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EVALUATION OF THE GEF SUPPORT FOR NATURE-BASED SOLUTIONS

(Prepared by the Independent Evaluation Office)

List of acronyms

ABS	access and benefit-sharing
CBA	community-based adaptation
CBD	Convention on Biological Diversity
CMP	Conservation Measures Partnership
COP	Conference of the Parties
CPF	Collaborative Partnership on Forests
DAC	Development Assistance Committee
DRR	disaster risk reduction
EbA	ecosystem-based adaptation
EbM	ecosystem-based mitigation
FAO	Food and Agriculture Organization of the United Nations
FEBA	Friends of Ecosystem-based Adaptation
FSP	full-size project
GBFF	Global Biodiversity Framework Fund
GEB	global environmental benefits
GEF	Global Environmental Facility
IAP	integrated approach pilot
ICM	integrated coastal management
IEO	Independent Evaluation Office
ILM	integrated land management
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
IPLC	Indigenous Peoples and local communities
IUCN	International Union for Conservation of Nature
IWRM	Integrated Water Resources Management
KII	key informant interview
KMGBF	Kunming-Montreal Global Biodiversity Framework
LDCF	Least Developed Countries Fund
LDCs	least developed countries
LDN	land degradation neutrality
LULUCF	land use, land-use change and forestry
M&E	monitoring and evaluation
MDB	Multilateral Development Bank
MEAs	Multilateral Environmental Agreements
MFA	multifocal area
MPA	marine protected area
MSP	medium-size project

MTR	midterm review
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NbS	nature-based solutions
NBSAP	National Biodiversity Strategy and Action Plan
NDCs	Nationally Determined Contributions
NGI	non-grant instrument
OECD	Organization for Economic Co-operation and Development
OPS	Overall Performance Study
PEDDR	Partnership for Environment and Disaster Risk Reduction
PES	payment for ecosystem services
PFD	program framework document
R2R	Ridge to Reef
SCCE	Strategic Country Cluster Evaluation
SCCF	Special Climate Change Fund
SDGs	Sustainable Development Goals
SFM	sustainable forest management
SGP	Small Grants Programme
SIDS	Small Island Developing States
SLM	sustainable land management
STAP	Scientific and Technical Advisory Panel
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEA	United Nations Environment Assembly
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
VFM	value for money

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QUICK SCAN

1. This is the first evaluation of GEF's support for Nature-based Solutions (NbS) across its portfolio, conducted by the GEF Independent Evaluation Office (IEO) to generate actionable lessons for future programming. The evaluation assessed the relevance, effectiveness, coherence, impacts, and sustainability of NbS interventions to determine how well GEF investments align with strategic environmental objectives and deliver lasting benefits.

2. NbS play a pivotal role in advancing global environmental and development agendas by simultaneously addressing climate mitigation, biodiversity conservation, and human wellbeing. The global discourse on NbS reflects diverse definitions with varying emphases on restoration, mitigation, and socio-economic co-benefits. By leveraging the intrinsic functions of ecosystems, NbS have the potential to deliver cost-efficient co-benefits such as greenhouse-gas reductions, enhanced resilience to extreme weather, and improved food and water security. Anchored in international commitments like the Paris Agreement and the Kunming-Montreal Global Biodiversity Framework, NbS promote intersectoral synergies and drive progress toward multiple SDGs. As a scalable strategy endorsed by multilateral finance and policy mechanisms, NbS provide a foundational framework for resilient, nature-positive development.

3. Nature-based solutions are integral to the GEF's mission of delivering global environmental benefits through synergistic, multi-objective investments. By embedding NbS across biodiversity, climate change, land degradation, and chemicals and waste focal areas, the GEF leverages ecosystem restoration and sustainable management interventions to generate measurable co-benefits, ranging from carbon sequestration and habitat connectivity to livelihood enhancement and resilience building. NbS approaches are closely aligned with the GEF's mandate and guidance under successive replenishments, offering cost-effective pathways to advance multilateral environmental agreements.

KEY FINDINGS AND CONCLUSIONS

Portfolio

4. In the absence of formal classification, the NbS portfolio was identified through a three-layered screening and scoring process. The GEF lacks a formal NbS project tagging or operational definition. Therefore, a tailored three-layered screening and scoring process was implemented using internationally agreed criteria, resulting in the identification of 933 NbS-aligned projects between GEF5 and GEF 8.

5. GEF-supported NbS interventions span a broad spectrum of approaches, with many projects integrating multiple types rather than focusing on a single category. The most prevalent are ecosystem-based management approaches, such as integrated watershed, forest,

coastal zone, and landscape management, which often combine area-based conservation with active restoration (e.g., reforestation, soil rehabilitation). In addition, GEF projects advance agriculture-focused NbS (including climate-smart agriculture, agroforestry, and conservation agriculture), ecosystem-based climate and disaster-risk–reduction strategies (such as EbA, eco-DRR, and natural climate solutions), and nature-infrastructure hybrids (green or blue infrastructure and mixed green–grey systems) to strengthen resilience and deliver co-benefits for biodiversity and local livelihoods.

Relevance

6. The GEF's NbS portfolio is strategically aligned with its mandate and multilateral environmental agreements, yet it remains underutilized within the broader project pipeline. Building on a diverse mix of interventions, ranging from capacity building and policy support to ecosystem restoration and green infrastructure, the NbS portfolio effectively advances multiple MEA objectives and addresses interconnected environmental and development challenges at scale. However, NbS projects account for only about 30 percent of the total GEF portfolio, and the absence of a clear operational definition and systematic tagging limits strategic coherence and hinders comprehensive relevance assessments. systematic classification limits strategic coherence and hinders comprehensive relevance assessments.

7. While NbS principles align closely with GEF and national priorities, questions remain around their comparative cost-effectiveness. The integrative nature of NbS—fostering synergies among biodiversity, climate, land-use, and community resilience goals—strongly supports GEF objectives and partner countries' strategies. However, some stakeholders remain skeptical about whether NbS deliver outcomes more cost-effectively than conventional approaches, underscoring the need for more substantial evidence on their economic viability and co-benefits.

Effectiveness

8. GEF's NbS-aligned projects perform comparably to the broader portfolio in delivering planned environmental outputs but face greater challenges in achieving long-term sustainability. On average, 80 percent of NbS interventions met or exceeded their core targets--such as area under improved management, hectares restored, and species protected-- compared to 78 percent across all GEF projects. However, only 62 percent of NbS projects received "likely" or "highly likely" ratings for sustainability, versus 68 percent for non-NbS projects. These lower sustainability scores reflect hurdles in securing follow-on financing, institutionalizing adaptive management, and embedding local governance structures. Success was more likely when projects featured strong stakeholder co-management and clear financing pathways, underscoring the importance of robust benefit-sharing mechanisms and policy alignment for lasting NbS outcomes.

9. The inclusion of diverse stakeholders in NbS projects has strengthened under recent GEF policies and GBFF's 20 percent IPLC resource allocation. The GEF's Gender Equality Policy (2017) and guidance (2018) further underpin gender-responsive design. Nevertheless, managing complex multistakeholder processes, mainstreaming gender effectively, and ensuring meaningful IPLC participation remain significant challenges.

10. GEF-supported innovative finance initiatives show promise, but scaling and demonstrating long-term viability remain challenging. GEF-funded pilots in blended finance, bonds, and nature-based impact programs have achieved higher co-financing ratios but are difficult to scale across the broader portfolio. Practical challenges such as forming effective private-sector partnerships, aligning project goals with financial timelines, and ensuring long-term sustainability persist. While initial pilot successes are encouraging, they have not yet translated into broad economic sustainability for NbS interventions. Private investors' preference for quicker returns often clashes with longer term payoff of NbS, complicating efforts to attract capital and secure sustained engagement.

Coherence

11. Policy and institutional coherence are critical enablers of NbS success, but are often lacking across the portfolio. Projects that proactively align with national and subnational policies, establish cross-sectoral coordination mechanisms, and adapt to evolving policy priorities tend to achieve stronger government ownership and results. In contrast, inconsistent policy alignment, fragmented mandates, legal overlaps, and political or administrative disruptions often undermine coherence, particularly in low-capacity contexts where environmental agencies have limited influence over broader development planning. Bridging domestic institutional divides and harmonizing international financing frameworks are essential to overcome these barriers.

Impact and Sustainability

12. The GEF partnership has catalyzed promising examples of transformational change through NbS, but widespread systemic shifts remain constrained by capacity and financing gaps. While several projects demonstrate emerging transformational impacts, such as integrating NbS into national plans, piloting innovations, and leveraging blended finance, many struggle to achieve deep, sustained change. Persistent constraints include limited technical and managerial capacity among agencies and communities, unclear scaling-up strategies, and uncertainty around long-term funding. Where broader adoption has succeeded, it has been driven by adaptive management, multistakeholder platforms, and well-defined financing pathways; where it has stalled, economic sustainability and institutional silos remain key obstacles.

RECOMMENDATIONS

(a) **Recommendation 1**: **Develop NbS-specific guidance for integration, tracking, and adaptive management.** Institutional and systemic gaps in knowledge and learning continue to limit the GEF's ability to drive transformational outcomes through NbS. To address this, the GEF should build on its extensive experience by developing clear and concise guidance that includes potential entry points for effective NbS integration across the GEF, a specific theory of change on NbS, guidance on NbS terms and approaches, and indicators. These should align with internationally accepted criteria and be fully embedded within GEF programming. Doing so would enable more consistent and strategic integration of NbS into program and project design, enhance coherence, improve outcome tracking, and support adaptive management, especially in addressing trade-offs, reinforcing governance processes, and enabling long-term impact.

(b) **Recommendation 2**: **Scale private sector engagement through blended finance for NbS.** Blended finance offers significant potential to catalyze private sector engagement in NbS, but unlocking this potential requires a more strategic and targeted approach. Future efforts should prioritize building strong partnerships, aligning objectives with private sector interests, and ensuring both short-term financial viability and long-term integration of outcomes. It is also critical to address gaps in return expectations and establish clear, accessible engagement pathways. By leveraging instruments such as multilateral development banks and strategically aligning with the objectives of the KMGBF, the SCCF, and the LDCF, the GEF can enhance the scale, impact, and sustainability of private sector participation in NbS.

(c) **Recommendation 3: Support countries in implementing NbS through inclusive capacity-building efforts, with a strong emphasis on fostering policy coherence**. The GEF, in collaboration with agencies and partner governments, should strengthen capacity development for national and local stakeholders, focusing on enhancing multi-stakeholder platforms, promoting gender-responsive approaches, and improving the engagement and governance roles of IPLCs. Building institutional capacity and readiness, including strengthening cross-sectoral coordination and alignment with national priorities, is essential for managing the complexity of NbS, achieving policy coherence, and sustaining outcomes over the long term.

(d) **Recommendation 4: Strengthen the evidence base on cost-effectiveness and co-benefits of NbS approaches, including by enhancing the integration of Indigenous and local knowledge systems.** While NbS have the potential to deliver multiple environmental and socio-economic benefits, systematic evidence, particularly robust

cost-benefit analyses, remains limited across the GEF portfolio. Additionally, the valuable contributions of Indigenous and local knowledge systems to the effectiveness, relevance, and sustainability of NbS are not adequately recognized or integrated. These knowledge systems offer critical contextual insights that can enhance targeting, implementation, and community ownership of NbS interventions. Currently, there is no systematic mechanism within the GEF to document or incorporate such knowledge into project design, monitoring, or evaluation frameworks. These two gaps, limited economic evidence and insufficient integration of Indigenous knowledge, constrain the ability to make informed, context-sensitive, and cost-effective investment decisions and to scale transformative NbS approaches. To address this, a combined approach that integrates scientific evidence with Indigenous and local knowledge is strongly recommended.

INTRODUCTION

1.1 PURPOSE OF THE EVALUATION

1. Nature-based solutions (NbS)[1] represent an overarching concept that provides approaches to simultaneously tackle the interconnected challenges of biodiversity loss and climate change while offering social and economic co-benefits (table 1). These integrated and cross-cutting elements of NbS align with the Global Environment Facility's (GEF) mandate to address multiple environmental issues and deliver global environmental benefits (GEBs). They enable a more systematic approach to implementing low-regret solutions and minimizing trade-offs through enhanced synergies. NbS interventions have the potential to contribute to GEF performance across multiple dimensions, including biodiversity conservation, climate change adaptation and mitigation, human well-being, and synergy building across sectors, policies, and practices.

2. **Despite the critical role of NbS in delivering significant GEBs and enhancing resilience, the approach still faces several interconnected challenges. Key challenges identified in the literature[2] include:**

(a) **Governance and policy challenges:** Lack of policy coherence and integration, institutional fragmentation and silos, path dependency and resistance to innovation, and lack of standardized frameworks and ambiguity in definitions.

(b) **Financial and economic challenges:** Funding gaps and limited investment, including from the private sector; difficulties in valuing economic benefits; lack of successful business models that can be scaled up; high upfront costs; and long-term returns.

(c) **Technical and implementation challenges:** Obstacles concerning knowledge gaps, lack of expertise and capacity, performance uncertainties, site-specific factors, and integration with existing systems.

(d) **Social and cultural challenges**: Lack of public awareness and understanding, challenges in stakeholder engagement and participation, equity concerns and potential for social inequity, as well as challenges with cultural values and perceptions.

[1] A single, universally agreed-upon definition of "nature-based solutions" (NbS) does not exist. NbS covers various approaches to working with nature, such as ecosystem-based adaptation (EbA), ecosystem-based disaster risk reduction (eco-DRR), and ecosystem-based mitigation (EbM) (PEDRR and FEBA 2020). It addresses a range of significant social, economic, and environmental challenges, including climate change, land degradation, food security, water availability, urban development, poverty, unemployment, and biodiversity loss (UNEP 2022).

[2] Seddon et al. 2020; Nelson et al. 2020, Ferreira 2023, Edet 2024.

(e) **Monitoring and evaluation (M&E) challenges:** Difficulties in measuring effectiveness, impact, and trade-offs; lack of baseline data and long-term monitoring; and attribution challenges.

3. This evaluation assesses the GEF's support for NbS in addressing environmental and societal challenges to provide insights and lessons for future NbS-related interventions. This is the first independent and comprehensive evaluation of GEF support for NbS conducted by the GEF Independent Evaluation Office (IEO).

4. Drawing on a portfolio of over 900 projects, this evaluation assesses the relevance, effectiveness, coherence, impact, and sustainability of the GEF's NbS approach and portfolio. It examines how nature-based solutions contribute to achieving GEF objectives, including the delivery of GEBs and associated societal co-benefits. The evaluation also synthesizes the role of NbS as integrators of environmental and socioeconomic outcomes, with particular attention to their contribution to transformational change through innovation and scaling.

5. The remainder of this chapter introduces the global importance of NbS and its integration into the GEF, including an overview of the current GEF NbS portfolio. Chapter 2 describes the evaluation design, Chapter 3 presents the findings, Chapter 4 summarizes the key findings and conclusions, and Chapter 5 offers recommendations.

Box 1: Comparison of key definitions of nature-based solutions

Organization	Core definition	Key emphases/Unique aspects
IUCN (International Union for Conservation of Nature)	Actions to protect, sustainably manage, and restore natural or modified ecosystems, which address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits (IUCN 2016a).	Pioneer in the concept; developed the Global Standard; emphasizes nature conservation norms, site-specific contexts, equitable benefits, and landscape-scale application.
European Union/European Commission (EU/EC)	Solutions that are inspired and supported by nature, which are cost effective, simultaneously provide environmental, social and economic benefits, and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes, and seascapes (European Commission 2021).	Includes nature-inspired solutions; explicitly emphasizes cost-effectiveness and the provision of environmental, social, and economic benefits; focuses on building resilience and fostering innovation.
UN Environment Assembly (UNEA)	Actions to protect, conserve, restore, sustainably use, and manage natural or modified terrestrial, freshwater, coastal, and marine ecosystems that address social, economic, and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience, and biodiversity benefits (UNEP 2022b).	Globally agreed definition by UN member states; broad scope across terrestrial, freshwater, coastal, and marine ecosystems; explicitly mentions ecosystem services and resilience; calls for social and environmental safeguards.

