establishing clear benchmarks over time and for transparently communicating progress and results to investors, thereby building investor confidence**.

### **The EU Taxonomy can play a key role in positioning large-scale NbS as a sustainable investment**

The Taxonomy's regulations for NbS play a key role in standardizing and legitimizing NbS (Papari et al., 2024) and are a first step in valuing the role of nature within the current economic paradigm. Valuing nature as an "asset class" involves acknowledging the contribution of its ecological, economic, and societal services to the economy. This view is echoed in the Dasgupta Review (2021) published by the UK treasury, which underscores that nature is "our most precious asset" and highlights the gap between human demands and nature's capacity to provide essential goods and services (Dasgupta, 2021). Sustainable finance regulations can play an important role in directing investment towards activities that benefit nature while creating value beyond monetary returns and ensuring the sustainable use and preservation of natural resources (European Commission, 2023c)

## 2.4 Business Models for NbS

Emerging EU regulations have the potential to mobilize investment in NbS. While these new policy and regulatory initiatives will create new channels for NbS investment, project owners are responsible for navigating different investment opportunities. To attract investment in NbS, the value of nature and by extension, the benefits of NbS, must be clearly communicated to meet the values, goals, and objectives of different financial sector stakeholders.

One strategy for attracting investment in NbS is through the utilization of the **business model canvas**. The business model concept was developed in the 1960s to describe value creation, delivery, and capture for firms, but it is increasingly being applied to different domains, including NbS (McQuaid, 2019; Papari et al., 2024; Pigneur & Osterwalder, 2012; Stork et al., 2023). The financial sector typically understands ‘value’ in terms of an asset’s financial worth, but in the case of NbS, value can be created directly from the implementation of a NbS (sales model) as well as the benefits derived from risk reduction (avoided damages). The business model canvas is a useful tool to communicate the value of NbS as it provides a simple overview of the benefits of the project and can be tailored to align with the specific interests of different financial sector stakeholders. A business model also outlines project specific governance arrangements, including key stakeholders and implementing partners (Egusquiza et al., 2021; Mayor et al., 2021; McQuaid, 2019; Pigneur & Osterwalder, 2012; H. Toxopeus & Polzin, 2017; H. S. Toxopeus, 2019). The Investment Framework (IFW) builds on the business model canvas concept to offer NbS project owners a flexible tool to be used in the pre-feasibility and planning stage to communicate the value proposition of their project to different financial sector stakeholders. The IFW can be tailored to target the values and business objectives of specific financial sector stakeholders.

A business model for NbS helps project owners identify the value proposition for their NbS and frame it in a way that is attractive to the financial sector. Monetary value creation refers to an approach for generating a financial benefit from the project through either the sales model or cost reduction and avoided damages approach. Other forms of NbS value creation are less easily monetized and include biodiversity enhancement, conservation, and enhanced recreational space.

*Table 2: Value creation opportunities for NbS*

	<b>Definition</b>	<b>Example</b>
<b>Sales model</b>	Approach to generating revenue through selling a service or commodity.	Product and commodity sales; the sale of products or experiences from the land (I,e, eco-tourism, forestry, agriculture).  Payment for ecosystem services – Payment to landowners to maintain intact ecosystems.  Selling credits related to the management of the NbS (i.e. carbon credits)
<b>Cost reduction and avoided damages</b>	Avoided operational and maintenance costs through reduced disaster risk. This also includes more efficient resource management,	Wetland restoration to protect private property

	including the protection of biodiversity and ecological function.	
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## 2.5 Financial Flows (FF) for NbS

*Financial flows (FF)* refer to the way in which funds move between different financial sector stakeholders and towards the planning and implementation of NbS. Figure 3 provides an overview of how fund flows between public, private, other actors and NbS project owners and illustrates the most common investment mechanism.

Understanding the different channels for investment in NbS is a critical component of identifying opportunities for funding/financing. For an NbS project owner to attract investment, the value proposition of the NbS must match the motivations of each financial sector stakeholder. Therefore, it is important for NbS project owners to have an overview of financial flows for NbS (Figure 3). When seeking funding/financing, NbS project owners most commonly interact directly with financial sector stakeholders such as Development Financial Institutions (DFIs), the European Union, an International Climate Fund, a national, or local government, private companies, utilities, or academic institutions. Moreover, it is common for NbS projects to involve more than one financial sector stakeholder. To support NbS project owners in tailoring their value proposition to different financial sector stakeholders, an overview of key financial sector stakeholders is provided below.

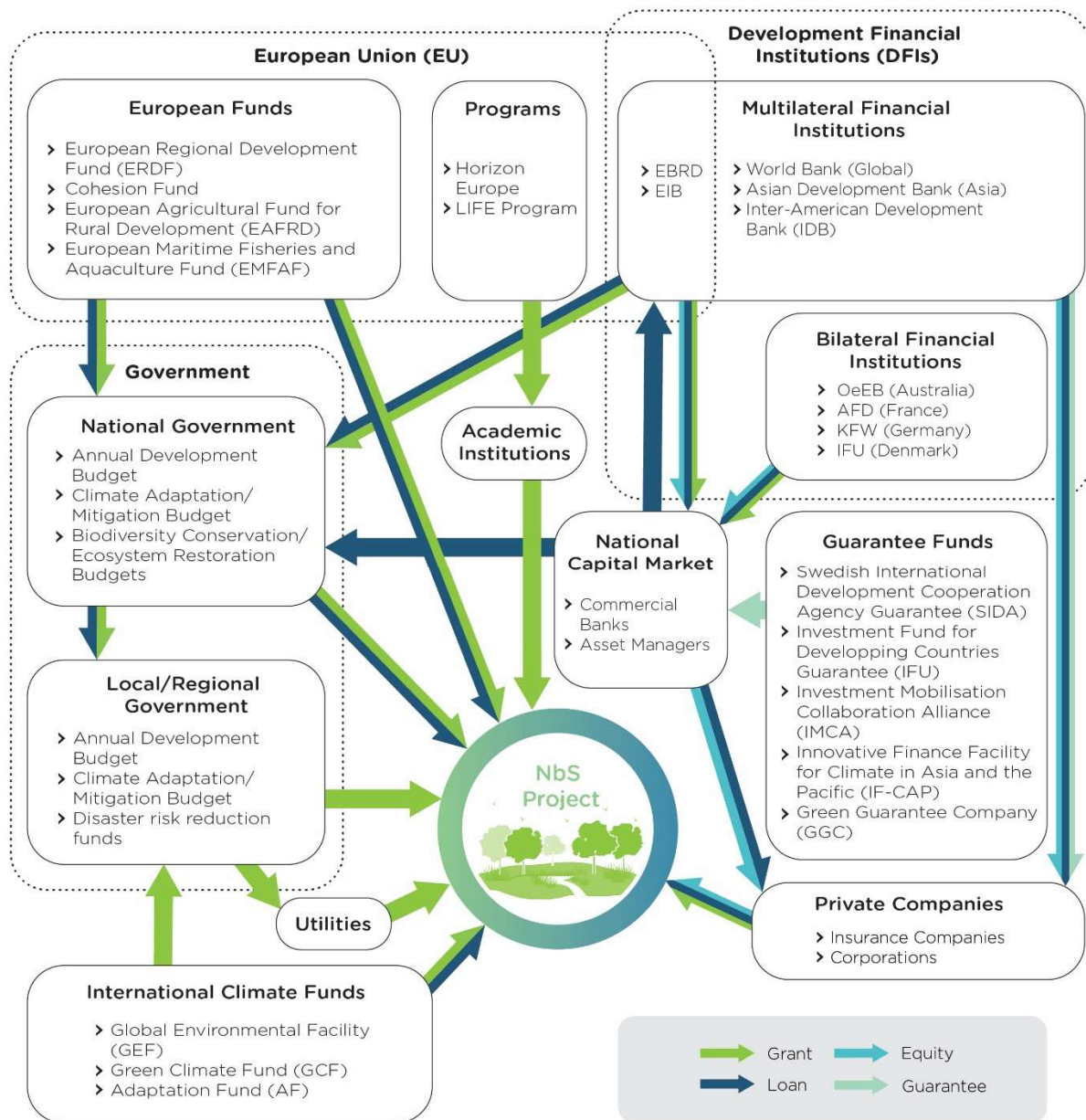


Figure 3: Financial Flows for NbS

**Development Financial Institutions**, including both multilateral and bilateral financial institutions, are specialized banks established to promote private sector development in developing markets (OECD, n.d.). DFIs support climate change mitigation and adaptation projects, including NbS, through equity investments, long-term loans, and guarantees (OECD, n.d.). NbS project owners rarely receive these funds directly. Rather, the institutions receiving the funds would be responsible for allocating the investment to NbS project owners.

**International Climate Funds** are designed to help developing economies implement programs and infrastructure to conserve nature, enhance biodiversity, reduce greenhouse gas emissions, and adapt to climate change impacts. Funds are allocated based on country

priorities and needs and are intended to drive environmental and social resilience by promoting sustainable development outcomes. **The Green Climate Fund** is the world's largest climate fund and is designed to accelerate climate action in developing countries through loans, guarantees, and grants (Green Climate Fund, n.d.-a). It was established in 2010 under the United Nations Framework Convention on Climate Change (UNFCCC). **The Global Environment Facility** is another key climate fund that provides grants and blended finance for projects related to biodiversity, climate change, water, and land degradation (Global Environment Facility, n.d.).

**Guarantee Funds**, such as the Swedish International Development Cooperation Agency's Guarantee Fund, Denmark's Development Guarantee Fund, and the Green Guarantee Company (GGC), are designed to de-risk investment by offering a form of security or insurance against potential losses (Green Climate Fund, n.d.). In the context of climate finance, a climate guarantee fund may be established to encourage investment by the private sector in climate-related projects or initiatives that would typically be deemed as too risky (European Investment Bank, 2023).

The **European Union** is a key driver of upscaling NbS through regulation, governance, as well as direct investment (European Environment Agency., 2021; European Investment Bank, 2023). Specifically, the EU provides grants, loans, and equity investments to several financial sector stakeholders that in turn invest in NbS projects. NbS project owners may interface directly with the EU through a funding or research program.

**National Capital Markets** are composed of commercial banks and asset management companies. Commercial banks can provide financing to NbS project owners directly through a repayable loan. However, due to high financial risks involved in providing loans to projects with limited revenue model, banks currently have a limited role in capital deployment towards large-scale NbS projects (European Investment Bank, 2023). In some cases, banks may provide a limited number of low interest loans towards NbS projects, but this investment typically falls under the bank's ESG budget as it is non-profit seeking (European Investment Bank, 2023). Asset management companies do not interface directly with NbS project owners. Rather, if motivated to invest in climate adaptation projects, asset managers will outline a set of criteria related to climate adaptation and will invest a pool of money in companies that align with the criteria (European Investment Bank, 2023).

Both asset managers and commercial banks can buy bonds from national governments that are designed to fund climate adaptation / NbS. Commercial banks can also issue bonds to finance climate adaptation projects.

Currently, most investment in NbS comes from the budgets of **National or Local Governments** (European Investment Bank, 2020, 2023; UNEP, 2021). National governments may provide funding to local governments to implement NbS, while both levels of government also act as intermediaries and receive funds from other financing institutions to either implement NbS directly or provide it to NbS project owners.



# 3 Investment Framework: Governance, Business Models, and Investment Strategies

## 3.1 Role of the Investment Framework

Currently, the majority of NbS are publicly funded (European Investment Bank, 2023). At the same time, funding has been identified as a key barrier to the implementation and upscaling of NbS, suggesting that funds allocated from public budgets are not sufficient (Droste et al., 2017; European Investment Bank, 2020, 2023; H. Toxopeus & Polzin, 2021). While the public sector must continue to drive investment in NbS, the private sector has an increasingly important role to play in upscaling NbS, particularly as supply chains and business operations are increasingly at risk from climate change impacts (European Investment Bank, 2023). There is, however, a disconnect between NbS project owners and financial sector stakeholders outside of the public sector. This can largely be attributed to a knowledge gap, particularly regarding alternative financial sources, the drivers of private sector investment, and the different mechanisms and financial tools offered by the financial sector. Moreover, NbS project owners often lack the capacity to effectively communicate the value of NbS to the private sector. To bridge this gap, we developed the Investment Framework (IFW), a tool that bridges governance, business models, and investment strategies to support project owners in the planning phase to shape their project to be more attractive to stakeholders beyond the public sector.

In this deliverable, the IFW is conceptualized as a tool to support NbS project owners in extracting and communicating key information relevant to the financial and private sector. It is not designed to be shared directly with the private sector as a decision-making tool. Rather, the IFW is intended to be used during the planning phase to enable project owners to think beyond traditional government budgets and be better positioned to communicate a project's value proposition to additional stakeholders. As part of this deliverable, the IFW was also used to identify different investment strategies for NbS. Investment strategies were identified by applying the IFW to collaborator cases, through discussions with financial sector stakeholders, and through the literature review (see section 4).

## 3.2 Methodology for developing the Investment Framework

The Investment Framework (IFW) was adapted from the business model canvas presented in Deliverable D5.7, Business Models and Roadmaps – a strategic approach to upscaling (Figure 4). This tool also integrates learnings from the *Holistic Business Model for NbS* conceptualized by Stork et al. (2023) and *Connecting Nature* (2019). The Investment Framework builds on the Business Model Canvas by adding two categories: **Governance** and **Investment Strategy** (Figure 5). In the IFW, governance refers to national, regional, and local legislation, plans, or strategies that enable the implementation of NbS. Investment Strategies refers to how capital is leveraged to implement a NbS and accounts for financial risks, and the investment tools utilized by different financial sector stakeholders. The purpose of these additions is to provide a comprehensive overview of the project's value proposition, stakeholders, and existing national policies that incentivize investment in NbS. While the IFW will not lead directly to investment, it can support project owners in identifying partners beyond the public sector and framing the project to match the needs of different financial sector stakeholders.

