



NATURE-BASED INFRASTRUCTURE
GLOBAL RESOURCE CENTRE

The Economic Case for Nature-Based Infrastructure

Lessons from 45 projects across
29 countries

NBI REPORT

Supported by



Led by





© 2026 International Institute for Sustainable Development
Published by the International Institute for Sustainable Development
This publication is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License](#).

The **Nature-Based Infrastructure (NBI) Global Resource Centre** aims to improve the track record of NBI to deliver infrastructure services and adapt to climate change while delivering other environmental, social, and economic benefits. We provide data, training, and customized valuations of NBI projects, based on the latest innovations in systems thinking and financial modelling.

The Centre is an initiative led by IISD, with the financial support of the Global Environment Facility (GEF) and the MAVA Foundation, in partnership with the United Nations Industrial Development Organization.

IISD
nbi.iisd.org

UNIDO
unido.org

GEF
thegef.org

MAVA
mava-foundation.org

The Economic Case for Nature-Based Infrastructure: Lessons from 45 projects across 29 countries

October 2026

Written by Henri Contor, Ronja Bechauf, Janina Schnick, and David Uzsoki

Photo: Jenna Echakowitz/IISD

The opinions, statistical data, and estimates contained in publications are the responsibility of IISD and should not necessarily be considered as reflecting the views or bearing the endorsement of UNIDO or GEF. Although great care will be taken to maintain the accuracy of information herein, UNIDO does not assume any responsibility for consequences that may arise from the use of the material.



NATURE-BASED INFRASTRUCTURE
GLOBAL RESOURCE CENTRE

Supported by



Led by



Acknowledgements

The authors would like to express their sincere appreciation to the peer reviewers, Benjamin Simmons, Andrea M. Bassi, and Liesbeth Casier, for their thoughtful comments and guidance, which greatly strengthened this report.

We are also deeply grateful to the members of the Nature-Based Infrastructure (NBI) Project Steering Committee who supported the Centre over the course of the initiative, including Chizuru Aoki, Alope Barnwal, and Tshewang Dorji from the Global Environment Facility; Ákos Kőszegváry, Christian Susan, and Anya Onysko from the United Nations Industrial Development Organization; Holger Schmid, who served earlier through the MAVA Foundation and later in an independent capacity; and Nathalie Bernasconi from the International Institute for Sustainable Development.

We warmly acknowledge the members of the Technical Advisory Committee for their expert guidance and generous engagement throughout the Centre's work: Motoko Aizawa of the Observatory for Sustainable Infrastructure; Nana Ama Browne Klutse of the University of Ghana; Leonardo Garrido of New Climate Economy; Stelios Grafakos of the Global Green Growth Institute; Anne Hammill of the International Institute for Sustainable Development; Craig Mackieson of First Guardian Capital; Josephine Musango of Stellenbosch University; Corinne Namblard, sustainable infrastructure investment expert; and Morten Siersted of F1F9. Their advice has helped ensure that the NBI Centre's methodologies, assumptions, data, and outputs remained rigorous, policy-relevant, and grounded in practical experience.

We further extend our sincere thanks to the donor institutions, the Global Environment Facility and the MAVA Foundation, whose support made the NBI Global Resource Centre possible and to the United Nations Industrial Development Organization for its partnership in advancing the Centre's work.

This report also builds on the dedication and expertise of many current and former colleagues who have contributed to the NBI Centre over the past 5 years and have been instrumental in building the evidence base on the economics and finance of nature-based infrastructure, including Andrea Bassi, Georg Pallaske, Marco Guzzetti, Edwin Andreasson, Nathalia Niño, Emma Cutler, Matthew Gouett, Becca Challis, Maria Barral, Kiranne Guddoy, Betty Pu, Sebastian Mateu, David Kramer, Joelle Deschambault, Tristan Easton, Flavia Thomé, Edoardo Carlucci, Michail Kapetanakis, and Oshani Perera. Their work has been fundamental to the Centre's achievements and to the growing global recognition of NBI as a viable, investable, and scalable response to climate and development challenges.

Finally, we acknowledge the broader community of partners, practitioners, and stakeholders who have engaged with the NBI Centre and contributed to advancing knowledge, sharing experiences, and supporting the transition toward sustainable infrastructure systems.

About the NBI Centre

The Nature Based Infrastructure (NBI) Global Resource Centre, led by the International Institute for Sustainable Development in partnership with the Global Environment Facility, United Nations Industrial Development Organization, and the MAVA Foundation, is a global hub dedicated to building the economic and financial case for NBI. The Centre supports governments, cities, and investors to design, assess, and finance infrastructure solutions that work with nature—such as forests, wetlands, and coastal systems—to deliver essential services including flood protection, water regulation, and climate resilience. Through its Sustainable Asset Valuation (SAVi) methodology, the Centre combines systems thinking, climate data, and economic modelling to quantify the full range of social, environmental, and economic benefits of infrastructure choices.

Over the past 5 years, the NBI Centre has built a strong global track record, delivering dozens of project assessments across diverse geographies and ecosystems. These analyses—spanning urban, forest, wetland, and coastal interventions—demonstrate that nature-based approaches can generate robust economic returns while delivering multiple co-benefits, including avoided disaster costs, improved livelihoods, and enhanced ecosystem services. Across its portfolio, the Centre's work aligns with a broader global evidence base showing that NBI can often outperform conventional alternatives in both cost-effectiveness and resilience, while supporting climate adaptation and mitigation objectives.

Beyond project-level analysis, the NBI Centre plays a catalytic role in scaling adoption worldwide. The NBI projects supported by the NBI Centre in 29 countries have reached 8.7 million direct beneficiaries and restored nearly 1.9 million hectares of land. In addition, the NBI Centre has trained over 5,200 people, strengthening the capacity of public authorities, practitioners, and investors to integrate nature into infrastructure planning and finance.

By combining valuation, policy support, financing innovation, and capacity building, the Centre is helping shift infrastructure systems toward models that recognize nature as a core asset, positioning NBI as a viable, investable, and scalable solution to address growing climate and development challenges.



Executive Summary

In the face of accelerating climate change, biodiversity loss, and growing infrastructure needs, nature-based infrastructure (NBI) offers a transformative alternative to conventional “grey” infrastructure by integrating natural systems into engineered solutions. These interventions, from urban wetlands to coastal dune restoration, provide multiple services such as flood protection, water purification, carbon sequestration, temperature regulation, and biodiversity enhancement, while supporting livelihoods and reducing long-term costs.

This report synthesizes evidence from 45 assessments conducted by the International Institute for Sustainable Development’s NBI Global Resource Centre demonstrating that NBI can deliver competitive economic returns while generating significant environmental, social, and climate resilience benefits.

Figure ES1. How NBI can solve common infrastructural challenges

THE CHALLENGE	NBI SOLUTION	RESULT
 Urban Flooding Disrupting neighbourhoods, damaging homes and infrastructure	 Green spaces Wetland restoration Sustainable drainage	 ↓ Runoff ↑ Water retention ↓ Flood risk
 River Flooding Damaging infrastructure and farmland	 Floodplain restoration Forest buffers Riparian zones	 ↑ Flow regulation ↓ Erosion ↑ Filtration
 Coastal Flooding & Erosion Damaging homes, infrastructure, and jobs	 Mangroves Sand dunes Coastal wetlands	 ↓ Wave force ↓ Erosion ↑ Flood barrier
 Water Pollution Harming health and livelihoods	 Constructed wetlands Hybrid wastewater treatment	 ↓ Pollutants ↑ Water purity ↑ Retention
 Landslides & Soil Erosion Threatening infrastructure, farmland, and lives	 Terraces Agroforestry Forest restoration	 ↑ Slope stability ↓ Sediment ↑ Retention
 Urban Heat Rising illness, mortality, and infrastructure damage	 Urban trees Green space systems Wetland restoration	 ↓ Air temperature ↑ Shade ↓ Heat stress
 Water Scarcity Disrupting households, businesses, farming, and energy	 Landscape restoration Climate-smart agriculture Wetlands	 ↑ Water retention ↓ Runoff ↓ Sedimentation



Using the International Institute for Sustainable Development's (IISD's) Sustainable Asset Valuation (SAVi) methodology, each assessment combines qualitative systems mapping with project-specific quantitative cost-benefit analysis, explicitly monetizing ecosystem services and social co-benefits often excluded from traditional appraisals. Each assessment starts from the infrastructure and climate adaptation challenges voiced by the project proponent and then co-creates the infrastructure scenarios to be analyzed. Critically, the SAVi assessments do not optimize results for specific outcomes; instead, they take the form of "what-if" analyses that explore the impacts of different infrastructure options.

Taken together, 5 years of valuation evidence point to three overarching conclusions, outlined below.

One Investment, Multiple Benefits

NBI delivers multiple infrastructure services simultaneously. Unlike conventional grey assets, which are typically designed for a single function, natural assets such as wetlands, forests, and mangroves provide layered benefits, including flood mitigation, water purification and storage, and temperature regulation. In addition to these infrastructure services, NBI provides a wide range of co-benefits for communities, economies, and ecosystems, such as biodiversity habitats, livelihood support, and increased productivity.

These benefits translate into measurable economic returns. Across the portfolio, NBI investments yield a median benefit-to-cost ratio of 3.21, meaning that each dollar invested generates more than 3 dollars in monetized return for society. NBI projects also show a median internal rate of return of 38%. A significant share of this value derives from avoided costs, including reduced flood damages, lower water treatment expenditures, and diminished erosion losses. Multifunctionality combined with avoided damages can reduce pressure on public budgets and strengthen the long-term case for investment.

Nature Must Be Treated as an Infrastructure Asset

Public assets are understood in this report as all resources owned, controlled, or managed by the public sector that generate value or benefits for society and public services. NBI, or natural assets, therefore, form a subset of physical infrastructure assets. As such, natural assets provide essential infrastructure services, regulating water flows, reducing disaster risks, stabilizing soils, and improving water quality—functions that would otherwise require engineered systems and sustained operating expenditure.

However, natural assets are rarely integrated into capital planning, public balance sheets, or asset management frameworks as core infrastructure. Treating nature as infrastructure means recognizing forests, wetlands, urban green corridors, and coastal ecosystems as critical public assets. When ecosystem services are systematically valued and incorporated into investment



appraisal, NBI strengthens public asset portfolios rather than constituting discretionary environmental spending.

The Principal Barriers to Scale Are Institutional and Financial

The performance of NBI is well established. The principal barrier to scaling lies in institutional and financial systems that do not consistently capture or value avoided costs, cross-sectoral co-benefits, or long-term risk reduction.

Public budgeting systems are frequently siloed. One entity may finance restoration while benefits accrue to other sectors, such as health, agriculture, energy, or disaster risk management. Because gains are distributed across departments and time horizons, existing appraisal and financing frameworks often undervalue natural assets.

Scaling NBI therefore requires reforms in planning, budgeting, and public finance systems. Strengthening public finance and fiscal frameworks is a necessary precondition for mobilizing private capital, as private finance will not flow at scale without clear public signals, stable funding structures, and credible revenue and risk sharing mechanisms.



Table of Contents

1.0 The Importance of Building <i>With</i> Nature	1
2.0 The SAVi Methodology	4
3.0 How NBI Delivers Economic Performance	7
4.0 How NBI Delivers Systemic Benefits.....	14
5.0 How to Secure Financing for NBI	21
6.0 Implications for Planning, Governance, and Financing of NBI.....	27
6.1 Planning and Governance.....	28
6.2 Co-Design and Stewardship of Local Communities.....	29
6.3 Financing NBI: Turning nature's services into revenues.....	30
7.0 Conclusion	32
References	34
List of Assessments	39



List of Figures

Figure ES1. How NBI can solve common infrastructural challenges	v
Figure 1. From implementation to societal gains	2
Figure 2. SAVi methodological process.....	5
Figure 3. Distribution of portfolio results.....	9
Figure 4. Distribution of results by NBI type.....	12
Figure 5. Map of portfolio across NBI types.....	15
Figure 6. An illustrative example of NbS co-benefits	17
Figure 7. NBI: Assets, services, and benefits	19

List of Tables

Table 1. Key performance indicators (KPIs) of portfolio.....	8
Table 2. KPIs by NBI type	10
Table 3. Recommendations for scaling NBI over the short, medium, and long terms.....	31

1.0

The Importance of Building *With* Nature





Humanity confronts two deeply intertwined crises: accelerating climate change and rapid biodiversity loss. Global temperatures have already risen by approximately 1.55 °C above preindustrial levels, driven by increasing greenhouse-gas emissions (World Meteorological Organization, 2025). As a result, extreme weather events like floods, heatwaves, and droughts are intensifying worldwide. Concurrently, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services estimates that around one million species face extinction, and over 75% of terrestrial environments have been significantly altered (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, 2019).