1.2 CONTEXT: THE GLOBAL IMPORTANCE OF NBS

6. **Nature-based solutions are increasingly integrated into Multilateral Environmental Agreements (MEAs)**. The rationale for conducting this evaluation stems from the increasing global importance of NbS. Several United Nations conventions and scientific bodies recognize the importance of NbS in addressing climate change, biodiversity loss, and human well-being. For instance, (1) Target 8 and Target 11 of the Kunming-Montreal Global Biodiversity Framework (KMGBF) explicitly mention NbS to address societal challenges and benefit human well-being and biodiversity; also relevant to target 2 (restoration) (2) the United Nations Framework Convention on Climate Change (UNFCCC) recognizes the importance of NbS in addressing climate change, biodiversity loss, and food security, all critical issues; (3) Article 5 of the Paris Agreement calls for conserving and enhancing sinks and reservoirs of greenhouse gases, which can be achieved using NbS; and (4) the United Nations Convention to Combat Desertification (UNCCD) also recognizes the importance of NbS in combating desertification and land degradation through sustainable land management (SLM) and ecosystem-based approaches. Additionally, global assessment reports from the Intergovernmental Panel on Climate Change (IPCC) and Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) have also highlighted the importance of NbS.

7. The increasing importance of NbS is also illustrated by (1) the adoption of a definition of NbS by the UN, (2) the inclusion of NbS in the UNFCCC, (3) the inclusion of NbS as one of 11 public finance priorities by the 26th Conference of the Parties (COP26) to the UNFCCC in Glasgow Presidency, (4) over 80 percent of new Nationally Determined Contributions (NDCs) submitted in 2021 included ecosystem protection and restoration, with 41 percent explicitly mentioning NbS (UNEP and IUCN 2021; Terton et al. 2022; GEF IEO 2023a; annex 7 of this report), and (5) Recognition of NbS as key to synergizing climate and biodiversity goals while delivering social and health co-benefits (G20 IHLEG, 2024).

8. **Despite their growing importance, global funding for NbS remains limited, and the existing evidence base on their effectiveness and benefits is still emerging (Climate Policy Initiative 2020, GEF IEO 2023).** As a result, the most scalable and transformative approaches have yet to be fully identified or deemed bankable. Evaluating the GEF's support for NbS is therefore critical to ensuring the effectiveness, sustainability, and scalability of these interventions in addressing both environmental and socioeconomic challenges. Moreover, the evaluation will yield valuable insights into best practices, highlight implementation challenges, and inform adaptive management strategies.

1.3 NbS in the GEF context

9. **The integration of NbS within the GEF has evolved significantly over time (table 1).** While NbS-aligned approaches existed earlier, GEF-5 (2010–14) marked a shift toward structured investments in NbS-related approaches, such as ecosystem-based adaptation (EbA) and sustainable forest management (SFM), which were incorporated into biodiversity, climate, land, and water projects, guided by frameworks like the Convention on Biological Diversity (CBD) and the Collaborative Partnership on Forests (CPF). Moving into GEF-6 (2014–18), while NbS was still not explicitly highlighted, nature-based approaches were referenced, and integrated approach pilots (IAPs) were introduced alongside investments in climate resilience strategies, such as EbA and community-based adaptation (CBA). Guidance from IUCN and think tanks helped strengthen the focus on co-benefits. By GEF-7 (2018–22), NbS principles were more deliberately integrated, with explicit mentions such as green infrastructure in the Sustainable Cities Impact Program. The GEF-8 programming strategy actively promotes the adoption and implementation of NbS across various focal areas and integrated programs (GEF Report to UNFCCC COP29), and NbS is specifically highlighted as a priority within the GEF-8 strategy for blended finance initiatives.

Table 1: The evolving role and increasing prominence of NbS within the GEF since GEF-5

Explicit focus on NbS	NbS-aligned approaches and concepts	Key initiatives and programs	Guidance and knowledge sources	Progression toward NbS

GEF-5 (2010–14)				
No explicit focus	Approaches included CBA, EbA, ICM, ILM, IWRM, SFM, and SLM.	Focal areas and multifocal area projects on biodiversity, climate change, international waters, and land degradation.	CBD's definition of EbA, CPF guidance on SFM, and the GEF's endorsement of the programmatic approach.	Integration of NbS-aligned approaches within the GEF's broader environmental objectives.
GEF-6 (2014–18)				
No explicit focus, but referred to nature-based approaches	Continued use of approaches from GEF-5.	Introduction of three IAP programs, continued MFA projects, investments by LDCF and SCCF in CBA and EbA for climate resilience.	STAP's advice on the GEF's mission emphasizing importance of co-benefits, IUCN NbS operational definition and principles, guidance from GEF agencies and think tanks for IAPs.	Increased and wider integration of NbS-aligned approaches through IAPs.
GEF-7 (2018–22)				
Core NbS principles increasingly integrated	Continued use of NbS-aligned approaches, with specific mention of green infrastructure in the Sustainable Cities Impact Program.	Introduction of impact programs building on IAPs, launch of Challenge Program for Adaptation Innovation by SCCF and LDCF that engaged the private sector in NbS for adaptation.	IUCN definition, principles, standards, and criteria; STAP guidance on integrating NbS in strategies and programs, broader adoption, and transformational change.	Explicit integration of NbS in program design, with increased emphasis on private sector and marginalized groups' engagement.
GEF-8 (2022–26)				
Core NbS principles increasingly integrated	Focus on using NbS within the Healthy Planet, Healthy People framework.	11 integrated programs succeeded impact programs. NbS is evident in nine of the 11 GEF-8 integrated programs.	GEF IEO evaluation on integrated approaches recognizes a greater emphasis on NbS. Political buy-in of the UNEA definition of NbS, aligned to the IUCN definition.	NbS is a clear and evident component of the GEF-8 Integrated Programs. NbS key for blended finance initiatives.

Source: GEF IEO

10. The GEF is aligning its approach to NbS with the more recent definition adopted by the United Nations Environment Assembly (UNEA), which is "activities focused on the protection, preservation, restoration, sustainability and utilization, and governance of natural or altered terrestrial, freshwater, coastal, and marine ecosystems. The main intended benefits revolve around addressing social, economic, and environmental challenges in a flexible and effective manner, while simultaneously enhancing human well-being, ecosystem services, resilience, and biodiversity benefits" (Nature-based Solutions Initiative 2022).

11. The GEF's conceptualization of NbS is grounded in the IUCN definition, which serves as a key reference point for its strategic and operational framework, which states "actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits" (IUCN 2016). This concept encompasses the IUCN-developed (1) principles to explain what NbS are, (2) criteria to inform the design and implementation of NbS interventions, and (3) standards to inform the design, verification, and scaling of NbS (IUCN 2020, IUCN 2016). These NbS principles facilitate the operationalization of NbS.

12. **The GEF has employed NbS-aligned approaches to generate multiple benefits by recognizing them as both GEBs, such as ecosystem goods and services with global significance, including nutrient cycling and climate regulation, and local benefits that support these outcomes, such as food security and access to sustainable energy.**

13. In 2020, building on the GEF's accumulated knowledge and experience, the Scientific and Technical Advisory Panel (STAP) offered an updated interpretation of what constitutes NbS-aligned activities: "a variety of other approaches to biodiversity and nature conservation, notably ecological restoration, ecological engineering, forest landscape restoration, ecosystem-based adaptation, ecosystem-based mitigation, climate adaptation services, ecosystem-based disaster risk reduction, natural infrastructure, green infrastructure, ecosystem-based management, and area-based conservation" (GEF STAP 2020, p. 3).

14. In the absence of a GEF-specific NbS definition, this evaluation draws on the established definitions and standards provided by the IUCN and UNEA. It applies the IUCN NbS criteria to assess how the GEF has operationalized NbS and NbS-aligned approaches in the design and implementation of its strategies, programs, and projects. The IUCN NbS criteria (IUCN 2020) are as follows:

(1) NbS effectively address societal challenges.

(2) Design of NbS is informed by scale.

(3) NbS result in a net gain to biodiversity and ecosystem integrity.

(4) NbS are economically viable.

(5) NbS are based on inclusive, transparent, and empowering governance processes.

(6) NbS equitably balance trade-offs between achievement of their primary goal(s) and the continued provision of multiple benefits.

(7) NbS are managed adaptively, based on evidence.

(8) NbS are sustainable and mainstreamed within an appropriate jurisdictional context.

1.4 THE GEF NBS-ALIGNED PORTFOLIO

15. The difficulty in identifying NbS-related projects within the GEF portfolio stems from two key issues: (1) the lack of a consistent internal operational definition for NbS, despite referencing the IUCN and United Nations Environment Programme (UNEP) definitions, and (2) the absence of specific project tagging. Therefore, this evaluation developed a project database using a multilayered screening and scoring methodology informed by the IUCN NbS criteria (section 2.3.1 and annex 4). This database, hereafter referred to as "NbS-aligned projects," was used for a portfolio analysis of the GEF's NbS interventions to date. Projects were identified as NbS-aligned based on three broad criteria: contribution to biodiversity, contribution to climate change adaptation and mitigation, and contribution to societal challenges.

16. The GEF NbS portfolio comprises 933 NbS-aligned projects[3] approved from GEF-5 through GEF-8 (map 1)**. These projects span various stages of the project cycle.**

(a) 328 projects (25 percent) have completed implementation. Of these, 263 have submitted a terminal evaluation on the GEF Portal, and 256 (97 percent) of those terminal evaluations have been validated by the IEO.

(b) 546 projects (68 percent) are currently under implementation.

(c) 58 projects (7 percent) are in the pipeline.

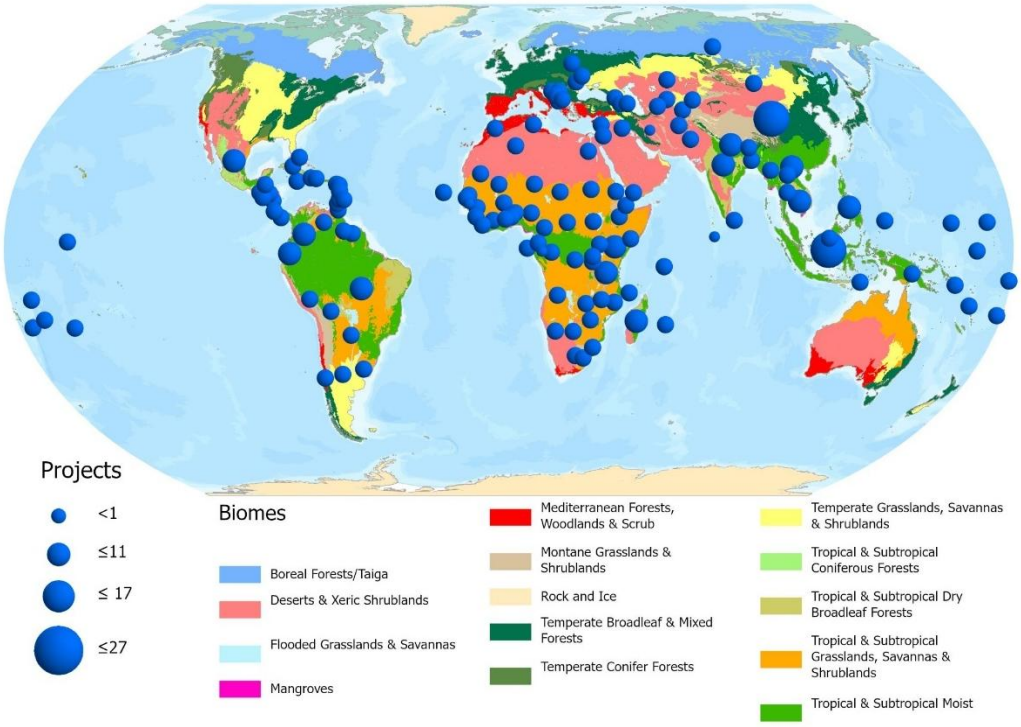
(d) 351 projects have submitted a midterm review (MTR) report.

17. The portfolio includes projects funded through the GEF Trust Fund, the Least Developed Countries Fund (LDCF), the Special Climate Change Fund (SCCF), the Global Biodiversity Framework Fund (GBFF), or a combination of these funding sources. These NbS-aligned projects represent only about 30 percent of the GEF portfolio. This percentage is considerably low, considering the GEF's mandate to serve multiple environmental conventions and its strategic focus on integrated approaches. It is important to note, however, that there may be additional projects that contribute to addressing societal challenges through ecosystem protection,

[3] Dec 2024

sustainable management, and restoration. This evaluation excludes projects that do not explicitly articulate and intentionally incorporate such contributions in their design.

Map 1: Distribution of NbS-aligned projects



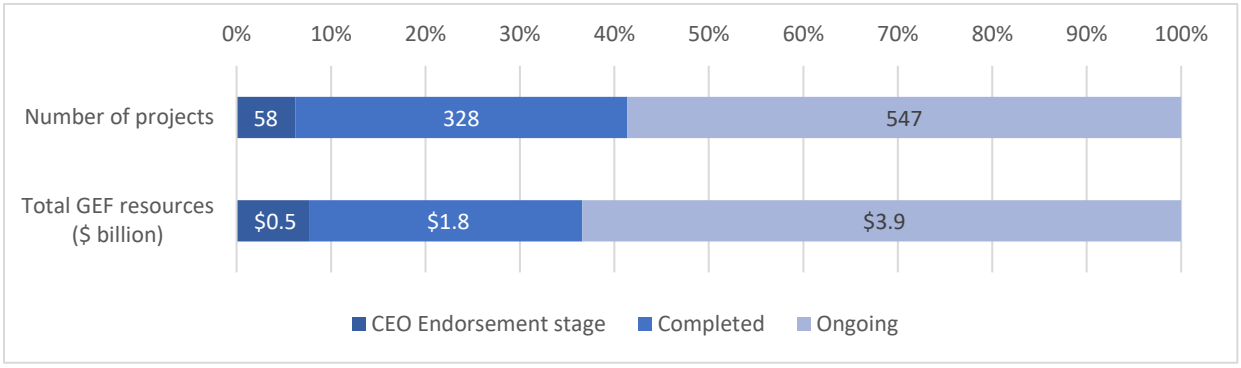
Source: GEF IEO analysis (data from GEF Portal and WWF Terrestrial Ecoregions of the World).

18. Between GEF-5 and GEF-8, the GEF has supported 933 NbS-aligned projects **representing a total investment of $6.2 billion in GEF resources.**[4] These include full-size projects (FSPs), medium-size projects (MSPs), GBFF projects, and 12 non-grant-instrument (NGI) projects. Small Grants Programme (SGP) projects are not included in the portfolio. Nearly 87 percent of the projects are FSPs, highlighting the scale of the GEF's investments in NbS. Nearly 59 percent of projects are under implementation, while 35 percent have been completed (figure 1). The remaining projects are in the stage of CEO endorsement. The NbS portfolio has mobilized substantial cofinancing, with a ratio of 7.25:1, which is higher than the portfolio-level target outlined in the GEF cofinancing policy (FI/PL/01).[5]

[4] Calculations of GEF resources are inclusive of total project financing, PPG, and fees.

[5] Cofinancing ratio is calculated as the ratio of total cofinancing amount to total project financing (excluding PPG and fees), per the GEF Guidelines on Cofinancing (FI/GN/01).

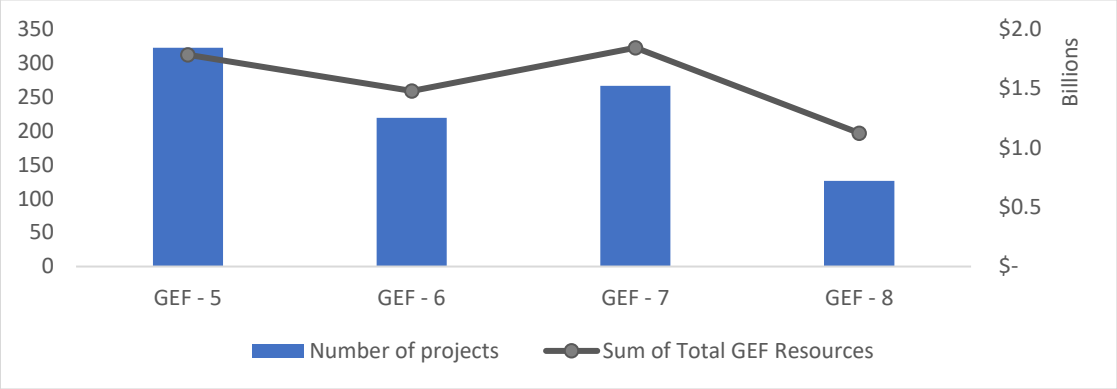
Figure 1: Number of projects and total GEF resources by project status



Source: GEF IEO based on Extended General Report (GEF Portal), data as of December 31, 2024.