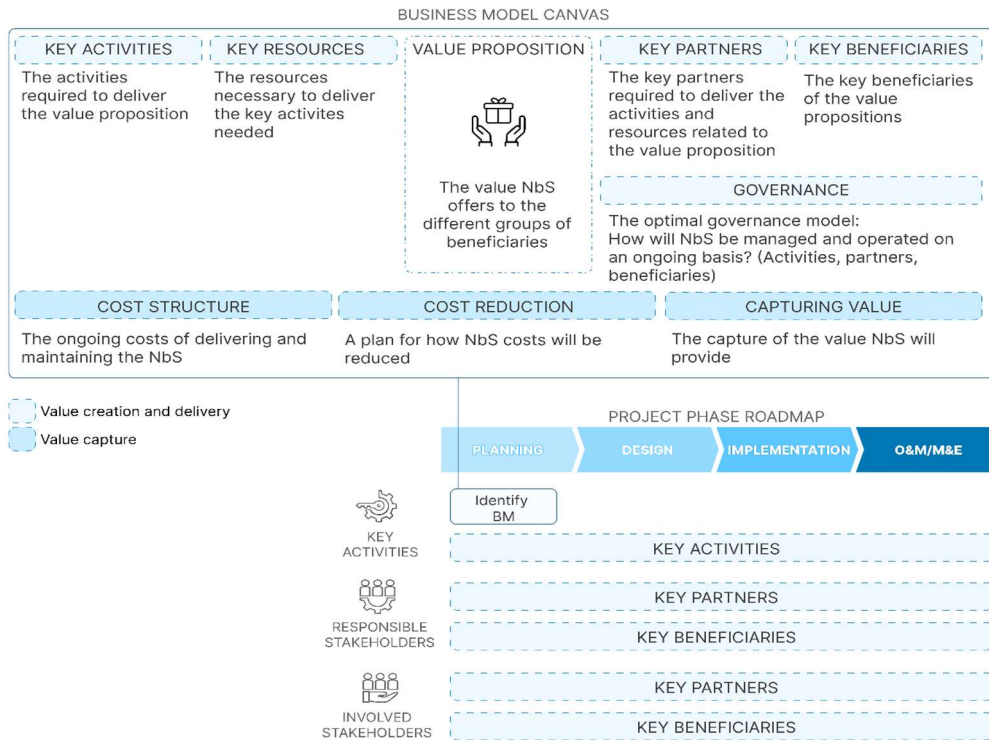


Figure 4: The Business Model Canvas as defined in D5.7

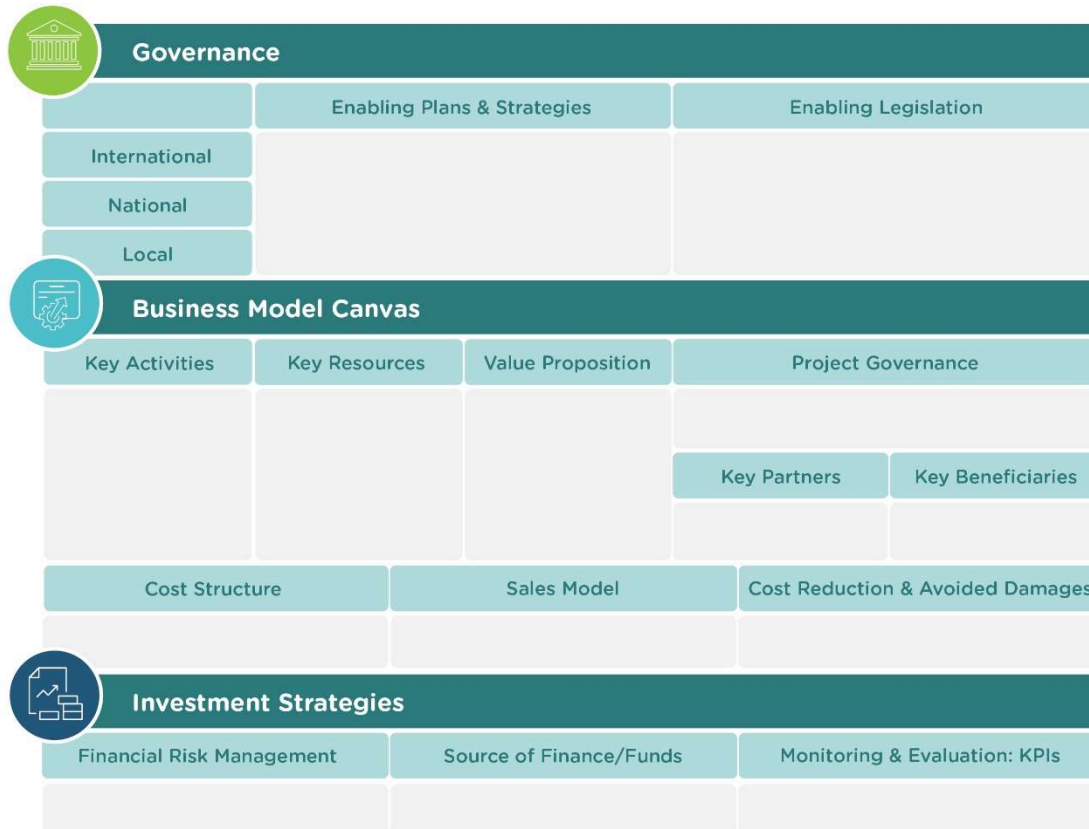


Figure 5: Overview of the Investment Framework (IFW)

To test the IFW, a series of interviews with RECONNECT project owners and financial sector stakeholders were held. The goal of the interviews was to test the IFW concept with both project owners and financial sector stakeholders. The project team conducted one-hour interviews with six RECONNECT collaborators and six financial sector stakeholders to validate the contents of the framework and identify opportunities for refinement. Financial sector stakeholders included a private investor, loan officer, asset manager, and head of a guarantee fund.

### **Collaborator Interviews**

RECONNECT collaborator cases were used to test the IFW. Specifically, the project team used RECONNECT cases to assess the effectiveness of the IFW in capturing key information from the NbS cases. During the collaborator interviews, the framework's purpose was explained, and each project owner was asked to respond to the questions embedded in the framework. The objectives of the collaborator interviews were to:

- The aim was to test how the framework can be used to support project owners in identifying value-generating opportunities within their projects.
- To identify different models for private sector investment.

### **Financial Sector Stakeholder Interviews**

The purpose of the interviews with financial sector stakeholders was to understand what drives private sector investment in NbS and how different financial sector stakeholders decide how to allocate capital in NbS exposed business projects. During the interviews with the financial sector, interviewees were asked to consider gaps in the IFW and identify opportunities for adding more specific metrics, such as:

- Whether regional regulations, such as the *EU Taxonomy*, incentivize investment.
- Whether project governance information, such as internal organization and decision-making processes, was sufficient, or whether additional aspects of financial governance, such as financial transparency, oversight, and reporting, should be included within the framework.
- If the IFW should also quantify and qualify NbS functions including ecosystem services and natural capital and if the value of nature should be quantified in monetary terms.

Conducting these interviews enabled the project team to **revise the IFW based on feedback from both financial sector stakeholder and NbS project owners**. As a result, the IFW captures key information important to both project owners and the financial sector.

## **3.3 Linking Governance, Business Models, and Investment Strategies: Investment Framework**

The Investment Framework links governance, business models, and investment strategies to support project owners in communicating the value of their NbS to financiers (Figure 6). The framework is divided into three sections:

- **Governance:** Refers to systems, policies, laws, plans, and regulatory frameworks put in place by governments and other stakeholders that enable the implementation of NbS.
- **Business Model Canvas:** Describes the core elements of how the project operates and outlines opportunities for creating, delivering, and capturing value.

- **Investment Strategies:** Factors designed to support NbS project owners in identifying potential financial partners and extracting key information relevant to financiers.

Using the Framework during the planning phase will provide project owners with a foundation to approach different financial sector stakeholders (see section 2.5 on FFs). However, it is anticipated that project owners will have to consider context specific factors that go beyond those listed in the IFW so to further tailor the project’s value proposition to appeal to different financial sector stakeholders. The IFW can be used as a planning tool, but NbS project owners are advised to engage with stakeholders to identify synergies and alignments.

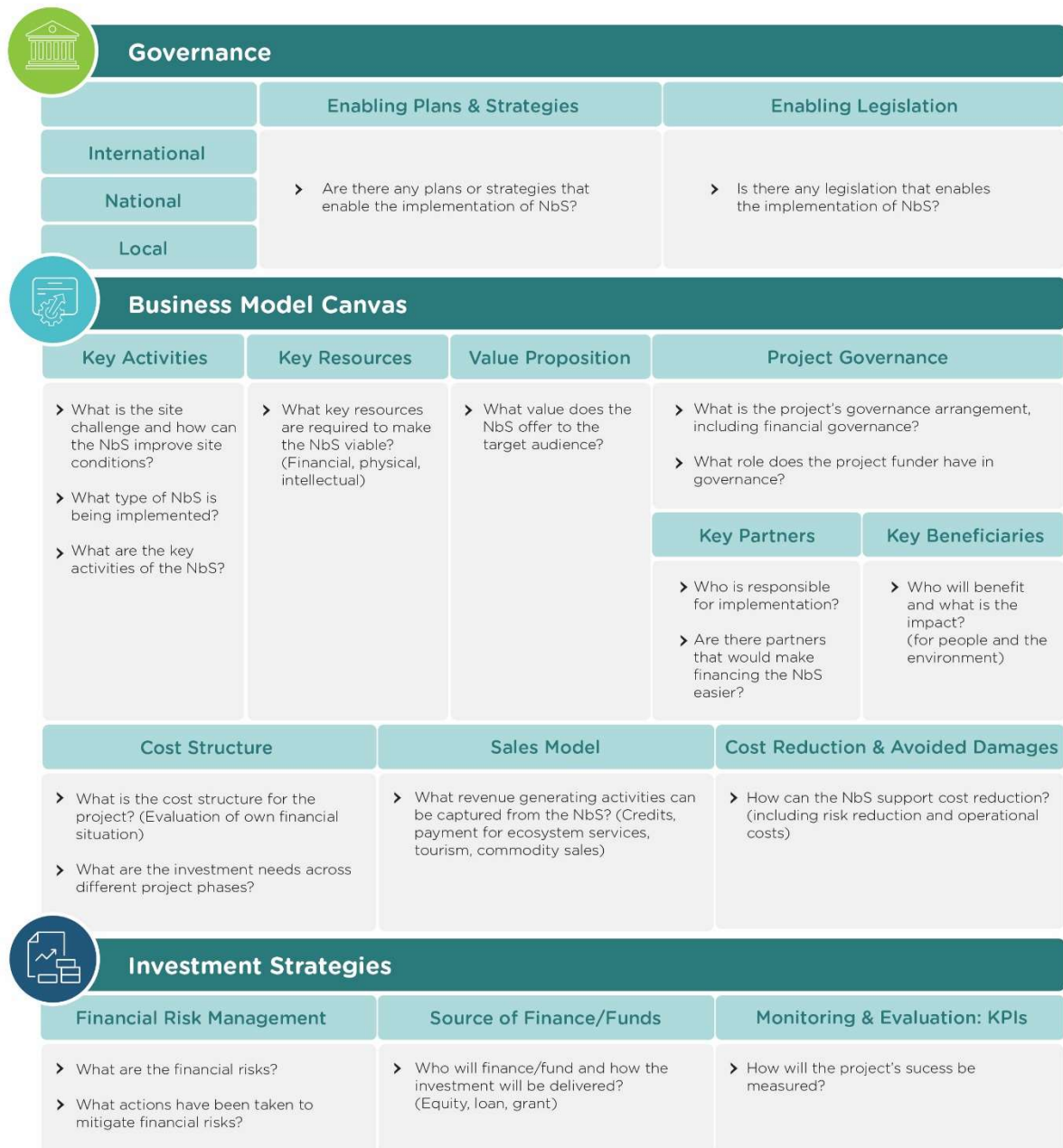


Figure 6: Investment Framework with guiding questions

The following section provides a description of each component of the IFW. The categories of the IFW have been developed with inputs from both the financial sector stakeholder and collaborator interviews. For each category an example is given of the type of information to include in the IFW.

### Part 1: Governance

The governance section of the IFW refers to systems, policies, laws, plans, and regulatory frameworks put in place by supranational organizations and national and local governments that enable value creation or support the implementation of NbS. This section of the IFW covers different levels of governance and asks project owners to consider how international, national, and local governance factors may influence their project. The key questions project owners should reflect on are:

- 1) Are there any plans or strategies that enable the implementation of NbS?
- 2) Are there any legislation that enables the implementation of NbS?

Project owners should consider plans, strategies, and legislation related to climate change, land use, disaster risk reduction, conservation, and sustainable finance.

### Climate Change, Land Use, Disaster Risk Reduction, and Conservation

Project owner should review plans, policies, and regulations that mention NbS or related terms as they contribute to business case.

*Example: EU Biodiversity Strategy for 2030*

### Sustainable Finance

NbS projects owners should also consider regulatory incentives that direct investment towards climate adaptation, mitigation, disaster risk management, and other sustainable activities.

*Example: The EU Taxonomy is a classification system that allows companies to share a common definition of economic activities that can be considered environmentally sustainable. The EU Taxonomy encourages sustainable investments by providing a standardized framework and definition for what sustainable activities are.*

### Part 2: Business Model Canvas

The business model section of the IFW describes the core elements of how the project operates and outlines opportunities for creating, delivering, and capturing value. There are 9 key elements of the business model canvas: key activities, key resources, value proposition, project governance, key partners, key beneficiaries, cost structure, sales model, and cost reduction and avoided damages.

**Key Activities:** This section should provide an overview of the NbS, explain how the solution improves the site conditions in relation to the site challenges, and identify the steps required to implement the NbS. It should also highlight the function of the NbS, how the NbS operates, and how the NbS will be monitored. Key questions to consider when filling out this section are: What is the site challenge and how can the NbS improve site conditions? What type of NBS is being implemented? What are the key activities required to implement the NbS?

*Example: Salt marsh restoration to protect against coastal flooding, sea level rise, and storm surge. Establishment of a protected biodiversity area, monitoring and evaluation program.*

**Key Resources:** This section identifies the key resources available for project implementation. This could include financial, physical, and intellectual resources. Project owners should respond to the question: What key resources are available to project owners and are required to implement the NbS?

**Example:** Risk analysis to identify challenges and opportunities, the wetland restoration/maintenance, including planting of native species, land access, technical ability to maintain the salt marsh and monitor the biodiversity benefits, legal and administrative expertise to set up the protected area.

**Value Proposition:** This section is at the core of the business model and should highlight what value is created through the implementation of the NbS. This section should be tailored to reflect the type of value most relevant to the stakeholder that is being approached for funding/financing. Different types of value, including monetary and non-monetary value, should be defined. This section should respond to the question: What value does the NbS offer to the target audience?

**Example:** Coastal erosion and flood mitigation, recreational and educational services (eco-tourism), supporting fish populations, income to residents from eco-tourism, increased biodiversity.

**Sales Model:** This section outlines how the NbS monetizes activities through either selling products or services to customers.

**Example:** Sale of agricultural products, carbon credits, or tourism products.

**Cost Reduction and Avoided Damages:** This section presents how investment in NbS is a cost-saving measure. Financial metrics, such as the benefit-cost ratio calculated in cost-benefit analyses, can be used to demonstrate to financial sector stakeholders the benefits of investing in NbS.

**Example:** Coastal erosion control, coastal flood mitigation, and reduced risks from flooding and storm surge damages.

#### **Financial Metrics**

NbS project owners can use financial metrics to quantify the value created from both the sales model and cost reduction and avoided damages approach. Some of the most common financial metrics include:

**Net Present Value (NPV):** Quantifies the net present value of future cash flows generated by commodity sales, taking into account the time value of money, discount rates, and project costs and benefits over time.

**Revenue Generation:** Assess the revenue streams generated by nature-based solutions, including income from ecosystem services, carbon credits, eco-tourism, or sustainable agriculture.

**Cost-savings:** Measure the direct cost savings achieved through investments in nature-based solutions, such as reduced operational expenses, lower infrastructure maintenance costs, or avoided damages.