These climate and biodiversity crises have geographical differences: small island states and low-lying coastal regions bear the brunt of sea level rise, semi-arid zones confront worsening droughts, and tropical forests suffer unprecedented rates of deforestation. Moreover, they bring the risk of worsening social differences: vulnerable and marginalized communities, particularly low-income populations, Indigenous Peoples, and residents of informal settlements, are often disproportionately affected due to limited adaptive capacity and access to resources.

In this context, infrastructure emerges as both a driver of these problems and a source of solutions. Traditional “grey” infrastructure often exacerbates environmental degradation. Indeed, sealed surfaces increase runoff and flood risk, while concrete and steel production contribute substantial emissions. In contrast, nature-based infrastructure (NBI) integrates ecological processes into engineered systems, such as water filtration by wetlands or temperature regulation by urban trees. By blending built and natural elements, NBI delivers multiple functions, such as flood control, water purification, carbon sequestration, and habitat restoration. This idea of building with nature highlights how NBI can simultaneously advance development goals and regenerate ecosystems, as illustrated in Figure 1.

Figure 1. From implementation to societal gains



Source: Contor, 2025b.

The concept of harnessing natural processes for human benefit in economics stretches back to the 17th century (Gómez-Baggethun et al., 2010). More recently, pioneering work on ecosystem services (Daily, 1997) and the landmark Millennium Ecosystem Assessment (2005) formalized how nature underpins water, food, and climate regulation. The International Union for Conservation of Nature (IUCN) began framing these efforts under the banner of nature-based solutions (NbS) in 2016 when they defined them as “actions to protect, sustainably use, manage and restore natural or modified ecosystems, which address societal challenges, effectively and adaptively, providing human well-being and biodiversity



benefits” (IUCN, 2020b). Over the past decade, major international frameworks have ratified these ideas: the 2015 Paris Agreement recognizes ecosystem restoration as a pillar of both mitigation and adaptation (United Nations Framework Convention on Climate Change, 2015), and the United Nations’ Sustainable Development Goals embed nature’s health across multiple targets (UN, 2015).

While the benefits of NbS and NBI are well-known, conventional grey infrastructure remains the norm. To date, the integration of nature into infrastructure planning, procurement, and financing strategies remains limited. Three key barriers explain this gap: the full range of NBI benefits is often not reflected in decision making (evidence gap); there is a lack of de-risking instruments and bankable project pipelines (financing gap); and decision-makers often lack the tools and expertise to assess and advance NBI investments (capacity gap).

Early analyses reveal that, when compared to grey alternatives, NBI often achieves equal or superior performance at lower life-cycle cost and delivers significant co-benefits: improved air and water quality, enhanced biodiversity, recreation opportunities, and job creation (Seddon et al., 2020). Moreover, by harnessing adaptive biological processes, these systems can self-repair after disturbances, offering resilience in an uncertain climate future.

As the world seeks to close a multitrillion-dollar infrastructure investment gap while meeting ambitious climate and biodiversity targets, NBI offers a critical opportunity not only because of cost savings, but also because it generates up to 30% more in value and added benefits compared to grey infrastructure (Bassi, Bechauf, Casier, & Cutler, 2021). By realigning infrastructure development with nature’s inherent capacities, policy-makers and practitioners can build systems that deliver critical infrastructure services and better withstand climate shocks while restoring ecological balance, paving the way toward a sustainable, resilient future.

This report compiles the evidence on how NBI can simultaneously regenerate ecosystems and deliver measurable social and economic value. It also discusses the findings around long-term financing of NBI projects that we learned over the past 5 years. The report begins by detailing the Sustainable Asset Valuation (SAVi) methodology for rigorously valuing NBI projects. Next, it brings together insights from five years of the NBI Global Resource Centre, synthesizing 45 project-level assessments, each illustrating NBIs transformative impacts. Finally, this report concludes by translating those insights into recommendations and next steps for policy-makers and infrastructure decision-makers tasked with the deployment of future resilient and sustainable infrastructure.

2.0

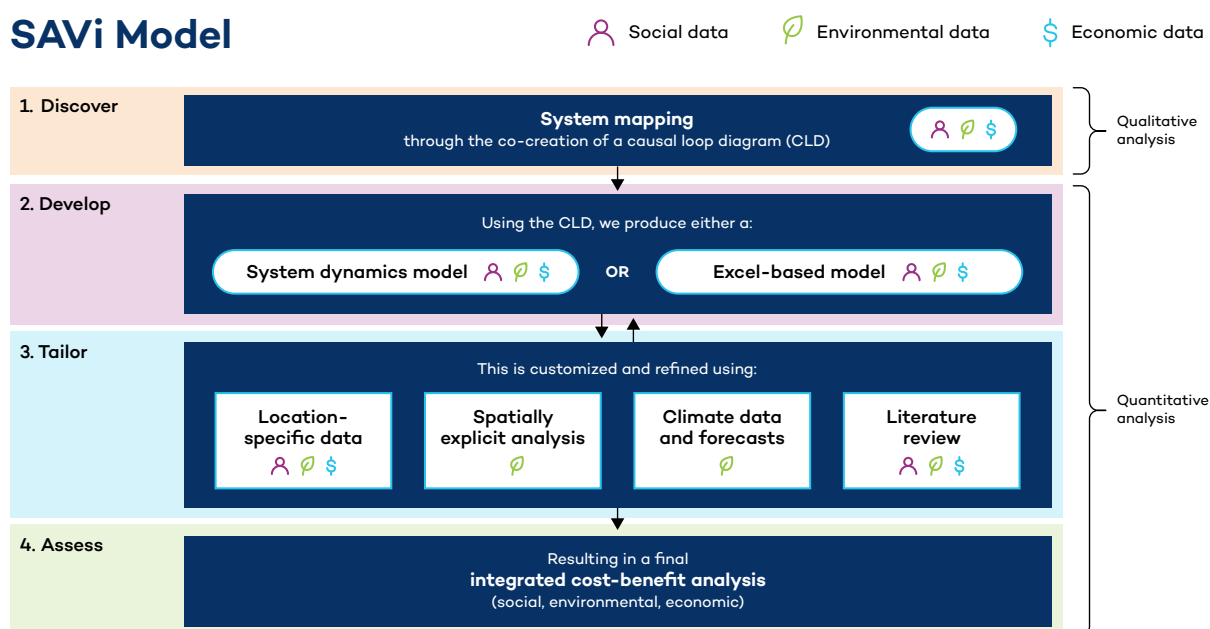
The SAVi Methodology





The NBI Centre employed the SAVi methodology for its project assessments (Contor, 2025), combining qualitative systems thinking with rigorous quantitative analysis to capture the full spectrum of NBI benefits. Figure 2 illustrates the SAVi process: it begins with system mapping, a collaborative development of causal loop diagrams that reveal the dynamics, feedback loops, and leverage points within local socio ecological contexts, and proceeds to quantitative modelling via either an Excel-based model or a system dynamics model, depending on the complexity and data availability of the project. Both modelling pathways draw on four core data streams: social, environmental, and economic data, and climate projections. The latter is augmented by spatially explicit analysis using geographic information system analysis and tools such as InVEST, as well as literature reviews. The process is iterative, moving through “discover, develop, tailor, and assess” phases to ensure that the valuation is finely tuned to each site’s unique characteristics and stakeholder needs.

Figure 2. SAVi methodological process



Source: IISD.

Unlike conventional cost-benefit analyses (CBAs), which are often limited to direct financial flows and hard infrastructure metrics, SAVi explicitly monetizes ecosystem services (carbon sequestration, flood attenuation, etc.) alongside co-benefits (health improvements, job creation) and integrates these into a comprehensive assessment. Traditional CBAs typically exclude or undervalue such externalities. This holistic approach yields benefit-to-cost ratios (BCRs) and internal rates of return (IRR) that reflect real-world resilience, and provides a transparent, reproducible framework for comparing NBI with grey or hybrid alternatives. By integrating multiple tools, SAVi builds credibility through methodological rigour and ensures that decision-makers can trust both the narrative and the numbers underpinning the business case for NbS.



While SAVi is uniquely tailored to infrastructure valuations, several institutions have developed parallel frameworks to assess and value ecosystem services and inform project, enterprise, or policy decisions. IUCN's Global Standard for Nature-Based Solutions provides an eight-criteria self-assessment tool to guide and benchmark NbS design and implementation (IUCN, 2020a). The Natural Capital Coalition's Natural Capital Protocol establishes a standardized four-stage process for organizations to identify, measure, and value their dependencies and impacts on natural capital (Capitals Coalition, 2021).

Meanwhile, the World Bank has advanced methodologies such as the Wealth Accounting and the Valuation of Ecosystem Services partnership, which integrates natural capital accounting into national planning. It has also developed recent operational guidance, including *Assessing the Benefits and Costs of Nature-Based Solutions* (Van Zanten et al., 2023) and the *Nature-Based Solutions Opportunity Scan* (World Bank, 2024). Together, these publications provide practical frameworks to evaluate trade-offs, financing pathways, and cost-effectiveness in infrastructure projects.

Finally, the World Resources Institute has developed tools like the Green-Gray Assessment framework to compare NbS with built infrastructure (Gray et al., 2019). It has expanded this work through regional applications in sub-Saharan Africa (Oliver & Marsters, 2022) and Latin America and the Caribbean (Ozment et al., 2021), which demonstrate how context-specific approaches can drive both resilience and investment strategies. By situating SAVi alongside these complementary tools, we underscore its alignment with global best practices in ecosystem valuation.

3.0

How NBI Delivers Economic Performance





This section presents the aggregated economic results from 45 SAVi assessments. It shows NBI's economic performance across the portfolio using standardized financial indicators, including BCRs, IRR, and net benefits.

Key Messages

- NBI investments yield median BCRs of 3.21. This means that, on average, each dollar spent on the NBI project delivers 3.21 dollars in social, economic, and environmental benefits. The integrated CBA assessments of 45 projects highlight that NBI performance is highly context-dependent, yet consistently compelling.
- Moreover, NBI investments yield median IRRs of 38%. This means that the stream of future benefits remains worthwhile even when discounted at a rate as high as 38%, indicating strong economic resilience.
- Urban, wetland, forest, and coastal NBI types demonstrate strong economic performance, with unique cost structures and co-benefits reflecting their distinct ecological functions and intervention contexts. Wetlands stand out for their efficiency and rapid returns, forests for their typically mid-range BCRs but high IRRs, urban NBIs for their systemic co-benefits despite higher costs, and coastal projects for their irreplaceable role in risk protection.

The aggregated portfolio results show strong economic viability for NBI investments. Median BCR across the portfolio is 3.21, indicating that every dollar invested yields more than 3 dollars in benefits. The median IRR of 38% surpasses returns typical of many infrastructure sectors. Net benefits average USD 1,900 per hectare per year, with a substantial range, reflecting both high-performing projects and those in more challenging contexts. These results highlight NBI's capacity to generate substantial returns while delivering ecosystem services, reducing risks, and enhancing community resilience.