19. **The number of NbS-aligned projects and associated funding has fluctuated across GEF cycles (figure 2).** GEF-5 saw the highest number of NbS-aligned projects (322 projects, $1.78 billion). Although fewer NbS- aligned projects were programmed in GEF-7 (266 projects), total financing increased to $1.84 billion, indicating a trend toward larger projects, at least in nominal terms. Figures for GEF-8 are still evolving, as many projects remain in the design phase and their NbS components may be clarified at a later stage.

Figure 2: Number of projects and total GEF resources by replenishment period



Source: GEF IEO based on Extended General Report (GEF Portal), data as of December 31, 2024

20. **The GEF Trust Fund serves as the primary financing source for NbS-aligned projects, given its significantly larger size compared to other GEF-managed funds.** Nonetheless, the LDCF and SCCF also play a significant role. A total of 132 projects received funding from the LDCF, and 26 projects were supported by the SCCF, including one project that benefitted from both. Together, the LDCF and SCCF collectively contribute 17 percent of total NbS-related funding, underscoring their importance in financing adaptation-related NbS interventions. By comparison,

the LDCF and SCCF account for only about 15 percent of total GEF resources allocated to FSPs and MSPs since GEF-5.[6]

Figure 3: Total GEF resources allocated to NbS projects by regions and country groups

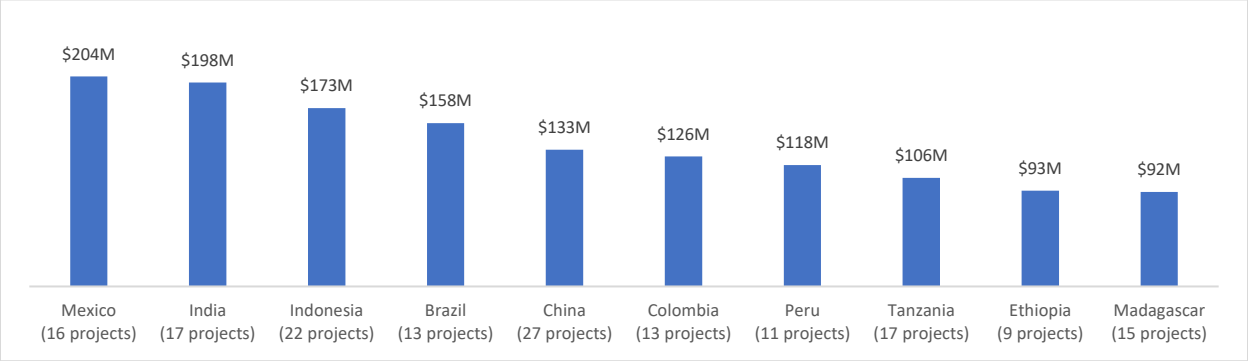
Source: GEF IEO based on Multi-Trust Fund Agency Report (GEF Portal), data as of December 31, 2024.

21. **The NbS portfolio includes a significant number of projects in Africa and least developed countries (LDCs).** Africa has the largest number of NbS projects and receives the highest share of GEF resources (figure 3). With 347 projects, Africa accounts for **38 percent of total NbS funding.** However, the largest recipients are located outside Africa. China has the most projects (27), while Mexico receives the highest total GEF resources ($204 million). LDCs and small island developing states (SIDS) are also well represented, with 318 projects involving at least one LDC and 143

[6] IEO calculations based on the Multi-Trust Fund Agency Report (GEF Portal), data as of December 31, 2024.

projects involving at least one SIDS (figure 3). These projects collectively receive 44 percent of total NbS funding. Three LDCs—Tanzania, Ethiopia, and Madagascar—rank among the top 10 recipient countries (figure 4).

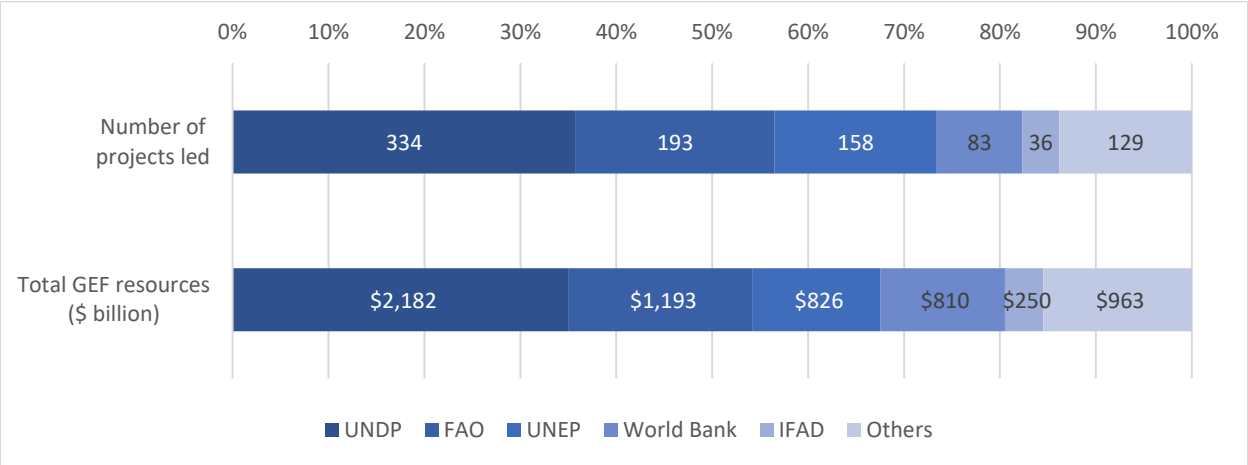
Figure 4: Top recipients of GEF resources in the NbS portfolio



Source: Multi-Trust Fund Agency Report (GEF Portal), data as of December 31, 2024.

22. **UN agencies are the primary implementers of NbS-aligned projects within the GEF portfolio.** A total of 15 of 18 agencies are involved in the implementation of at least one NbS project. The United Nations Development Programme (UNDP) and the Food and Agriculture Organization of the United Nations (FAO) together lead the implementation of more than half of the projects, followed by UNEP (figure 5). In total, 72 percent of GEF resources in the NbS portfolio are managed through UN agencies, while MDBs account for only 18 percent of the total. Among non-UN agencies, The World Bank is the most prominent, implementing 83 projects and managing 13 percent of the total GEF resources allocated to NbS projects in its portfolio.

Figure 5: GEF resources for NbS projects by participating agency



Source: GEF IEO based on Multi-Trust Fund Agency Report (GEF Portal), data as of December 31, 2024.

23. **The majority of NbS-aligned projects are multifocal area (MFA) projects, with a strong emphasis on biodiversity.** Nearly all of the NbS-aligned MFA projects involve the biodiversity focal area, aligning with the integrative nature of NbS in addressing societal challenges while also enhancing biodiversity and ecosystem services. Within the overall NbS portfolio, more than a quarter of total GEF resources support projects that span the biodiversity, climate change, and land degradation focal areas simultaneously. NbS interventions are also found in all focal areas, although they are less common in chemicals and waste projects. Box 1 provides an example of the use of NbS in the chemicals and waste focal area.

Box 2: Example of NbS in a chemicals and waste project

As part of the Vietnam POPs and Sound Harmful Chemicals Management Project (GEF ID 5067, UNDP), a site cleanup was conducted in a remote, ethnic-minority community in Vietnam's central highlands. The site included a cave that had been used by the North Vietnamese Army during the Vietnam War to store large quantities of dichlorodiphenyltrichloroethane (DDT), a persistent organic pollutant. Further investigations by the project team uncovered unexploded ordnances and fragmentation bombs in the surrounding area, adding to the complexity of the cleanup.

An NbS approach was leveraged to remediate contaminated soil. Starting in 2017, the project team first carried out excavation and removal activities to address the contamination. In early 2019, contaminated soil was treated using an NbS phytoremediation approach. This technique involved planting local vegetation capable of absorbing and removing pollutants from the environment. Phytoremediation was selected as a cost-effective, context-appropriate method for addressing contamination in a remote and resource-constrained community.

Contaminated soil was compacted with vibrating tamper

Surface was covered with clean soil and compacted

Indigoberry was planted on surface and crushed-stone aggregate road was constructed around

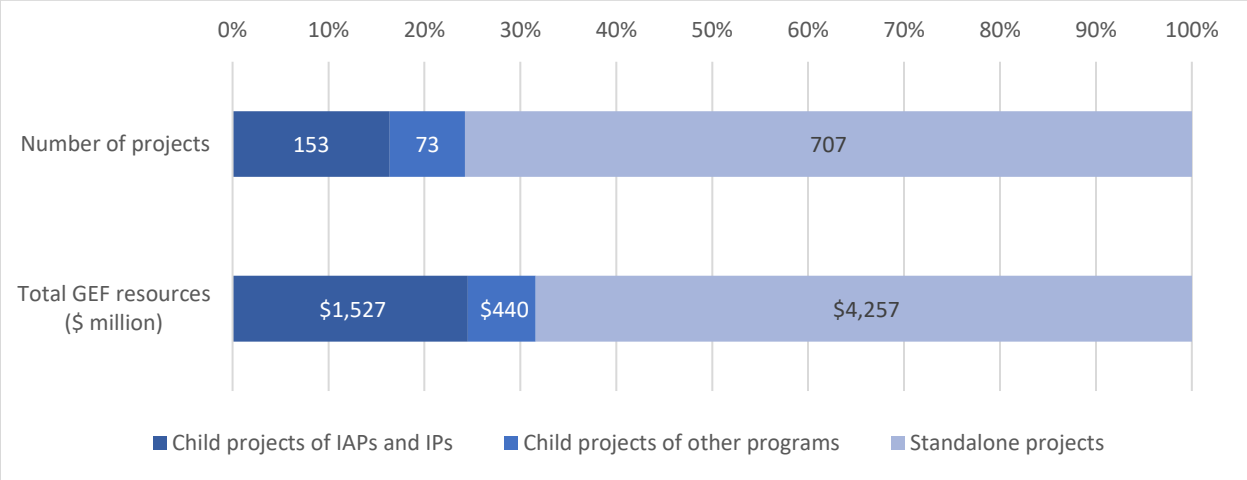
By integrating phytoremediation into the cleanup strategy, the project demonstrated an effective and sustainable application of NbS in a challenging context, addressing both environmental and community safety concerns. In addition to its remediation benefits, the chosen vegetation, thorny and inedible native plants, also served as a physical barrier, discouraging people from accessing contaminated areas. This dual-purpose approach not only mitigated immediate environmental risks but also reduced potential human exposure to residual contamination.

Sources: Interviews with UNDP Viet Nam, UNDP Viet Nam website, and UNDP report on Lam Hoa rehabilitation activities.

24. **Programmatic approaches play a significant role in the NbS-aligned portfolio.** More than 16 percent of the projects in the portfolio are child projects under IAP programs, impact programs, and integrated programs (figure 6), highlighting the role of these programs as entry points for NbS interventions. In comparison, child projects of these programs account for only 10

percent of the overall GEF portfolio from GEF-5 to GEF-8.[7] Additionally, 73 projects in the portfolio are child projects under other programs, mainly from GEF-5, before the introduction of the IAPs.

Figure 6: Number of projects and total GEF resources for NbS projects by programmatic approach



Source: GEF IEO based on Extended General Report (GEF Portal), data as of December 31, 2024.

2 EVALUATION DESIGN

2.1 OBJECTIVES AND SCOPE

25. The objectives of the evaluation were to:

(a) Assess the relevance, effectiveness, coherence, sustainability, and impacts of the GEF NbS-aligned portfolio;

(b) Evaluate the effectiveness of NbS as the integrator for GEBs and societal benefits;

(c) Evaluate the contribution of NbS to transformational change in natural and socioeconomic systems; and

(d) Identify challenges, lessons learned, and best practices.

26. The evaluation focuses on four GEF trust funds: (1) the GEF Trust Fund, (2) the LDCF, (3) the SCCF, and (4) the GBFF. The rationale for including these four trust funds in the evaluation

[7] IEO calculations are based on the Extended General Report (GEF Portal), data as of December 31, 2024. The overall GEF portfolio in this analysis includes all GEF-5 to GEF-8 projects that have reached PIF clearance.

stems from the increasing recognition and integration of NbS within the frameworks and objectives of the international environmental conventions they serve.

27. The temporal scope of this evaluation covers four GEF replenishment periods (GEF-5 to GEF-8), from 2010 to the present because this period reflects the formal integration and evolution of NbS within GEF strategies and programming. While NbS-aligned approaches existed earlier, GEF-5 marked a shift toward structured investments in approaches like EbA and SLM. From GEF-6 on, NbS became explicitly incorporated into the GEF's strategic direction, with GEF-8 recognizing NbS as a cross-cutting theme. Evaluating these four periods offers insights into how the GEF's support for NbS has evolved, expanded, and influenced environmental and societal outcomes over time. The evaluation primarily focuses on ongoing and completed projects, while analyses of projects still in the design stage are prospective in nature.

2.2 EVALUATION CRITERIA AND QUESTIONS

28. Evaluation criteria and questions for the NbS were organized at two levels: strategy and portfolio. The strategy-level questions are organized against the five dimensions of strategy, which were developed to evaluate strategies focusing on systems/transformational change, namely (1) position/niche, (2) perspective/approach, (3) effectiveness and impact, (4) execution, and (5) learning and adaptation (Patton and Patrizi 2010).

29. Portfolio-level questions were organized around the Organization for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) evaluation criteria: (1) relevance, (2) effectiveness, (3) coherence, (4) impact, and (5) sustainability. The links between evaluation criteria and evaluation questions in the strategic and portfolio analysis are presented in tables 2 and 3.

Table 2: Evaluation criteria and evaluation questions

Key evaluation questions	**Dimension of strategy**
How have the current knowledge, existing standards, and guidelines on NbS informed the GEF's programming directions, policy, and projects? What new opportunities exist for the GEF? What could the GEF be doing to respond to the opportunities? What is the GEF's comparative advantage and additionality on NbS?	**Position/niche**
How has the GEF's strategic approach for NbS evolved over its various phases and in response to the convention guidance, the drivers of biodiversity loss, and country/regional priorities?	**Perspective**

What are the NbS entry points at the GEF project and program level? How is NbS being implemented as a cross-cutting theme in recent GEF phases? What is the GEF's theory of change for NbS strategy and programming?	
What are the main result areas across GEF NbS interventions, and which activities have principally contributed? What is the potential for transformational change across GEF NbS interventions (e.g., what comes across as new, innovative, and scaling), and what strategy levers have supported this potential?	**Effectiveness and impact**
How well are the strategy implementation and execution arrangements working at and across scales? What adjustments to the present approach or capacities are required to better adapt to future needs?	**Execution**
What processes are in place to support learning on NbS across the GEF portfolio, and how effective are these processes for informing the design and implementation of NbS?	**Learning and adaptation**

Table 3: Evaluation criteria and questions for portfolio analysis

Key evaluation questions	**DAC criteria**
What are the characteristics of the current GEF NbS-aligned project list, what GEF-centered criteria are being used, and how do they align with wider definitions of NbS? How relevant are specific NbS actions to (1) GEF objectives, (2) country needs and context, and (3) other programs in-country/landscape level?	**Relevance**
What results (benefits and co-benefits; environmental, social, and economic) are observed for GEF NbS projects (by project type)? What have been the benefits for marginalized groups, including women and Indigenous peoples and local communities (IPLCs)?[8] How can just transitions best be promoted by NbS within the GEF? What are the unintended (positive or negative) consequences from GEF NbS actions?	**Effectiveness**

[8] Marginalized groups can include those excluded because of their gender, sexual orientation, gender identity, age (notably youth and children), disability, race, and culture (GEF 2023c). In the context of natural resource use and NbS, women and Indigenous peoples and local communities (IPLCs) are often marginalized and thus merit particular attention.