**Cost-Benefit Analysis (CBA):** *Cost-benefit analysis compares the costs and benefits of nature-based investments, including both quantifiable and non-quantifiable factors, to inform decision-making and resource allocation.*

Figure 7: Overview of Financial Metrics

**Project Governance:** This section defines how the project will be managed at an operational level. This section is very important as many NbS projects involve multiple stakeholders, including landowners and different levels of government. This section describes how all stakeholders will be involved and who will take ownership and operate the project on an ongoing basis.

**Example:** *The project is managed by the resort developer supported by the conservation NGO.*

**Key Partners:** This section describes the key partners needed to deliver the activities and resources related to the value proposition, such as implementation partners and potential partners that would facilitate funding.

**Example:** *Resort developer, local conservation NGO, regional tourism board, landowners, fisheries.*

**Key Beneficiaries:** This section highlights who will benefit from the value created by the project. Beneficiaries may include key partners but could also extend to how nature and water will benefit from the project. This section should quantify and qualify who will benefit and identify a way to monitor project benefits.

**Example:** *Residents, fish population, native flowering plants, pollinators*

**Cost Structure:** This section considers the different activities and resources required to deliver the NbS and defines the cost of each of the activities, including both fixed and variable costs. This section should also identify investment needs at different phases of project implementation.

**Example:** *Pre-feasibility study costs \$100,00 euro; land acquisition costs \$300,000 euro. Maintenance costs are estimated at \$10,000 / year over a 20-year time horizon.*

### Part 3: Investment Strategy

Investment Strategies refers to a set of rules, guidelines, and procedures designed to support the selection of an investment. This includes financiers, the project's financial risk management strategy, financial instruments, and implementation arrangement, including monitoring.

**Financial Risk Management:** One of the primary concerns of the financial sector is risk management. This section refers to the process of identifying, assessing, and mitigating risks that could negatively impact an organization's financial performance and objective.

**Example:** *Changes in commodity prices, land prices, changes in regulation*

**Source of Finance:** This section refers to the various ways in which financing/funding is directed to a project. Projects may have multiple sources of funding/financing including from both public and private sources. See section 2.5 for an overview of Financial Flows.

**Example:** An NbS is funded through a mix of public funding and a grant from the Green Environment Fund.

**Monitoring and Evaluation: Key Performance Indicators:** Monitoring investments in nature / NbS involve tracking and evaluating the progress, effectiveness, and outcomes of financial commitments made towards conservation, restoration, disaster risk reduction, or sustainable management of natural resources. This may include monitoring water quality, biodiversity, restoration targets, or water levels during heavy rain. Private companies may define other key performance indicators (KPIs) related to environmental, social, and governance (ESG) considerations.

**Example:** Water quality improved by 50%; 25% of land restored



## 4 Key Findings and Conclusions

Our research suggests that NbS projects are heavily reliant on public sector funding and in many cases, despite facing budget challenges, project owners have not considered other sources of investment. Further, many NbS project owners do not have the capacity to identify potential financial sector stakeholders and effectively engage with them. The Investment Framework (IFW) is designed to support NbS project owners to communicate the value of their project to a wide range of financial sector stakeholders. It is a first step in closing the funding gap as it enables NbS project owners to tailor the value proposition of their project to a wide range of financial sector stakeholders.

The key findings during the development of the IFW are summarized below:

**Key Finding 1: From a financial standpoint, Natural-based Solutions (NbS) lack a built-in revenue stream. To access funds for NbS implementation from sources beyond public budgets necessitates innovative collaborations among stakeholders, often pooling investments from various sources.**

Despite not having an inherent revenue model, NbS create a range of valuable socio-economic benefits for both the public and private sector. Effectively identifying and showcasing how NbS impacts relevant stakeholders is a crucial first step in building a case to attract investment. Further, NbS project owners must engage with different type of stakeholders, especially local economic actors who directly benefit from the socio-economic gains of NbS. Stakeholder engagement is therefore key to create flexible and project specific financing strategies that leverage multiple sources of financing/funding.

Below are three specific investment strategies that have upscaling potential. These models were derived by applying the IFW to RECONNECT collaborator cases and described further with perspectives from the financial sector stakeholder interviews and literature.

### 1) NbS as part of a larger development strategy

For cities, regions, and nations that suffer from socio-economic health challenges related to hydrometeorological events, NbS should be positioned as an integrated tool that is part of a larger regional or national risk reduction strategy. Positioning NbS as a standalone intervention restricts its potential to achieve larger development impacts and may limit the possibility of engaging a diverse range of financial sector stakeholders. Further, by integrating NbS into a larger development strategy, the full extent of potential beneficiaries and financiers can be realized. An integrated development plan that draws the connection between economic development, risk reduction, public health and NbS strengthens the impact case for NbS and increases the ability of NbS project owners to attract funding / financing for project implementation.

### Conclusions:

- During the planning stage, NbS project owners should identify realistic estimations of various damage costs avoided through project implementation (i.e., health cost, economic cost, ecosystem damage, civil infrastructure damage). This increases the value proposition of the NbS and better positions the NbS project owner to attract financing from stakeholders with diverse interests and motivations.
- NbS project owner should identify upcoming regional and national development plans and explore opportunities for integrating NbS into such plans. Simultaneously project

owners should develop the socio-economic impact case by quantifying and qualifying the benefits of NbS. The findings should then be tailored to different local stakeholders.

- NbS is a new concept. Upscaling and attracting investment require the sensitization of both government and non-government stakeholder of the socio-economic benefits of NbS. To encourage the upscaling of NbS policy makers should emphasize NbS implementation in planning documents such as Local Area Development Plans and Regional Climate Adaptation Plans.
- NbS project owners should engage with stakeholders such as local business owners, business associations, property developers, utility companies, resident groups, and farmers to identify potential partners for co-financing/funding. The IFW provides a foundation for project owners to effectively capture key project information.

The detailed case study for this strategy can be found in Annex C.

## **2) NbS supported by private sector investment**

The effects of climate change are increasingly being felt by the private sector. In particular, supply chains reliant on land and water inputs are increasingly exposed to climate hazards, leading to potential business disruption and loss of revenue. At the same time, private sector actors want to demonstrate their commitments to climate change action and sustainability through supporting environmental activities and initiatives. By investing in NbS, private companies can reduce business risks while demonstrating commitment to sustainable business operations.

### **Conclusions:**

- There is a good business case for the private sector to invest in NbS interventions. This particularly applies to companies where agricultural products or water are used as production inputs. Such companies may be willing to invest in NbS that improve supply chain resilience. Examples of this include soil regeneration, watershed protection, and ecological restoration to reduce flood risk and improve water quality. Companies have an incentive to do so to ensure supply chain resilience.
- Companies striving for a sustainable brand image may also be incentivized to invest in NbS so to demonstrate their commitments to the environment. Increasingly, companies are required to report on their sustainability initiatives through compliance reporting regulations. Companies may also disclose the impacts of environmental initiatives to investors so to demonstrate their company's commitment to sustainability. Moreover, companies with a demonstrated commitment to sustainability may also be able to access preferential finance.
- As part of the pre-feasibility phase, project owners should identify and highlight co-benefits of NbS interventions that may benefit national and international economic actors (farmers, forestry companies, agro-processing companies, beverage companies) that operate in the same geography.
- NbS project owners should engage with companies operating in the same geography to understand potential supply chain challenges where natural resource (land, water) is used as an input for production. NbS might be an appropriate tool to mitigate some of these business risks.
- Further, NbS project owners should showcase NbS benefits to non-traditional stakeholders (i.e corporations) and explore synergies where financing/funding for NbS becomes an investment in increasing economic productivity and supply chain resilience.
- Finally, companies operating supply chains that involve land and water inputs should be sensitized to the benefits of NbS and incentivized to incorporate NbS into land management practices.

The detailed case study for this strategy can be found in Annex C.

### **3) NbS funded/financed through Climate Adaptation Grants and Loans**

If national or local / regional governments are unable to provide sufficient resources to fund the costs of climate adaptation infrastructure, project owners can access funding / financing and technical assistance through programs delivered through organizations such as the World Bank, Global Environmental Facility, or European Union. These institutions administer programs specifically designed to address the challenges posed by climate change. Through these programs, project owners can access a range of support services, including grants, financing, and technical assistance. This support extends across the entire project lifecycle, encompassing everything from the initial design phase to implementation and ongoing monitoring.

#### **Conclusions:**

- If local public sector budgets are insufficient to cover the costs of NbS implementation, project owners can access co-financing in the form of loans and grants through various development funds.
- In many regions, NbS implementation faces barriers such as limited policy and legislative support, insufficient stakeholder awareness, land procurement challenges, and lack of coordination among different government entities. Technical assistance programs can help to build institutional and technical capacity to plan and implement NbS projects.
- To prepare to access financing / funding from sources beyond national or local governments project owners should:
  - Partner with local and international academic and industry experts to clearly define and potentially measure co-benefits to government, private economic actors, and local stakeholders.
  - Conduct a full feasibility to evaluate measures proposed, identify land acquisition methodology, and detail the benefits and co-benefits.
  - Develop a complete project plan for NbS implementation with detailed measures, budget, period and define impact measurement with KPIs.
  - Identify and engage with potential financiers/funders within locally and internationally.
- NbS project owners should explore possibilities to do a pilot project via partnership with researchers, experts, stakeholders, financiers/funders to showcase potential benefits of NbS and impacts.
- While carbon credits likely require more time to be recognized as a viable revenue stream for NbS projects, project owners should calculate and highlight CO2 emission reduction as a key impact measurement KPI in their value proposition.

The detailed case study for this strategy can be found in Annex C.

#### **Key Finding 2: NbS project owners have limited awareness of different types of investment opportunities outside the public sector.**

Limited awareness of investment opportunities beyond the public sector among project owners may be driven by several factors:

- **Perception of NbS as a public good:** NbS project owners often perceive NbS as a public good and therefore only consider public sector funding. While NbS contributes to common well-being, this perception limits the exploration of alternative financing sources.

- **Lack of inherent revenue models in large-scale NbS:** The absence of a direct revenue stream from large-scale NbS, discourages project owners from engaging with the private sector. This is a challenge that needs to be addressed through innovative approaches to valuing and monetizing ecosystem services that looks at cost reduction and avoided damages.
- **Limited exposure to financial stakeholders:** NbS project owners have limited exposure to financial stakeholders, which contributes to their unfamiliarity with the diverse landscape of financial sector actors. NbS project owners, often coming from backgrounds in conservation, ecology, or environmental science, have limited experience or networks within the financial industry.
- **Lack of knowledge on funding mechanisms:** NbS project owners have limited understanding of the diverse funding/financing mechanisms available from both international and local financial sectors. Thus, they lack familiarity with the various financial instruments, products, and services offered by financial institutions, development banks, impact investors, and other financial actors that could potentially support NbS initiatives.
- **Lack of opportunities to pitch NbS:** NbS project owners often operate within the sphere of environmental conservation or ecosystem management, where their focus is primarily on project implementation rather than active engagement with external stakeholders, such as private sector companies, investors, academia, or civil society organizations.

#### **Conclusions:**

The Financial Flows and IFW jointly provide a foundation for NbS project owners to strategize beyond public sector funding and explore opportunities for collaboration with the private sector and non-government stakeholders. To build the capacity of NbS project owners to engage with a diverse range of financial stakeholders, the following actions are proposed:

- **Capacity building:** There is a need for capacity building initiatives focusing on areas such as project finance, corporate social responsibility, business development, and stakeholder engagement. These initiatives should aim to equip project owners with the necessary skills to understand financial mechanisms, enhance their financial literacy, and effectively pitch their projects to potential financing partners. Key areas of development include understanding project value and return, interest rates and payback modalities, sources of types of financing, evaluating and undertaking associated risks. The IFW can be used as a foundation for capacity building.
- **Twinning partnerships:** There is a need for a platform/coordination mechanism that facilitate knowledge sharing between those who have successfully accessed private sector finance and those seeking to do so. Experienced project owners can mentor and offer guidance to new project owners on building NbS cases for funding/financing, through knowledge sharing and lessons learned.
- **Technical Assistance:** There is a continued need for tailored technical assistance specifically to the assessment and scaling of NbS projects. Many NbS projects operate at a small-scale level, often lacking the resources and capacity to prepare compelling proposals for larger-scale implementation or investment. Technical assistance programs can bridge this gap by providing project owners with the necessary guidance, tools, and expertise to assess the scalability and replicability of their NbS interventions.

### **Key Finding 3: Demonstrating measurable value of NbS through monitoring and evaluation is essential for attracting investment.**

Within the financial sector, NbS is a relatively new concept. Very few profit-driven entities, such as private companies, asset managers, or banks are interested in investing in NbS as most projects lack an inherent revenue model. To attract private sector investment in NbS, it is critical to demonstrate the project's value proposition. Financial sector stakeholders want to be able to measure and report on the impacts of their investment and are more likely to support projects if the benefits are measured, clearly defined, and help to advance existing priorities. Important aspects to consider while building the value proposition and impact measurement of NbS projects are:

- **Measuring the impact:** All stakeholders have an interest in quantifying the benefits of the NbS. However, each stakeholder group may need to report on a different set of indicators. For instance, asset managers may be more interested in understanding how their investment performs against the Sustainable Finance Disclosure Regulation (SFDR), companies may be interested in reporting on how investing in NbS reduces commodities to flood risk or what type of activities boosts their performance under the Corporate Sustainability Reporting Directive (CSRD) and at the same time, project owners may be interested in reporting on water quality and species diversity.
- **Emerging regulations:** The EU Taxonomy mandates that NbS projects are quantifiable and measurable, enabling tracking of concrete metrics or indicators. Measurement and quantification are important in providing insights into project impact and overcoming challenges related to inconsistent data collection.
- **Demonstrate proof of concept:** Monitoring and evaluation of how an NbS project achieves various impacts is an important component for upscaling NbS and attracting investment. There are opportunities for synergies between how practitioners measure the impacts of their project and the metrics used by financial sector. Project owners should utilize a mix of qualitative and quantitative indicators.
- **Financial risk management:** Financial sector stakeholders are risk adverse and will not direct money towards NbS projects unless the benefits are well documented. This includes documenting proof of concept, demonstrating successful case examples, and collecting data on the effectiveness of NbS through monitoring and evaluation. Financial sector stakeholders will also require an investment risk mitigation plan. Documenting impacts through data collection and periodic monitoring are prerequisites in building a risk mitigation plan for investment

#### **Conclusions:**

The IFW can be used to help NbS project owners identify the value proposition of their NbS and more effectively align the value proposition with the needs of diverse stakeholders. This includes identifying what is of value to different stakeholders and selecting an appropriate monitoring mechanism. Actions to support project owners in quantifying the value of their NbS and pitching it to financial sector stakeholders include:

- **Synergizing monitoring and evaluation activities to align with financial reporting timelines:** This would allow financial and private sector partners to report KPIs to stakeholders such as shareholders and board of investors in a timely manner. Monitoring plans should be regularly reviewed and integrated into broader land management plans.
- **Integrating monitoring and evaluation activities into project implementation processes from the start:** Developing clear goals, objectives, and performance targets for NbS projects, and establishing robust monitoring systems to track progress towards

these targets over time. Collect relevant data and evidence to measure the environmental, social, and economic impacts of NbS interventions, using both quantitative and qualitative indicators where appropriate.