Table 1. Key performance indicators (KPIs) of portfolio

	Unit	Median	Q1	Q3	IQR
BCR	Ratio	3.21	2.21	7.57	5.37
IRR	%	38%	18%	66%	47%
Net benefits	USD/ha/year	1.9k	0.4k	6.1k	5.7k
Total benefits	USD/ha/year	2.9k	0.6k	11.8k	11.2k
Total costs	USD/ha/year	0.9k	0.2k	2.7k	2.5k
Operating expenditure (OpEx)	USD/ha/year	0.3k	0.12k	1.1k	1.k
Capital expenditure (CapEx)	USD/ha/year	0.1k	0.03k	1.3k	1.2k

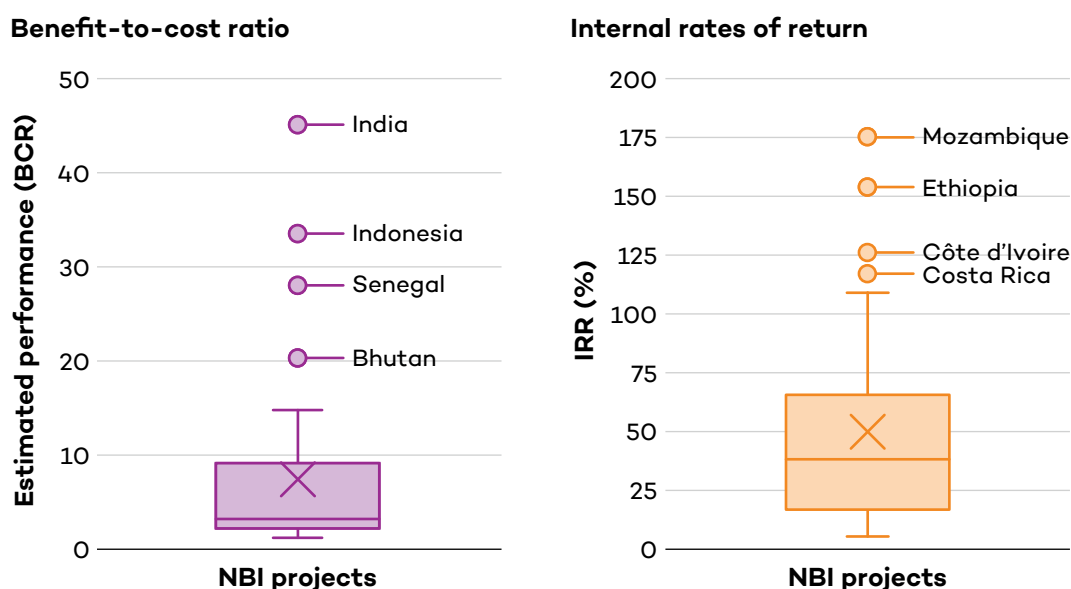
Source: Authors.

Note: Median = middle value of all observations, Q1 = value below which 25% of observations fall, Q3 = value below which 75% of observations fall, Interquartile Range = range between Q3 and Q1 showing data spread.



The distribution of results across the portfolio, as illustrated in Figure 3, exhibits the wide range of estimated performance across NBI projects. Indeed, even though the median BCR is 3.21, we observe outliers with a BCR of 33.54 in the case of the Indonesian forest restoration assessment (Bassi, Bechauf, Cutler et al., 2021), 28.02 in Senegal’s mangrove restoration project (Bassi et al., 2020), and 20.3 in Bhutan’s million trees initiative (Cutler & Guzzetti, 2022b). These outstanding performances are explained by context-specific dynamics. In Indonesia, the project delivers exceptionally high net benefits of over USD 23,000/ha/year, largely driven by avoided flood and erosion damages as well as substantial carbon storage benefits. In Senegal, restoration costs are extremely low (USD 1.7/ha) while benefits from mangrove ecosystem services reach USD 47/ha, creating large net returns that explain the outstanding BCR. In Bhutan, the Million Tree Initiative achieves a high BCR because large-scale planting requires minimal upfront expenditure but generates benefits in the form of carbon sequestration, soil stabilization, and avoided disaster damages.

Figure 3. Distribution of portfolio results



Source: Authors.

Similarly, when looking at IRR data, the portfolio reveals four remarkable outliers: 175.5% in Mozambique’s wetland project (Andreasson et al., 2025), 153.9% in Ethiopia’s agroforestry project (Niño & Guzzetti, 2024), 126.1% in Côte d’Ivoire’s small-scale tree planting initiative (Carlucci & Guzzetti, 2024), and 117.1% in Costa Rica’s river basin restoration assessment (Pallaske et al., 2024), compared to a median of 38%. The Ethiopian case stands out because relatively low upfront costs yield extremely high total benefits exceeding USD 674 billion, generating returns that scale far beyond investment needs (USD 255 billion). The magnitude reflects cumulative, undiscounted impacts over 26 years and the extrapolation of project outcomes to a regional-scale rollout across Oromia, Amhara, and Somali, with most benefits arising from increased agricultural production and avoided malnutrition costs. In Côte d’Ivoire, the One School, 5 hectares initiative combines modest per-hectare planting costs (around USD 44) with significant avoided flood damages, agroforestry income, and carbon



sequestration, producing annualized net benefits of more than USD 3,500/ha/year. In Costa Rica, ecosystem-based adaptation in the Reventazón River basin requires larger investments (USD 21.3 million) but generates diversified revenues from water supply, hydropower, and agriculture, alongside ecosystem services worth over USD 26 million.

These cases underline how exceptional returns are closely tied to low relative costs combined with large, multi-layered benefit streams. However, these figures also hinge on long-term assumptions about benefit materialization and sustained ecosystem performance. In other words, while the integrated models provide credible estimates, confidence in such high IRRs ultimately depends on the stability of underlying biophysical and economic conditions over time. Caution is therefore warranted, as discounting choices, incomplete valuation data, and inherent modelling uncertainties introduce limitations that may inflate or obscure the true magnitude of returns across assessments.

The diversity of results highlights, first, that the performance of NBI projects is highly dependent on local ecological, social, and economic conditions, making context-specific assessments indispensable. Second, it shows that exceptionally high returns typically emerge where modest investments unlock disproportionately large benefit streams. Third, the evidence demonstrates that while outliers are striking, the broader distribution of results underscores the consistent economic case for investing in NBI.

Disaggregating results by NBI type, as depicted in Table 2 and Figure 4, highlights how differences in capital intensity, operating costs, and intrinsic ecosystem functions translate into distinct performance profiles.

Table 2. KPIs by NBI type

	Unit	Forest	Wetlands	Urban	Coastal
BCR	ratio	2.87	3.88	3.35	2.13
IRR	%	53%	41%	17%	7%
Net benefits	USD/ha/year	1.8k	0.4k	2.6k	7.9k
Total benefits	USD/ha/year	2.8k	0.6k	3.5k	16.9k
Total costs	USD/ha/year	0.8k	0.2k	1.9k	9.0k
OpEx	USD/ha/year	0.3k	0.2k	0.8k	1.3k
CapEx	USD/ha/year	0.05k	0.2k	1.2k	7.64k

Source: Authors.



Forest

Forest-based NBIs demonstrate a balanced and resilient performance, with a median BCR of 2.87 and the highest median IRR across all types (53%). These projects generate relatively high net benefits (USD 1,800/ha/year) at comparatively low costs, as both CapEx (USD 54/ha/year) and OpEx (USD 257/ha/year) are modest. Their attractiveness is rooted in the ecological efficiency of forests, which provide multiple services such as carbon sequestration, erosion control, direct agroforestry revenue generation, and microclimate regulation with limited investment. The high IRR underscores that forest projects not only deliver robust long-term benefits but also generate returns quickly relative to their upfront investments.

Wetlands

Wetlands show the strongest economic returns, with a median BCR of 3.88 and an IRR of 41.3%. Although their net benefits (USD 395/ha/year) are more modest than those of forests, this is achieved with low costs (CapEx USD 160/ha/year; OpEx USD 150/ha/year). The performance of wetlands is largely explained by the high value of the services they provide (e.g., flood mitigation, nutrient retention, and water purification), which generate stable benefits over time without requiring intensive maintenance. This cost-benefit balance explains why wetlands feature prominently in adaptation strategies, where steady service delivery is often more valuable than high but volatile returns.

Urban

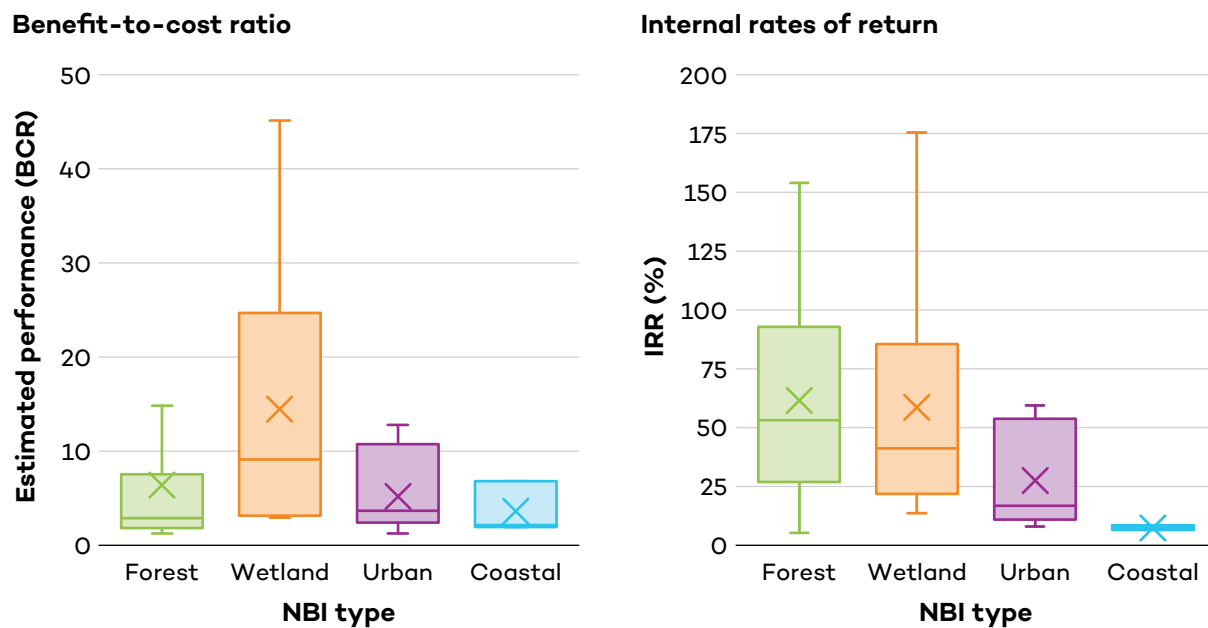
Urban NBI presents a different profile, shaped by their inherently higher capital requirements. Urban projects, despite a solid BCR of 3.35, have a relatively low IRR (16.8%). Urban projects generally have strong median net benefits (USD 2.6k/ha/year) but also require comparatively high costs, with CapEx exceeding USD 1,200/ha/year and OpEx USD 0.8k/ha/year. These cost structures reflect the complexity of interventions in densely built environments, where land, construction, and maintenance expenses are relatively higher. At the same time, urban projects also reach large populations, meaning that benefits such as avoided health costs, improved air quality, and enhanced well-being accrue to many people, amplifying their overall societal value.

Coastal

Coastal NBI projects show the lowest financial ratios, with a median BCR of 2.13 and IRR of 7.4%, driven by very high upfront costs (CapEx over USD 7.64k/ha/year). Yet their median net benefits (USD 7,900/ha/year) and very large total benefits (USD 16.9k/ha/year) highlight their critical protective role against storm surges and sea level rise. The relatively modest financial metrics should, therefore, not undermine their systemic value: coastal NBIs provide risk reduction benefits that often materialize over the long term.



Figure 4. Distribution of results by NBI type



Source: Authors.



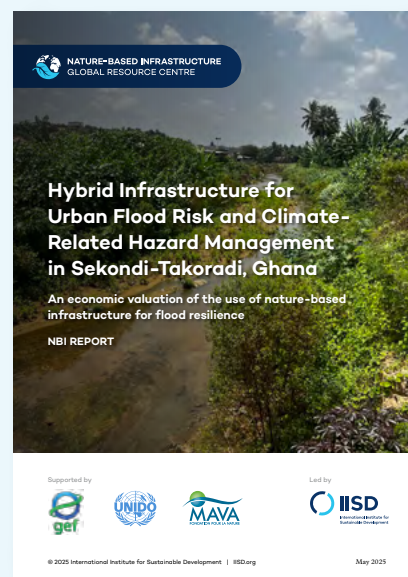
Case Study 1. Urban Flood Resilience

Location Ghana
Hazard Urban flooding
Nbs Wetlands and urban greening
Report Niño & Guzzetti, 2025a.