What are the key success and constraining factors related to NbS within the GEF portfolio? What trade-offs and tensions are evident (and where and how have these been addressed)? How, and how well, are NbS projects being monitored and evaluated within the GEF (and how/how well are benefits, disbenefits, trade-offs and equity data being captured)?	
To what extent is the NbS-aligned project list aligned with the GEF programming direction and NbS theory of change? To what extent have relevant stakeholders been involved in the development and implementation of NbS projects? What coordination mechanisms and capacities exist to facilitate knowledge and communication of GEF programming and across ministries? What are the levels of national policy coherence at the sectoral level and across different scales (GEF IEO 2023)?	**Coherence**
To what extent do projects demonstrate transformational change/potential for the benefit of the environment and society?	**Impact**
How, and with what success, are GEF NbS financing and the innovation and emerging impacts of GEF-supported NbS projects being sustained or scaled to be more transformational?	**Sustainability**

2.3 METHODOLOGY

30. The evaluation used the established definitions and standards provided by IUCN and UNEA in the absence of a GEF-specific definition for NbS. An overarching theory of change was also developed to assess NbS contributions to GEF objectives.

31. The evaluation used a mixed-methods, evidence-based approach, ensuring methodological rigor and triangulation of data collected at two key levels: overall strategy and the project portfolio. At the strategic level, the evaluation analyzed relevant strategic documents, policies, and programming documents, conducted approximately 30 key informant interviews (KIIs) with both internal and external GEF stakeholders, and reviewed relevant literature to determine how well the GEF aligns with recent developments in the field.

32. At the portfolio level, the evaluation used the methodology detailed in section 2.3.1 to identify, select, and assess NbS and NbS-aligned projects. The analysis included country case studies that included KIIs and project site visits. Geospatial analysis and remote sensing data supported the findings, helping to mitigate the risk of bias from any single source and ensuring that the evaluation captured evidence at all levels.

2.3.1 *Methodology for NbS project identification and analysis*

33. To address the evaluation questions, the assessment first identified GEF projects aligned with NbS and then selected a sample for further analysis. The evaluation employed a multistep screening and scoring methodology to efficiently and accurately identify and categorize projects based on their alignment with NbS. A summary of this methodology is provided in annex 10, table 1.

2.3.2 *Quality assurance*

34. In line with the GEF IEO's quality assurance standards, two key measures were applied in this evaluation. First, a reference group, including representatives from the GEF Secretariat, GEF Agencies, and STAP, offered ongoing input and support and helped facilitate access to relevant information and stakeholders. Second, a peer review panel, comprising evaluators from GEF Agency evaluation units, evaluation networks, and subject matter experts, reviewed and provided feedback during various stages of the evaluation process.

2.3.3 *Methodological challenges and limitations*

35. The methodological challenges and limitations identified and mitigation strategies include:

(a) **Absence of a standardized operational NbS definition and systematic project tagging within GEF.** This challenge was mitigated by employing a globally accepted NbS definition to screen projects and construct the portfolio analyzed in this evaluation.

(b) **GEF documentation that is not consistently organized around NbS.** However, some documents report on elements of NbS, such as SFM and CBA. The evaluation adopted the concept of NbS-aligned approaches to capture findings on the full range of approaches.

(c) **Complexity of capturing diverse stakeholders' views on NbS.** Given the broad and diversely interpreted nature of NbS, the evaluation emphasized analysis of strategic documents, portfolio data, and meta-evaluation findings. This approach grounded the analysis in documented NbS-related evidence, complemented by targeted stakeholder input gathered during the process.

(d) **Limited information on the societal benefits produced.** The evaluation paid strong attention to programs designed to address community needs, such as CBA projects,

and micro-, small, and medium enterprises. Primary data generation paid close attention to societal benefits.

(e) **Absence of an overarching NbS theory of change in the GEF.** The evaluation developed an NbS theory of change based on the GEF-8 overarching theory, NbS theory guidance from STAP, and NbS theories of change in some integrated programs and focal areas.

(f) **Challenges in arranging case study visits due to political change, security concerns, and the need to securing necessary permission.** The evaluation missions were planned early enough to secure necessary permission and included several options for countries to visit to avoid unforeseen security setbacks. However, some trips were unable to take place. The evaluation also leveraged other GEF IEO evaluation missions to support data collection. Online interviews were conducted in some cases where physical access was not feasible.

2.4 NbS THEORY OF CHANGE

36. The evaluation developed the NbS theory of change, shown in figure 7, drawing on the review of (1) the GEF's overarching theory of change, theories of change from impact programs, integrated programs, and focal areas; (2) STAP NbS theory of change reports that encourage the inclusion of socioeconomic benefits; (3) the Conservation Measures Partnership's (CMP) high-level generic theory of change that provided NbS outcomes based on IUCN's eight NbS criteria for environmental and societal outcomes; and (4) IUCN criteria (IUCN 2020). It also drew on input from the Evaluation Reference Group (ERG).

37. The principles underlying the NbS evaluation theory of change include:

(a) To achieve systems transformation and deliver environmental and societal benefits, toward healthy people and a healthy planet, requires the generation of integrated, inclusive, sustainable, resilient, low-carbon, nature-positive outcomes, with equitably distributed local and global costs and benefits.

(b) The GEF addresses this challenge by integrating NbS into its investment policies, strategies, and programs. This integration is operationalized through the GEF's four levers of transformation: (1) governance and policies, (2) finance leverage, (3) multistakeholder dialogues, and (4) innovation and learning. NbS are also embedded across and within the GEF's focal areas.

(c) NbS are central to the GEF's mandate to address complex, cross-cutting issues within and between the MEAs, contributing to diverse environmental and societal goals.

This integrated approach generates multiple environmental, social, and economic benefits.

(d) The GEF adopts whole-of-society, systems-oriented, systematic, nexus-driven, and synergy-building approaches to integrate NbS into its investments. The principal added value of NbS integration lies in the delivery of co-benefits that have traditionally been considered as beyond the GEF's direct sphere of influence.

(e) To fulfill its objective of integrating NbS, GEF investments address complex and interconnected socio-ecological challenges. These investments address not only the challenges themselves but also their root causes, drivers, and barriers to transformational change.

38. The main assumptions underpinning this theory of change are:

(a) External conditions permit the delivery of results;

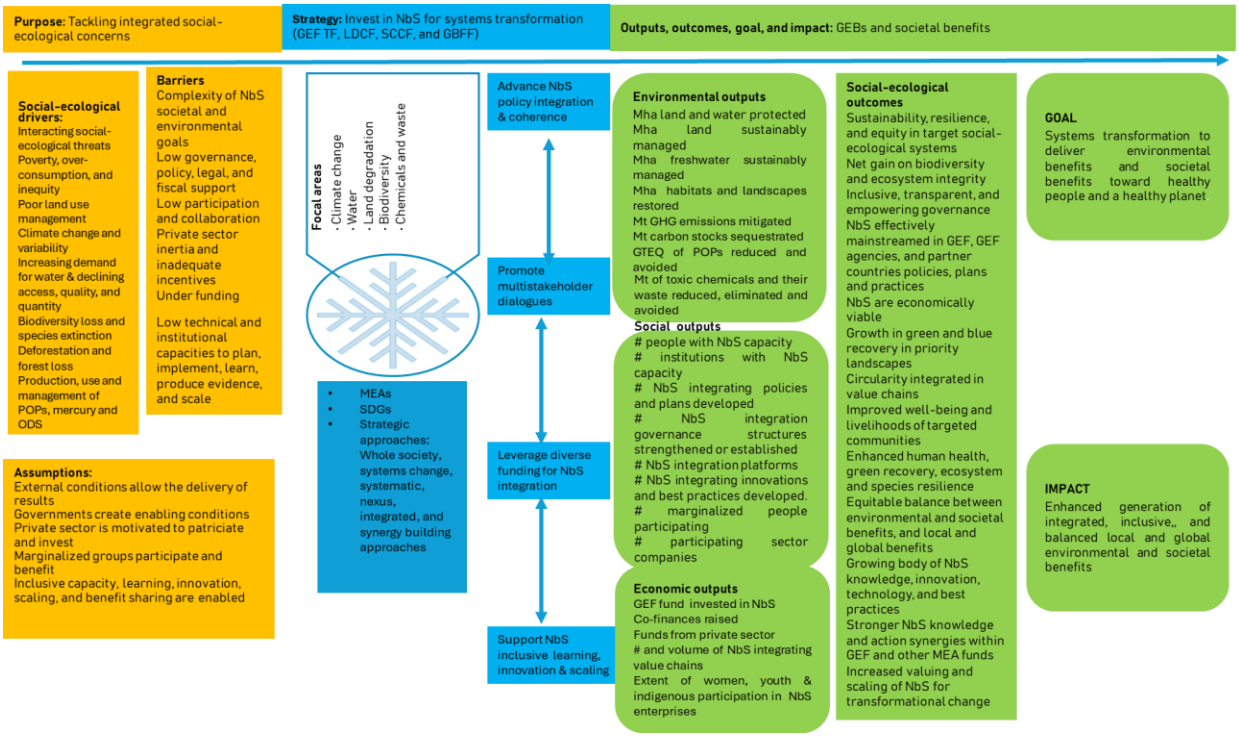
(b) Governments establish enabling conditions;

(c) The private sector is motivated to participate and invest;

(d) Marginalized groups actively participate and benefit; and

(e) Inclusive capacity-building, learning, innovation, scaling, and benefit-sharing mechanisms are in place.

Figure 7: The NbS evaluation theory of change



Source: Evaluation team elaboration.

2.5 GEF IEO AND STAP CONTRIBUTIONS TO NBS UNDERSTANDING

39. This evaluation also draws from previous IEO evaluations and incorporates guidance from GEF STAP to inform the conceptual framework and methodological approach.

40. The GEF IEO has conducted a range of thematic and focal area evaluations that address NbS-aligned approaches, including ecosystem-based approaches, EbA, SFM, CBA, integrated water resources management (IWRM), integrated coastal management (ICM), and SLM (GEF IEO 2017–2024). These evaluations have examined NbS-related interventions across the GEF's key systems of influence natural, food, energy, urban, and economic systems. Some have also focused on specific geographic contexts, such as the Strategic Country Cluster Evaluations (SCCE) in the Lower Mekong River Basin (GEF IEO 2023) and the evaluation of GEF programs in Pacific SIDS (GEF IEO 2024).

41. These evaluations indicated that NbS and related concepts like EbA, ecosystem-based management, SLM, and SFM are increasingly recognized and used within GEF-supported projects (GEF IEO 2022 Mekong; GEF IEO SFM-2022). These approaches are considered fundamental for building landscape resilience, conserving biodiversity, and addressing climate change, while supporting human well-being and ecosystem services.

42. These evaluations also highlighted significant challenges, such as a lack of clear definitions and implementation guidelines for concepts like EbA and EbM, which hinder the measurement of their effectiveness and their integration into central-level policy (GEF IEO 2022; SCCE Mekong Evaluation). Knowledge sharing and the scaling up of successful NbS practices remain limited. While biodiversity mainstreaming efforts align with NbS principles by integrating biodiversity into productive landscapes, quantitative evidence on their socioeconomic impacts is often lacking. Despite the growing recognition of NbS, reports underscore the need for more robust M&E frameworks, a clearer conceptual understanding, and context-specific applications to realize their transformative potential.

43. **STAP provided critical knowledge and guidance of NbS for GEF-8, particularly on how to take NbS to scale to achieve transformational change.** Drawing from Stafford et al. (2021), STAP outlined strategies for scaling up, scaling out, and scaling deep, emphasizing the following key considerations:

(a) Be explicit about the scaling approach or approaches.

(b) Use the scaling approach or approaches to inform pathways of change.

(c) Use systems thinking to inform change pathways and reinforce positive feedback loops.

(d) Ensure and check the adequacy of scaling assumptions.

(e) Integrate behavior change into scaling pathways, noting that the drivers of behavior change are (1) awareness, (2) norms and emotions, (3) skills and capacity, (4) economic incentives, (5) choices, and (6) requirements (Salafsky et al., 2021).

44. **STAP emphasized the importance of co-benefits for local stakeholders to ensure GEB durability, which can also increase the overall return rate on GEF investment.** Socioeconomic benefits strengthen the ability of beneficiaries to implement solutions that generate desired GEBs (STAP 2022). Consequently, STAP (2023) recommended that the GEF identify which co-benefits of GEF investments need to be tracked and why and establish systems to report on them. STAP's advice on NbS integration has been practical, as illustrated by its recommendations on how the GEF should work with NbS and scale it for transformational change (annex 10, table 2).

3 FINDINGS

45. This section presents findings on the performance of the GEF's NbS portfolio against the four OECD DAC evaluation criteria (1) relevance, (2) effectiveness, (3) impact, and (4) sustainability.

3.1 RELEVANCE

3.1.1 *Relevance to the conventions*

46. **The NbS, as an approach, is well suited to address the increasing emphasis on aligning guidance across the conventions.** The CBD and Global Biodiversity Framework (GBF) underscore the importance of integrating NbS with other key international policy frameworks and commitments, such as the Sustainable Development Goals (SDGs), UNFCCC, and UNCCD (PEDDR and FEBA 2020). The UNFCCC promotes the adoption of an ecosystem-based approach and NbS to foster synergies between UN commitments, mechanisms, and processes: SDGs, UNFCCC, UNISDR, CBD, UNCCD, and Sendai Framework (PEDDR and FEBA 2020).

47. Furthermore, the UNFCC encourages alignment and synergies between and across (1) different sectors and development agendas; (2) planning frameworks; (3) global, regional, and national agendas; (4) DRR, poverty reduction, livelihood diversification, food and water security, carbon sequestration, and urban and coastal protection; (5) multiple stakeholder groups and sectors for coordinated information sharing, planning, implementation, and learning (UNEP 2021, UNFCCC 2019).

48. **In May 2022, the UNCCD parties agreed to explore complementarities within relevant MEAs in implementing SLM**, **ecosystem-based approaches, or NbS (CBD 2022).** The UNCCD encourages the use of NbS to build climate resilience; produce ecosystem services through SLM and IWRM; improve settlement planning, including the establishment of green corridors; and restore land through nature-positive agriculture to halt or reverse desertification and land degradation (UNCCD 2023). At COP15, the parties encouraged the GEF to identify opportunities to strengthen synergies among the Rio Conventions and other relevant environmental agreements, while observing their respective mandates and goals, and aligning with the 2030 Agenda for Sustainable Development (UNCCD 2022).

49. **Guided by the UN Convention, the integration of NbS emphasizes the need to manage trade-offs while delivering multiple benefits across the MEAs.** A study conducted in Rwanda illustrates this approach by assessing the potential for synergies through joint programming and implementation of land restoration activities under the Rio Conventions (Mirzabaev et al. 2023, p. 3). Collaboration between the Rio Conventions on land restoration is critical to achieve the goals of land degradation neutrality (LDN), biodiversity conservation, mitigation of and adaptation to climate change, and, more broadly, achievement of the SDGs. However, trade-offs may occur when actions aimed at achieving one goal inadvertently harm another. For instance, planting non-native trees for carbon sequestration may help combat climate change, but it could harm local biodiversity. Coordinated efforts among the conventions help enhance positive synergies while reducing unintended negative impacts.

50. **Moreover, funding institutions, the UN Conventions, and governments are increasingly interested in the evidence of NbS effectiveness and impact before scaling up investment**. STAP (2020) recommends that assessments of NbS effectiveness consider GEB results, successes, failures, co-benefits, synergies, and trade-offs. These evidence gaps are echoed in UNFCCC (2022), which highlights ongoing challenges in integrating the value of ecosystem goods and services into economic and financial services and developing a business case for investing in nature and ecosystems.

51. **The current strategic and programming directions of the four climate and environmental funds support the integration of NbS, building on the mandates of the respective Conventions they serve.** Table 5 illustrates how each fund seeks to integrate NbS in collaboration with one or more GEF trust funds.

3.1.2 *Relevance to the GEF*

52. **NbS are strategically aligned with the GEF's goal of halting nature loss and advancing a nature-positive, carbon-neutral world.** This alignment is reflected in the GEF's long-term vision, strategic directions, and intended application across a diverse range of focal areas, multifocal areas, and integrated programs to drive transformational change. One of the four intended outcomes of the GEF-8 specific goals includes "Transformation of target systems promoted by maintaining and enhancing natural capital and ecosystem services through Nature-based Solutions" (GEF 2022d, p. 27).