- **Developing a shared understanding of risk:** Both NbS project owners and financial sector stakeholders are concerned with risk and have skills in risk management. NbS project owners and financial sector stakeholders would need to work together to identify and assess various types of risks, such as environmental, social, regulatory, operational, and financial and agree on a shared risk management approach. By acknowledging and understanding these risks upfront, stakeholders can better manage and mitigate them throughout the project lifecycle.
- **Developing a strong value proposition and look for opportunities to systematically monetize NbS benefits and co-benefits through value capture techniques:** For instance, by selling a higher value commodity due to better land management techniques or increased property prices due to flood risk mitigation.
- **Develop legislation that incentivizes private sector stakeholders to invest in NbS:** Legislation should offer a range of incentives and benefits to encourage private investment in NbS projects that promote biodiversity conservation, ecosystem restoration, and sustainable natural resource management. Incentives such as tax credits, grants, subsidies, low-interest loans, preferential treatment in procurement processes, regulatory exemptions, certification schemes and public-private partnerships should be explored.

#### **Key Finding 4: The EU Taxonomy has the potential to address common barriers to value creation of NbS**

The EU Taxonomy holds promise in addressing various financial barriers to upscaling NbS. The EU Taxonomy functions as a standard that harmonizes, guides, and enhances the attractiveness of NbS as a disaster risk reduction tool, thus contributing significantly to upscaling.

- **A standard for sustainable activities:** The taxonomy introduces standardization for the implementation of sustainable activities. It establishes clear criteria, with reference to a global standard, adherence to *EU's Green Deal*, its strategy for *Biodiversity for 2030* and relevant directives such as the *Water and Floods Directive*. This ensures consistency and effectiveness across NbS projects and signals a long-term commitment to investors that NbS is an EU level priority. |
- **New disclosure requirements:** The inclusion of NbS in CSRD helps steer and create demand for private sector investment in NbS. This effect is expected to intensify in the coming years as more than 50,000 European companies in scope start publishing their disclosures. As rating agencies analyze these disclosures and investors assess market demands for new investment products, the momentum for NbS investment may be strengthened.
- **Disclosure may lead to new demand:** The SFDR serves as a disclosure framework for financial market participants. With strengthened market momentum, thanks to disclosures, it's conceivable that there will be a growing market for investment funds specializing in NbS projects, particularly those classified under article 9.
- **Monitoring and reporting:** The EU Taxonomy mandates monitoring and reporting of NbS. This will support ongoing efforts to build the evidence base for NbS and will support efforts to attract private sector investment.

**Conclusions:**

- **Taxonomy alignment:** To support alignment with the EU Taxonomy, clear and binding objectives should be established by project owners over a specified time, alongside measures detailing how these targets will be achieved. This will signal to financial sector stakeholders that investment in NbS is a taxonomy aligned activity.
- **Opportunities outside of the EU:** Non-EU NbS project owners looking to attract investment from EU financial sector stakeholders should consider how their project aligns with the EU taxonomy. This is because EU countries operating in “third countries” are still subject to CSRD and SFRD.

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## **6 Annex A. Results of Investment Framework Exercise with Collaborators**

# Annex A. Results of Investment Framework Exercise with Collaborators

## a. Collaborator 1: Vrbanja River, Bosnia and Herzegovina (B&H)

Governance		
<p><b>Has your NbS been influenced by international or national policies / legislation?</b></p> <ul style="list-style-type: none"> <li>• B&amp;H political context: a democracy comprised of two entities (Federation of Bosnia and Herzegovina - FB&amp;H and the Republika Srpska - RS) and Brcko District. Besides having common institutions (presidency, council of ministers, parliamentary assembly, constitutional court, etc.) they all have their own executive (e.g. the Republika Srpska has its own president, government, and ministries) and legislature. The Vrbanja basin is located in Republika Srpska.</li> <li>• Lack of regulations for NbS</li> <li>• NbS are not explicitly indicated under that name, they can be recognized in various forms and bases in:               <ul style="list-style-type: none"> <li>- Law on Environmental Protection (RS Official Gazette, no. 71/12, 79/15 and 70/20)</li> <li>- Water Act (Official Gazette of the Republic of Srpska, no. 50/06, 92/09, 121/12 and 74/17)</li> <li>- Law on Spatial Planning and Construction (RS Official Gazette 40/13)</li> <li>- Bylaws of the aforementioned and other Laws</li> </ul> </li> </ul> <p>Strategic and planning documents that are prepared following the aforementioned laws, e.g. in the water sector: Sustainable Water Management Strategies, River Basin Management Plans, and Flood Risk Management Plans, in addition to being given in the form of recommendations for the time being, should become binding - integrated into the legal legislation, also in the processes of adaptation to climate change (strategies adapting to climate change, etc.).</p> <ul style="list-style-type: none"> <li>• B&amp;H is not part of the EU but they try to align with the EU regulation</li> </ul>		
<p><b>Do local land use regulations enable or impede the implementation of NbS?</b></p> <p>The B&amp;H regulation doesn't mention NbS</p> <p>→ The main barrier is that local authorities would have to deal with hundreds of landowners who do not want to leave their properties and arable land. Most measures should be planned on state-owned land. In the case of private land, certain obstacles are expected that can be overcome, for example, by subsidizing farmers/private owners to apply some of the NbS on their land.</p>		
Business Model		
Site Overview and Key Activities	Key Resources	Project Governance
<p><b>Please provide an overview of existing site conditions, including challenges and goal of the NbS.</b></p> <ul style="list-style-type: none"> <li>• Vrbanja River Basin, located in Republika Srpska; part of one of the most important integrated water management system of B&amp;H (Vrbas basin)</li> <li>• Republika Srpska has its own government - i.e. own president and ministries</li> <li>• Significant floodings in 2010 &amp; 2014 → Look for quick greys solutions → not sufficient → opportunity for NbS implementation</li> <li>• Risks: Floods, landslides, and droughts increased by anthropogenic influences such as deforestation</li> <li>• Long-term solutions: 2 phases over 10 years</li> <li>• Costs estimation: €28.6 million</li> </ul>	<p><b>What resources are required to make the NbS viable? (i.e. financial, staffing, equipment, and land)</b></p> <ul style="list-style-type: none"> <li>• Assessment of costs completed</li> <li>• Additional education on the benefits of NbS among stakeholders is required - (ex: doing workshops, seminars with NbS project examples explained, implementation of NbS on a small part of the basin as a proof of concept)</li> <li>• Financial support</li> <li>• The possibility of carrying out measures on the field and fitting into planning documentation</li> <li>• The project requires more collaboration between stakeholders</li> <li>• Knowledge and support of stakeholders (governmental and non-governmental organizations), support of scientific institutions, and the private sector are needed</li> <li>• Some of the measures require land expropriation.</li> <li>• Qualified personnel and equipment required in further stages of implementation. Also, teams that require experts from different fields are crucial for designing the NbS.</li> </ul>	<p><b>Who are the key partners involved? (i.e. stakeholders)</b></p> <ul style="list-style-type: none"> <li>• Government organizations (Ministries)</li> <li>• Public institutions</li> <li>• Local communities</li> <li>• Departments of Economy, Spatial Planning, Communal Affairs</li> <li>• Scientific community</li> <li>• NGOs</li> </ul>

<p><b>What type of NbS is being implemented?</b> (Are the activities Taxonomy aligned - i.e. activities related to lakes, rivers, wetland, and coastal)</p>	<p><b>Do you plan to use tools to measure the impact of your project / quantify the benefits?</b></p>	<p><b>Who are the key beneficiaries?</b></p>
<p>Hybrid solutions are needed. NbS implemented:</p> <ul style="list-style-type: none"> <li>• Retention ponds</li> <li>• Afforestation and reforestation</li> <li>• Floodplain excavation/enlargement/restoration</li> <li>• Removing obstacles</li> <li>• Widening of water bodies</li> </ul>	<ul style="list-style-type: none"> <li>• Cost-benefit analysis was completed by an economist - focus on cost savings from avoided damages → Show satisfactory results, even without co-benefits included</li> <li>• Nothing else planned yet, but they are thinking about tools to prove the benefits</li> <li>• Looking at how to evaluate the benefits for people and nature (co-benefits), but the team does not have much experience with this</li> </ul> <p>Impact measurement</p> <ul style="list-style-type: none"> <li>• Impact measurement (in terms of monitoring) is not planned at this stage - will be necessary for the further stages</li> </ul>	<ul style="list-style-type: none"> <li>• Society as a whole → raising safety and living standards</li> <li>• Local population</li> <li>• Environment</li> </ul>
<p><b>What stage of project implementation are you in?</b></p>	<p><b>How is your project financed?</b></p>	<p><b>Partners and Beneficiaries</b></p>
<ul style="list-style-type: none"> <li>• Pre-feasibility study being conducted within RECONNECT</li> <li>• Currently in the planning phase</li> </ul>	<ul style="list-style-type: none"> <li>• Some financing will come from the Republic, but the majority of financing will have to come from international donors/grants or loans (World Bank, EIB, GEF, FAO, etc.)</li> </ul>	<p><b>Who is responsible for implementation?</b></p> <ul style="list-style-type: none"> <li>• Stakeholders</li> <li>→ governmental organizations - ministries, directorates, environmental funds, and public institutions</li> <li>→ local communities - departments for the economy, departments for spatial planning, departments for communal affairs, etc.</li> <li>• Non-governmental organizations → involved in monitoring</li> </ul>
<p><b>Main Barriers</b></p>		
<ul style="list-style-type: none"> <li>• Lack of legislation that defines the planning and implementation of NbS</li> <li>• Private lands: Local authorities have to deal with hundreds of landowners who do <u>not</u> want to leave their properties/land → Long process</li> <li>Can be avoided by focusing on state-owned land or by subsidizing farmers/private owners to apply some of the NbS on their land</li> <li>• Liability between local governments or within the organizations</li> <li>• Grey measures: provides maximum security and protection VS NbS: uncertainty of effectiveness and lack of knowledge (path dependence, siloed thinking)</li> <li>• Financial resources</li> <li>• Liability between local governments or within the organizations</li> </ul>		<p><b>Are there partners that would make</b></p> <p>The project could be financed by:</p> <ul style="list-style-type: none"> <li>• The Republic and the local communities</li> <li>• International financing institutions</li> <li>• European Investment Bank, grants from global environmental facilities or Green Climate Fund, or Food and Agriculture Organization</li> <li>• Private sector - if the NbS offers solutions that ensure business security and additional profit</li> </ul>

Value proposition	
<p><b>How would you describe the NbS benefits of your project, for example does it restore natural areas such as wetlands, river basins, coastal inland, forests, rivers, - so that these ecosystems can act as natural buffers against extreme weather events such as floods, storms and coastal erosion?</b></p>	
<ul style="list-style-type: none"> <li>• Damage reduction, risk of flooding reduced</li> <li>• CO2 savings</li> <li>• Downstream benefits: decreases flood damages in the downstream part of the basin where the City of Banja Luka is (capital of Republika Srpska)</li> <li>• Reduce runoff and destructiveness of flood waves, strengthen the capacity of the basin</li> <li>• Reduce investments in grey's infrastructure</li> <li>• Increase in income is expected in the fields of forestry, water management, agriculture, ecosystem improvement, tourism, fishing, etc.</li> </ul>	
<p><b>How do you highlight the benefits of your project to stakeholders? (Consider sales model vs. avoided damages)</b></p>	
<ul style="list-style-type: none"> <li>• Avoid damages and flood risk reduction</li> <li>• Share expectations from this project on meetings, workshops (a national workshop is planned), the results of the models, and some of the expected results of the pre-feasibility study (cost-benefit analysis)</li> <li>• Sharing knowledge and experiences from other projects that have been built and where the benefits have been proven</li> </ul>	
<p><b>What co-benefits does your NbS provide?</b></p>	
<ul style="list-style-type: none"> <li>• Co-benefit analysis for people and nature in progress - difficult to monetize, the team lacks experience</li> <li>• Reduction of damages downstream</li> <li>• Reduction of CO2 emissions (long time for some measures e.g. afforestation, to become fully functional)</li> <li>• Ecosystem enhancement and biodiversity (still unsure what happens if we change one ecosystem to another - do we add value or lose)</li> <li>• New jobs (can affect the problem of people moving out)</li> <li>• Recreation</li> </ul>	
Sales Model	Cost Reduction and Avoided Damages
<p><b>How can value be created?</b></p> <ul style="list-style-type: none"> <li>• Reduction of damages and flood risks, damages reduction for the downstream part (City of Banja Luka), CO2 emission reduction, recreational opportunities, new jobs</li> </ul>	<p><b>How can value be created?</b></p> <ul style="list-style-type: none"> <li>• Considers avoided damages, but did not consider co-benefits</li> <li>• Investments in expensive gray measures reduced</li> <li>• An increase in income is expected in the fields of forestry, water management, agriculture, ecosystem improvement, tourism, fishing, etc</li> </ul>
<p><b>If no mechanisms are in place, what could be done to monetize the project?</b></p>	<p><b>If no mechanisms are in place, what could be done to monetize the project?</b></p>
Not mentioned	Not mentioned
Financing and Investment Strategies	
<p><b>How will the project be financed?</b></p> <ul style="list-style-type: none"> <li>• Pre-feasibility study is ongoing; budget will be dependent on results of pre-feasibility study; but likely a mix of public/international donor funding</li> </ul>	
<p><b>What financing options have you considered? (i.e. PPPs)</b></p> <ul style="list-style-type: none"> <li>• Loans for farmers and the possibility for incentives for farmers if NbS is implemented on their land (in theory)</li> <li>• Small opportunities with the private sector (who may be interested in avoiding damages)</li> <li>• EU loans, grants, credits. There is a possibility of co-financing by the Government of the Republika Srpska and local communities, but also by the private sector if the NbS offers solutions that ensure business security and additional profit for them.</li> </ul>	
<p><b>Do you see potential for private sector financing in your country?</b></p> <ul style="list-style-type: none"> <li>• There are some opportunities within the private sector if presented well, particularly if they are affected by the risk.</li> </ul>	
<p><b>Are there any regulations/policies for the private sector about green financing in your country?</b></p> <ul style="list-style-type: none"> <li>• National level: regulations for climate adaptation but not NbS (No regulations set → environmental protection, strategic and planning documents (water sector) - only mentioned)</li> <li>• No regulations and defined policies for the private sector about green financing, but there is a possibility of financing in the form of contribution (joint participation) or self-financing - investment by the private sector to help reduce risks in certain areas</li> </ul>	
<p><b>Did this cover the initial project proposal, or did you have to exclude parts of the proposal?</b></p> <p>The proposal of the financing method will be elaborated in principle in the remaining part of the pre-feasibility study. The modality and structure will be adapted to the strategic planning documents (Strategy, Management Plans, etc.).</p>	



