

Investing with Nature:
Exploring Investment Opportunities
Across Ecosystems

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Primer 1: Introduction to Nature-based Solutions

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The full webinar series can be viewed [here](#).



Contents

- Introduction 1**
- Purpose of this series..... 2**
- Overview of Nature-based Solutions 3**
- Why do we need NbS? 5**
- Scaling of NbS through finance..... 7**
 - Challenges 9
 - Opportunities 9
- Conclusion..... 11**
- References 12**



Introduction

Financial institutions have a unique role to play in the scaling of nature-based solutions (NbS), specifically in the closing of the wide private sector financing gap. Private sector investment in NbS must increase manifold from the current USD 26 billion per year, presently amounting to only 17% of total NbS investment. At USD 154 billion per year, the latter stands at less than half of the USD 384 billion needed annually by 2025 (UNEP, 2022). Through lending, investment, and underwriting activities, as well as through their client relationships, financial institutions can mitigate climate- and nature-related risks by redirecting financial flows towards different types of nature-positive outcomes.

NbS have the potential to provide around 30% of the cost-effective mitigation needed by 2030 to stabilise warming to below 2°C ([IUCN, 2019](#)). Finding ways to work with ecosystems, rather than relying solely on conventional engineered solutions, can also help communities adapt to climate change impacts and mitigate the impacts and long-term hazards of climate change, the biggest threat to biodiversity. In addition to combatting climate change, NbS will have an important role in aligning actions with the Kunming-Montreal Global Biodiversity Framework (GBF) as well as in achieving the United Nations' Sustainable Development Goals (SDGs). Building on the global momentum towards closing the financing gap for nature, this paper aims to give an introduction to NbS through a finance lens and to build understanding of the key role financial institutions can play in financing climate and biodiversity resilience, adaptation, and mitigation through NbS.



Purpose of this series

To help financial institutions discover practical ways to invest in NbS, our new “*Investing in Nature: Exploring Investment Opportunities Across Ecosystems*” webinar series was born with funding from the German Federal Ministry for Economic Cooperation and Development (BMZ) and support from the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

The [webinar series](#) comprises an [introductory session](#), five webinars focused on specific ecosystems, and a closing webinar. The introductory session introduced the topic of NbS investing and set the scene for the series. The five successive webinars each focus on an ecosystem selected for its relevance to financial institutions and potential NbS benefits. These include: 1) oceans and coastal, 2) forests, 3) freshwater, 4) farmlands, and 5) urban areas. A concluding webinar will summarize the key learnings from the webinars and discuss next steps for financial institutions, how finance for these ecosystems can be further mobilised and can contribute to a Just Transition.

The webinar series will be accompanied by a series of six primers, which aim to increase awareness and financial institutions’ understanding of each ecosystem. The primers will highlight key opportunities, case studies, and relevant resources. This first primer builds on the introductory webinar. The objective of this project is to enable financial institutions to start a journey towards investments in NbS across terrestrial, freshwater, and marine ecosystems following the concepts of Decent Work and Just Transition.

Overview of Nature-based Solutions

Recent global policy instruments have championed Nature-based Solutions (NbS), including the Kunming-Montreal Global Biodiversity Framework (GBF) adopted in December 2022 and the U.N. climate summit cover decision agreed to in November. United Nations Environment Assembly (UNEA) has defined NbS as:

[...] actions to protect, conserve, restore, sustainably use, and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic, and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience, and biodiversity benefits.

UNEA further recognizes that NbS:

respect social and environmental safeguards, in line with the three “Rio conventions” (...), including such safeguards for local communities and indigenous peoples (UNEA 2022: 2).

All NbS centre on protecting, managing and/or restoring ecosystems ([UNEP and IUCN, 2021](#)). Broadly speaking, within the rubric of NbS, there is a spectrum of levels of interaction and modification of nature by society. Outside NbS sit traditional, human-made infrastructure, often referred to as ‘grey’ infrastructure. NbS, in turn, encompass a range of solutions from human-made infrastructure with natural elements (referred to as ‘hybrid’, ‘green’ and ‘blue’ infrastructure) to natural ecosystems (referred to as ‘natural’ infrastructure). For example, in an urban context, ‘green’ and ‘blue’ infrastructure may be a row of trees along a major city street, the construction of a wetland near a built-up area, green roofs, or water permeable pavements. ‘Natural’ infrastructure refers to unaltered and actively managed natural ecosystems which provide important ecosystem services, such as the saltwater retention and flood defence services provided by protected mangrove forests. Combinations of these approaches (commonly referred to as ‘integrated approaches’) also exist ([Watkins et al., 2019](#); [UNEP, 2022](#)).