53. **GEF-8 programming directions also underscore a commitment to enhancing policy coherence**, tackling disincentives to nature protection and climate mitigation, supporting vibrant green and blue recovery, and responding more effectively to emerging country priorities as included in NDCs, national biodiversity strategy and action plan (NBSAPs), and National Adaptation Plans (NAPs), key instruments for integrating NbS at the national level. Annex 10, table 3 illustrates how the GEF strategies address NbS in line with the GEF-8 programming directions.

54. **The integration of NbS within GEF focal area strategies is strong but uneven.** A review of the GEF-8 programming directions and focal area strategies shows that NbS are explicitly integrated across biodiversity, climate change, international waters, and land degradation focal areas but remain largely absent in the chemicals and waste focal area. While environmental benefits are clearly articulated across these strategies, the societal benefits of NbS remain less clearly defined.

55. **An analysis of program framework documents (PFDs) from 11 GEF-8 integrated programs revealed that most programs intend to use an NbS-aligned approach to contribute to transformational change.** The two exceptions, Eliminating Hazardous Chemicals from Supply Chains (GEF ID 11169, UNEP) and Circular Solutions to Plastic Pollution (GEF ID 11181, UNEP), do

not reference NbS in their design. Annex 10, table 4 provides examples of how the integrated programs plan to apply NbS to drive transformational change, highlighting transformational intent as a key aspect of program relevance.

56. **NbS is most notably integrated in the design of several GEF-8 integrated programs.** Such programs include (1) the Sustainable Cities Integrated Program, which supports the integration of nature in city planning and the development of an economic case for NbS, promotes local-level investments in NbS to address challenges such as climate change, disseminates knowledge pertaining to NbS through its child projects; (2) the Blue and Green Islands Integrated Program that incorporates the value of nature into national decision making and supports NbS to address development challenges of SIDS related to food security, adaptation, tourism, and urban development; and (3) the Ecosystem Restoration Integrated Program, which aims to generate multiple environmental benefits through the restoration of degraded ecosystems globally using NbS as a major tool. Nature-based Solutions are also a core element of the CFB IP strategy, focusing on the sustainable preservation of primary forests to enhance biodiversity and ecosystem integrity while simultaneously supporting economically viable livelihoods for lasting impact. Overall, the GEF Trust Fund–supported integrated program represents the most advanced efforts in integrating NbS for transformational change, highlighting the strong relevance and intent of the integrated programs (annex 10, table 4).

3.1.3 *Relevance to country priorities*

57. **To fulfill their commitments under MEAs, many countries have identified NbS as a key implementation approach, reflected in their national strategies such as NBSAPs, NDCs, and NAPs.** GEF support for NbS, through capacity building and resource mobilization, is well aligned with the growing need to scale up NbS implementation across countries. For example, a recent study of NbS projects for resilience in Africa identified the GEF as one of the major co-funders of NbS initiatives in the region (Collins et al. 2024). The study highlighted how NbS is increasingly recognized as an effective intervention for strengthening climate resilience, enhancing ecosystem services and biodiversity, addressing infrastructure needs, and addressing socioeconomic development challenges, often simultaneously.

58. **However, the study also identified challenges related to scaling up NbS**, **including limited technical and monitoring capacity and low private sector engagement for financing.** Furthermore, KIIs highlighted a growing demand from countries to incorporate NbS into development projects. While countries are generally aware that NbS is an option, many may lack the internal capacity and technical expertise to implement NbS projects. GEF support for capacity building and resource mobilization is therefore relevant in the face of these challenges.

59. **KIIs highlight that for the GEF to effectively promote the use of (NbS), it must demonstrate its additionality, both in terms of financial additionality and comparative advantage over conventional approaches.** Several interviewees emphasized the need for GEF to articulate and demonstrate the unique benefits of NbS compared to traditional, engineering-based solutions. The GEF could showcase how NbS interventions deliver not only environmental benefits, but also societal benefits, such as improved livelihoods, enhanced climate resilience, and cost-effectiveness. Small-scale demonstrations can be useful in building government buy-in, but long-term uptake also requires upfront planning for financial sustainability beyond the project's lifespan.

60. **Interviews also emphasized the importance of aligning GEF support with existing development projects and priorities and ensuring that enabling policy environments are in place to foster cross-sectoral collaboration.** Interviewees noted that while many countries already host large-scale development programs led by development organizations, the GEF can add value by integrating nature-based considerations into these ongoing efforts. For example, through the Livable Cities project[9] in India (GEF ID 10484, UNEP), GEF support will complement an existing urban development initiative by enabling the inclusion of an NbS component focused on lake restoration. In low-income countries, where concessional finance, such as the International Development Association (IDA), is often directed toward addressing immediate development needs, environmental objectives may be deprioritized due to the urgency of other issues and resource constraints. In such contexts, GEF financing can play a pivotal role by carving out space for biodiversity and ecosystem restoration efforts that also yield social and economic benefits. However, experts noted that such integration is only feasible when enabling policies exist to encourage different sectors to collaborate and explicitly incorporate nature into planning and decision-making processes.

3.2 PORTFOLIO ANALYSIS

3.2.1 *Types of activities in NbS interventions*

61. **The GEF NbS-aligned portfolio comprises a diverse range of environmental projects addressing various ecological issues.** Annex 11 illustrates some examples of NbS in GEF-supported projects. The most commonly implemented activities are as follows:

(a) Capacity building (58.33 percent of projects)

Capacity building, encompassing training, skills development, and institutional strengthening, is widely recognized as a foundational element for the successful

[9] Livable Cities in India: Demonstrating Sustainable Urban Planning and Development through Integrated Approaches (GEF ID 10484)

implementation of NbS. For example, the project Improved Management Effectiveness of the Chobe-Kwando-Linyanti Matrix of Protected Areas (GEF ID 4544, UNDP) supports capacity building and integration of climate risk-reduction measures in Botswana. In another example, the project Transforming Indian Agriculture for Global Environmental Benefits and the Conservation of Critical Biodiversity and Forest Landscapes (GEF ID 9243, FAO) supports capacity building through farmer Field Schools while integrating climate-resilient agriculture measures in five distinct landscapes across India.

(b) Policy integration, legal frameworks, and institutional strengthening (35 percent of projects)

Creating an enabling policy environment is a critical component of effective NbS implementation. For example, in the Philippines, the project Implementation of Sustainable Land Management (SLM) Practices to Address Land Degradation and Mitigate Effects of Drought (GEF ID 5767, UNDP) sought to integrate SLM into local land-use plans and supports policies that consider cross-sectoral implications. Similarly, in India, the project Green-Ag: Transforming Indian Agriculture for Global Environmental Benefits and the Conservation of Critical Biodiversity and Forest Landscapes (GEF ID 9243, FAO) seeks to integrate environmental priorities into agricultural practices and policies. It is applying a range of NbS across five landscapes, with a focus on agro-ecological approaches and climate-resilient agriculture.

(c) Protected area management, expansion, and conservation

“Protected area” intervention is mentioned in 18.33 percent of projects, and “conservation” is mentioned in 23.33 percent. These interventions are frequently mentioned for both land and marine contexts, focusing on establishing new protected areas or improving the effectiveness of existing ones. For example, in Mexico, the project Conservation of Coastal Watersheds in Changing Environments (GEF ID 4792, World Bank) aimed to conserve coastal watersheds by addressing climate change impacts and promoting sustainable livelihoods. The project focused on preventing deforestation, conserving biodiversity, and enhancing ecosystem services through agroecological practices. These interventions often included support to livelihoods through diverse economic activities. For example, Conserving Biodiversity and Reducing Land Degradation Using a Ridge-to-Reef Approach (GEF ID 9580, UNDP) supports improved SLM practices in Saint Vincent and the Grenadines and promotes biodiversity-friendly alternative livelihoods such as beekeeping. In China, CBPF-MSL: Strengthening the Management Effectiveness of the Protected Area Network in the Daxing’anling Landscape (GEF ID 4868, UNDP) introduced alternative livelihoods

including eco-tourism and goats farming. Other projects focus on enhancing existing resource management practices for improved livelihoods and nature conservation. For example, High Andean Ecosystems Project (GEF ID 4773, IFAD) aimed to strengthen livelihoods of small farmers by improving the management of water and native grassland to improve fodder for Alpaca grazing. Moreover, Revitalising Oasis Agro-ecosystems through a Sustainable, Integrated and Landscape Approach in the Draâ-Tafilalet Region (OASIL) (GEF ID 9537, FAO) works on sustainable and integrated oasis agro-ecosystem management to facilitate resilient livelihoods for agro-pastoral communities in Morocco.

(d) Stakeholder Engagement and Collaborative Governance (18.33 percent of projects)

Community-based and stakeholder-driven approaches are frequently emphasized across the NbS-aligned portfolio, underscoring the importance of inclusive governance for effective NbS. For example, the project Conservation and Sustainable Use of Agrobiodiversity to Improve Human Nutrition in Five Macro Ecoregions (GEF ID 4577, FAO) promoted in-situ conservation and the sustainable use of agricultural biodiversity through extensive stakeholder engagement. This engagement included participation by Indigenous communities in Bolivia, ensuring that local knowledge and priorities were integrated into project design and implementation.

3.2.2 *Typology of NbS approaches*

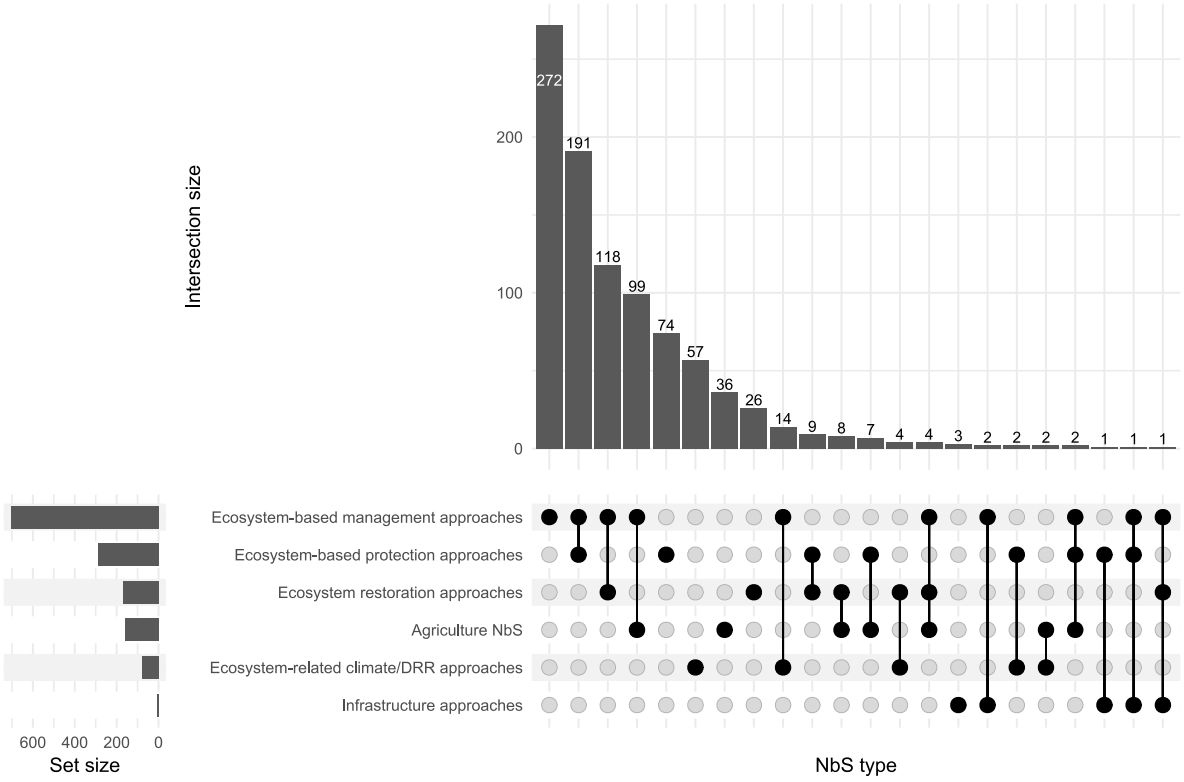
62. **The evaluation portfolio reveals a diversity of NbS approaches supported by GEF projects, with many projects integrating multiple NbS approaches rather than focusing on a single type (figure 8).** This evaluation draws on recent NbS typology frameworks from the academic literature, which emphasize the diverse and interrelated nature of NbS approaches.[10] Given that these projects were selected based on the presence of NbS elements, this finding is not surprising.

63. **Ecosystem-based management approaches**, **including integrated and sustainable management of land, watersheds, forests, coastal zones, water resources, and other ecosystems or natural resources, are the most common among GEF projects.** They often combine ecosystem-based protection approaches (e.g., area-based conservation) or ecosystem restoration approaches (e.g., soil or land restoration, restoration of degraded land or forest, reforestation).

[10] Bascopé, S., Giannini, V., and Wreford, A. (2023). Typology and examples of nature-based solutions for climate change adaptation. Land, 11(7), 1072. https://www.mdpi.com/2073-445X/11/7/1072; Hanson, H. I., Wamsler, C., and Osland, L. (2023). A typology for nature-based solutions addressing climate-related disaster risks. Discover Sustainability, 4, 9. https://www.sciencedirect.com/science/article/pii/S2772411523000095

64. For example, the project Integrated Management of Protected Areas in Côte d'Ivoire, West Africa (GEF ID 4970, UNEP) sought to integrate local biodiversity conservation in the buffer zones of a protected area network while also reducing pressures on forest resources to generate sustainable flows of ecosystem services through alternative livelihoods. Meanwhile, El Salvador Integrated Landscape Management and Restoration (GEF ID 10346, World Bank) is an ongoing project that simultaneously focuses on integrated landscape management and restoration of degraded land. Similarly, several projects in Nepal adopted different NbS approaches, each addressing distinct environmental and socioeconomic challenges (box 2).

Figure 8: Number of projects in the evaluation portfolio based on the NbS approach supported



Source: GEF IEO review

65. **In addition to ecosystem-based management, GEF projects support a range of other NbS approaches**. These include agriculture-focused NbS, such as climate-smart agriculture, agroforestry, and conservation agriculture; ecosystem-based climate and DRR strategies, such as EbA, eco-DRR, and natural climate solutions; and infrastructure-related approaches, such as green or blue infrastructure and hybrid (green-gray) infrastructure.

66. For example, the project Building Resilience of Cambodian Communities Using Natural Infrastructure and Promoting Diversified Livelihoods (GEF ID 9927, UNEP) supports the use of natural infrastructure to enhance coastal resilience. In Moldova, the project Climate Resilience Through Conservation Agriculture (GEF ID 4366, IFAD) focused on mainstreaming conservation agriculture to reduce soil erosion through a combination of policy development, capacity building, and on-the-ground demonstration trials.

67. **GEF Nbs-aligned projects span diverse ecosystems, with forests being the most common.** GEF NbS projects are implemented across a diverse range of biomes and ecosystems. The most frequent ecological settings include forests, followed by agricultural landscapes, drylands, coastal and marine areas, and mountain regions, with wetlands being the least common.

Box 3: Diverse NbS approaches in Nepal

Nepal: Diverse approaches to nature-based solutions

GEF NbS-aligned interventions in Nepal exemplify various NbS approaches, each addressing distinct environmental and socioeconomic challenges. The long-term impact of these NbS interventions is expected to contribute to conservation, climate change adaptation, and mitigation efforts, while delivering more immediate benefits to livelihoods.

The UNEP project Catalysing Ecosystem Restoration for Climate Resilient Natural Capital and Rural Livelihoods in Degraded Forests and Rangelands of Nepal (GEF ID 5203, UNEP) primarily employs ecosystem restoration strategies, particularly within ecosystem-based adaptation in hilly and mountainous regions. The World Wildlife Fund initiative Integrated Landscape Management to Secure Nepal's Protected Areas and Critical Corridors (GEF ID 9437, WWF-US) prioritizes the protection of wildlife corridors and buffer zones by addressing human-wildlife conflicts, supporting small enterprises, and implementing measures to minimize wildlife depredation. The IUCN project Restoring the Degraded Watershed and Livelihoods of Lakhandei River Basin through Sustainable Land Management (GEF ID 10469, IUCN) integrates multiple interventions, including riverine landscape restoration, improved landscape governance, and support for agricultural value chains. Additionally, these NbS interventions align with Nepal's broader conservation strategies, climate change policies, and periodic development plans.