The Sekondi-Takoradi Flood Resilience Project in Ghana uses hybrid infrastructure to manage urban flood risk. Developed by the Sekondi-Takoradi Metropolitan Assembly, it targets two flood-prone areas where recurrent floods damage property and critical infrastructure, isolate communities, and threaten livelihoods. The project combines wetland restoration and mangrove planting, green spaces, and urban gardens, with upgraded drainage, swales, retention ponds, and public-awareness campaigns.

The metropolitan district is home to 245,382 inhabitants. About 12% of its land is classified as very highly flood-prone and a further 24% as highly flood-prone. The model includes 10.1 hectares of green space, 1.97 hectares of restored wetlands and 815 metres of improved drainage. Together, these interventions increase water retention and conveyance, reduce flood exposure and coastal erosion, and strengthen resilience to increasingly erratic rainfall.

Beyond flood protection, the project supports carbon sequestration, land values, air quality, employment, biodiversity, cooling, and community cohesion. From 2025 to 2051, the average flood-valuation scenario produces discounted net benefits of USD 406.1 million, a BCR of 8.15, and an IRR of 44.23%. Avoided flood damage drives most of the value at USD 441.17 million, supplemented by USD 19.08 million in avoided infrastructure-maintenance costs and benefits from carbon storage and land appreciation.



Key Takeaways

- The hybrid project remains economically viable under all flood damage assumptions, with BCRs between 3.26 and 13.53 depending on the scenario.
- Avoided flood damage is the dominant benefit, while carbon storage, land values, health savings, and employment broaden its societal value.
- Combining nature-based and grey infrastructure offers a scalable approach, provided that maintenance, community participation, and coordinated planning are sustained.

4.0

How NBI Delivers Systemic Benefits





The strong economic performance observed across the portfolio reflects underlying ecological and systemic dynamics. NBI generates value not only through individual service provision, but also by reinforcing interactions among hydrological, climatic, ecological, and socio-economic systems. As highlighted by the SAVi methodology, capturing these non-linear interactions requires integrated and dynamic valuation approaches that account for the full range of costs, benefits, and risks over time.

Drawing on evidence from 45 assessments, this section explains how NBI assets deliver multiple infrastructure services simultaneously, including flood mitigation, water regulation, cooling, and carbon storage, how these services cascade into economic and social outcomes, and which governance and design conditions support sustained performance.

Key Messages

- NBI restores or establishes ecosystems that stabilize water flows, reduce flood risk, improve water quality, and support biodiversity, delivering environmental and social benefits that enhance resilience and protect community livelihoods.
- Urban and rural projects provide cooling, cleaner air, fertile soils, and diverse income opportunities, improving public health, economic activity, and local stewardship when backed by effective governance and sustained maintenance.
- These interventions generate multiple co-benefits across sectors, but lasting impact depends on community-based design, stable financing, robust monitoring, and collaboration among stakeholders to share responsibilities.

Figure 5. Map of portfolio across NBI types



Source: Authors.



The NBI projects evaluated produce a consistent set of system-level responses rooted in their capacity to restore, retain, and reconfigure ecological functions that interact with socio-economic systems. Many cases document primary biophysical mechanisms, such as increased infiltration and groundwater recharge, reduced surface runoff and sediment export, enhanced nutrient capture, and expanded carbon storage. These processes are reported as the pathways through which NBI changes risk and productivity profiles of landscapes and cities.

In the Brantas Basin reforestation assessment in Indonesia (Bassi, Bechauf, Cutler, et al., 2021) for example, reforestation and assisted natural regeneration are described as raising local water tables and reducing erosion, which helps address land degradation and declining farm productivity. Across upland and watershed restorations, the qualitative evidence commonly presents a causal sequence in which hydrological shifts reduce flood exposure, which in turn improves water availability for productive use and lowers sediment loads into infrastructure, linking ecological action to downstream socio-economic outcomes.

Wetland

Wetland, lagoon, and constructed-wetland assessments repeatedly emphasize nutrient dynamics and water filtration as systemic levers (Bassi, Bechauf, et al., 2020; Bassi, Casier, et al., 2020; Pallaske et al., 2023). Several studies show that improved nutrient retention leads to clearer water, which reduces eutrophication risk and stabilizes aquatic communities, and that these ecological improvements then support fisheries and recreational opportunities with attendant livelihood effects and tourism demand (Contor et al., 2025; Contor & Bechauf, 2025). Lake Dal and multiple lagoon restorations document these causal chains in their qualitative narratives, and they also note secondary demographic or use-pattern feedbacks, for example, increased tourism, which can alter local service demand and ecological carrying capacity of restored systems (Bassi et al., 2018). The SAVi analyses stress that these positive outcomes depend on integrated catchment and wastewater management because isolated wetland creation without measures to control nutrient sources often fails to reverse the reinforcing loops of nutrient loading.

Urban

Urban NBI projects focus on permeability, microclimate, water quality, and public-realm effects. They demonstrate clear causal sequences, such as reductions in impervious area that increase infiltration and lower peak runoff, and expanded tree cover that increases shading and evapotranspiration and thus reduces local temperature extremes (Bassi et al., 2024; Bechauf et al., 2025; Niño & Guzzetti, 2025a, 2025c; Wuennenberg et al., 2021). The Medellín River Park assessment (Bechauf, Guzzetti, et al., 2024), the Bogotá catchment assessments in Colombia (Bassi & Niño, 2026), the Cape Town waterway restoration (Contor & Bechauf, 2025), and several city-tree and green-roof projects show that these biophysical changes map onto public health and economic outcomes: lower urban heat and improved air quality are linked in stakeholder narratives to reduced mortality and greater walkability, while enhanced amenities are associated with increased retail activity and higher adjacent property interest when governance and maintenance capacity are present. These urban sequences



are commonly represented as reinforcing feedback loops that show how environmental improvements can catalyze neighbourhood revitalization when institutional support exists.

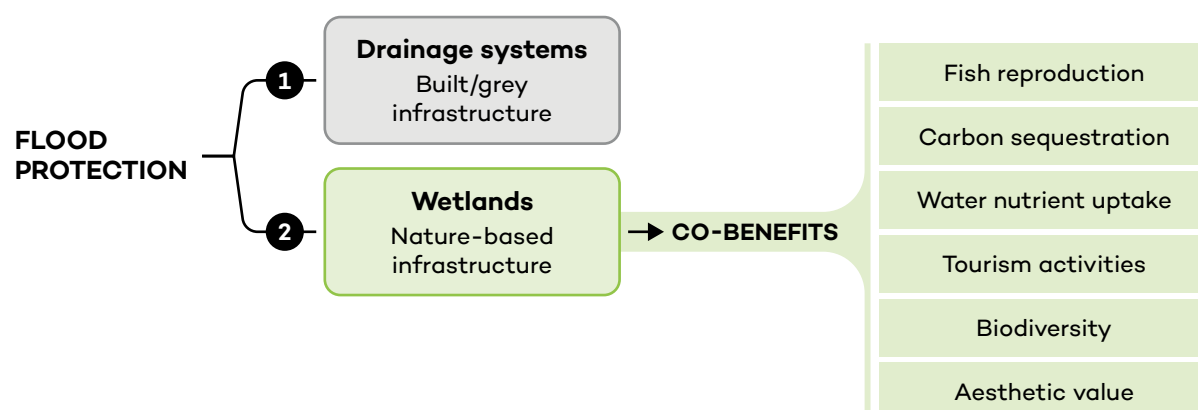
Coastal

Coastal projects emphasize habitat connectivity as a systemic function that generates economy-wide ripple effects. Coastal wetland restoration (Niño & Guzzetti, 2025b) and mangrove rehabilitation (Andreasson & Bechauf, 2025) reduce wave energy and trap sediment, which lowers direct damage to built assets while creating habitats that support biodiversity and tourism. Several coastal assessments, including the Hondsbossche Dunes project in the Netherlands, frame these interventions as multifunctional alternatives to fixed grey solutions because they permit adaptive, incremental reinforcement and thus can avoid long-term lock-in to high-maintenance fixed defences (Bechauf et al., 2021). The evidence indicates that these multifunctional pathways depend on design choices that preserve habitat connectivity and allow natural sediment dynamics to operate.

Forest

Across forest, agroforestry, and landscape restoration cases, the evidence shows clear links between ecological restoration and livelihoods (Bechauf et al., 2024; Cutler et al., 2022; Kapetanakis, 2025). They typically improve soil quality and moisture retention (Bassi et al., 2025; Cutler & Guzzetti, 2022a; Pallaske et al., 2024), which raise crop and livestock performance (Contor, 2024a, 2024b; Niño & Guzzetti, 2024). This results in increased household income and local employment (Andreasson & Bassi, 2026; Pallaske & Carlucci, 2023), thus strengthening local stewardship and reducing pressure to convert natural areas (Bassi, Casier, et al., 2021). Assessments also identify potential balancing feedback loops, for example, human–wildlife conflict associated with particular tree species, which can erode community support unless mitigation measures are integrated into project design.

Figure 6. An illustrative example of NbS co-benefits



Source: Contor, 2025a.



Recurring Themes Across NBI types

Methodologically, systems thinking and causal loop mapping recur as tools that expose **leverage points and unintended outcomes**. These qualitative models commonly show reinforcing loops that amplify benefits and balancing loops that limit outcomes when interventions are isolated or when perverse incentives persist. Such incentives include, for instance, subsidies or land-use policies that unintentionally encourage deforestation or over-extraction of water. Several assessments explicitly note that canal blocking without concurrent land-use monitoring or wetland creation without nutrient-source control may alleviate symptoms but not reverse underlying degradation trends (Bassi et al., 2024; Contor & Bechauf, 2025; Guzzetti et al., 2024). The IISD SAVi assessments therefore tend to present packages of interventions and cross-sectoral alignment as prerequisites for durable, scalable resilience rather than simple one-off measures.

Climate variability and uncertainty are recurring contextual themes: many SAVi assessments describe NBI as comparatively robust under scenarios of greater rainfall volatility or rising temperatures because natural systems can buffer extremes through storage and dispersion. In urban and watershed contexts, NBI options are characterized as adjustable and adaptive, with performance that degrades more gradually under stress than some fixed grey alternatives. However, the literature also cautions that climate stressors can undermine recovery if proximate drivers such as land conversion or extreme coastal events remain unmanaged. For example, in Central Java, mangrove rehabilitation delivered stronger coastal protection where long-term community management was combined with measures to reduce wave energy, while continuing coastal erosion constrained outcomes at less comprehensively managed sites (Damastuti et al., 2023).