Stakeholder engagement and transparent, inclusive processes are central pillars of effective NbS, which are necessary for capturing co-benefits and balancing trade-offs (IUCN, 2020). This is especially the case in developing country contexts where multi-beneficial options for climate resilience and cost effectiveness strategies can be achieved by introducing NbS. To deliver legitimate and equitable outcomes and avoid adverse impacts, all relevant stakeholders—especially indigenous peoples and local communities (IPLCs)—must be engaged in the design, implementation, management, monitoring, and evaluation of NbS. The traditional knowledge of IPLCs promotes the effectiveness of NbS projects with local ownership.

Figure 1 shows the International Union for Conservation of Nature’s (IUCN) definition of NbS; IUCN’s NbS standard provides a systematic learning framework so that learnings can continuously evolve and improve the application of NbS, leading to greater confidence in NbS among decision makers. There are eight interconnected criteria that make up the IUCN Global Standard for NbS. These are built upon the IUCN NbS principles as well as feedback from consultations with stakeholders and refer to the following aspects: (1) address societal challenges; (2) landscape scale of intervention; (3) biodiversity gain; (4) economic viability; (5) governance capability; (6) equitably balance trade-offs; (7) adaptive management; (8) mainstreamed within an appropriate jurisdictional context (IUCN, 2020). The eight principles of NbS illustrate the need to take a holistic approach, where NbS must transform societal challenges into outputs benefitting both human well-being and biodiversity, simultaneously.

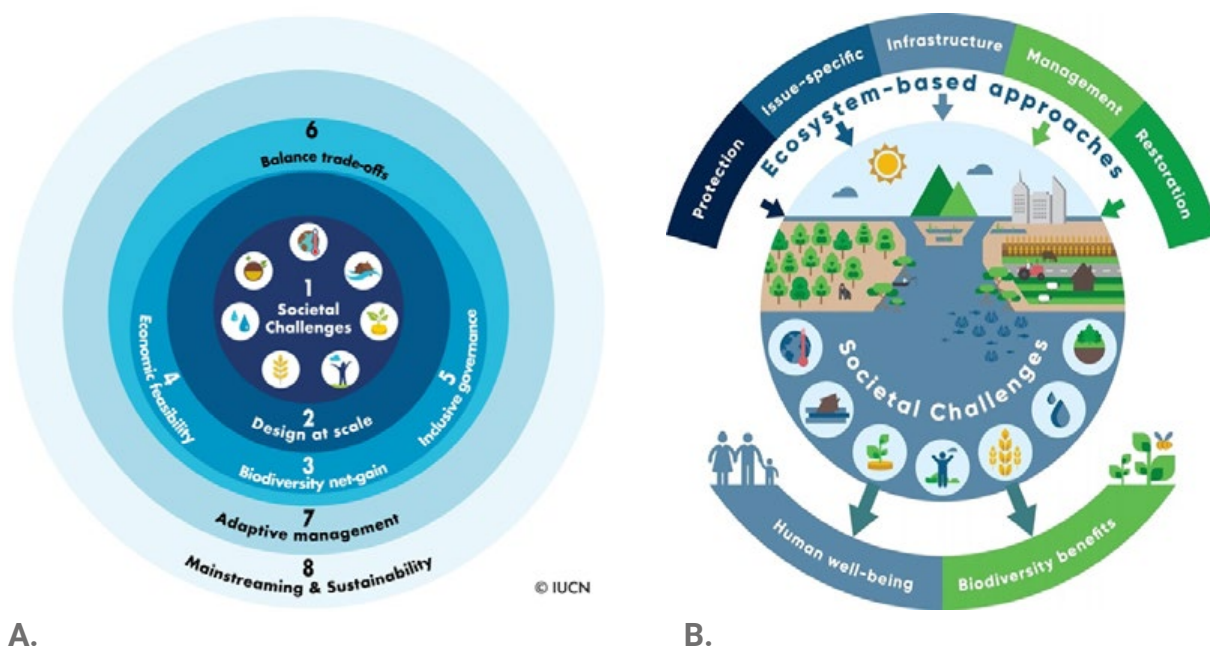


Figure 1: IUCN Global Standard for NbS. A) Definition by the IUCN, B) The eight interconnected criterion that make up the IUCN Global Standard for NbS (IUCN 2020: 1,3).