Due to the ongoing nature of these projects and the challenge of quantifying socioeconomic co-benefits, precise impact assessment remains difficult. Nevertheless, preliminary observations suggest that the projects are progressing toward their intended goals. However, two significant limitations are evident. First, the localized scale of interventions poses challenges in achieving broader landscape-level impacts, which will depend on continued commitment from funding bodies and government institutions at federal and subfederal levels. Second, implementation challenges persist, particularly those related to intergovernmental fund transfers and procurement delays within public administration systems.

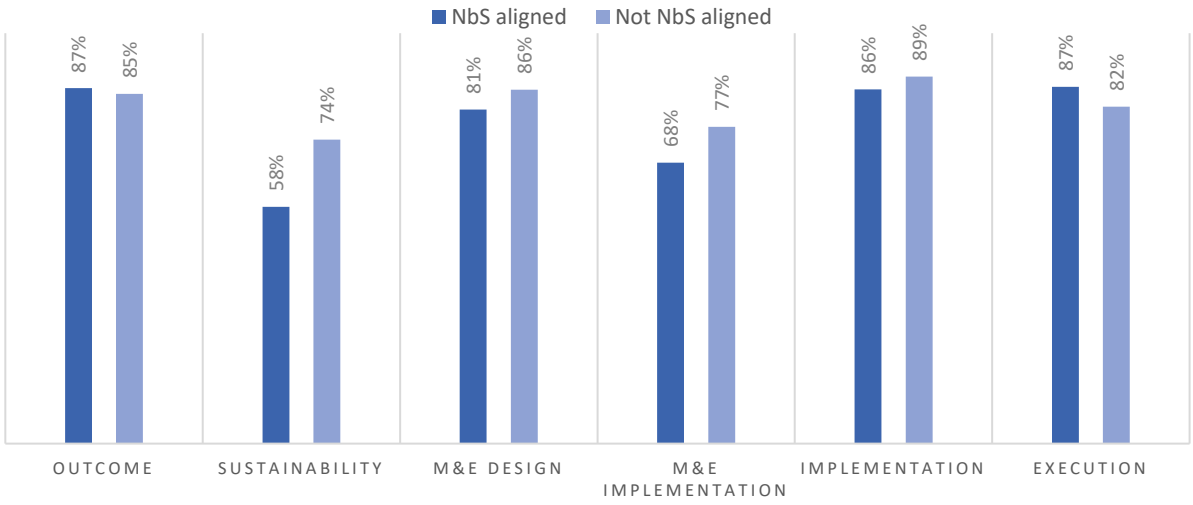
Photo: A check dam reinforced by plats (L), a bamboo check dam reinforced by live plants (R) Photo: AnupamAnand/GEFIEO

3.2.3 *Performance of the NbS-aligned portfolio*

68. **A higher proportion of NbS-aligned projects achieve satisfactory outcome ratings compared to the broader GEF portfolio.** Of the 330 completed NbS-aligned projects, 80 percent have submitted terminal evaluations, according to data available on the GEF portal. Validated performance ratings are available for nearly all projects with submitted terminal evaluations. Among the projects without validated ratings, most have either not reported a terminal evaluation date or have submitted a terminal evaluation that is pending review.

69. **In terms of project outcomes, 87 percent of NbS-aligned projects receive ratings in the satisfactory range**, comparable to the overall GEF portfolio (figure 9).[11] An NbS-aligned project in Bhutan (GEF ID 5713, UNDP) serves as an example of a project that achieved satisfactory outcomes. It brought over 237,000 hectares (ha) of forest, nearly 9 percent of the country's total forest area, under sustainable and climate-resilient management practices, significantly exceeding its initial target of 100,000 ha. The project also promoted sustainable land management and climate-smart agriculture across 1,800 ha of agricultural land and improved access to irrigation for 852 farming households. Although the project included a target to increase income among beneficiary households, it did not report on this indicator, stating that it was not a required reporting element.

Figure 9: Share of projects rated in the satisfactory range across key performance dimensions, comparing NbS-aligned and non-NbS GEF projects



Source: GEF IEO based on validated terminal evaluation dataset.

Note: All completed FSPs and MSPs since GEF-5 with validated terminal evaluations are included in the analysis. The figures for sustainability refer to the share of projects in the "likely" range (i.e., moderately likely and likely) to sustain their results.

[11] Analysis of all completed FSPs and MSPs from GEF-5 with validated terminal evaluations.

70. **Despite strong performance in achieving intended outcomes, NbS-aligned projects exhibit weaker sustainability ratings compared to the broader GEF portfolio.** Only 58 percent of NbS-aligned projects are rated as likely to be sustainable, compared to 74 percent for other completed GEF projects (figure 9). This difference is statistically significant at the 1 percent level, indicating that while NbS-aligned projects perform well in achieving their intended outcomes, the sustainability of their results is a concern. The NbS alignment and sustainability rating remains negative and statistically significant after controlling for region, LDC/SIDS status, and when excluding projects implemented in Africa from the analysis. This pattern may be partly explained by the fact that a large share of NbS-aligned projects fall under the biodiversity and land degradation focal areas, which historically tend to have lower sustainability ratings compared to projects in other focal areas (GEF IEO 2025). Section 3.5 discusses sustainability of NbS-aligned projects further.

71. **A review of terminal evaluations suggests that challenges in ensuring long-term financial flows and institutional complexity required due to the multisectoral nature of NbS-aligned projects hindered the sustainability of the results**. For instance, the project Mitigating Key Sector Pressures on Marine and Coastal Biodiversity and Further Strengthening the National System of Marine Protected Areas in Djibouti (GEF ID 9215, UNDP) received a satisfactory outcome rating. However, its sustainability was rated as moderately unlikely due to delayed efforts to engage the private sector and mobilize additional resources. Similarly, the project Sustainable Management of Namibia's Forested Lands (GEF ID 4832, UNDP) faced challenges related to institutional sustainability, particularly due to insufficient coordination among government agencies. These cases illustrate the importance of early planning for long-term financing and governance arrangements in NbS-aligned projects.

72. **A comparison of validated ratings across key performance dimensions reveals that NbS-aligned projects perform on par with other projects in the GEF portfolio (figure 9).** A simple comparison with non-NbS-aligned projects suggests that the NbS-aligned portfolio has a slightly lower share of projects rated in the satisfactory range for M&E design, M&E implementation, and overall implementation quality, while showing a slightly higher share for overall project execution. However, robust logistic regressions conducted to compare the two groups confirm that none of these differences is statistically significant at the 5 percent level. This finding suggests that despite some variation, the performance quality of NbS-aligned projects is broadly comparable to the rest of the GEF portfolio.

73. **There are notable regional disparities in the performance of NbS projects, with projects in Africa exhibiting lower outcome and sustainability ratings compared to those in other regions.** In Africa, only 81 percent of completed projects have an outcome rating in the satisfactory range, below the overall portfolio average of 87 percent. Sustainability is a more pronounced challenge, with only 35 percent of projects in the region receiving a sustainability

rating in the likely range. In contrast, projects in the Europe and Central Asia region tend to perform better, with 93 percent receiving a satisfactory outcome rating and nearly 70 percent achieving a likely sustainability rating. These regional differences reflect the broader trends observed in the broader portfolio of GEF-supported projects (GEF IEO, 2025). The differences highlight persistent challenges in ensuring results and resilience of NbS interventions in contexts with higher vulnerability and implementation constraints.

3.2.4 *Performance against IUCN criteria*

74. Out of the 933 NbS-aligned projects, 60 projects were selected as part of a stratified sample and were analyzed in greater depth. This section analyzes the subset of 60 projects against the 8 IUCN criteria (IUCN 2020). The results are presented in this section and summarized in table 4.

75. **The average scores across all NbS-aligned projects in the sample selected for deeper analysis indicate a generally positive performance, with each IUCN NbS criterion/indicator at least partially met, though evidence may be mixed or less strong on a project-to-project basis.** Each project was assigned a score out of 3 for each of the eight IUCN NbS indicators listed in tables 4 and 5.[12] Projects scored particularly well on addressing societal challenges, biodiversity gains, and mainstreaming. Areas where projects performed less well were economic viability and adaptive management. Given that these projects were selected based on the presence of NbS elements, their relatively high scores across the IUCN criteria are not unexpected.

76. **GEF NbS-aligned projects emphasize addressing societal and ecological goals.** Ongoing scoring of these projects against the eight IUCN NbS criteria reveals a consistent emphasis on addressing societal challenges, with Criterion 1 (societal challenge) receiving the highest average score of 2.98. This finding reflects the GEF's effectiveness in targeting pressing social and environmental priorities. Criterion 3 (net biodiversity gain and ecosystem preservation) follows closely at 2.85, reflecting a strong commitment to ecological benefits. Criterion 8 (sustainability and mainstreaming within jurisdictional contexts) and Criterion 2 (consideration of scale and landscape) also score relatively high, at 2.84 and 2.82, respectively, indicating that projects are designed with long-term integration and broader landscape impact in mind. The lowest scoring criterion is Criterion 4 (economic viability), with an average score of 2.32, highlighting an opportunity to strengthen the financial sustainability of NbS-aligned projects. Criteria 5 and 7 (inclusive governance and adaptive management, respectively, both at 2.65) scored lower,

[12] Each sampled project was rated across eight indicators based on a review of project documents. A score of 3 indicates strong evidence that the indicator has been met; a score of 2 reflects mixed or limited evidence; and a score of 1 means that the project documentation does not provide any indication of whether the indicator has been met

suggesting room for improvement in participatory decision-making and evidence-based project adjustments (table 4). NbS contributions to GEBs are discussed in subsection 3.3.2.

77. **Economic viability is a key area for further improvement in GEF NbS-aligned projects.** GEF NbS projects scored lowest on Criterion 4 (economic viability) due to several recurring limitations. One commonly observed gap is the lack of comprehensive baseline economic analyses and inconsistent socioeconomic impact reporting, which are essential for demonstrating long-term viability. In some cases weak market-oriented strategies and insufficient planning, resulted in unsustainable economic benefits. On the other hand, Criterion 8 received consistently high scores, at 2.84 out of 3.00, suggesting a strong emphasis on planning for broader adoption. Taken together, these findings suggest that the lower sustainability ratings of NbS-aligned projects observed earlier in this evaluation are influenced in part by limitations in financial sustainability. It is important to note that the sustainability rating used in this evaluation is based on a broader set of risks, including financial, sociopolitical, governance, and environmental factors, which may not always be fully addressed by strong institutional mainstreaming alone.

78. **Governance presents another area where further strengthening could enhance the effectiveness of NbS-aligned projects.** Because nature-based solutions are multi-functional, operate at the landscape scale, and are deeply rooted in social contexts, they require a particularly deliberate, inclusive, and often more intensive approach to stakeholder engagement**.** Criterion 5 (governance), which focuses on inclusive, transparent, and empowering governance processes, has a lower score. These findings highlight opportunities to deepen engagement with stakeholders across GEF NbS-aligned projects. A review of terminal evaluations identified several aspects at the project level that could be enhanced to strengthen stakeholder engagement. For example, gender analyses and action plans could be more operational by including concrete strategies and stronger facilitation processes. At the same time, gaps in mainstreaming gender into budgeting practices were also noted as factors influencing the depth and quality of engagement. Similarly, the engagement processes with IPLCs suffer from capacity and resource challenges undermining meaningful and effective participation (Further discussed in section 3.3.6.1.). Addressing these areas may help reinforce governance processes and promote more meaningful and equitable participation in NbS interventions.

79. **Adaptive management also emerges as an area for continued development in NbS-aligned projects**. The relatively lower average score for Criterion 7 (adaptive management based on evidence) reflects opportunities to strengthen M&E systems to support project responsiveness and learning better. In several projects, M&E systems are not fully equipped to enable real-time feedback and adjustment during implementation. Inconsistent application of adaptive management practices was also noted in some cases, indicating an opportunity for embedding these approaches more systematically across projects.

Table 4 : Average scores across the stratified GEF NbS-aligned project list

Stratified GEF NbS-aligned project list	
Criteria	**Average score**
1. Does the project address one or several societal challenges?	2.98
2. Does the project consider scale and the wider landscape?	2.82
3. Does the project seek to deliver a net gain to biodiversity and ecosystems and avoid or minimize loss?	2.85
4. Are the solutions proposed and implemented under the project economically viable?	2.32
5. Are the solutions proposed and implemented based on inclusive, transparent, and empowering governance processes?	2.65
6. Does the project balance trade-offs between primary objectives and the provision of multiple benefits?	2.79
7. Is the NbS project (and its implemented solutions) managed adaptively based on evidence?	2.65
8. Are the proposed and implemented solutions sustainable and mainstreamed within an appropriate jurisdictional context?	2.84

3.3 EFFECTIVENESS

3.3.1 *The GEF's approach to integrating NbS*

80. **The GEF family of funds facilitates the use of NbS to generate GEBs and co-benefits aligned with multilateral environmental agreements MEAs and relevant SDGs.** In its approach to NbS, integration is underpinned by whole-of-society, systems-thinking, systematic, and synergistic approaches. The GEF Trust Fund applies NbS across all focal areas and considers NbS as a cross-cutting approach. LDCF and SCCF, which identify NbS as a dedicated programming priority, focus on adaptation and socioeconomic priorities in LDCs and SIDS. GBFF integrates NbS to mitigate climate impacts on biodiversity and support food security and ecosystem services.

81. **The GEF's entry points for NbS integration across the GEF family of trust funds align with four levers of transformational change: (1) transformation governance and policies, (2) financial leverage, (3) multistakeholder dialogues, and (4) innovation and learning.** Table 5 outlines these

aspects. It demonstrates that the GEF Trust Fund and the GBFF adopt the same entry points for integrating NbS, grounded in the GEF's primary transformation levers. In contrast, the LDCF and SCCF employ three levers.

Table 5: Entry points for NbS integration in the GEF family of trust funds

GEF Trust Fund	LDCF and SCCF	GBFF
NbS is a crosscutting theme. **Governance and policy coherence:** Create opportunities for a whole-of-government approach to ensure coherence and cross-sectoral institutional integration in formulating policies and mainstreaming environmental priorities. **Financial leverage:** Harness countries' potential to mobilize domestic financing and private capital for investment in initiatives that generate global environmental benefits. **Innovation and learning:** Harness technology options, business models, and institutional innovations that speed the transition to nature-positive, climate-neutral, and pollution-free solutions. **Multistakeholder dialogues:** Mobilize and engage new stakeholders and new partnerships and build coalitions for change.	**NbS is one of the thematic priorities.** Policy coherence and mainstreaming of climate adaptation; Strengthened governance for adaptation; and Knowledge exchange and collaboration, including multistakeholder dialogues, innovation, and learning.	**NbS is integrated into KMGBF targets.** Policy and governance; Leveraging finance; Multistakeholder dialogues; and Innovation and learning.

82. **The GEF's systems-oriented approach aligns well with NbS principles, particularly its emphasis on landscape-level interventions and integrated, multifocal programming.** This approach supports innovation and institutional collaboration, recognizing that scaling solutions requires iterative adaptation and country-level coordination (Donald and Ratner 2023; GEF IEO 2022). Partnerships with the GCF further promote complementarity through shared practices and knowledge exchange (GEF 2016). As noted by the GEF IEO (2022), greater emphasis is needed on demonstrating the added value of integrated approaches in terms of socioeconomic co-benefits, policy influence, and inclusion.

83. **Two key gaps limit the effectiveness of NbS integration.** Despite the recognition of the importance of NbS in the GEF's strategy and programming directions, there is a lack of a clear definition of NbS and its relationship to existing concepts and approaches, such as SLM, EbA, and

eco-DRR. Second, many countries lack the capacity to integrate and finance NbS within their development planning**.** Unclear guidance results in ad hoc application of NbS in programming and project designs. Several interviewees highlighted that NbS is still seen as a controversial term in governance because it is unclear whether it builds on or integrates existing approaches such as SLM and EbA. STAP has provided general guidance on NbS (STAP 2022) and EbA, a related approach (STAP 2024). However, given the diversity of NbS approaches within the GEF, a significant gap remains in specific, actionable guidance for effectively integrating these approaches into the design and implementation of projects and programs. Interviewees also highlighted that while the integration of NbS is present in many GEF programs, it often comes across as an addition without clear guidance on how it can be integrated. Guidance at the design stage, including stating what NbS entails in each focal area and across them, may help bridge this gap. Earlier IEO evaluations highlighted how, despite the implementation of NbS, there was a lack of a consistent understanding and methodology for their application and assessment (GEF IEO 2022).