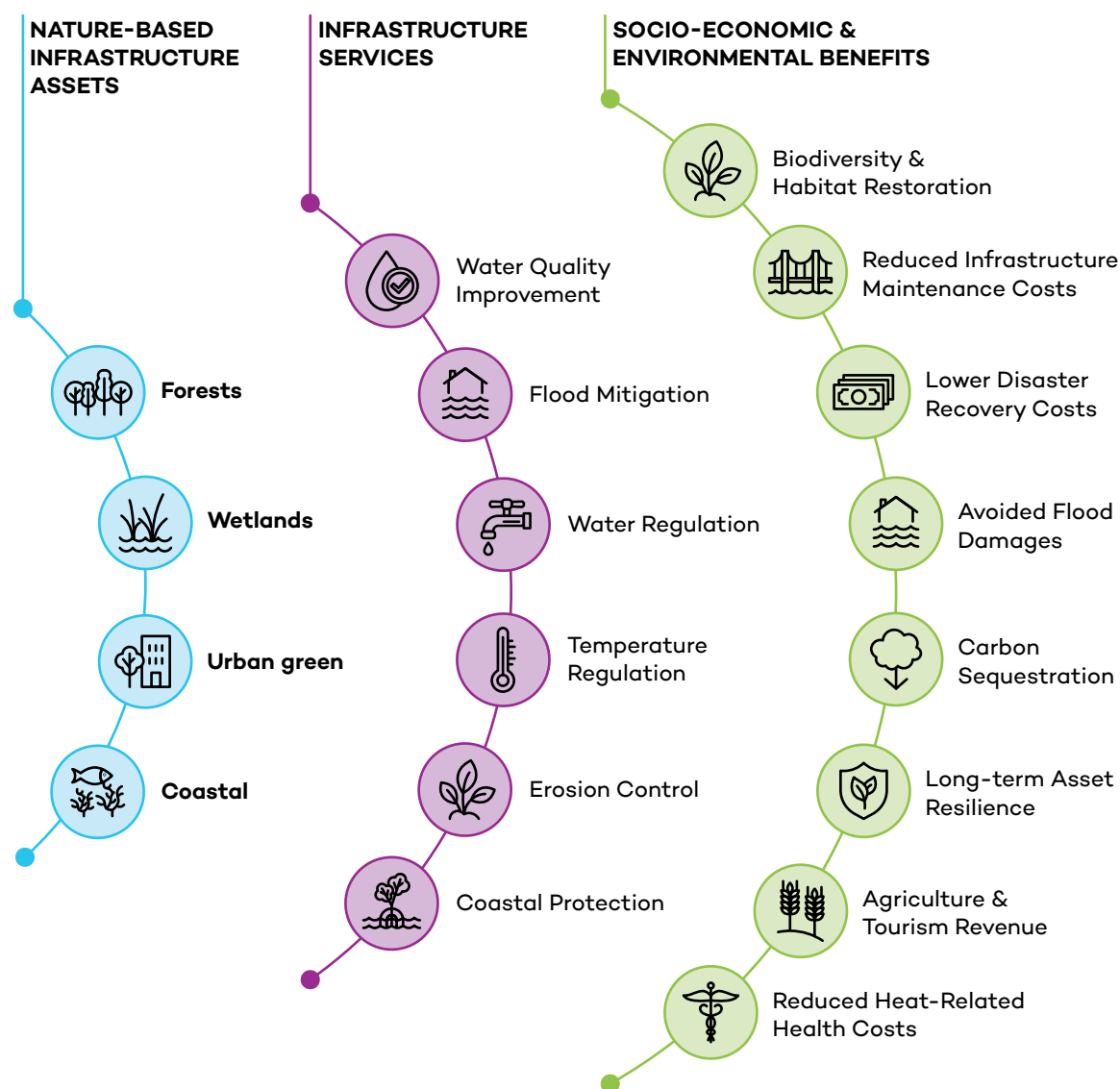
Multifunctionality and cross-sectoral synergies are another recurring theme across NBI projects: the same ecological processes that reduce floods commonly also improve water quality, support biodiversity, sequester carbon, and provide amenities, producing distributed gains for households, municipalities, industries, and service sectors such as tourism and fisheries. SAVi assessments repeatedly document governance implications, noting that the spread of benefits complicates single-source financing and typically necessitates coordinated funding, stewardship arrangements, and institutional frameworks to secure long-term maintenance and equitable sharing of gains.

Notwithstanding recurring positive system responses, the evidence uniformly identifies **contextual risks and constraints**. Development pressures such as road construction, extractive activities, and urban encroachment act as drivers that can re-establish reinforcing degradation loops, including increased runoff, salinization, and habitat loss. In addition, data gaps and institutional fragmentation serve to limit monitoring and adaptive management capacities. Several of the SAVi assessments show how unmanaged drivers can reassert negative feedback loops and thus undermine restoration gains. Timing also emerges as a critical factor: while grey infrastructure can often be deployed rapidly, NBI projects require time for ecological processes to generate their full benefits (e.g., vegetation growth and biomass accumulation). Conversely, large-scale grey projects may entail lengthy planning and construction phases, whereas tree planting or landscape restoration can be implemented relatively quickly, with benefits maturing over a decade or more.



Collectively, the SAVi assessments analyzed for this report present robust and consistent evidence that NBI delivers multiple, mutually reinforcing benefits across environmental and social domains. The studies repeatedly demonstrate how ecological interventions improve hydrological stability, enhance water quality, support biodiversity, moderate local climates, and create livelihood and amenity gains that in turn strengthen local stewardship and economic activity. When interventions are well designed and supported by appropriate governance and maintenance arrangements, the analyses show that NBI can generate durable system-level improvements and catalyze positive feedback loops between ecosystem recovery and community resilience. Taken together, the evidence indicates that NBI offers effective mechanisms for restoring landscape and urban function and for delivering broad societal benefits at multiple scales.

Figure 7. NBI: Assets, services, and benefits



Source: Authors.



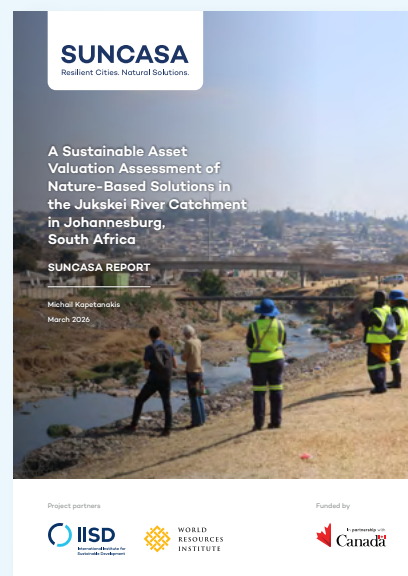
Case Study 2. Urban River Restoration

Location	South Africa
Hazard	Flooding, extreme heat, and water pollution
Nbs	Wetlands and urban greening
Report	Kapetanakis, 2026.

The Scaling Urban Nature-based Solutions for Climate Adaptation in Sub-Saharan Africa (SUNCASA) project restores Johannesburg's Jukskei River, a heavily degraded watercourse affected by urbanization, informal settlement expansion, pollution, erosion, and recurrent flooding. It combines solid-waste and invasive-species removal with wetland rehabilitation, riverbank revegetation, reforestation, and multifunctional urban green infrastructure to improve permeability and river flow, while reducing runoff, contamination, and extreme heat in a gender-responsive manner.

The Jukskei drains 772 km² along a 50-kilometre river reach within a city of 4.8 million inhabitants. Interventions include restoring 469 hectares of riparian zone and planting 46,000 trees across roughly 460 hectares. Benefits are estimated to reach around 2,000 direct and 1.045 million indirect beneficiaries. Co-benefits include improved biodiversity and water filtration, reduced erosion and flood exposure, cooler environments, better public health, employment, recreation, and social cohesion, with attention to women and historically underserved communities.

From 2025 to 2050, implementation and maintenance cost ZAR 73.8 million and generate discounted net benefits of ZAR 152.0 million. The integrated BCR is 3.06, with a 7-year payback period. The largest quantified gains are avoided health costs from water pollution (ZAR 65.4 million), avoided flood damage (ZAR 62.1 million), avoided invasive-plant management costs (ZAR 38.8 million), carbon sequestration (ZAR 31.3 million), and avoided heat-related health costs (ZAR 19.5 million). Sensitivity tests produce BCRs from 2.38 to 3.83.



Key Takeaways

- The interventions generate more than ZAR 3 in societal benefits for every ZAR 1 invested and remain viable under conservative flood damage assumptions.
- Most value comes from avoided health, flood, and management costs, illustrating benefits missed by conventional infrastructure appraisal.
- Riparian restoration and urban tree planting can improve resilience and inclusion, but long-term value depends on sustained financing, maintenance, and gender-responsive participation.

5.0

How to Secure Financing for NBI





Key Messages

- NBI generates value across public budgets, communities, and ecosystems, creating opportunities to connect beneficiaries with suitable funding and revenue mechanisms.
- Financing starts by treating nature as infrastructure, identifying who benefits, and linking payments to verified services such as flood protection, cleaner water, or urban cooling.
- Outcome-based and blended finance can mobilize investment, but require credible buyers, measurable results, long-term maintenance funding, and appropriate public risk-sharing.

Public finance remains essential for most NBI investment.

Current finance flows show that NBI implementation still depends overwhelmingly on public sources. At the broader NbS level, the United Nations Environment Programme (2026) estimates that USD 197 billion of finance came from public sources in 2023, compared with USD 23.4 billion from private sources. This finding is consistent with the NBI Centre's assessments: many NBI projects generate strong economic and societal value, but this value is often captured as avoided costs, risk reduction, or public co-benefits rather than direct project revenues. As a result, many projects continue to depend on public budgets, donor finance, or philanthropy. Public finance will remain essential, but its role should increasingly be catalytic. In blended finance structures, public and concessional capital can support project preparation, cover early transaction costs, provide first-loss protection, or take subordinated positions that reduce risk for senior tranches of private-investor financing. Given the limited availability of public funding, these resources need to be used strategically to strengthen bankability and mobilize other sources of capital.

NBI needs financing structures that monetize the benefits nature provides.

NBI provides services that can generate significant environmental, social, and economic benefits. However, they often lack the revenues needed to attract investors to cover upfront and long-term operating and maintenance costs. To make NBI projects financially viable, they must monetize their services and convert them into revenue streams that attract the capital needed to scale this emerging asset class.

Through SAVi assessments, IISD identified the economic, environmental, and social benefits generated by multiple NBI projects. When possible, these benefits are monetized to assess whether they can support the bankability of the project. This requires mapping the stakeholders that benefit from the NBI, including those that could have a role in financing the project. For example, a municipality may benefit from reduced flood damages. Likewise, businesses may benefit from reduced disruption to operations and be willing to pay for these



services. Once these relationships are understood, project developers can identify the right financing structure to turn these benefits into revenues. A concrete example of this dynamic was a wetland restoration project in Italy, where IISD identified an aquaculture company selling seafood internationally as one of the main beneficiaries of the wetland. The wetland helped maintain the conditions that gave the company's seafood its distinctive quality and taste, enabling it to sell its products at a price premium. After some discussions, the company agreed that it had a role to play in supporting the restoration and long-term maintenance of the wetland.

The biggest financing barrier is the lack of revenue streams.

Nature is currently a mispriced asset. NBI can generate real economic and societal value, but much of that value appears as avoided costs, reduced risks, or public co-benefits. These benefits are often distributed across several actors and sectors, while the costs of implementation are borne upfront by one project proponent or public authority. This creates a mismatch between who pays and who benefits. This is why NBI can be economically attractive and still difficult to finance. For instance, a restored wetland may reduce flood risk, improve water quality, enhance biodiversity, and create recreational value, but unless one or more beneficiaries can be identified and the right payment mechanism can be structured, these benefits remain outside the project's cash flows.

Treating NbS as infrastructure makes it easier to finance them.

Framing nature-based projects as infrastructure changes the discussion on financing. Instead of asking who will pay for a conservation project, the question becomes who benefits from the services nature provides. Flood protection, water filtration, and cooling could all be considered infrastructure services. They reduce costs, protect assets, and support the profitability of businesses. This framing is especially useful because infrastructure services are often much easier to get financing for as compared to traditional conservation or restoration projects. A downstream utility may depend on cleaner water. A port or industrial zone may depend on coastal protection. A city may need to reduce heat exposure or manage stormwater more effectively. In each case, three key questions emerge: who benefits, who can and is willing to pay, and how can payment be linked to the service delivered? For example, the NBI Centre's assessment in the Reventazón River Basin in Costa Rica showed how upstream ecosystem-based adaptation can help stabilize hydrology and support reliable water and energy supply for a basin that serves hydropower generation. In Viet Nam, the assessment of mangroves in the DEEP C Industrial Zone showed how coastal NBI can reduce erosion and flood risk while protecting industrial land. In Abbottabad, Pakistan, the Sherwan Hill Adventure Park assessment showed how expanded urban green space can help reduce extreme heat while improving access to green areas.

The key to financing NBI is often to structure payments around the services it provides.



NBI should not be treated by default as a stand-alone conservation project. In many cases, it is better to think of it as a service that supports a revenue-generating activity, reduces operating costs, or lowers risks for a public or private actor. This opens the door to financing structures that are built around paying for these services. For example, where NBI reduces flood risk, a municipality, insurer, or businesses may benefit. Where it protects coastal infrastructure, ports, tourism operators, and real estate owners may have an interest in contributing. The role of the financial assessment in SAVi is to identify these links and test whether they can be turned into a viable financing structure.

Outcome-based finance can help turn NBI benefits into revenue streams.