Why do we need NbS?

Nature contributes over USD 125 trillion annually to the global economy through ecosystem services (EIB, 2020).¹ Through their exposure to the real economy, financial institutions are exposed to risks arising from nature loss and climate change. Businesses, financial institutions, and governments are increasingly recognising that NbS are imperative for addressing these risks, (IUCN, 2020) and for reaching net-zero commitments as well as being an essential component for human existence and good quality of life (Reid and Ali, 2019). NbS can also bring opportunities to businesses to reduce operational costs, unlock new revenue streams, increase customer engagement, and deliver environmental goods and services (EIB, 2020).

Embedding NbS into business practices presents the opportunity of managing and maintaining nature in helping to resolve major societal challenges including climate change mitigation, adaptation to climate change, and biodiversity. For all three there is good evidence of the effectiveness of NbS as can be seen below.

Climate change mitigation: A review conducted by UNEP and IUCN (2021) produced an overview of NbS annual mitigation potential shown as a result of assumptions made on the global willingness to fund climate change mitigation and NbS. Across all studies, the results show significant mitigation potential across ecosystems (Figure 3).



Figure 2: Overview of NbS annual mitigation potential by study (UNEP and IUCN 2021: 16).

¹ Ecosystem services are the benefits that we gain from natural capital, including provisioning (e.g. food and water), regulating (e.g. reducing flooding and air quality), supporting (helping other ecosystem services function such as photosynthesis and soil formation), and cultural (provide non-material benefits essential to our health and wellbeing) services.

Climate change adaptation: Data from 194 empirical studies have proven that the use of NbS for climate change adaptation has actively reduced climate impacts. [Chausson et al. \(2020\)](#) found that the six most reported climate impacts being addressed by NbS were reduced water availability, soil erosion, loss of timber production, freshwater flooding, biomass cover loss, and loss of food production. Findings are shown on Figure 2 below.

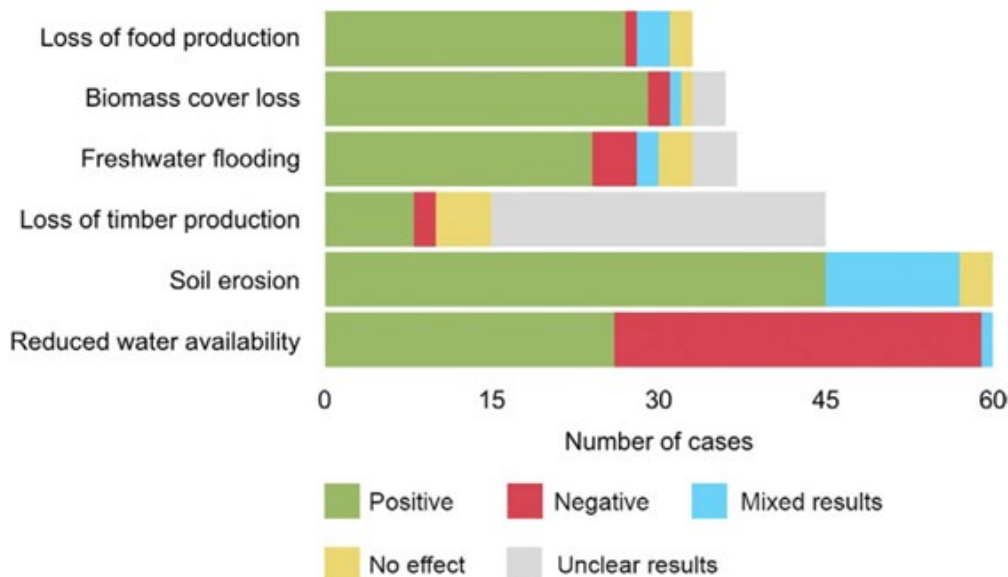


Figure 3: Overview of adaptation effectiveness of NbS ([Chausson et al. 2020: 6140](#)).