84. **Stakeholder engagement is central to the GEF's NbS approach but faces persistent challenges.** GEF-supported programs encourage inclusive participation across the government, private sector, and marginalized groups, notably through multistakeholder dialogues (GEF IEO 2024; GEF 2024). However, engagement challenges persist in GEF projects (also discussed in sections 3.3.4 and 3.3.6.1).

3.3.2 *Delivering GEBs*

85. **NbS-aligned projects, though constituting a smaller portion of the GEF overall portfolio, contribute significantly to several of its core indicators.** For instance, during the GEF-8 replenishment period, integrated programs, which often incorporate NbS approaches, accounted for 45.4 percent of the 88.5 million ha of terrestrial protected areas created or under improved management, and 43.4 percent of the 123 million ha of marine protected areas were similarly addressed. This disproportionate impact underscores the effectiveness of NbS-aligned projects in delivering substantial environmental benefits. The terminal evaluation figures for some core indicators may not be fully representative because only a few completed projects have reported on these indicators (annex 10, table 5).

86. **NbS-aligned projects contribute to human well-being by delivering environmental benefits that extend beyond biodiversity conservation.** While biodiversity conservation is central to the design and justification of NbS projects, evaluative evidence indicates that these projects contribute to other GEBs, such as climate change mitigation, adaptation, and land restoration. For example, in Pakistan, an SFM project[13] (GEF ID 5660, UNDP) led to nearly 10.3

13 Terminal evaluation, 2022. Sustainable Forest Management to Secure Multiple Benefits in High Conservation Value Forests (GEF ID 5660).

million tCO_2e avoided and sequestered, exceeding the project's target by 4 percent, through a combination of reforestation and conservation activities. In Tajikistan, a conservation and community livelihood project[14] (GEF ID 6949, UNDP) resulted in the restoration of over 16,000 ha of land in high-altitude forests and pastures, including by providing grants to civil society organizations for restoration activities. LDCF and SCCF support NbS-aligned projects that deliver climate adaptation benefits. For example, Enhancing Resilience of Vulnerable Coastal Areas and Communities to Climate Change in the Republic of Gambia (GEF ID 4724, UNDP) supported the restoration of nearly 1200 hectares of mangroves to reduce erosion risks. GEF-Trust Fund-supported projects also deliver adaptation benefits. For example, Cities-IAP: Sustainable Cities Initiative (GEF ID 9123, World Bank) supported the protection of 900 hectares of land in peri-urban Dakar against recurrent flooding, including through natural retention basins.

87. **NbS-aligned projects have also delivered biodiversity benefits in marine ecosystems**. The GEF has been providing support to the establishment of regional fisheries management organizations and marine protected areas (MPAs). For example, in the Marshall Islands, a natural resource management project[15] for atoll communities (GEF ID 5544, UNDP) contributed to the creation of 7 new MPAs, covering nearly 60,000 ha. However, while the project explicitly aimed to deliver benefits for human well-being by sustaining livelihoods and building community resilience, it lacked specific indicators to measure these benefits.

88. **While NbS offer significant potential for carbon sequestration, their long-term financial viability relative to traditional alternatives remains insufficiently examined.** Previous IEO evaluations, particularly those focusing on value for money (VFM) and SFM, have provided evidence of NbS benefits. For instance, the SFM evaluation highlighted notable contributions to forest protection, reporting that nearly 78 million ha have been brought under protected area status or improved management. These SFM projects addressed environmental impacts, such as biodiversity and ecosystem function protection, as well as social benefits, including job creation, empowerment of IPLCs, and increased income. Furthermore, a VFM analysis of GEF SFM interventions indicated cost effectiveness relative to the amount invested; specifically, a case study in Uganda found that GEF SFM projects were associated with a $310 increase in household assets compared to areas without such projects. Based on a very conservative estimate using a specific four-year carbon sequestration valuation method, the overall rate of return was $0.69 for every $1 invested in GEF SFM projects, though it is important to note that this figure does not encompass all environmental and socioeconomic benefits or costs.

14 Terminal evaluation, 2022. Conservation and Sustainable Use of Pamir Alay and Tien Shan Ecosystems for Snow Leopard Protection and Sustainable Community Livelihoods" (GEF ID 6949).

15 Terminal evaluation, 2023. Ridge to Reef (R2R) Reimaanlok. Looking to the Future: Strengthening Natural Resource Management in Atoll Communities in the Republic of Marshall Islands Employing Integrated Approaches (RMI R2R) (GEF ID 5544).

89. However, despite such findings, systematic assessments of NbS long-term cost effectiveness concerning ecosystem services such as carbon sequestration, food security and water security remain lacking in GEF-supported projects. This gap, as highlighted during KIIs and analysis of the portfolio, is particularly important to address because it has direct implications for scaling up NbS interventions and addressing trade-offs. For example, the TE for a cities project (GEF ID 9142, UNEP) in Brazil noted that the NbS interventions were either too limited in scale or insufficiently monitored to reliably demonstrate results that could inform territorial planning, influence public policy, or support replication.[16] Therefore, demonstrating clear, evidence-based returns on investment is essential to not only justify continued public financing, but also attract private sector investors who require credible, quantifiable outcomes to assess risk and reward. Furthermore, robust cost-effectiveness data strengthens the overall narrative of NbS, reinforcing its role as a viable and scalable alternative to traditional solutions and enhancing its integration into policies and practice.

90. **Moreover, limited knowledge, capacity, and technical expertise hinder the effective of NbS.** Several KIIs underscore that robust scientific knowledge, technical expertise, and strong, context-specific evidence are fundamental prerequisites for the effective implementation of NbS. While demand for NbS is rapidly increasing, a critical gap often persists between this enthusiasm and the nuanced technical understanding necessary for successful application, leading to significant implementation risks and uncertainties about long-term effectiveness, resilience, and cost efficiency. For example, in Tonga, lessons learned from the Ridge to Reef project[17] (GEF ID 5663, UNDP) highlighted that while community members demonstrated extensive understanding of the environmental challenges affecting their ecosystems, the project's effectiveness was constrained by limited access to scientific and technical knowledge related to NbS. This gap hindered the translation of local insights into technically sound and sustainable solutions. Similarly, in Comoros, the GEF project supported protected areas that were co-managed with local village communities (GEF ID 5062, UNDP).[18] The project underestimated both the time required to complete legal processes and the financial resources needed for implementation. As a result, some interventions could not be fully operationalized, limiting their intended benefits to biodiversity and human well-being. Similarly, the MTR and site visits to the Green Ag project in India (GEF ID 9243, FAO) underscored the need for stronger collaboration with forest and environment departments, enhanced technical expertise in NBS, and improved communication regarding environmental threats and project outcomes. There have been recent efforts to bridge these gaps, including through projects such as Using Systemic Approaches and Simulation to Scale

[16] Terminal evaluation, 2024. Promoting Sustainable Cities in Brazil through integrated urban planning and innovative technologies investment (GEF ID 9142).

[17] Terminal evaluation, 2018. Ridge to Reef (R2R) Integrated Environmental Management of the Fanga'uta Lagoon Catchment (GEF ID 5663).

[18] Terminal evaluation, 2021. Development of a National Nnetwork of Terrestrial and Marine Protected Areas Representative of the Comoros' Unique Natural Heritage and Co-managed with Local Village Communities (GEF ID 5062).

Nature-based Infrastructure for Climate Adaptation (GEF ID 10632, UNIDO) and Sustainable Cities Integrated Program Global Platform (SCIP-GP; GEF ID 10452, UNEP) which together have developed online repositories of resources, online courses covering varied NbS themes(www.shiftcities.org/nature-based-solutions), e-learning materials, policy dialogues, and peer exchanges covering topics related to NbS.

3.3.3 *Delivering socioeconomic co-benefits*

91. The GEF defines socioeconomic benefits as positive effects of GEF investments that fall outside the formal set of GEBs. These include local benefits that must be achieved to realize the mandated GEBs and ensure their durability, as well as benefits outside the GEF's mandate that could help increase the overall impact of GEF investment (GEF 2024; STAP 2023). These benefits relate to improvements in social and economic conditions (including livelihoods, health and nutrition, access to essential services, employment, and human capacity), market development, and improvements in inclusion, empowerment, and institutional capacity.

92. **The NbS-aligned projects have generated notable socioeconomic benefits.** Farmers adopting SLM practices, such as agroforestry, reforestation, and soil conservation, have reported higher yields, better water retention, and reduced soil erosion. For example, in Ghana, Promoting a Value Chain Approach to Climate Change Adaptation in Agriculture in Ghana (GEF ID 4368, IFAD) measured the project's[19] contribution to agricultural productivity. The project found that plots treated using poultry manure produced higher yield and demonstrated more resilience against drought conditions. In Armenia, the introduction of efficient and sustainable community-managed pasture/fodder-based livestock production under the Community Agricultural Resource Management and Competitiveness (CARMAC) project[20] (GEF ID 4954, World Bank) contributed to an increase in farm incomes among 80 percent of the farmers surveyed, in addition to the implementation of management practices that minimize destructive grazing. Similarly, in the Philippines (GEF ID 5767, UNDP), a sustainable land management project[21] helped deliver multiple environmental and socioeconomic benefits (box 3). In Costa Rica, a biodiversity conservation project[22] in production landscapes provided employment in urban reforestation activities to families affected by pandemic-related job losses, helping ease the economic hardships caused by COVID-19. Additionally, section 3.5.2 of this report discusses the contribution of NbS to transformational change in socioeconomic systems.

[19] Terminal evaluation, 2017. Promoting a Value Chain Approach to Climate Change Adaptation in Agriculture in Ghana (ProVACCA) (GEF ID 4368).

[20] Terminal evaluation, 2017. Community Agricultural Resource Management and Competitiveness (CARMAC) (GEF ID 4954).

[21] Terminal evaluation, 2019. Implementation of SLM Practices to Address Land Degradation and Mitigate Effects of Drought (GEF ID 5767) and field visits.

[22] Terminal evaluation, 2022. Conserving Biodiversity through Sustainable Management in Production Landscapes in Costa Rica (GEF ID 9416).

Box 4: Nature-based solutions (NbS) delivering multifaceted benefits in the Philippines

The project Implementation of Sustainable Land Management (SLM) Practices to Address Land Degradation and Mitigate the Effects of Drought (GEF ID 5767, UNDP), implemented between 2015 and 2021, exemplifies an NbS initiative that generates multiple environmental and socioeconomic benefits.

The project has contributed to significant changes in land management, increased biodiversity, and enhanced livelihoods, with direct impacts on income generation for beneficiaries. One participant highlighted the tangible benefits of the initiative, sharing that the increased income from fruit cultivation enabled her to support her daughter's education, allowing her to attend nursing school while also improving their overall quality of life. Her farm was strategically selected near a major highway to maximize the benefits of SLM interventions. This location not only facilitated the demonstration of effective SLM practices, but also played a critical role in slope stabilization, reducing the risk of landslides near the roadway.

2014(Before)

2025(After)

This project has served as a successful model, influencing local policy and being scaled up at the community level in the Philippines. During the field visits, stakeholders indicated how GEF support has been a key factor in promoting SLM, and based on the gains made in the SLM practices project, SLM has continued to be piloted by the government and integrated into the latest GEF-funded biodiversity corridor project.

93. **Despite promising outcomes, measuring the socioeconomic benefits of NbS remains challenging.** Key barriers include gaps in strategic design, insufficient long-term planning and implementation, variability in the societal issues addressed, absence of baseline data, and inconsistencies in monitoring and reporting practices. The Multiplying Environmental and Carbon Benefits in High Andean Ecosystems project (GEF ID 4750, UNEP)[23] illustrates some of these challenges. While it targeted value chains and aimed to improve livelihoods, it lacked strong social assessments and integrated livelihood strategies in its design, thereby limiting its socioeconomic impact. Similarly, in Belize, the project Management and Protection of Key Biodiversity Areas (GEF ID 4605, World Bank) suffered from a weak results framework, which lacked baseline data, relied heavily on output indicators, and included overlapping and unfocused metrics, hindering effective tracking and adaptation. Box 2 mentions similar limitations in projects in Nepal.

94. **A narrow articulation of socioeconomic benefits in the GEF's Results Framework further complicates their assessment.** While the Framework includes 10 environmental indicators aligned with five core result areas, it features only one co-benefit indicator (Indicator 11: Number of people benefiting from GEF investments, disaggregated by gender). Evidence from GEF and STAP reports indicates that socioeconomic benefits are crucial for sustaining GEBs (Smith and Metternicht 2022, Stafford 2020). An IEO evaluation in the Lower Mekong River Basin provided evidence that project designs often lacked clear guidance for applying tools like EbA and EbM and did not include adequate indicators to assess their effectiveness (GEF IEO 2022). Although GEF acknowledges that its investments support several SDGs across environmental and societal domains (GEF 2022), the current co-benefit indicator is too limited to reflect the broader societal impacts of GEF investments and the full potential of integrating NbS across its strategies and operations (table 6).

Table 6 : Socioeconomic indicators identified from GEF-7 projects

Theme	*Share (%)*
Social	**35**
Livelihoods, wealth, and quality of life	29
Health and safety	16
Access to essential services	10
Economic	**26**
Employment	8

[23] Terminal evaluation, 2019, Multiplying Environmental and Carbon Benefits in High Andean Ecosystems (GEF ID 4750).

Agriculture and food	23
Market development	**17**
Competitiveness and industrial development	17
Cross-cutting areas	**55**
Inclusion and empowerment	20
Institutional, policy, and human capacity	41
Gender equality	100

Source: GEF 2024e.

3.3.4 *Private sector engagement*

95. **Mobilizing private sector support is essential to support the broader adoption of NbS.** According to UNEP, the total annual finance flows to NbS in 2022 were approximately $200 billion, only a third of what is needed to meet global climate, biodiversity, and land degradation targets by 2030. In another report, UNEP found that private sector contribution to NbS financing was only 14 percent. This significant funding gap highlights the opportunity for increased private-sector investment in NbS, which has historically been dominated by public and philanthropic financing. Private sector engagement in NbS projects also supports Targets 14 and 19 of the KMGBF, which explicitly mention private sector activities and resources.

96. **Private sector cofinancing commitments in NbS projects slightly exceed the GEF-wide average, but the total share of funding from private sources is much lower**. In the portfolio reviewed for this evaluation, only six projects involve at least one private sector entity as an executing agency, all of which are from GEF-7 and GEF-8, reflecting the relatively early stage of private sector involvement in the GEF's NbS portfolio. Among NbS projects, 36 percent include at least one private sector cofinancier, compared to 32 percent for the overall GEF portfolio from GEF-5 on. However, private sector cofinancing comprises only 8.3 percent of total cofinancing, lower than the 14.9 percent figure for the overall GEF portfolio in the same period.[24]

97. **Most recent GEF-supported NbS projects involve some level of engagement with the private sector at the identification stage**. Since GEF-7, FSPs and two-step MSPs report on whether they engage different types of stakeholders during project identification stage. Focusing on this cohort of projects, slightly more than 60 percent of NbS projects report consulting the private sector. This figure is higher than the figure for the overall portfolio of similar GEF projects

[24] Source: IEO analysis of data from the Cofinancing Report (GEF Portal), as of December 31, 2024. Cofinancing data come from the design stage, so future amounts could shift over the course of project implementation.

(51 percent).[25] Furthermore, this NbS portfolio includes 12 NGI projects representing 1 percent of the whole portfolio, similar to the share in the overall GEF portfolio since GEF-5.[26] However, none of these NbS projects that consulted the private sector has reached completion, so their performance cannot yet be assessed.