Outcome-based finance, also referred to as pay-for-performance or results-based finance, links payments to the achievement of pre-agreed and verified results. For NBI, this can be particularly powerful. Many NBI benefits are measurable, but generally beneficiaries do not pay for them. Outcome-based structures can help bridge this gap by creating a payment obligation for the service delivered. In practice, an outcome buyer agrees to pay for a result, such as improved water quality, reduced flood exposure, or lower heat risk. A project proponent or implementing partner then raises the upfront resources needed to deliver the intervention. Investors take implementation and performance risk, while the outcome buyer pays only if the agreed result is achieved. This approach can align incentives across beneficiaries, public funders, project developers, and investors. For example, in the Canary Islands, the NBI Centre worked on a sustainable urban drainage system designed to reduce flood risk in an area where nearby hotels were among the main beneficiaries. Because the intervention would help protect hotel property and operations from flooding, these beneficiaries were approached as potential outcome buyers who could contribute to implementation costs if agreed flood-related KPIs were achieved.

If a water utility needs cleaner water, NBI can become an outcome-based service provider. For example, consider a water utility that needs to reduce nitrogen levels, sediment loads, or other pollutants in a watershed. One option is to invest in additional built water treatment infrastructure. Another option may be to work upstream, using NBI such as wetlands, riparian buffers, and agroforestry to improve water quality. In this case, the utility could agree to pay for a verified improvement in water quality. The project proponent would then implement the NBI project needed to deliver the result. With a payment agreement in place, the proponent can raise upfront capital for implementation. If the agreed outcome is achieved and verified, the utility pays. The environmental benefit is therefore translated into a potential cash flow.

Most NBI projects will still need blended finance.

Outcome-based finance is promising, but it is not a silver bullet. Many NBI projects are small, bespoke, and therefore relatively costly to finance. They may face high perceived risks, limited data, and a lack of comparable transactions. These barriers can make commercial financing difficult to cover the cost of the project alone. Blended finance can help address these challenges. Public finance, concessional capital, and grants can provide a buffer to serve



as a first-loss protection in the capital structure. Multilateral and philanthropic organizations can also serve as outcome payers if it is not feasible for the beneficiaries to pay themselves. In many cases, NBI projects will also need different sources of revenue simultaneously. Outcome payments may be combined with public budget allocations, carbon, or biodiversity credits.

Private capital can play a larger role in NBI, but only where credible revenue and de-risking structures exist.

Private finance will not flow simply because an NBI project creates high societal value. Investors need credible counterparties, clear contracts, manageable project risks, and most importantly a pathway to repayment with a risk-adjusted return. Public actors and sources of financing therefore remain essential. They can create the enabling conditions for private capital by supporting project preparation and funding early transaction costs. Development banks and donors also have an important role. They can de-risk projects, aggregate small interventions into larger portfolios, and help build a track record of financial performance. Over time, this can reduce transaction costs and make it easier for NBI to be recognized as a distinct asset class.

Outcome-based finance depends on clear KPIs and credible measurement.

To work well, outcome-based finance requires clearly defined outcomes, measurable KPIs, credible baselines, and monitoring systems that are robust but proportionate. It also requires outcome buyers with the ability and willingness to pay, contracts that clearly allocate risks, and enough upfront capital to implement the project. Many NBI benefits need time to materialize. Financing structures therefore need to cover not only implementation, but also long-term operation and maintenance. Without these, the project may fail to deliver the outcomes on which payments depend.

Scaling financing to NBI requires moving from valuing benefits to contracting for services.

Five years of NBI assessments show that valuation is essential. It helps demonstrate that NBI creates economic, social, and environmental value, often at lower life-cycle cost than conventional alternatives. But valuation alone does not solve the financing challenge. The next step is to identify who benefits from NBI services and how those beneficiaries can pay for the value they receive. This is why outcome-based finance deserves greater attention. It directly addresses one of the main barriers to financing NBI: the difficulty of converting benefits into revenues. By linking payments to verified infrastructure services, outcome-based structures can help move NBI from a compelling economic case to a more investable proposition.



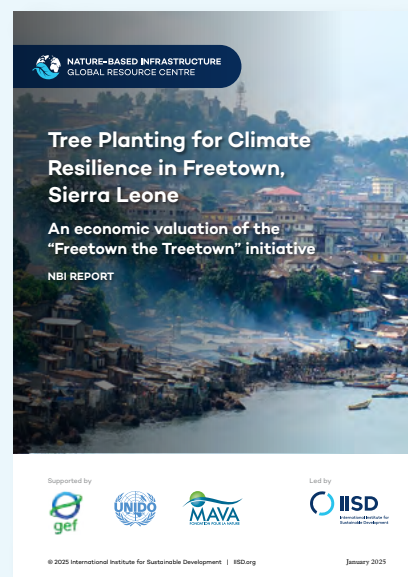
Case Study 3. Urban Reforestation

Location	Sierra Leone
Hazard	Flooding, landslides, and extreme heat
Nbs	Urban tree planting and mangrove restoration
Report	Bechauf et al., 2025.

Freetown the Treetown is a city-led, community-based reforestation initiative strengthening climate resilience. Freetown loses around 555 hectares, or 500,000 trees, each year as growth expands into steep forested hills. Tree-cover loss increases runoff, flash-flood, and landslide risks, worsens urban heat and air pollution, and weakens coastal protection and water security. The program pays residents to plant, grow, and digitally track trees, combining urban greening, watershed restoration, and mangrove rehabilitation.

Freetown has 1.5 million people. The assessment models 821 hectares restored plus 3,000 hectares planned by 2050, reaching 3,800 hectares and 3.8 million trees, while also testing a 5-million-tree scenario. Planting targets urban neighbourhoods, water supply catchments, the Western Area Peninsula Forest, and coastal mangroves. Co-benefits include water retention, erosion control, biodiversity, carbon storage, cleaner air, cooler neighbourhoods, increased property values, and green jobs for young people and women.

From 2024 to 2050, the 3.8-million-tree scenario produces discounted net benefits of USD 21.68 million and a BCR of 2.14; the 5-million-tree scenario yields USD 26.45 million and a BCR of 2.04. The largest gains are avoided infrastructure damage from floods, landslides, coastal erosion, and sea level rise (USD 17.01 million), followed by employment and income creation (USD 8.23 million), avoided loss of life (USD 5.23 million), avoided carbon emissions (USD 4.51 million), and reduced heat losses (USD 4.21 million).



Key Takeaways

- Each dollar invested generates about USD 2 in discounted societal benefits, with returns increasing as extreme events intensify.
- Avoided infrastructure damage alone is nearly the same value as the project cost, strengthening the case for long-term public investment.
- Community planting, digital tracking, and diversified finance can scale urban reforestation, but durable outcomes require maintenance, local ownership, and safeguards.

6.0

Implications for Planning, Governance, and Financing of NBI





Key Messages

- Governments should place NBI on equal footing with grey infrastructure by comparing options using appraisals that capture ecosystem services, avoided costs, and long-term resilience.
- NBI should be managed as a core infrastructure asset, with clear responsibilities and life-cycle funding for maintenance, monitoring, and adaptive management.
- Scaling depends on institutional capacity, community co-design and stewardship, and financing arrangements that reward verified services and distribute benefits fairly.

6.1 Planning and Governance

Realizing the full potential of NBI requires coordinated action by governments at all levels, and this coordination is critical for creating the enabling conditions to plan, finance, and manage nature as infrastructure at scale.

First, planning, appraisal, and procurement systems need to change. National and subnational governments should require that major infrastructure decisions systematically compare grey, green, and hybrid options, using appraisal methods that capture ecosystem services, avoided damages, and long-term risk reduction. Embedding such requirements in public investment guidelines, public procurement processes, sector strategies, and climate plans (including nationally determined contributions and national adaptation plans) ensures that NBI is considered on equal footing with conventional infrastructure, rather than as an add-on. Project developers should systematically prioritize NBI and strengthen conventional infrastructure design with nature.

Second, budgeting and public finance systems must better reflect how NBI creates value. Many NBI benefits accrue across sectors and over time, while costs are often borne upfront by a single actor. Governments can address this mismatch by reforming budgeting rules to recognize avoided future expenditures, enabling pooled or cross-sector financing, and ensuring that operations and maintenance of natural assets are funded over their full life cycle.

Third, governance arrangements should support long-term performance. NBI delivers lasting benefits when responsibilities for maintenance, monitoring, and adaptive management are clearly assigned and funded. Governments and project developers should therefore integrate NBI into asset management frameworks, multi-year budgets, and regulatory systems, including performance-based contracts that link payments to verified outcomes rather than one-off construction.

Fourth, governments should collaborate closely with the engineering community to collect data on NBI performance. Improving the data availability on infrastructure service delivery and co-benefits will help inform future project designs and governance and funding arrangements.



Finally, scale depends on institutional capacity. Governments and infrastructure developers at all levels need skills and tools to identify suitable NBI opportunities, design high-quality projects, and manage uncertainty. Investing in technical guidance, standardized designs, and accessible valuation tools can lower transaction costs and enable replication across contexts.

6.2 Co-Design and Stewardship of Local Communities

Civil society and community organizations play a decisive role in shaping whether NBI delivers equitable, durable outcomes that meet local needs. Across the NBI projects reviewed, their involvement consistently strengthens both project design quality and the sustainability of results.

Co-designing solutions that reflect local priorities and systems is critical.

Civil society and communities play a central role in co-designing NBI. By engaging early in planning processes, community actors can help push for NBI options that deliver multiple community benefits, such as reduced flood risk, improved public space, or livelihood opportunities, rather than single purpose assets.

Local communities and organizations also contribute place-based knowledge and data on vulnerabilities, livelihoods, and social dynamics that are rarely captured through technical analysis alone. This knowledge is essential for identifying where NBI can outperform conventional grey infrastructure, for avoiding unintended impacts, and for ensuring that projects respond to real community needs. One method that proved particularly helpful throughout the NBI Centre assessments is systems thinking and the development of causal loop diagrams and systems maps. These tools help create a shared understanding between different stakeholders, identify diverse social, economic, and environmental dynamics, and design infrastructure solutions that address root causes rather than symptoms.

Supporting long-term stewardship, management, and local benefits helps with community buy-in.

Long-term performance of NBI depends on community acceptance, understanding, and ongoing stewardship. Awareness of the value of NBI and the services it provides, such as flood protection, cooling, or livelihoods, helps reduce risk from vandalism, deforestation, overgrazing, or pollution.

NBI performs best when communities are actively involved in management and feel a sense of ownership. Local participation in maintenance, monitoring, and adaptive management strengthens accountability and helps ensure that assets continue to function as intended. At the same time, NBI can generate tangible local benefits, including in agriculture, fisheries, tourism, or recreation, and employment in maintenance. Civil society organizations can help



structure stewardship agreements, community-based monitoring systems, and benefit-sharing mechanisms that reinforce local ownership and accountability.

6.3 Financing NBI: Turning nature's services into revenues

Financing NBI requires bridging the gap between the broad value these projects create and the revenues available to pay for their implementation and long-term maintenance.

Across the assessments, many NBI projects generate substantial economic and societal benefits, but much of this value takes the form of avoided costs, reduced risks, and co-benefits that accrue across multiple actors and sectors rather than as direct project revenues. This means that economically attractive projects are not necessarily financially viable. Project developers therefore need to identify who benefits from the services NBI provides, determine which of these beneficiaries can and are willing to pay, and structure financing mechanisms that translate part of this value into predictable cash flows. Depending on the project, this may involve payments for verified outcomes, ecosystem service payments, carbon or biodiversity revenues, public budget allocations, or a combination of several sources.

Public and philanthropic sources of financing from development banks, climate funds, and donors can also play a catalytic role by providing grants for project preparation, concessional loans, guarantees, credit enhancement, or first-loss capital.

These instruments are particularly important because many innovative finance solutions for NBI require some form of public or concessional capital to take risks that private investors cannot absorb on their own. For example, in an outcome-based structure—financing that turns nature's services into revenues—somebody must carry the performance risk that the NBI will deliver the agreed KPIs and receive the outcome payments to repay upfront financing. Public or concessional finance is better placed to absorb this risk. This way, public finance not only funds NBI projects directly, but it can also improve bankability, crowd in additional capital, and help turn NBI into a more mainstream asset class.

The implications described in previous sections can be turned into a roadmap of actions that can take place over the short, medium and long term to make NBI a default infrastructure practice (see Table 3).