## b. Collaborator 2: Heliodora River, Medellin, Colombia

Governance		
<b>Has your NbS been influenced by international or national policies / legislation?</b>		
Local and national policies for climate change adaptation mention NbS and could be used to justify investment. The reference to NbS is very high level.		
<b>Do local land use regulations enable or impede the implementation of NbS?</b>		
Protected area policy acts as a barrier to developing the NbS (legislation does not allow for alterations of the landscape). The Municipality regulations do permit NbS, but how to implement NbS is not detailed.		
Business Model		
Site overview and Key Activities	Key Resources	Project Governance
<b>Please provide an overview of existing site conditions, including challenges and goal of</b>	<b>What resources are required to make the NbS viable? (i.e. financial, staffing,</b>	<b>Who are the key partners involved? (i.e. stakeholders)</b>
<ul style="list-style-type: none"> <li>• Small wild green area between the urbanized city with a small creek</li> <li>• Protected area: It is a challenge to maintain the existing sewer system due to protected area status</li> <li>• Area surrounded by buildings and houses - mostly residential (middle-class apartments)</li> </ul>	<ul style="list-style-type: none"> <li>• Financing is a major barrier as utilities focused on grey infrastructure and there is no budget for NbS</li> <li>• Do not have staff in-house with knowledge of detailed NbS design - need to contract a specialist to create a detailed design/proof of concept</li> </ul>	<ul style="list-style-type: none"> <li>• Metropolitan Municipality: in charge of the protected area - has been contacted to show them the NbS' benefits</li> <li>• There are 10 local authorities within the municipality</li> <li>• The national government could be a stakeholder but is not currently</li> <li>• SIATA (Research institute) - Developed an early warning system for monitoring water levels and rainwater data</li> </ul>
<b>What type of NbS is being implemented? (Are the activities Taxonomy aligned - i.e. activities related to lakes, rivers, wetland, and coastal)</b>	<b>Do you plan to use tools to measure the impact of your project / quantify the benefits?</b>	<b>Who are the key beneficiaries?</b>
<ul style="list-style-type: none"> <li>• Reforestation, creek restoration, widening of creek</li> </ul>	<ul style="list-style-type: none"> <li>• No consideration for tools to measure the impact / quantify the benefits</li> </ul>	<ul style="list-style-type: none"> <li>• Envigado City (citizens and Municipality)</li> </ul>
<b>What stage of project implementation are you in?</b>	<b>How is your project financed?</b>	<b>Partners and Beneficiaries</b>
<ul style="list-style-type: none"> <li>• Design phase - focus on the sewer system, but would like to integrate NbS as part of sewer maintenance plan</li> </ul>	<ul style="list-style-type: none"> <li>• No financing yet</li> <li>• The project has not been costed out because no detailed designs exist for the project. If there was a detailed design/budget, there would be more potential to share ideas with potential stakeholders (but funding is required to do this)</li> </ul>	<b>Who is responsible for implementation?</b>
<b>Main Barriers</b>		<b>Are there partners that would make</b>
<ul style="list-style-type: none"> <li>• Lack of interest by local government - more interested in visible infrastructure projects, less interested in investing in restoration</li> <li>• Legislative barriers</li> <li>• Area designed as a protected area, a barrier for doing construction</li> <li>• Lack of financial capacity - the biggest barrier</li> <li>• Lack of knowledge of NbS</li> <li>• Hard to demonstrate the numbers</li> </ul>		<ul style="list-style-type: none"> <li>• Metropolitan environmental authority</li> <li>• Yes, but have not been defined</li> </ul>

Value proposition	
<b>How would you describe the NbS benefits of your project, for example does it restore natural areas such as wetlands, river basins, coastal inland, forests, rivers, - so that these ecosystems can act as natural buffers against extreme weather events such as floods, storms and coastal erosion?</b>	
<ul style="list-style-type: none"> <li>• Flood reduction</li> <li>• Land slide protection</li> <li>• Biodiversity creation thanks to reforestation</li> </ul>	
<b>How do you highlight the benefits of your project to stakeholders? (Consider sales model vs. avoided damages)</b>	
<ul style="list-style-type: none"> <li>• Protect the area of street flooding - Climate adaptation of the area</li> <li>• NbS helps to enhance the protected area</li> <li>• Cooling effect of the trees</li> <li>• Reduce pollution of the air (trees)</li> <li>• Potential to improve recreation opportunities through improved safety; walking paths could also be created to improve site access</li> </ul>	
<b>What co-benefits does your NbS provide?</b>	
<ul style="list-style-type: none"> <li>• Want to create a path for the citizens to access the area</li> <li>• NbS helps to enhance the protected area</li> </ul>	
Sales Model	Cost Reduction and Avoided Damages
<b>How can value be created?</b>	<b>How can value be created?</b>
<ul style="list-style-type: none"> <li>• Recreational area, biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>• Landslide protection is the primary benefit</li> <li>• Avoid discharge of wastewater</li> </ul>
<b>If no mechanisms are in place, what could be done to monetize the project?</b>	<b>If no mechanisms are in place, what could be done to monetize the project?</b>
<ul style="list-style-type: none"> <li>• Carbon credits or loan from Bancolombia (investing in areas to generate hydropower and may be interested in other "green" projects)</li> </ul>	<ul style="list-style-type: none"> <li>• Define KPIs, create detailed concept designs</li> </ul>
Financing and Investment Strategies	
<b>How will the project be financed?</b>	
<ul style="list-style-type: none"> <li>• Not clear - not searched outside of the local government</li> </ul>	
<b>What financing options have you considered? (i.e. PPPs)</b>	
<ul style="list-style-type: none"> <li>• Not explored outside of local government / utility</li> </ul>	
<b>Do you see potential for private sector financing in your country?</b>	
<ul style="list-style-type: none"> <li>• There is some private sector financing for climate indicatives in Colombia, but haven't looked into it extensively.</li> </ul>	
<b>Are there any regulations/policies for the private sector about green financing in your country?</b>	
<ul style="list-style-type: none"> <li>• Potential for the private sector: carbon credits, loan from Bancolombia (The bank has a "green" investment program)</li> </ul>	
<b>Did this cover the initial project proposal, or did you have to exclude parts of the proposal?</b>	
Not mentioned	

### c. Collaborator 3: Jadar River, Serbia

Governance		
<b>Has your NbS been influenced by international or national policies / legislation?</b>		
<ul style="list-style-type: none"> <li>National legislation enables the implementation of NbS</li> <li>The private sector can rent "water lands" from the government to use the land for specific purposes (Agriculture, tourism, recreation)</li> <li>There is a state flood management legislation</li> <li>There is a model for gov't implementing projects on private land (public-private partnership)</li> </ul>		
<b>Do local land use regulations enable or impede the implementation of NbS?</b>		
<ul style="list-style-type: none"> <li>Local water authority responsible for managing flooding; no explicit mention of NbS</li> <li>Land use designation called "water land" - land that is allowed to be flooded - not explicitly mentioning NbS</li> <li>Implementation of measures requires land use change</li> </ul>		
Business Model		
Site overview and Key Activities	Key Resources	Project Governance
<b>Please provide an overview of existing site conditions, including challenges and goal of the NbS.</b>	<b>What resources are required to make the NbS viable? (i.e. financial, staffing, equipment, and land)</b>	<b>Who are the key partners involved? (i.e. stakeholders)</b>
<ul style="list-style-type: none"> <li>Flash and fluvial floods</li> <li>There are lots of bridges - restrict the flow of water</li> </ul>	<ul style="list-style-type: none"> <li>Write a legal framework</li> <li>Equipment are required for infrastructure measures like retention ponds and hydraulic structure</li> </ul>	<ul style="list-style-type: none"> <li>There are many stakeholders involved in the project (stakeholders mapped)</li> </ul>
<b>What type of NbS is being implemented? (Are the activities Taxonomy aligned - i.e. activities related to lakes, rivers, wetland, and coastal)</b>	<b>Do you plan to use tools to measure the impact of your project / quantify the benefits?</b>	<b>Who are the key beneficiaries?</b>
<ul style="list-style-type: none"> <li>Retention ponds</li> <li>Removing obstacles such as bridges</li> </ul>	<ul style="list-style-type: none"> <li>Damage cost estimates: residential, agricultural areas, roadways, and transportation (damage curves); plan to show the cost of doing nothing vs. cost saving with NbS</li> </ul>	<ul style="list-style-type: none"> <li>Citizens, municipality</li> </ul>
<b>What stage of project implementation are you in?</b>	<b>How is your project financed?</b>	<b>Partners and Beneficiaries</b>
Pre-feasibility study <ul style="list-style-type: none"> <li>Damage calculation for design floods</li> <li>Hazard mapping completed</li> <li>Risk maps in progress</li> <li>Methodology for vulnerability assessment ongoing</li> <li>Damage calculation in progress</li> </ul>	<ul style="list-style-type: none"> <li>Pending results of the pre-feasibility study then can take a data-informed approach to identifying funding options</li> </ul>	<b>Who is responsible for implementation?</b> <ul style="list-style-type: none"> <li>Municipality</li> <li>Public water company in charge of the flooding management</li> </ul>
<b>Main Barriers</b>		<b>Are there partners that would make</b>
<ul style="list-style-type: none"> <li>Intersectoral communication between different authorities</li> <li>Political issue: the municipality awaits a disaster to ask the government for funding</li> <li>Lack of financing</li> <li>Lack of knowledge</li> </ul>		<ul style="list-style-type: none"> <li>The two key stakeholders (municipality and water utility) are already on board</li> </ul>

Value proposition	
<b>How would you describe the NbS benefits of your project, for example does it restore natural areas such as wetlands, river basins, coastal inland, forests, rivers, - so that these ecosystems can act as natural buffers against extreme weather events such as floods, storms and coastal erosion?</b>	
<ul style="list-style-type: none"> <li>• Flood risk reduction</li> <li>• Biodiversity enhancement</li> </ul>	
<b>How do you highlight the benefits of your project to stakeholders? (Consider sales model vs. avoided damages)</b>	
<ul style="list-style-type: none"> <li>• Avoid direct damages to residential infrastructure, co-benefit promotion</li> </ul>	
<b>What co-benefits does your NbS provide?</b>	
<ul style="list-style-type: none"> <li>• Biodiversity enhancement - dried fish ponds and bird species</li> </ul>	
Sales Model	Cost Reduction and Avoided Damages
<b>How can value be created?</b>	<b>How can value be created?</b>
<ul style="list-style-type: none"> <li>• Restoration of tourism and recreation area - nice nature for sports and a place to gather</li> <li>• Clean air</li> <li>• Recreational areas connected to water such as lakes</li> <li>• Natural recreational areas will draw people to visit the small town</li> <li>• There is lots of water (from the flooding) but no recreational benefit from the water</li> </ul>	<ul style="list-style-type: none"> <li>• Reducing flood risk</li> </ul>
<b>If no mechanisms are in place, what could be done to monetize the project?</b>	<b>If no mechanisms are in place, what could be done to monetize the project?</b>
Not mentioned	Not mentioned
Financing and Investment Strategies	
<b>How will the project be financed?</b>	
<ul style="list-style-type: none"> <li>• Pre-feasibility study, pending results - can then assign a budget</li> </ul>	
<b>What financing options have you considered? (i.e. PPPs)</b>	
<ul style="list-style-type: none"> <li>• PPP between private and public lands</li> </ul>	
<b>Do you see potential for private sector financing in your country?</b>	
<ul style="list-style-type: none"> <li>• There are some private sector companies interested - if they have the number, they will be able to understand the value of the investment (need to see proof of concept)</li> </ul>	
<b>Are there any regulations/policies for the private sector about green financing in your country?</b>	
<ul style="list-style-type: none"> <li>• Green finance regulations but promoting solar panels and vehicles, not water</li> </ul>	
<b>Did this cover the initial project proposal, or did you have to exclude parts of the proposal?</b>	
Not mentioned	

## d. Collaborator 4: Cañaveralejo, Melendez and Lili River Basin, Colombia

Governance		
<b>Has your NbS been influenced by international or national policies / legislation?</b>		
<ul style="list-style-type: none"> <li>National strategy: Climate financing for research on climate adaptation projects - since August 2022</li> <li>One project formulated by Universidad el Valle, which includes NbS for water quality, won a call for research from the national government</li> </ul>		
<b>Do local land use regulations enable or impede the implementation of NbS?</b>		
<ul style="list-style-type: none"> <li>Until last year, individual staff within the municipality was pushing for NbS</li> <li>No mention of NbS in national, regional, or local regulations</li> </ul>		
Business Model		
Site overview and Key Activities	Key Resources	Project Governance
<b>Please provide an overview of existing site conditions, including challenges and goal of the NbS.</b>	<b>What resources are required to make the NbS viable? (i.e. financial, staffing, equipment, and land)</b>	<b>Who are the key partners involved? (i.e. stakeholders)</b>
<ul style="list-style-type: none"> <li>In the City of Cali</li> <li>- 3rd largest city of Colombia</li> <li>- 2.4M inhabitants</li> <li>- Southwest of the country near the Pacific Ocean</li> <li>- Hazards: heat, drought, fires, and flooding</li> <li>• 3 rivers intercepted into a South Canal, that discharges into the Cauca river</li> <li>• Mendelez River presents the most flooding events, high population, difficult sewer infrastructure, constricted river, limited stormwater and conduction system -&gt; focus on this area</li> <li>• Big park close to the river which gets flooded, making it unavailable</li> </ul>	<ul style="list-style-type: none"> <li>Funds for the NbS design and implementation</li> <li>Revenue for the maintenance</li> <li>Agreements on construction, operation and maintenance</li> </ul>	<ul style="list-style-type: none"> <li>IHE Delft - 3 MSc thesis</li> <li>Municipality of Cali, local utility company</li> <li>Academia - Universidad de valle (regional)</li> <li>Part of a Collective for the recovery of the Cauca River - 30 stakeholders, created in 2020</li> <li>Users and the community - economic and recreational activity in the park</li> </ul>
<b>What type of NbS is being implemented?</b>	<b>Do you plan to use tools to measure the impact of your project / quantify the benefits?</b>	<b>Who are the key beneficiaries?</b>
<ul style="list-style-type: none"> <li>Wetland system with temporary flooding area inside the park</li> <li>Ponds and wetlands to improve the water quality of the South canal</li> <li>Pollinator gardens</li> </ul>	<ul style="list-style-type: none"> <li>Calculated the cost of inaction (i.e. what is the cost of having polluted water, cost of damage to the ecosystem, cost of the south of the city paralyzing due to flooding)</li> <li>Budget for design, construct, and monitor NbS - results expected for next year</li> </ul>	<ul style="list-style-type: none"> <li>Local residents are direct beneficiaries: climate adaptation benefits for the entire city, residents alongside the river</li> </ul>
<b>What stage of project implementation are you in?</b>	<b>How is your project financed?</b>	<b>Partners and Beneficiaries</b>
<ul style="list-style-type: none"> <li>Concept and Prefeasibility study with RECONNECT</li> </ul>	<ul style="list-style-type: none"> <li>National call for the project - won the financing in 2022</li> <li>Mostly financing from research programs</li> <li>Public Resources</li> </ul>	<b>Who is responsible for implementation?</b> <ul style="list-style-type: none"> <li>The municipality, at real scale</li> </ul> <b>Are there partners that would make</b> <ul style="list-style-type: none"> <li>Academia, utilities companies, environmental authorities</li> </ul>