Further, justice-oriented approaches to NbS ensure projects prioritize the needs and livelihoods of the most ecologically and socially vulnerable communities ([Anguelovski and Esteve, 2022](#)).

Biodiversity: NbS must result in a net gain to biodiversity and ecosystem integrity (IUCN, 2020), so that they can also contribute to reaching biodiversity neutrality targets, particularly if investments contribute to National Biodiversity Strategies and Action Plans (NBSAPS) (UNEP, 2022). A study of 109 nature-based interventions targeting climate change adaptation showed a strong correlation between interventions positively impacting climate change adaptation and reported benefits for ecosystem health. Furthermore, interventions were associated with a 67% average increase in species richness (Key et al., 2022).

Scaling of NbS through finance

UNEP’s State of Finance for Nature report ([UNEP, 2022](#)) shows that finance flows to NbS are currently USD 154 billion per year, less than half of the USD 384 billion per year investment in NbS needed by 2025 and only a third of investment needed by 2030 (USD 484 billion per year).

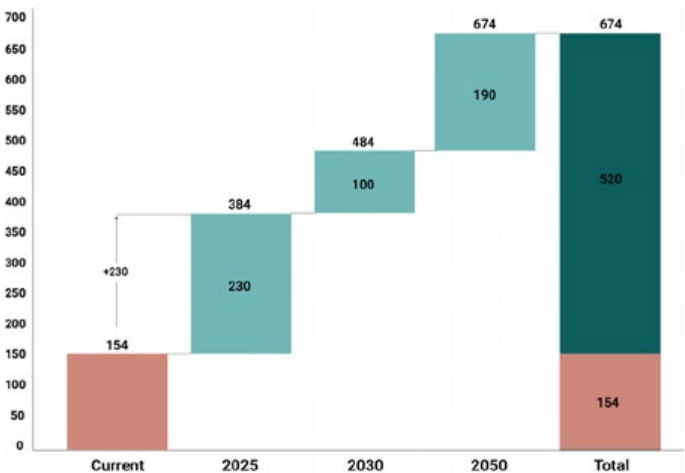


Figure 4: The trajectory of annual NbS investment needed to limit climate change below 1.5 °C, halt biodiversity loss, and achieve land degradation neutrality, USD billion (2022) ([UNEP, 2022: XI](#))

By rapidly doubling financial flows to NbS, we have the potential to halt biodiversity loss, reduce emissions by 5 GtCO₂/year by 2025 further rising to 15 GtCO₂/year by 2050 in the 1.5°C scenario and restore close to 1 billion ha. of degraded land ([UNEP, 2022](#)). Currently, nature-negative expenditures far outweigh investments in NbS. Government expenditure on environmentally harmful subsidies to fisheries, agriculture, and fossil fuels is estimated at between USD 500 billion to 1 trillion per year, which is three to seven times greater than public and private investments in NbS. Private sector investment in NbS must increase by several orders of magnitude in the coming years from the current USD 26 billion per year, a figure representing only 17% of total NbS investment (ibid).

Figure 5 shows the capital allocation per year for NbS in G20 countries. Protection of landscapes and agriculture, forestry, and fishing have received the most finance by domestic governments, receiving over USD 70 billion annually. Less prominent, though still receiving USD 10 billion or more per year, are projects that incorporate NbS into utilities and public services, notably water management, pollution control, and abatement ([UNEP, 2022](#)). Private capital is primarily channelled into sustainable supply chains (USD 5 billion) and biodiversity offsets (USD 4 billion).



Figure 5: Overview of capital allocation per year for NbS in G20 countries (UNEP, 2022: 12).

Source: Vivid Economics, adapted from OECD, IMF and other public data sources.