Table 3. Recommendations for scaling NBI over the short, medium, and long terms

Short term	• Build capacity among diverse stakeholders for planning, building, and managing high-quality NBI. For instance, empower institutions to identify NBI opportunities, develop CBAs, and design and procure NBI projects. • Select priority sites based on risks, vulnerability, and co-benefits. Identify hotspots where needs are highest. • Work closely with communities and ensure that NBI is equitable, gender responsive, and meets local needs. • Create standardized designs and unit-cost catalogues that reflect the local context. • Budget for maintenance from day one. Establish stewardship contracts with communities. • Structure financing pilots—outcome-based contracts, carbon credit pathways, or payment for ecosystem services tied to verified results.
Medium term	• Scale pilots across locations. • Institutionalize NBI in public budgets, investment pipelines, climate strategies, and land-use regulations. • Operationalize monitoring, evaluation, and learning systems. Publish data on ecosystem services and avoided costs. • Realign subsidies, tariffs, and fees to reward ecological performance. Introduce sustainability-linked loans or tax increment approaches where relevant.
Long term	• Mainstream NBI as an asset class with unique risk-return profiles. • Practice adaptive management with periodic re-evaluation under updated climate scenarios. • Create durable operations models that combine public funding, beneficiary contributions, and performance payments.

Source: Authors.

7.0

Conclusion





This report demonstrates that NBI offers a compelling, evidence-based alternative to conventional infrastructure by delivering multiple services and co-benefits. Drawing on insights from 45 assessments across diverse geographies and asset types, the analysis shows that NBI can achieve strong economic performance, often outperforming traditional options, while simultaneously enhancing resilience, supporting livelihoods, and restoring ecosystems.

At its core, the evidence confirms three overarching messages:

- NBI delivers multiple benefits across sectors.
- Natural systems should be treated as core infrastructure assets.
- The main barriers to scaling are institutional rather than technical.

Despite clear economic and societal value, current planning, budgeting, and financing frameworks often fail to capture distributed benefits, undervalue long-term risk reduction, and limit investment. Addressing these constraints requires reforms in public investment systems to enable private finance, stronger governance arrangements, and methods that fully reflect ecosystem services in decision making.

Looking ahead, scaling NBI will depend on moving from valuation to implementation—embedding NBI in infrastructure planning, strengthening institutional capacity, and developing financing models that translate benefits into revenue streams. This includes leveraging outcome-based finance, blended finance approaches, and improved monitoring systems to build a track record of performance. By aligning policy, finance, and practice, NBI can shift infrastructure systems toward models that recognize nature as a foundational asset that supports climate resilience, sustainable development, and long-term economic value.



References

- Andreasson, E., & Bassi, A. M. (2026). *The role of nature in the development of Geopark Teskei*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/sustainable-asset-valuation-of-nbi-for-ecotourism-and-disaster-risk-reduction-in-kyrgyzstan/>
- Andreasson, E., & Bechauf, R. (2025). *Sustainable asset valuation (SAVi) of mangroves in Vietnam: An economic valuation of mangroves for flood protection and erosion control in the DEEP C industrial zone*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/mangroves-protecting-coastal-areas-in-vietnam/>
- Andreasson, E., Bechauf, R., & Niño, N. (2025). *Sustainable asset valuation of mangroves and wetlands for coastal resilience in Mozambique: An economic valuation of ecosystem-based adaptation in three estuaries*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/sustainable-asset-valuation-of-mangroves-and-wetlands-for-coastal-resilience-in-mozambique/>
- Bassi, A., Bechauf, R., Casier, L., & Cutler, E. (2021). *How can investment in nature close the infrastructure gap? An estimate of how much nature-based infrastructure can save costs and create value relative to traditional grey infrastructure*. International Institute for Sustainable Development. <https://www.iisd.org/publications/investment-in-nature-close-infrastructure-gap>
- Bassi, A., Bechauf, R., Cutler, E., Gouett, M., & Guzzetti, M. (2021). *Sustainable asset valuation (SAVi) of forest restoration in the Brantas River Basin, Indonesia* (NBI report). International Institute for Sustainable Development. <https://nbi.iisd.org/report/savi-forest-restoration-brantas-river-basin-indonesia/>
- Bassi, A., Bechauf, R., Pallaske, G., Perera, O., Statzu, V., & Uzsoki, D. (2020). *An application of the sustainable asset valuation (SAVi) methodology—Assessing the economic value of restoring the wetlands of S'Ena Arrubia and Corru S'Ittiri-Marceddi-San Giovanni in the Gulf of Oristano in Sardinia, Italy*. International Institute for Sustainable Development. <https://nbi.iisd.org/wp-content/uploads/2021/09/savi-sardinia-italy-wetlands-en.pdf>
- Bassi, A. M., Carlucci, E., Kapetanakis, M., & Bechauf, R. (2024). *Canal restoration in Kochi, India*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/canal-restoration-in-kochi-india/>
- Bassi, A., Casier, L., Guzzetti, M., Schlageter, A., & Uzsoki, D. (2021). *Sustainable asset valuation (SAVi) of agroforestry nature-based infrastructure in Wélkenraedt (Belgium)*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/savi-agroforestry-belgium/>
- Bassi, A. M., Casier, L., Pallaske, G., Perera, O., & Bechauf, R. (2020). *Sustainable asset valuation (SAVi) of Senegal's Saloum Delta*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/savi-saloum-delta-senegal/>



- Bassi, A. M., Guzzetti, M., & Niño, N. (2025). *Sustainable asset valuation of the Nature-Based Infrastructure Transformation Program for Kisumu, Kenya*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/agroforestry-reforestation-kisumu-kenya/>
- Bassi, A. M., & Niño, N. (2026). *Sustainable asset valuation of the Recovery of the Bogotá River, Colombia*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/river-and-wetland-restoration-for-flood-control-in-bogota-colombia/>
- Bassi, A. M., Perera, O., Wuennenberg, L., & Pallaske, G. (2018). *Lake Dal in Srinagar, India: Application of the sustainable asset valuation (SAVi) methodology for the analysis of conservation options*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/savi-lake-dal-india/>
- Bechauf, R., Carlucci, E., Guzzetti, M., & Kapetanakis, M. (2025). *Tree planting for climate resilience in Freetown, Sierra Leone*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/tree-planting-in-freetown-sierra-leone/>
- Bechauf, R., Contor, H., & Guzzetti, M. (2024). *Sustainable asset valuation of reforestation in Uganda*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/sustainable-asset-valuation-of-reforestation-in-uganda/>
- Bechauf, R., Cutler, E., Gouett, M., & Guzzetti, M. (2021). *Sustainable asset valuation (SAVi) of Nature-Based Coastal Protection in the Netherlands: An economic valuation of the contribution of the Hondsbossche Dunes sand nourishment to climate adaptation and local development*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/savi-nature-based-coastal-protection-netherlands/>
- Bechauf, R., Guzzetti, M., & Niño, N. (2024). *Sustainable asset valuation of Parques del Río Norte in Medellín, Colombia*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/sustainable-asset-valuation-of-parques-del-rio-norte-in-medellin-colombia/>
- Capitals Coalition. (2021). *Natural capital protocol*. https://naturalcapitalcoalition.org/capitals-approach/natural-capital-protocol/?fwp_filter_tabs=guide_supplement
- Carlucci, E., & Guzzetti, M. (2024). *Sustainable asset valuation (SAVi) of a small-scale tree planting initiative in Côte d'Ivoire*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/tree-planting-in-cote-divoire/>
- Contor, H. (2024a). *Sustainable asset valuation of the benefits of nature-based infrastructure in Kenya*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/nbi-to-combat-water-scarcity-in-kenya/>
- Contor, H. (2024b). *Sustainable asset valuation (SAVi) of nature-based infrastructure in Eswatini*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/agroforestry-in-eswatini/>



- Contor, H. (2025a). *Integrated cost-benefit analysis for nature-based solutions: A handbook for using the sustainable asset valuation methodology*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/integrated-cost-benefit-analysis-for-nature-based-solutions/>
- Contor, H. (2025b). *Unpacking methods for integrated assessments of nature-based solutions: Guideline for the European Investment Bank and public authorities*. International Institute for Sustainable Development. <https://www.iisd.org/publications/report/integrated-assessments-nature-based-solutions>
- Contor, H., & Bechauf, R. (2025). *Sustainable asset valuation of waterway rehabilitation in Cape Town, South Africa*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/waterway-restoration-in-cape-town-south-africa/>
- Contor, H., Bechauf, R., & Guzzetti, M. (2025). *Sustainable asset valuation of nature-based flood mitigation infrastructure in Drakenstein, South Africa*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/river-restoration-in-drakenstein-south-africa/>
- Cutler, E., Gouett, M., & Guzzetti, M. (2022). *Sustainable asset valuation (SAVi) of tree planting in Addis Ababa, Ethiopia*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/savi-tree-planting-addis-ababa-ethiopia/>
- Cutler, E., & Guzzetti, M. (2022a). *Sustainable asset valuation of land restoration in Sodo District, Southern Ethiopia*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/savi-land-restoration-sodo-district-ethiopia/>
- Cutler, E., & Guzzetti, M. (2022b). *Sustainable asset valuation of the Million Trees Initiative, Bhutan*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/savi-million-trees-initiative-bhutan/>
- Daily, G. C. (Ed.). (1997). *Nature's services: Societal dependence on natural ecosystems*. Island Press.
- Damastuti, E., van Wesenbeeck, B. K., Leemans, R., de Groot, R. S., & Silvius, M. J. (2023). Effectiveness of community-based mangrove management for coastal protection: A case study from Central Java, Indonesia. *Ocean & Coastal Management*, 238, Article 106498. <https://doi.org/10.1016/j.ocecoaman.2023.106498>
- Gómez-Baggethun, E., de Groot, R., Lomas, P. L., & Montes, C. (2010). The history of ecosystem services in economic theory and practice: From early notions to markets and payment schemes. *Ecological Economics*, 69(6), 1209–1218. <https://doi.org/10.1016/j.ecolecon.2009.11.007>
- Gray, E., Ozment, S., Altamirano, J.-C., Feltran-Barbieri, R., & Morales, A. G. (2019). *Green-gray assessment: How to assess the costs and benefits of green infrastructure for water supply systems*. World Resources Institute. <https://www.wri.org/research/green-gray-assessment-how-assess-costs-and-benefits-green-infrastructure-water-supply>



- Guzzetti, M., Niño, N., & Bechauf, R. (2024). *Climate-resilient infrastructure for urban flood risk management in San Salvador de Jujuy, Argentina*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/restoring-the-alvarado-canal-in-san-salvador-de-jujuy-argentina/>
- Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. (2019). *Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*. E. Brondizio, S. Diaz, J. Settele, & H. T. Ngo (Eds.). Zenodo. <https://doi.org/10.5281/zenodo.6417333>
- International Union for Conservation of Nature. (2020a). *Guidance for using the IUCN Global standard for nature-based solutions* (1st ed.). <https://portals.iucn.org/library/node/49071>
- International Union for Conservation of Nature. (2020b). *IUCN Global Standard for Nature-based Solutions: A user-friendly framework for the verification, design and scaling up of NbS* (1st ed.). <https://doi.org/10.2305/iucn.ch.2020.08.en>
- Kapetanakis, M. (2025). *A sustainable asset valuation assessment of nature-based solutions in the Dechatu River Catchment in Dire Dawa, Ethiopia*. International Institute for Sustainable Development. <https://www.iisd.org/publications/report/nature-based-solutions-dire-dawa>
- Kapetanakis, M. (2026). *A sustainable asset valuation assessment of nature-based solutions in the Jukskei River Catchment in Johannesburg, South Africa*. International Institute for Sustainable Development. <https://www.iisd.org/publications/report/nature-based-solutions-johannesburg>
- Millennium Ecosystem Assessment (Ed.). (2005). *Ecosystems and human well-being: Synthesis*. Island Press.
- Niño, N., & Guzzetti, M. (2024). *Sustainable asset valuation of the Nutrition Sensitive Agriculture Capacity Strengthening Project in Ethiopia*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/nutrition-sensitive-agriculture-ethiopia/>
- Niño, N., & Guzzetti, M. (2025a). *Hybrid infrastructure for urban flood risk and climate-related hazard management in Sekondi-Takoradi, Ghana*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/nature-based-solutions-for-flood-resilience-in-ghana/>
- Niño, N., & Guzzetti, M. (2025b). *Sustainable asset valuation of coastal wetland restoration in Chile: Improving climate resilience through nature-based infrastructure in the Rocuant–Andalién wetland system*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/wetland-restoration-for-coastal-resilience-in-chile/>
- Niño, N., & Guzzetti, M. (2025c). *Sustainable asset valuation of Sherwan Hill Adventure Park in Abbottabad, Pakistan*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/urban-green-space-pakistan/>
- Oliver, E., & Marsters, L. (2022). *Nature-based solutions in sub-Saharan Africa for climate and water resilience*. World Resources Institute. <https://www.wri.org/research/nature-based-solutions-sub-saharan-africa-climate-and-water-resilience>