Value proposition	
<b>How would you describe the NbS benefits of your project, for example does it restore natural areas such as wetlands, river basins, coastal inland, forests, rivers, - so that these ecosystems can act as natural buffers against extreme weather events such as floods, storms and coastal erosion?</b>	
<ul style="list-style-type: none"> <li>• Social benefits: If implemented, people can use the park all the time because it won't be flooded</li> <li>• Big public space for people to enjoy nature, a conservationist strategy to preserve water and biodiversity, and increase forest area</li> </ul>	
<b>How do you highlight the benefits of your project to stakeholders? (Consider sales model vs. avoided damages)</b>	
<ul style="list-style-type: none"> <li>• Project uses a socio-ecological framework to communicate the value of the NbS - Enhance air quality, forest, reduce urban heat island, enhance the quality of life for people</li> </ul>	
<b>What co-benefits does your NbS provide?</b>	
<ul style="list-style-type: none"> <li>• Enhancement of recreational areas, preserve water and biodiversity, urban heat island reduction, reduce pollution runoff</li> </ul>	
Sales Model	Cost Reduction and Avoided Damages
<b>How can value be created?</b>	<b>How can value be created?</b>
<ul style="list-style-type: none"> <li>• The informal economic activities next to the park could be formalized - this will also avoid conflict with the neighbors</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid the loss of the 2nd river of Colombia, which provides water for the urban center and agricultural sector and connects the ecosystem for the entire country</li> </ul>
<b>If no mechanisms are in place, what could be done to monetize the project?</b>	<b>If no mechanisms are in place, what could be done to monetize the project?</b>
<ul style="list-style-type: none"> <li>• Tickets to enter into some places in the park (i.e. special event area)</li> </ul>	<ul style="list-style-type: none"> <li>• Calculated the cost of inaction to demonstrate the value of NbS</li> </ul>
Financing and Investment Strategies	
<b>How will the project be financed?</b>	
<ul style="list-style-type: none"> <li>• Through research funds - partnership with the university and through national research program, local public resources</li> </ul>	
<b>What financing options have you considered? (i.e. PPPs)</b>	
<ul style="list-style-type: none"> <li>• Utilities companies (an electricity company from Colombia was approached as they have two major lines through the park)</li> <li>• PPPs</li> </ul>	
<b>Do you see potential for private sector financing in your country?</b>	
<ul style="list-style-type: none"> <li>• Yes, but only approaching them to what would happen if nothing is done</li> </ul>	
<b>Are there any regulations/policies for the private sector about green financing in your country?</b>	
Not yet	
<b>Did this cover the initial project proposal, or did you have to exclude parts of the proposal?</b>	
Not mentioned	

## e. Collaborator 5: Chao Phraya River, Thailand

Governance		
<b>Has your NbS been influenced by international or national policies / legislation?</b>		
<ul style="list-style-type: none"> <li>• No policy for the private sector</li> <li>• There are tax incentives for private sector investment in sustainable-related projects</li> </ul>		
<b>Do local land use regulations enable or impede the implementation of NbS?</b>		
<ul style="list-style-type: none"> <li>• The area is protected as agricultural land or they call it "land reform area" (More info: chrome-extension://efaidnbnmnnibpcajpcglcdefindmkaj/https://www.moac.go.th/law_agri-files-441991791792)</li> </ul>		
Business Model		
Site overview and Key Activities	Key Resources	Project Governance
<p><b>Please provide an overview of existing site conditions, including challenges and goal of the NbS.</b></p> <ul style="list-style-type: none"> <li>• Rangsit Community is located in the Nong Suea district, Pathum Thani Province of Thailand. It is in the central region of Thailand. During the Chao Phraya flood in 2011, the area was the only area surrounded but not directly hit by the flood.</li> <li>• Rangsit community is located in the floodplain area, therefore it is surrounded by a dike. Adding man-made infrastructure such as furrows in the farmland will enable the community to reduce flood risk, store water, and increase soil moisture.</li> <li>• The major challenge is the community's understanding of the NbS approach because this is new for all stakeholders.</li> <li>• 2011 - significant flooding across Thailand. The canal area was less affected</li> <li>• 2012 - beginning of the project</li> <li>• Existing infrastructure: An old canal system (constructed in the late 1800s)</li> <li>• Site challenges: Floods, landslides, and drought</li> <li>• Population of the area: Family of farmers</li> <li>• Governance: City of Bangkok</li> </ul>	<p><b>What resources are required to make the NbS viable? (i.e. financial, staffing, equipment, and land)</b></p> <ul style="list-style-type: none"> <li>• Training for water management and maintenance from the farmers</li> </ul>	<p><b>Who are the key partners involved? (i.e. stakeholders)</b></p> <ul style="list-style-type: none"> <li>• Engagement of local people - farmers (lands and maintenance)</li> <li>• Supporter               <ol style="list-style-type: none"> <li>1. Coca-Cola Foundation - financial support</li> <li>2. HII - Technical support</li> </ol> </li> <li>• Local authorities               <ol style="list-style-type: none"> <li>1. Bueng Cham O Sub-district Administrative Organization (SAO)</li> <li>2. Village chief</li> </ol> </li> </ul>
<p><b>What type of NbS is being implemented? (Are the activities Taxonomy aligned - i.e. activities related to lakes, rivers, wetland, and coastal)</b></p> <p>Enhance the existing canal infrastructure by adding more space for the water to flow. NbS implemented are:</p> <ul style="list-style-type: none"> <li>• Retention ponds</li> <li>• Detention basins</li> <li>• Bypass/diversion channels</li> <li>• Natural bank stabilization</li> <li>• Restoration of nature infiltration to groundwater</li> <li>• Floodplain excavation/enlargement/restoration</li> <li>• Deepening water bodies</li> </ul>	<p><b>Do you plan to use tools to measure the impact of your project / quantify the benefits?</b></p> <ul style="list-style-type: none"> <li>• Tool for monitoring the water levels, the rate of replenishment in the catchment area, and pumping use (led by HII)</li> </ul>	<p><b>Who are the key beneficiaries?</b></p> <ul style="list-style-type: none"> <li>• Local people - more than 1000 communities involved in the project - flood risk reduction, equitable access to water resources</li> <li>• Coca-Cola benefits from enhanced water resources, water security, clean water</li> </ul>

<b>What stage of project implementation are you in?</b>	<b>How is your project financed?</b>	<b>Partners and Beneficiaries</b>
<ul style="list-style-type: none"> <li>• Almost completed - Monitoring stage</li> <li>• Scaling project to other communities</li> </ul>	<ul style="list-style-type: none"> <li>• Local budget from the sub-district authority</li> <li>• Private investment from Coca-Cola - factory located next to one of the project sites (they came to them) → Provide funding for the NbS implementation → Help with the monitoring of their reporting</li> <li>• Donations from the Royal Family - the canal system was ordered to be constructed by the Thai Royal Family</li> </ul>	<p><b>Who is responsible for implementation?</b></p> <ul style="list-style-type: none"> <li>• Hydro – Informatics Institute (HII)</li> <li>• Local land owners / farmers are key partners</li> </ul> <p><b>Are there partners that would make</b></p> <p>Not mentioned</p>
<b>Value proposition</b>		
<p><b>How would you describe the NbS benefits of your project, for example does it restore natural areas such as wetlands, river basins, coastal inland, forests, rivers, - so that these ecosystems can act as natural buffers against extreme weather events such as floods, storms and coastal erosion?</b></p>		
<ul style="list-style-type: none"> <li>• Upstream retention area to avoid flooding in Bangkok</li> <li>• Reduced flood and drought damage, increased water storage, and recycle water</li> <li>• People living in the area can see the benefits of the NbS and are interested in replicating it on their property</li> </ul>		
<p><b>How do you highlight the benefits of your project to stakeholders? (Consider sales model vs. avoided damages)</b></p> <p>Proof of concept by implementing NbS in a small area - convinced the other farmers to implement NbS on their lands</p>		
<p><b>What co-benefits does your NbS provide?</b></p> <ul style="list-style-type: none"> <li>• Improve the quality of the lands</li> <li>• Prevention of soil erosion by planting palm trees along canals next to main roads; palm trees can be grown and sustained without the need for regular watering</li> </ul>		
<b>Sales Model</b>	<b>Cost Reduction and Avoided Damages</b>	
<b>How can value be created?</b>	<b>How can value be created?</b>	
<ul style="list-style-type: none"> <li>• Project aligned with water-related sustainable reporting targets</li> <li>• Agricultural sales - area used to be known for Tangerine farming but now is mostly palm</li> </ul>	<ul style="list-style-type: none"> <li>• Flood/drought risk reduction</li> <li>• Water security</li> </ul>	
<b>If no mechanisms are in place, what could be done to monetize the project?</b>	<b>If no mechanisms are in place, what could be done to monetize the project?</b>	
Not mentioned	Not mentioned	
<b>Financing and Investment Strategies</b>		
<b>How will the project be financed?</b>		
<ul style="list-style-type: none"> <li>• Private investment from Coca-Cola - factory site next to the village (they came to them) → Provide funding for the NbS implementation → Help with the monitoring of their reporting</li> <li>• Donation from the Royal Family - their house is near the area</li> <li>• Local budget from the sub-district authority</li> </ul>		
<b>What financing options have you considered? (i.e. PPPs)</b>		
<ul style="list-style-type: none"> <li>• Considering other opportunities for private company involvement (at different sites)</li> </ul>		
<b>Do you see potential for private sector financing in your country?</b>		
<ul style="list-style-type: none"> <li>• Yes like Coca Cola</li> </ul>		
<b>Are there any regulations/policies for the private sector about green financing in your country?</b>		
<ul style="list-style-type: none"> <li>• Exception of tax for private sector investment in sustainable related projects</li> </ul> <p>&gt;&gt; More information about BOI policies to support private sector investment (Page 163-165) -</p>		
<b>Did this cover the initial project proposal, or did you have to exclude parts of the proposal?</b>		
Not mentioned		



## f. Collaborator 6: Kamchia River, Bulgaria

Governance		
<p><b>Has your NbS been influenced by international or national policies / legislation?</b></p> <ul style="list-style-type: none"> <li>Measures influenced by national flood risk management plan (flood risk management plan for the Black Sea Basin)- maps of harassment, flood maps, flood risk maps, and measures, and a program for implementation of these measures for the area</li> <li>3 national documents:               <ul style="list-style-type: none"> <li>National Catalog of flood risk management measures - includes 48 measures and 4 of them are for Dalgopol</li> <li>Detailed description of these measures</li> <li>National program for the implementation of the measures (including NbS)</li> </ul> </li> <li>Agreement on governance arrangement between 3 municipalities</li> <li>NbS are not mandatory but an option</li> <li>National operative program with money for NbS implementation</li> </ul>		
<p><b>Do local land use regulations enable or impede the implementation of NbS?</b></p> <ul style="list-style-type: none"> <li>No local plan for river basin, only at the national level</li> <li>Municipality and Region interested in the canal and locks</li> </ul>		
Business Model		
Site overview and Key Activities	Key Resources	Project Governance
<p><b>Please provide an overview of existing site conditions, including challenges and goal of the NbS.</b></p> <ul style="list-style-type: none"> <li>Project at 2 levels:               <ul style="list-style-type: none"> <li>Dalgopol: Major city</li> <li>The river catchment</li> </ul> </li> <li>4 types of floods: fluvial, flash, pluvial, and sea floods               <ul style="list-style-type: none"> <li>→ There is a dangerous situation if there is a combination of different types of floods</li> </ul> </li> <li>Grey infrastructure for flooding - 6 flood gates, currently manual and the goal is to enable remote control</li> <li>A canal drives the water from the hill to the river</li> </ul>	<p><b>What resources are required to make the NbS viable? (i.e. financial, staffing, equipment, and land)</b></p> <ul style="list-style-type: none"> <li>PPP with the landowners</li> <li>Financing</li> </ul>	<p><b>Who are the key partners involved? (i.e. stakeholders)</b></p> <ul style="list-style-type: none"> <li>Landowners - don't need to acquire their land, need to negotiate the right to use their land if they are under the flooded area to turn their land into a detention basin - compensation received for the landowners</li> <li>Municipalities</li> <li>Ministry of Environment</li> </ul>
<p><b>What type of NbS is being implemented? (Are the activities Taxonomy aligned - i.e. activities related to lakes, rivers, wetland, and coastal)</b></p> <ul style="list-style-type: none"> <li>Dagopol Area               <ul style="list-style-type: none"> <li>Removing obstacles so water can flow</li> <li>Dike restoration, strengthening and relocation</li> <li>Bioswales</li> <li>Wetland channels (Wet swales)</li> <li>Urban trees/parks</li> <li>Gates with a control system in the main focus area</li> </ul> </li> <li>Extended focus area - Lower Kamchia               <ul style="list-style-type: none"> <li>Detention basins (in river flood-plain)</li> <li>Afforestation/reforestation (in hilly areas)</li> <li>Soil infiltration improvement (agricultural measures, permeable areas)</li> <li>Deepening water bodies; Widening of water bodies</li> <li>Floodplain rehabilitation (excavation/enlargement/restoration)</li> </ul> </li> </ul>	<p><b>Do you plan to use tools to measure the impact of your project / quantify the benefits?</b></p> <ul style="list-style-type: none"> <li>Not planned yet</li> </ul>	<p><b>Who are the key beneficiaries?</b></p> <ul style="list-style-type: none"> <li>Landowners</li> <li>Recreational users (Hunters and fishermen)</li> <li>Local population</li> <li>City</li> </ul>