Challenges

NbS represent an exciting emerging area of finance with many opportunities for financial institutions, but many challenges remain in financing and implementing effective, legitimate, and equitable NbS. A recent report published by WWF, HSBC, and WRI ([Knight et al., 2022](#)) ranks the most important barriers to investment in NbS. Ranked highest are: (i) limited availability or quality of information on return and impact; (ii) limited capacity from the financial sector (e.g. lack of skills to assess risk, limited availability of training and knowledge products, novel products, and instruments), and (iii) lack of project supply (e.g., low volume and primary-scale deals or weak bankability of deals that do exist). Within the nature sphere, another vulnerability is that the inherent complexity of nature implies that returns are subject to unusually high uncertainties, thus making it a harder sell for risk-averse investors (Kedward [et al., 2022](#)). Other barriers reflect the current immaturity and small scale of the asset class, such as high transaction and structuring costs.

An additional challenge is the discrepancy between the myriad of “net zero” and “nature-positive” commitments made by businesses, banks, and investors and the actual private finance flowing into NbS ([UNEP, 2022](#)). There is a risk of greenwashing, where stakeholders oversell activities as NbS while not following the IUCN and UNEA guidelines and with limited evidence of natural systems application or social benefits reaped ([Seddon et al. 2020](#); [Galecka-Drozda et al. 2021](#)). There is also a risk of privatizing public goods, resulting in the exclusion of traditional beneficiaries and stewards of ecosystem services such as IPLCs. Therefore, having clear and science-based guidelines for what actions constitute best practise in the space is crucial. UNEP FI developed [practical guidance to that effect](#) ([UNEP 2022](#))—focusing on coastal infrastructure and NbS among other topics—in 2022, that can be and is already being used by its members and the wider market today.

Opportunities

Investing in NbS gives rise to a variety of opportunities for financial institutions. NbS can offer quantifiable benefits in economic returns and growth. For example, NbS can increase project revenues by identifying new revenue streams (e.g., when considering a range of payments for ecosystem services) and pioneering new markets ([Responsible Investor Research & Credit Suisse, 2021](#)). Further, there are considerable opportunities to be gained by directing capital to NbS projects in terms of identifying and mitigating climate and nature-related risks in financial portfolios. The contribution to developing net zero and nature-positive strategies with NbS is significant due to their emission mitigation potential, highlighting their value in increasing financial institutions’ sustainability and climate action.

The viability of NbS for the private sector depends on their ability to generate revenue or cost savings that can be captured by the market. Table 1 below provides an overview of some of the revenue generating mechanisms that can capture value from NbS. Other mechanisms include improved product yields leading to increased revenue (e.g., higher agricultural yield through sustainable land management), higher mark-up of products or services with sustainability accreditation, increased resilience to market changes with strong natural systems, and lower future costs of operations through increased investment in NbS.

Table 1: An overview of some of the available NbS revenue mechanisms (Eiselin *et al.* 2022).

Mechanism	Description
User charges	Users of an ecosystem are charged a fee, (part of) which can be transferred to private financier of NbS
Taxes	Lower tax rates on services and payments utilized in NbS project
Subsidies	Private financier receives subsidies for investing in NbS
Tax rebates	Private financier of NbS receives a tax rebate
Credit-trading systems	Credits (e.g., carbon credits) are generated for protecting or restoring nature, and can then be sold on dedicated markets to generate revenue from NbS
Biodiversity offsets	Entities that are looking to compensate their own impact on biodiversity can invest in NbS that improve biodiversity elsewhere to offset their impact
Carbon offsets	Entities that are looking to compensate their carbon emissions can invest in NbS that function as carbon sinks to offset their impact
Payment for ecosystem services	Users of ecosystem services generated by a NbS pay the owner and/or manager of the ecosystem for the services they receive (e.g., fishermen pay for catching fish in mangrove forest)



Conclusion

Private finance to NbS has the potential to provide the means to cost-effectively reach climate, biodiversity, and land restoration targets. Delayed action is no longer an option in the face of the devastating effects of climate change, the extinction crisis, and severe land degradation globally ([UNEP 2022](#)). Financial institutions globally must transform their relationship with nature to work with it rather than against it. While challenges to investing in NbS exist, there are many examples to learn from (e.g., innovations in green bonds, blended finance, land-based financing strategies, and insurance) and a range of opportunities for the private sector to become engaged. These are explored in greater detail in the ‘Investing with Nature’ webinar series.

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