- Ozment, S., Gonzalez, M., Schumacher, A., Oliver, E., Morales, A. G., Gartner, T., Zuniga, M. S., Watson, G., & Grünwaldt, A. (2021). *Nature-based solutions in Latin America and the Caribbean: Regional status and priorities for growth*. World Resources Institute. <https://www.wri.org/research/nature-based-solutions-latin-america-and-caribbean-regional-status-and-priorities-growth>
- Pallaske, G., Bechauf, R., Carlucci, E., & Guzzetti, M. (2024). *Sustainable asset valuation of ecosystem-based adaptation measures in the Reventazón River Basin, Costa Rica*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/ecosystem-based-adaptation-in-the-reventazon-river-basin-costa-rica/>
- Pallaske, G., & Carlucci, E. (2023). *Analyzing the systemic impacts of forest landscape restoration: The case of Viridis Terra in Peru*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/savi-peru-forest-restoration-viridis-terra/>
- Pallaske, G., Guzzetti, M., & Carlucci, E. (2023). *Restoring wetland ecosystems in La Mojana, Colombia*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/restoring-wetland-ecosystems-la-mojana-colombia/>
- Seddon, N., Chausson, A., Berry, P., Girardin, C. A. J., Smith, A., & Turner, B. (2020). Understanding the value and limits of nature-based solutions to climate change and other global challenges. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 375(1794), Article 20190120. <https://doi.org/10.1098/rstb.2019.0120>
- United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. <https://sdgs.un.org/2030agenda>
- United Nations Environment Programme. (2026). *State of finance for nature 2026: Nature in the Red—Powering the trillion dollar nature transition economy*. <https://wedocs.unep.org/items/a4a8edaa-3896-4811-b527-1583dfce7201>
- United Nations Framework Convention on Climate Change. (2015). *Paris agreement*.
- Van Zanten, B., Gutierrez Goizueta, G., Brander, L. M., Gonzalez Reguero, B., Griffin, R., Macleod, K. K., Alves Beloqui, Midgley, A., Herrera Garcia, L. D., & Jongman, B. (2023). *Assessing the benefits and costs of nature-based solutions for climate resilience: A guideline for project developers*. World Bank. <https://openknowledge.worldbank.org/handle/10986/39811>
- World Bank. (2024). *The nature-based solutions opportunity scan: Leveraging earth observation data to identify investment opportunities in NBS for climate resilience in cities and coasts across the world*. <https://hdl.handle.net/10986/41725>
- World Meteorological Organization. (2025). *State of the global climate 2024*. <https://library.wmo.int/records/item/69455-state-of-the-global-climate-2024>
- Wuennenberg, L., Bassi, A. M., & Pallaske, G. (2021). *Sustainable asset valuation (SAVi) of stormwater infrastructure solutions in Johannesburg, South Africa*. International Institute for Sustainable Development. <https://nbi.iisd.org/report/savi-stormwater-infrastructure-south-africa/>



List of Assessments

#	Country	NBI Type	Title	Link to Report
1	Indonesia	Forest	Forest Restoration in the Brantas River Basin, Indonesia	https://nbi.iisd.org/report/savi-forest-restoration-brantas-river-basin-indonesia/
2	Belgium	Forest	Agroforestry, Belgium	https://nbi.iisd.org/report/savi-agroforestry-belgium/
3	Senegal	Wetlands	Wetlands and Mangroves in the Saloum Delta, Senegal	https://nbi.iisd.org/report/savi-saloum-delta-senegal/
4	India	Wetlands	Wastewater Infrastructure in Lake Dal, India	https://nbi.iisd.org/report/savi-lake-dal-india/
5	Italy	Wetlands	Wetland Restoration, Italy	https://nbi.iisd.org/report/savi-wetlands-italy/
6	South Africa	Urban	Paterson's Park Building Infrastructure: City of Johannesburg	https://www.iisd.org/publications/savi-paterson-park-building-infrastructure-johannesburg
7	South Africa	Urban	Stormwater Infrastructure in Johannesburg, South Africa	https://nbi.iisd.org/report/savi-stormwater-infrastructure-south-africa/
8	Canada	Wetlands	Wetland and Water Management, Canada	https://nbi.iisd.org/report/savi-pellys-lake-and-stephenfield-reservoir-canada/
9	South Africa	Urban	Green Roofs and Trees in Tshwane, South Africa	https://nbi.iisd.org/report/investing-in-nature-based-infrastructure/
10	Netherlands	Coastal	Nature-Based Coastal Protection in the Netherlands	https://nbi.iisd.org/report/savi-nature-based-coastal-protection-netherlands/
11	Ethiopia	Forest	Tree Planting in Addis Ababa, Ethiopia	https://nbi.iisd.org/report/savi-tree-planting-addis-ababa-ethiopia/



#	Country	NBI Type	Title	Link to Report
12	Indonesia	Wetlands	Restoration of Peatlands and Mangroves, Indonesia	https://nbi.iisd.org/report/savi-katingan-peatlands-and-belitung-mangroves-indonesia/
13	Bhutan	Forest	The Million Trees Initiative, Bhutan	https://nbi.iisd.org/report/savi-million-trees-initiative-bhutan/
14	Ethiopia	Forest	Land Restoration in Sodo District, Ethiopia	https://nbi.iisd.org/report/savi-land-restoration-sodo-district-ethiopia/
15	Colombia	Wetlands	Mangrove Restoration in the Mallorquín Swamp, Colombia	https://nbi.iisd.org/report/savi-restoring-mallorquin-swamp-colombia/
16	Colombia	Wetlands	Wetland Ecosystem Restoration in La Mojana, Colombia	https://nbi.iisd.org/report/restoring-wetland-ecosystems-la-mojana-colombia/
17	Greece	Wetlands	River Restoration in Thessaly, Greece	https://nbi.iisd.org/report/savi-river-restoration-in-greece/
18	Peru	Forest	Forest Landscape Restoration in Peru	https://nbi.iisd.org/report/savi-peru-forest-restoration-viridis-terra/
19	Colombia	Urban	Urban Green Space in Medellín, Colombia	https://nbi.iisd.org/report/sustainable-asset-valuation-of-parques-del-rio-norte-in-medellin-colombia/
20	Burkina Faso	Forest	Land Restoration and Climate-Smart Agriculture in Burkina Faso	https://nbi.iisd.org/report/sustainable-asset-valuation-of-land-restoration-and-climate-smart-agriculture-in-burkina-faso/
21	Uganda	Forest	Reforestation in Kasese, Uganda	https://nbi.iisd.org/report/sustainable-asset-valuation-of-reforestation-in-uganda/
22	Costa Rica	Forest	Ecosystem-Based Adaptation in the Reventazón River Basin, Costa Rica	https://nbi.iisd.org/report/ecosystem-based-adaptation-in-the-reventazon-river-basin-costa-rica/



#	Country	NBI Type	Title	Link to Report
23	India	Urban	Canal Restoration in Kochi, India	https://nbi.iisd.org/report/canal-restoration-in-kochi-india/
24	Argentina	Urban	Restoring the Alvarado Canal in San Salvador de Jujuy, Argentina	https://nbi.iisd.org/report/restoring-the-alvarado-canal-in-san-salvador-de-jujuy-argentina/
25	Ghana	Forest	Climate-Resilient Landscapes in Ghana	https://nbi.iisd.org/report/climate-resilient-landscapes-in-ghana/
26	Sierra Leone	Urban	Tree planting for Climate Resilience in Freetown, Sierra Leone	https://nbi.iisd.org/report/tree-planting-in-freetown-sierra-leone/
27	Kenya	Forest	NBI to Combat Water Scarcity in Kenya	https://nbi.iisd.org/report/nbi-to-combat-water-scarcity-in-kenya/
28	Eswatini	Forest	Agroforestry in Eswatini	https://nbi.iisd.org/report/agroforestry-in-eswatini/
29	Madagascar	Aquaculture	Aquaculture in Madagascar	https://nbi.iisd.org/report/aquaculture-in-madagascar/
30	South Africa	Wetlands	River Restoration in Drakenstein, South Africa	https://nbi.iisd.org/report/river-restoration-in-drakenstein-south-africa/
31	Ivory Coast	Forest	Tree planting in Côte d'Ivoire	https://nbi.iisd.org/report/tree-planting-in-cote-divoire/
32	Pakistan	Urban	Urban Green Space in Abbottabad, Pakistan	https://nbi.iisd.org/report/urban-green-space-pakistan/
33	Ethiopia	Forest	Sustainable Asset Valuation of the Nutrition Sensitive Agriculture Capacity Strengthening Project in Ethiopia	https://nbi.iisd.org/report/nutrition-sensitive-agriculture-ethiopia/
34	Ghana	Urban	Nature-Based Infrastructure for Flood Resilience in Ghana	https://nbi.iisd.org/report/nature-based-solutions-for-flood-resilience-in-ghana/



#	Country	NBI Type	Title	Link to Report
35	Chile	Coastal	Sustainable Asset Valuation of Coastal Wetland Restoration in Chile	https://nbi.iisd.org/report/wetland-restoration-for-coastal-resilience-in-chile/
36	Vietnam	Coastal	Sustainable Asset Valuation (SAVi) of Mangroves in Vietnam	https://nbi.iisd.org/report/mangroves-protecting-coastal-areas-in-vietnam/
37	South Africa	Urban	Waterway Rehabilitation in Cape Town, South Africa	https://nbi.iisd.org/report/waterway-restoration-in-cape-town-south-africa/
38	Kenya	Forest	Agroforestry and Reforestation in Kisumu, Kenya	https://nbi.iisd.org/report/agroforestry-reforestation-kisumu-kenya/
39	Mozambique	Wetlands	Sustainable Asset Valuation of Mangroves and Wetlands for Coastal Resilience in Mozambique	https://nbi.iisd.org/report/sustainable-asset-valuation-of-mangroves-and-wetlands-for-coastal-resilience-in-mozambique/
40	Colombia	Urban	River and Wetland Restoration for Flood Control in Bogotá, Colombia	https://nbi.iisd.org/report/river-and-wetland-restoration-for-flood-control-in-bogota-colombia/
41	Colombia	Forest	Nature-Based Infrastructure for Artisanal and Small-Scale Mining Closure in Marmato, Colombia	https://nbi.iisd.org/report/nature-based-infrastructure-for-artisanal-and-small-scale-mining-closure-in-marmato-colombia/
42	Kyrgyzstan	Forest	Sustainable Asset Valuation of NBI for Ecotourism and Disaster Risk Reduction in Kyrgyzstan	https://nbi.iisd.org/report/sustainable-asset-valuation-of-nbi-for-ecotourism-and-disaster-risk-reduction-in-kyrgyzstan/



#	Country	NBI Type	Title	Link to Report
43	South Africa	Urban	A Sustainable Asset Valuation Assessment of Nature-Based Solutions in the Jukskei River Catchment in Johannesburg, South Africa	https://www.iisd.org/publications/report/nature-based-solutions-johannesburg
44	Rwanda	Forest	A Sustainable Asset Valuation Assessment of Nature-Based Solutions in Kigali, Rwanda	https://www.iisd.org/publications/report/nature-based-solutions-kigali
45	Ethiopia	Forest	A Sustainable Asset Valuation Assessment of Nature-Based Solutions in the Dechatu River Catchment in Dire Dawa, Ethiopia	https://www.iisd.org/publications/report/nature-based-solutions-dire-dawa



NATURE-BASED INFRASTRUCTURE
GLOBAL RESOURCE CENTRE