<b>What stage of project implementation are you in?</b>	<b>How is your project financed?</b>	<b>Partners and Beneficiaries</b>
<ul style="list-style-type: none"> <li>• Pre-feasibility study within RECONNECT</li> </ul>	<ul style="list-style-type: none"> <li>• Potential funding from the Ministry of environment</li> <li>• Financing from the municipal budget; the technical design must be subsidized by the TA program</li> </ul>	<b>Who is responsible for implementation?</b> <ul style="list-style-type: none"> <li>• The Municipality</li> </ul> <b>Are there partners that would make</b> <ul style="list-style-type: none"> <li>• Area is used recreationally by hunters and fishers - some opportunity for collaboration</li> </ul>
<b>Main barriers</b>		
<ul style="list-style-type: none"> <li>• Private lands - need to negotiate the right to use their land if they are under the flooded area to turn their land into a detention bassin - compensation received for the landowners</li> </ul>		
<b>Value proposition</b>		
<b>How would you describe the NbS benefits of your project, for example does it restore natural areas such as wetlands, river basins, coastal inland, forests, rivers, - so that these ecosystems can act as natural buffers against extreme weather events such as floods, storms and coastal erosion?</b>		
<ul style="list-style-type: none"> <li>• Flood risk reduction, improving water quality, nature, and people</li> </ul>		
<b>How do you highlight the benefits of your project to stakeholders? (Consider sales model vs. avoided damages)</b>		
<ul style="list-style-type: none"> <li>• Flood risk reduction, improving water quality, nature, and people</li> <li>• Hunting activities</li> </ul>		
<b>What co-benefits does your NbS provide?</b>		
<ul style="list-style-type: none"> <li>• Quantification of the co-benefits ongoing</li> <li>• Reducing droughts and landslides</li> <li>• Improve biodiversity</li> <li>• Improve water quality - bathing opportunities for people</li> <li>• Build community cohesion</li> <li>• Economic benefits</li> <li>• Health and wellbeing effect - reduce the diseases</li> </ul>		
<b>Sales Model</b>		<b>Cost Reduction and Avoided Damages</b>
<b>How can value be created?</b>		<b>How can value be created?</b>
<ul style="list-style-type: none"> <li>• Recreation oppurtunities</li> </ul>		<ul style="list-style-type: none"> <li>• Reduce the risk of floods and droughts</li> </ul>
<b>If no mechanisms are in place, what could be done to monetize the project?</b>		<b>If no mechanisms are in place, what could be done to monetize the project?</b>
<ul style="list-style-type: none"> <li>• Partner with private sector though use of land to implement NbS</li> </ul>		Not mentioned
<b>Financing and Investment Strategies</b>		
<b>How will the project be financed?</b>		
<ul style="list-style-type: none"> <li>• Budget from the Municipality</li> </ul>		
<b>What financing options have you considered? (i.e. PPPs)</b>		
<ul style="list-style-type: none"> <li>• Public-private partnership with landowners and renters of the land for agriculture</li> </ul>		
<b>Do you see potential for private sector financing in your country?</b>		
Not mentioned		
<b>Are there any regulations/policies for the private sector about green financing in your country?</b>		
Not mentioned		
<b>Did this cover the initial project proposal, or did you have to exclude parts of the proposal?</b>		
Not mentioned		

## **7 Annex B. Financial Sector Stakeholder Interview Questions**

# Annex B. Financial Sector Stakeholder Interview Questions

## 1. Investment profile and strategy

### Question 1

If you intend to invest in Nature-Based Solutions, where would you position your investment needs?

- No return
- Partial return
- Below market-return rate
- Market-rate return or above

### Question 2

Do you have any investment portfolio where NbS is part?

If so, under which theme is it: climate adaptation, climate finance, green infrastructure or resilient infrastructure etc?

What % of your investment portfolio or annual turnover, is focused on nature capital?

### Question 3

Could you provide insights into whether any clients are expressing an interest in investing in nature-based solutions or nature-inspired opportunities? If so, which type of clients?

### Question 4

Does impact investing form a component of your investment strategy, meaning that some of your company's overall investments are intended to contribute to positive societal or environmental change, even if it involves accepting a potentially lower financial return?

As part of your investment or sustainability strategy, does your company engage in

- environmental stewardship projects or
- philanthropic donations to investments in nature capital projects?

### Question 5

Are you using any metrics other than Return of Investment to measure investment value?

For example, ESG Values?

For Reconnect the "E" would be the Ecosystem services provided as Climate adaptation – no flooding, purification of water. "S" social well-being by the river and recreational activities.

- Or for ex Strategic alignment?
- Or what about measurable impact? quantifiable for the environment, community, or carbon footprint.

## 2. Governance

- **EU Taxonomy and Sustainable Financial Reporting Directive**

### Question 6

According to the most recent taxonomy FAQ document in June 2023, investments in environmentally sustainable economic activities aligned with the taxonomy can be automatically categorized as 'sustainable investments' under the SFDR.

This is good news for the RECONNECT projects as the majority of them qualify as taxonomy eligible under the EU Taxonomy under "Disaster risk management, Nature-based solutions

for flood and drought risk prevention and protection”. There are four types of Nature-based Solutions (NbS) outlined:

- River or lake measures
- Wetland measures
- Coastal measures
- River Basin-wide management measures

These four NbS typologies are considered eligible for taxonomy, making them suitable for investment. Their primary advantage lies in reducing risks associated with hydrometeorological events such as severe floods, storm surges, landslides, and droughts. Do you agree that emerging regulations such as CSRD, SFDR, and EU Taxonomy are advancing the concept of nature as an asset class, specifically positioning Nature-based Solutions (NbS) for disaster risk management as a strategic nature asset for investment?

**Question 7**

Given the requirements imposed by SFDR, particularly the disclosure of Taxonomy alignment through KPIs like the Green Asset Ratio and Green Investment Ratio, do you believe this regulation will likely encourage Financial Market Participants (banks, insurance companies, asset managers etc) to increase their investments in EU Taxonomy-aligned assets, please explain?

**Question 8**

In the upcoming Corporate Sustainability Reporting Directive (CSRD), approximately 50,000 companies across Europe will have the opportunity to disclose their Nature-based Solutions (NbS) initiatives, as outlined in disclosures for ESRS1 General, ESRS E1 Climate Change, and ESRS E3 Water (for example). Noteworthy disclosures related to NbS include:

- Investments in resilience – NbS (ESRS E1- IRO)
- Using NbS as a greenhouse gas (GHG) removal and storage solution
- Integration of NbS into a climate mitigation reporting plan

Do you intend to monitor the disclosures, recognizing their potential to reshape market interest in NbS investments?

**Question 9**



Figure 1: European Sustainability Reporting Standards (ESRS) Source: Ramboll

Anticipating an increased demand from companies to invest in carbon credits due to CSRD disclosures mentioned above, how quickly and to what extent do you see the voluntary carbon market develop further?

### Question 10

Given the disclosure demands for NbS from CSRD, asking companies to disclose investment in NbS or using it for climate mitigation or adaptation.

In the future, could you envision the development of an NbS fund that is taxonomy aligned and meets the criteria set forth in Article 9 of the SFDR?

What are the obstacles?

- **Enabling investment in NbS**

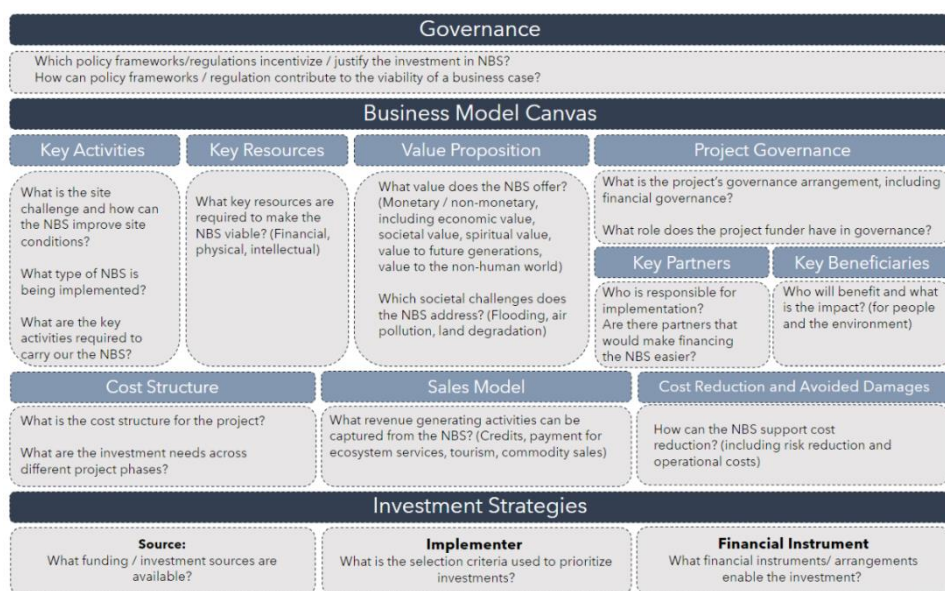
### Question 11

Due to the disclosure demands:

- a) do you anticipate an increased demand for investments in Nature-based Solutions (NbS)?
- b) How is your company proactively addressing these potential market demands?

### Question 12

We are currently developing a specialized Business Canvas designed for Nature-based Solutions (NbS) project owners, to communicate the multi-dimensional value of NbS and facilitate investment decisions.



- In your opinion, what are the key criteria that you would like to see as an investor – that allows you to do an informed investment decision?
- What specific aspects of the NbS project's value proposition would you like to see emphasized?
- How can Nature-Based Solutions (NbS) project owners enhance investor confidence?
- If it said EU Taxonomy eligible or aligned, or article 9 – would that be attractive to investors?

- **Business Canvas**

### Question 13

We have made a list of factors that we think could be important to an investor which of these standard criteria would like to see:

- Creditworthiness – evaluation of the project owner's creditworthiness, analysis of debt capacity and repayment capabilities
- Collateral and security - assessing provided collateral (asset), co-signer (guarantor) ensuring loan security
- Risk Management – risk mitigation strategies in form of guarantees, collateral, first-loss or subordinate capital

- Communication - Regular and transparent reporting on progress and impact metrics.
- Which of these do you agree are important to communicate? All?

#### **Question 14**

Some of the financial criteria we think that investors would like to see in a business canvas to quickly assess the investment opportunity, could be:

- Revenue Streams – Outline different income sources, which could be payment for ecosystem services, carbon credits, and government grants.
- Cost Structure - Detail project costs, such operational expenses, capital expenditures, and financial commitments.
- Return on Investment (ROI) - Provide a calculated ROI over a specified period, showing project profitability.
- Payback Period - Specify the projected time for the project to cover initial costs, indicating investment return speed.
- Cash Flow Projections - Cash flow forecasts, highlighting periods of positive cash generation.
- Financing Structure – Definition of financing mix, including equity, debt, and potential funding sources.
- Key Performance Indicators (KPIs) relevant financial KPIs (e.g., Return on equity (ROE), net present value (NPV), and internal rate of return (IRR), financial KPIs that measure the project's financial success.

Which ones of the above would you like to see in a business canvas? Do you agree that there could be a place for them on the canvas or are they better in a business case or investment case, what are your thoughts on this?

- **Enabling investment in NbS**

#### **Question 15**

When it comes to financing Nature-based Solutions (NbS), the European Investment Bank (2023) published 'Investing in Nature-based Solutions: State-of-play and the way forward for public and private financial measures in Europe.' They conducted interviews with 58 banks, insurers, asset managers, and financial investors. Among their conclusions is that there are three main funding tools for NbS:

- Grant instruments
- Loans (market rate and concessional)
- Equity instruments (bonds, carbon credits)

a) Do you agree with these findings, which one would you find as most relevant? Do you see any other potential for innovative financing mechanisms to attract investment to NbS projects? If so, which mechanisms do you envision?

b) Additionally, where do you see public-private partnerships, as blended finance, fitting into this landscape?

#### **Question 16**

Which kind of financial instruments do you usually work with for alternative investments?

## **8 Annex C. Collaborator Case-Studies**



# Annex C. Collaborator Case-Studies

## a. Case Study 1: NbS as part of a larger development strategy (Cali, Colombia)

Project Background		
<b>Project Location</b>	Cali, Colombia	
<b>Project Implementer</b>	DAGMA (Cali City Environmental Urban Authority) Universidad del Valle	
Key Lessons Learned		
<ul style="list-style-type: none"> <li>• This case portrays 'The Reconnect Effect' where a project concept was designed by DAGMA and presented to the National Planning Department of Columbia. The concept addresses environmental and sanitary risks faced by 1.8 million Cali inhabitants. The unique approach in this project is proposing a list of interventions, both conventional and NbS, to jointly achieve the development results.</li> <li>• For cities, regions and nations that suffer from serious socio-economic-health challenges from hydrometeorological events (eg. Floods), NbS should be considered as an integrated tool of a larger regional/national development strategy.</li> <li>• Classifying NbS as a standalone intervention restricts its potential to achieve a larger development impact. Further, such an approach will not fully convey the scale of the development results to all potential beneficiaries and financiers.</li> <li>• A NbS integrated development plan that impacts a large population and addresses multiple socio-economic challenges increases the ability of NbS project owners to attract funding for implementation.</li> <li>• During preparation of NbS integrated project, identification, and realistic estimation of the various damage costs (i.e. health cost, economic cost, ecosystem damage, civil infrastructure damage) avoided, increases the value proposition to attract financing from regional/local economic actors.</li> </ul>		
Case description		
Site Challenges		
<ul style="list-style-type: none"> <li>• Cali is characterized by a high population, insufficient sewer infrastructure, limited stormwater, and conduction system. Cali faces serious hydrometeorological hazards such as heavy river floods, urban floods, and river pollution from urban runoff.</li> <li>• The project initiated with focus on the river basin that causes most floods in South of Cali. Three rivers meet into a South Canal, which overflows into the Cauca River. Further one of the biggest parks adjacent to Melendez River along with surrounding neighborhoods gets flooded.</li> </ul>		
NbS Implemented	Project Phase	Project Next Steps
<ul style="list-style-type: none"> <li>• Pre-design and site selection NbS along rivers to mitigate flooding and improve water quality.</li> <li>• 8 points of discharge identified along Cauca River basin creating environmental risks.</li> <li>• Environmental Park designed conserving main aquifer of Cali.</li> </ul>	<p>During RECONNECT - Prefeasibility Study on Mitigation of punctual (direct) and diffused (indirect) pollution on Cauca River basin.</p> <p>Post RECONNECT - Larger development project (with NbS component) conceptualized to reduce environmental and sanitary risks to 1.8 million people of Cali.</p>	<ul style="list-style-type: none"> <li>• Calculate the cost of inaction due to flooding paralyzing South Cali (i.e. health cost due to polluted water, cost of halted economic activities, damage cost of ecosystem, damage cost to civil infrastructures).</li> <li>• Budget for design, construct, and monitor NbS</li> <li>• Agreements on the construction, operation, and maintenance of the case</li> </ul>
Key stakeholders		Co-benefits
<ul style="list-style-type: none"> <li>• National Government – Planning Department</li> <li>• Local Government - Municipality of Cali</li> <li>• Academia: <ul style="list-style-type: none"> <li>◦ Universidad de Valle (regional)</li> <li>◦ IHE Delft</li> </ul> </li> <li>• Local utilities companies, community, and economic actors</li> </ul>		<p>Multiple co-benefits for the Cali residents:</p> <ul style="list-style-type: none"> <li>• Improved livability and habitat</li> <li>• Better sanitation and hygiene</li> <li>• Urban heat island reduction</li> <li>• Pollution runoff reduction</li> <li>• Water and Biodiversity preservation</li> </ul>
Value Proposition		
<b>Sales Model</b>		<b>Cost Reduction and Avoided Damages</b>

<ul style="list-style-type: none"> <li>NbS interventions are an integrated part of larger development strategy to bring socio-economic benefits for 1.8 million people of Cali.</li> <li>Economic, agricultural, and recreational activities post NbS integrated development project generate tax revenues for the government and sales revenue for the local economic actors.</li> </ul>	<p>NbS integrated project benefits will be quantified such as</p> <ul style="list-style-type: none"> <li>Savings of costs of maintaining a major Columbian river that provides water to Cali inhabitants, agricultural actors and connects to the entire country's ecosystem.</li> <li>Savings of various costs of inaction and loss of ecosystem and civil infrastructures due to flooding in Cali.</li> </ul>
Investment Strategy	
Current Funding Approach	Future Investment Opportunities
<ul style="list-style-type: none"> <li>Research programs: partnership with academic institutions</li> <li>Regional and national sources</li> <li>National Planning Department</li> </ul>	<ul style="list-style-type: none"> <li>Local economic actors</li> <li>Regional and National Government</li> <li>Public-private partnerships</li> </ul>

## b. Case Study 2: Corporate funding in NbS (Thailand)

Project Background		
<b>Project Location</b>	Chao Phraya River, Thailand	
<b>Project Implementer</b>	Hydro – Informatics Institute (HII)	
Key Lessons Learned		
<ul style="list-style-type: none"> <li>NbS interventions can be instrumental to protect agricultural lands from both floods and droughts. Further, NbS can improve soil quality of land resulting in better yield, improved crop quality, reduction in input costs and diverse crop production. This collectively enables farmers to access better market opportunities and generate sustained higher streams of revenue.</li> <li>There can be proper cases of interest from private sector to fund NbS interventions. This applies especially for companies where agricultural produce or water is used as an input to production. Such companies are likely to invest in NbS improving soil conservation or water retention as an effort to ensure sustainability of their supply chain networks.</li> <li>Further, international companies that target to build a sustainable brand image, have obligations to deliver sustainability/compliance reporting and intend to access preferential finance will be interested in funding NbS interventions.</li> </ul>		
Case description		
Site Challenges		
<ul style="list-style-type: none"> <li>Rangsit Community is a rural area, situated in the Nong Suea district, Pathum Thani Province, in the central region of Thailand. The community is located in Rangsit irrigation canal network and receives water supply from lower Chao Phraya River basin.</li> <li>Chao Phraya River experienced a major flood in 2011. Rangsit community was not directly hit by the flood due to the existing canal system and dike. But future floods and heavy rainfall will increase water levels in local water bodies if the 100-year-old canal system and drainage infrastructure is not improved.</li> <li>The population of the area are farmers who are exposed to extreme climate events, such as drought (Thailand in 2019-2020 had the worst drought in 40 years). Hence interventions to ensure water conservation and recycling and prevention of soil erosion are of importance.</li> <li>Sensitizing stakeholders about development, monitoring, and evaluation of a joint man-made and NbS infrastructural approach is a challenge.</li> </ul>		
NbS Implemented	Project Phase	Project Next Steps
<ul style="list-style-type: none"> <li>Pre-feasibility phase delivering</li> <li>Flood impact modelling, simulation of furrows and normal vs critical situations</li> <li>Proposed NbS solution to enhance existing canal infrastructure by creating Retention ponds, Detention basins, Bypass/diversion channels, Natural bank stabilization, Restoration of nature infiltration to groundwater, Floodplain excavation/enlargement/restoration, Deepening water bodies</li> </ul>	<ul style="list-style-type: none"> <li>Pre-feasibility phase completed</li> <li>Current stage of monitoring</li> <li>Upscaling the project approach to other communities</li> </ul>	<ul style="list-style-type: none"> <li>Monitor the water levels, the rate of replenishment in the catchment area, and pumping use</li> <li>Training for water management and maintenance from the farmers</li> </ul>

Key stakeholders	Co-Benefits
<ul style="list-style-type: none"> <li>• Engagement and ownership - Farmer communities</li> <li>• Financial support - Coca-Cola Foundation</li> <li>• Technical support - Hydro – Informatics Institute (HII)</li> <li>• Policy and administrative support <ul style="list-style-type: none"> <li>◦ Bueng Cham O Sub-District Administrative Organization,SAO</li> <li>◦ Village chief</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Improved quality of farming lands</li> <li>• Prevention of soil erosion</li> <li>• Equitable access to water resources</li> </ul> <p>Co-benefits for Coca-Cola company:</p> <ul style="list-style-type: none"> <li>• Enhanced water resources</li> <li>• Water Security</li> <li>• Clean water</li> </ul>
Value Proposition	
Sales Model	Cost Reduction and Avoided Damages
<ul style="list-style-type: none"> <li>• Better agricultural yields due to improved soil quality. A wider range of higher quality products (i.e. tangerines and palms) can be cultivated leading to agricultural revenue for farmers.</li> <li>• Project aligned with water-focused international sustainability reporting objectives. Companies funding such projects to comply with international and local environmental regulations.</li> <li>• Better useable water provides stable supply of water for industries which require water as a key input.</li> </ul>	<ul style="list-style-type: none"> <li>• Flood and drought risk reduction</li> <li>• Infrastructure cost avoidance</li> <li>• Health cost avoidance</li> <li>• Crop loss cost avoidance</li> <li>• Ecosystem loss avoidance</li> </ul>
Investment Strategy	
Current Funding Approach	Future Investment Opportunities
<ul style="list-style-type: none"> <li>• Fund provided by the sub-district authority of government.</li> <li>• Coca-Cola provides funds to HII to support the project with private funds for NbS implementation, monitoring, and reporting. A Coca-Cola factory is located next to one of the project sites.</li> <li>• Grants from the Thai Royal Family as the canal system was ordered to be constructed by the Thai Royal Family.</li> </ul>	<ul style="list-style-type: none"> <li>• NbS projects providing co-benefits (eg high value agricultural produce or steady water supply) to companies or industries will attract.</li> </ul>

### c. Case Study: Climate Adaptation Grants and Loans (Bosnia & Herzegovina)

Project Background	
<b>Project Location</b>	Vrbanja River, Bosnia and Herzegovina (B&H)
<b>Project Implementer</b>	University of Belgrade (UNBELGR)
Key Lessons Learned	
<ul style="list-style-type: none"> <li>• A strategy of partnership between local entities and international donors is important to consider while seeking NbS funds. International donors are likely to invest in projects for climate adaptation.</li> <li>• Measuring the impact of the project with e.g. cost-benefit analysis or co-benefit for people and nature is key to attracting funds.</li> </ul>	
Case description	
Site Challenges	
<ul style="list-style-type: none"> <li>• The Vrbanja River Basin is located in Bosnia and Herzegovina, specifically within the Republika Srpska entity. The Vrbanja River is one of the tributaries of the larger Vrbas River, which flows through central Bosnia and Herzegovina.</li> <li>• The basin plays a crucial role in the region's hydrology, providing water resources for various purposes such as agriculture, industry, and domestic use. The basin covers numerous towns and villages, including Banja Luka, the second-largest city in the country and the capital of Republika Srpska,</li> <li>• B&amp;H had experienced major floods in 2010, 2014 and 2020 due to seasonal heavy rainfall and melting of snow. The Vrbanja river basin is susceptible to major and seasonal flooding with potential impact on both urban and rural areas, causing damage to homes, agriculture, and infrastructure in its geography.</li> <li>• There have been efforts to mitigate flood risks in the basin, by building grey structural measures such as embankment, dams, and other flood protection infrastructure mainly in the urban areas. Prior initiatives have not been sufficient to mitigate floods, landslides, and droughts increased by natural hazards and anthropogenic influences (eg. deforestation).</li> </ul>	

<ul style="list-style-type: none"> <li>• There are opportunities for NbS to mitigate the risks that are not addressed by grey structures. But upscaling and implementation of NbS faces lack of policy/legislation support, lack of knowledge about NbS among stakeholders, need for land acquisition, coordination among local government organizations.</li> </ul>		
NbS Implemented	Project Phase	Project Next Steps
<p>Pre-feasibility phase delivering</p> <ul style="list-style-type: none"> <li>• Baseline scenario</li> <li>• Flood hazard and risk maps</li> <li>• Nbs solutions identified- Retention ponds, Afforestation/reforestation, Floodplain restoration, Widening of water bodies</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-feasibility study being conducted within RECONNECT</li> <li>• Currently in the planning phase – 10-year implementation concept designed requiring €28.6 million over 2 phases</li> </ul>	<ul style="list-style-type: none"> <li>• Partner with local and international academic and industry experts to clearly define and potentially measure co-benefits to government, economic actors, and local stakeholders.</li> <li>• Conduct a full feasibility to evaluate measures proposed, identify land acquisition methodology, detail the benefits and co-benefits.</li> <li>• Develop a complete project plan for NbS implementation with detailed measures, budget, period and define impact measurement with KPIs.</li> <li>• Identify and engage with potential financiers/funders within B&amp;H and internationally.</li> <li>• Explore possibilities to do a pilot project via partnership with experts, stakeholders, financiers/funders to showcase potential benefits of NbS and impacts.</li> </ul>
Key stakeholders		Co-Benefits
<ul style="list-style-type: none"> <li>• Relevant public institutions (ministries and departments)</li> <li>• Academic/Industry Experts and NGOs</li> <li>• Local communities and economic actors</li> <li>• International financial institutions and funds focused on climate adaptation.</li> </ul>		<p>Multiple co-benefits for the residents and the environment:</p> <ul style="list-style-type: none"> <li>• Reduction of damages downstream – economic, health, infrastructure cost avoided</li> <li>• Creation of economic activity and new jobs</li> <li>• CO2 emissions reduction and ecosystem loss cost avoidance</li> </ul>
Value Proposition		
Sales Model	Cost Reduction and Avoided Damages	
<ul style="list-style-type: none"> <li>• Contribution to the continuation of economic activity in Banja Luka and downstream areas of the river basin.</li> <li>• Development of newer economic activity along the river basin and downstream areas – agriculture, agro-processing, tourism, transportation, manufacturing, etc</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction of flood risks and avoided damage to the downstream area - health cost due to polluted water, cost of halted economic activities, damage cost of ecosystem, damage cost to civil infrastructures</li> <li>• Cost-benefit analysis of investments in gray measures reduced vs NbS measures</li> </ul>	
Investment Strategy		
Current Funding Approach	Future Investment Opportunities	
<p>The NbS project owners' estimate</p> <ul style="list-style-type: none"> <li>• 20% of the proposed €28.6 million can be financed/funded by public and local stakeholders</li> <li>• 80% of the proposed €28.6 million has to be financed/funded by international donors/grants or loans (World Bank, EIB, GEF, FAO, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Fiscal and monetary incentives for local economic actors who fund/invest in NbS implementation - farmers and local economic actors</li> <li>• National and regional government funds to implement NbS to meet government targets of environmental conservation and economic activity.</li> <li>• EU and non-EU grants to implement NbS pilot to showcase the impact of NbS to be implemented. Further, EU and non-EU loans were co-financed with government funds to implement NbS project.</li> </ul>	

**9 Annex D. Details on technical screening criteria to assess a NbS project's substantial contribution to the environmental objective of *“sustainable use and protection of water and marine resources”***

## **Annex D. Details on technical screening criteria to assess a NbS project's substantial contribution to the environmental objective of “sustainable use and protection of water and marine resources”**

The EU Taxonomy's technical screening criteria 1-4 introduce clear criteria of what the NbS project needs to achieve in order to substantially contribute to the environmental objective of “sustainable use and protection of water and marine resources.” Below follows the excerpt from the sustainable contribution criteria:

For criteria 1, the NbS project should address flood and drought risks at the river basin scale, following relevant directives from the European Commission. Importantly, the project should be **quantified and measurable**, allowing progress to be tracked and evaluated based on concrete metrics or indicators.

This criterion is crucial as it requires NbS owners to **measure the impacts and effectiveness of their projects**. The absence of standardized metrics for measuring NbS project impact and effectiveness is frequently cited as a major barrier to their scalability. It's essential for investors to be able to evaluate the impact and Environmental, Social, and Governance values created by these projects.

- 1. The activity is a quantifiable and time bound measure to achieve the objectives for flood risk reduction in accordance with a flood risk management plan coordinated at river basin scale and developed under Directive 2007/60/EC of the European Parliament and of the Council<sup>14</sup>. In relation to drought risk reduction, the activity is a quantifiable and time bound measure to achieve the objectives of Directive 2000/60/EC in accordance with a river basin management plan, or a drought management plan which is part of a river basin management plan.*

For criterion 2, the focus is on identifying and addressing risks to the environment, such as water pollution and pressure on water sources, to ensure clean water, healthy ecosystems and preserved marine environment in accordance with relevant directives from the European Union. It emphasizes working together with stakeholders such as local communities and other affected parties.

- 2. Environmental degradation risks related to preserving water quality and avoiding water stress and preventing deterioration of the status of the affected water bodies are identified and addressed to achieve good water status and good ecological potential as defined in Article 2, points (22) and (23), of Regulation (EU) 2020/852, in accordance with Directive 2000/60/EC, and in line with a river basin management plan, developed thereunder for*

*the potentially affected water body or bodies, in consultation with relevant stakeholders. Environmental degradation risks related to preserving marine environment are identified and addressed with the aim of achieving or maintaining good environmental status as defined in point 5 of Article 3 of Directive 2008/56/EC.*

Criterion 3 refers to a NbS project involving nature restoration or conservation, which demonstrates specific ecosystem co-benefits. These benefits contribute to improving water quality and meeting environmental targets outlined in relevant EU directives, as well as the nature restoration and conservation targets set in the EU's Biodiversity Strategy for 2030. The project should establish clear and binding goals for nature restoration or conservation over a specified time period, along with measures detailing how these targets will be achieved. It's important to involve local communities early in the planning phase.

Additionally, the project should adhere to the global NbS standard which is based on self-assessment, helps project owners at various stages of the project, such as designing new NbS, expanding pilot projects, and evaluating past and future proposals. It's an important criterion as it promotes an assessment of how well a project aligns with best practices.

- 3. The activity includes nature restoration or conservation actions that demonstrate specific ecosystem co-benefits, which contribute to achieving good water status or potential in accordance with Directive 2000/60/EC, good environmental status in accordance with Directive 2008/56/EC, and the nature restoration and conservation targets specified in the Communication from the Commission of 20 May 2020 on 'EU Biodiversity Strategy for 2030'. The activity contains clear and binding targets on nature restoration or conservation over a clearly defined timeframe and describes measures to achieve those targets. Local stakeholders are involved from the outset in the planning and design phase. The activity is based on the principles outlined by the IUCN Global Standard for nature-based solutions.*

Criterion 4 focuses on monitoring and evaluation, assessing the performance of the NbS solution. This includes checking if it's improving the condition of the water body, ensuring it meets conservation and restoration goals, and adapting to climate changes over time. The monitoring plan should be regularly reviewed and integrated into broader river basin management plans, which also address strategies for handling droughts and floods when they occur. This aspect is crucial for establishing clear benchmarks over time and for transparently communicating progress and results to investors, thereby building investor confidence.

- 4. A monitoring programme is in place to evaluate the effectiveness of a nature-based solution scheme in improving the status of the affected water body, achieving the conservation and restoration targets and in adapting to changing climate conditions. The programme is reviewed following the periodic approach of the river basin management plans (including drought management plans, where relevant) and the flood risk management plans.*