98. **Recently, GEF has taken initial steps to engage the private sector through enabling frameworks and innovative finance instruments, though their effectiveness and scalability remain to be fully assessed.** NbS is specifically highlighted as a priority within the GEF-8 strategy for blended finance initiatives to work with the private sector. In recent replenishment periods, the GEF has initiated a range of efforts to engage the private sector, focusing on reducing investment risks, establishing enabling conditions, and piloting innovative financing mechanisms. These initiatives include support for natural capital accounting and the development of frameworks designed to guide financial institutions, such as the project Establishing the Taskforce on Nature-related Financial Disclosures (TNFD) (GEF ID 10755, WWF-US) and the project Umbrella Programme to Support Development of Biodiversity Finance Plans (GEF ID 11054, UNDP). While these efforts represent important early steps toward aligning private capital with nature-positive investments, their scale and maturity remain limited. Additional interventions have sought to attract private investment through blended finance arrangements and outcome-based instruments, including coral and wildlife bonds (GEF IDs 11323 and 11514, World Bank), debt-for-nature transactions (GEF ID 11324, World Bank), and the creation of concessional mechanisms such as the Natural Capital Fund with the Asian Development Bank (GEF ID 11062, ADB). Because these instruments are still emerging, further analysis will be necessary to assess their effectiveness, scalability, and potential for replication across various contexts.

99. **Financing and effectively engaging the private sector remain a challenge in most NbS-aligned GEF projects**. Evidence based on the results reported in the terminal evaluations of these projects highlights several specific difficulties. Many projects found it challenging to create effective partnerships with the private sector despite recognizing their potential (GEF ID 5463, UNDP), sometimes due to limited analysis of private sector opportunities during the project design phase.[27] Involvement was often less than anticipated or confined to limited roles, such as buyers of non-timber forest products (GEF ID 4905, UNEP).[28] Aligning project objectives with the financial viability and operational scales required by private sector actors also proved difficult; for instance, a project in Uganda showed that small-scale briquette producers could not qualify for

[25] Source: IEO analysis of data from the Extended General Report (GEF Portal), as of December 31, 2024. Comparison figure from a cohort of all PIF-approved FSPs and two-step MSPs since GEF-7.

[26] Source: IEO analysis of data from the Extended General Report (GEF Portal), as of December 31, 2024. Comparison figure from a cohort of all PIF-approved FSPs and MSPs since GEF-5.

[27] Terminal evaluation, 2021. Securing Watershed Services through Sustainable Land Management in the Ruvu and Zigi Catchments in Tanzania (GEF ID 5463).

[28] Terminal evaluation, 2023. Conservation through Landscape-based Collaborative Management of Cambodia's Protected Area System as Demonstrated in the Eastern Plains Landscape (CAMPAS Project) (GEF ID 4905).

CleanStart funding aimed at private sector energy value chains (GEF ID 4644, UNDP).[29] Furthermore, achieving sustainable financial revenue streams through private sector involvement, such as ecotourism development via public-private partnerships, was often not realized by the project's completion, requiring additional infrastructure, investment, and marketing efforts (GEF ID 5034, UNDP).[30] In some cases, even when interest from the private sector was observed, convincing evidence of embedding project outputs into their functions and workplans was lacking, raising questions about post-project sustainability (GEF ID 5692, UNDP).[31]

100. Key informants substantiated these challenges, noting that the deployment of blended finance has not yet consistently contributed to achieving economic viability. The challenges are attributed to factors such as inadequate economic baselines, weak market-oriented approaches, insufficient long-term economic benefit planning, limited support for adoption and market access, inadequate long-term funding, and the extended timelines often required to achieve viability. Compounding these issues, the private sector generally favors projects that offer quick returns while avoiding those with high upfront costs or extended payback periods. Informants also emphasized a critical gap: the lack of clear guidelines and engagement channels for involving the private sector in NbS. This lack limits the development of nature-positive, market-based solutions across value chains that align with the GEF's GEBs and socioeconomic objectives.

3.3.5 *Effectiveness of GEF interventions in green and hybrid infrastructure development*

101. A nature-based infrastructure approach considers conservation values and actions related to land development, growth management, built infrastructure planning, policy development, and research and innovation (Tzoulas et al. 2007; Benedict and McMahon 2002).

102. **NbS-aligned projects have implemented hybrid infrastructure focused on water management, soil conservation, and the support of livelihoods that enhance resilience and improve the quality of life**. For example, a project[32] in Costa Rica promoted the use of trees and grass along sidewalks, alongside a shift from fully impermeable surfaces to semipermeable or permeable materials, such as permeable concrete and gravel fix, which had not been previously used in the area. These measures helped reduce urban flooding and improve stormwater management. This project also led to a municipality (La Union) using funds collected through fines issued by the local police for ecological and urban restoration, acknowledging the link

[29] Terminal evaluation, 2019. Addressing Barriers to Adoption of Improved Charcoal Production Technologies and Sustainable Land Practices through an Integrated Approach (GEF ID 4644).

[30] Terminal evaluation, 2020. Enhancing the Forest Nature Reserves Network for Biodiversity Conservation in Tanzania (GEF ID 5034).

[31] Terminal evaluation, 2022. Mainstreaming Biodiversity Conservation into River Management (GEF ID 5692).

[32] Terminal evaluation, 2022. Conserving Biodiversity through Sustainable Management in Production Landscapes in Costa Rica (GEF ID 9416).

between green spaces and civic safety, a co-benefit. Another project[33] in Bosnia and Herzegovina (GEF ID 5604, UNDP) focused on hybrid infrastructure for floodplain management and green measures, such as reinforcing riverbanks with vegetation, including under floodplain agroforestry management, which contributed to reducing vulnerabilities in 13 municipalities. The terminal evaluation also noted the initial hesitation to consider agroforestry as a solution because it was not commonly practiced in the local area.

103. **The GEF Sustainable Cities program has the longest track record of strategically supporting the development of green and hybrid infrastructure (since 2014), although this approach has also been incorporated into other integrated programs.**[34] A review of selected Cities' PFDs shows that they are designed to produce environmental, economic, and social benefits using integrated programming, intersectoral collaboration, and multilevel governance.[35] [36] The sectors include water, sanitation, waste, energy, and transport. Box 5 mentions nature-based solutions supported through the Sustainable Cities Program.

104. **Evidence from two closed GEF-6 child projects under the Sustainable Cities program demonstrates the benefits and possibilities of using NbS to address urban development problems.** In Senegal, GEF-supported climate resilience interventions contributed to enhancing green spaces in urban neighborhoods (GEF ID 9123, World Bank).[37] Trees planted through the initiative acted as natural barriers, helped prevent mudslides, and improved water retention. Eight municipalities benefited from creating and enhancing green spaces, while 80 neighborhoods received cleaning equipment to support local maintenance efforts. In Brazil, another child project (GEF ID 9142, UNEP) focused on spring preservation activities in Brasília.[38] It involved diagnosing priority areas for forest restoration to improve water availability in the Paranoá and Descoberto river basins, resulting in the mapping of approximately 91,000 ha. The project restored 80 ha of Permanent Preservation Areas around springs and recharge zones, benefiting 72 rural producers and two ecological parks. It also piloted watershed restoration, spring protection, and rainwater harvesting activities, recognized as innovation labs for sustainable urban development. While these pilots effectively demonstrated the benefits of NbS,

[33] Terminal evaluation, 2020. Technology Transfer for Climate Resilient Flood Management in Vrbas River Basin (GEF ID 5604).

[34] For example, the Clean and Healthy Ocean Integrated Program (GEF ID 11349) promotes coastal and marine resilience by combining NbS with gray infrastructure through integrated financing approaches. Similarly, the Greening Transportation Infrastructure Development Integrated program (GEF ID 11467) focuses on avoiding development in ecologically sensitive areas, recognizing ecosystem services as essential infrastructure and protecting natural systems to sustain their functions.

[35] [[AQ: Info missing here?]]

[36] Sustainable Cities Integrated Approach Pilot (GEF ID 9077), Sustainable Cities Impact Program (GEF ID 10391), and Sustainable Cities Integrated Program (GEF ID 11287).

[37] Terminal evaluation, 2020. Stormwater Management and Climate Change Adaptation subproject (GEF ID 9123), in which GEF support helped scale up the sustainable cities subcomponent of the project under GEF-6.

[38] Terminal evaluation, 2024. Promoting Sustainable Cities in Brazil through Integrated Urban Planning and Innovative Technologies Investment (GEF ID 9142).

their success was closely linked to the availability of dedicated funding for urban sustainability innovation.

Box 5: From Concrete to Canopy: Urban Greening through Nature-Based Solutions in GEF Cities

The Sustainable Cities Program increasingly prioritizes urban forestry and green infrastructure. While many initiatives are still at an early stage and long-term impacts remain to be fully measured, there is a growing body of evidence suggesting that such NbS approaches, such as increased urban vegetation, can play a meaningful role in improving urban livability, climate resilience, and biodiversity. These efforts support global commitments such as Target 12 of the KMGBF, which calls for more and better-managed urban green and blue spaces.

This NbS approach is being implemented across several cities. In **Freetown**, the GEF supports #FreetownTheTreeTown, which aims to grow five million trees by 2030. Since its launch in 2020, over 560,000 trees have been planted, with more than 500,000 geo-tagged, tokenized, and verified on the Freetown Green Infrastructure Investment platform, showing a survival rate of over 80%. Trees are monitored using a mobile app, with survival-based micropayments sent to community stewards, an innovation that enhances transparency, enables decentralized data collection, and introduces performance-linked "impact tokens" as a potential financing mechanism. **Johannesburg** is planting plant 200,000 trees to reduce urban heat in underserved neighborhoods. **Chennai** has restored lakes to boost flood resilience, biodiversity, and access to green spaces. **Kigali** has converted degraded wetlands into eco-parks like Nyandungu, while **San José** is developing biological corridors to reconnect fragmented habitats. Meanwhile, **Chengdu, Chongqing,** and **Ningbo** are embedding NbS into broader green development and carbon neutrality strategies. In alignment with expert recommendations for locally relevant NbS, these planting efforts prioritize native species to support urban ecological health, and counteract the negative impacts of invasive species.

The GEF project in **Asunción** is titled "Asuncion Green City of the Americas – Pathways to Sustainability" (GEF ID 9127, UNDP) focused on improving the management of green areas and conserving urban biodiversity. Key activities included restoring the Banco San Miguel y Bahía de Asunción Ecological reserve and Metropolitan Guasu Park through community clean-up efforts. An IEO analysis using NASA satellite data found that areas with more vegetation were 2–6°C cooler, highlighting the effectiveness of NbS in reducing urban heat (Figure below).

105. **However, scaling up GEF support for green infrastructure would require addressing systemic barriers through knowledge sharing, capacity building, and valuation.** Decision makers' adoption of green infrastructure has been influenced by the narrow set of assessment tools, which focus on financial benefits and exclude the value of nature or its loss. There is also a poor understanding of gray-green approaches. Engineering and architecture are still taught with a strong gray focus. Consequently, decision makers often opt for gray infrastructure, even when green or hybrid infrastructure would be more effective. Sometimes, choices are influenced by what is familiar (path dependency). However, green infrastructure alone cannot meet all the infrastructure needs without gray infrastructure. For example, in water, sanitation, agriculture, and irrigation, gray infrastructure is necessary due to the high volume of services required in urban areas, the need for machinery and supply chains, and the channeling of large volumes of water (IISD 2020). KIIs further highlighted that conventional gray infrastructure approaches are deeply embedded in development planning, not only due to technical familiarity but also because of political economy factors. As such, green-gray infrastructure represents a pragmatic and effective entry point. Developing and promoting valuation tools that enable governments to compare green, gray, and hybrid options objectively can support more balanced and informed infrastructure decisions. A recent example can be seen in Indonesia, where the economic valuation conducted under the SCCF-supported GEF 7 project Using Systemic Approaches and Simulation to Scale Nature-Based Infrastructure for Climate Adaptation (GEF ID 10632, UNIDO) informed the design of another project in the country, the Maintaining and Enhancing Water Yield Through Land and Forest Rehabilitation (MEWLAFOR, GEF ID 10757). The MEWLAFOR project seeks to apply a hybrid approach to address land degradation-induced water scarcity.

3.3.6 *NbS contribution to other cross-cutting themes*

3.3.6.1 *Effectiveness of inclusion of marginalized groups*

106. **Implementing NbS in Indigenous Peoples' territories/community areas necessitates transparent benefit-sharing, integration of traditional and scientific knowledge, and sustained capacity building to align sectoral policies and strengthen community well-being.** Evaluative evidence from TE reviews and KIIs highlights several issues – potential for NbS to deliver benefits for marginalized groups and significant concerns regarding potential trade-offs, exclusion, and the need for equitable and just implementation processes. For instance, including marginalized groups, including IPLCs, requires culturally sensitive engagement that acknowledges historical resource disputes, complex local dynamics, and diverse leadership structures. Effective partnership depends on the co-production of traditional and local knowledge with scientific methods and robust benefit-sharing, including fair and equitable compensation where necessary. Several KIIs emphasized genuinely empowering or co-creating with IPLCs instead of focusing on

superficial engagement, limited to information sharing and consultation, which remains the norm.

107. **The inclusion of marginalized groups remains an area requiring attention.** Specifically, projects have consistently scored lower on the IUCN's Criterion 5, which assesses the extent to which governance processes are inclusive, transparent, and empowering. This concern is further supported by findings from IEO evaluations, which point to persistent issues such as inadequate funding for gender action plans and limited capacity to overcome barriers in scaling up successful interventions. While many projects feature multistakeholder dialogues, the roles and responsibilities of participants are often not well defined, and the engagement of Indigenous Peoples and local communities (IPLCs) remains weak. Evaluative evidence also revealed ongoing difficulties in addressing the entrenched marginalization of IPLCs and bolstering the financial and institutional capabilities of local organizations.

108. For instance, the Conservation and Sustainable Use of the Threatened Savanna Woodland in the Kidepo Critical Landscape project in Northeastern Uganda (GEF ID 4456, UNDP) encountered issues with stakeholder engagement and participatory planning, lacking evidence of inclusive and transparent governance processes. Similarly, the terminal evaluation of the project Dynamic Conservation and Sustainable Use of Agro-Biodiversity in Traditional Agro-ecosystems of the Philippines (GEF ID 5549, FAO) revealed the absence of gender analysis and the non-conductance of FPIC regarding access and benefit-sharing measures.[39] These shortcomings have resulted in reduced participation from marginalized groups and created disconnects in managing expectations across different levels of governance. To strengthen the participation and leadership of Indigenous Peoples and local communities, the GEF more recently launched the Inclusive Conservation Initiative (ICI; GEF ID 10404, CI and IUCN) under GEF-7 and a second phase (ICI 2.0; GEF ID 11761, WWF-US) under GEF-8. These efforts complement GEF's earlier efforts, such as the establishment of the Indigenous Peoples Advisory Group (IPAG), which played a key role in developing the GEF's Policy on Environmental and Social Safeguards, and its Principles and Guidelines for Engagement with Indigenous Peoples.

109. **A notable challenge arises from reservation of some IPLCs to disclosing information about their genetic resources and ancestral knowledge due to differing conceptual frameworks and worldviews.** For example, a GEF project (GEF ID 4618, UNEP) in Latin America faced opposition regarding the publication of information on genetic resources and ancestral knowledge.[40] The time and cost required to develop trust and enable the assimilation of new

[39] The requirement to conduct a gender analysis or equivalent socio-economic assessment took effect on July 1, 2018 after the Policy on Gender Equality (2017) and the Guidance to Advance Gender Equality in GEF projects and programs (2018) were approved and adopted. The project example provided here was approved before the policy and guidance were enforced.

[40] Terminal evaluation, 2019. ABS Guatemala: Access to and Benefit Sharing and Protection of Traditional Knowledge to Promote Biodiversity Conservation and Sustainable Use (GEF ID 4618).

concepts within traditional societies were underestimated in some project designs, highlighting the need for a more realistic and culturally sensitive approach to project timelines and stakeholder engagement (GEF ID 5668, CI).[41] More recent GEF-supported projects seek to address this challenge. For example, under GEF-8, Empowering Indigenous Peoples and Local Communities (IPLCs) to manage biodiversity data and information as a strategy to conserve their territories, safeguard traditional knowledge, and promote integrated biodiversity management (GEF ID 11269, UNEP) seeks to support data sovereignty of Indigenous Peoples and their empowerment through the use of biodiversity information under adequate protocols, including FPIC. Additionally, GEF-7 ICI (GEF ID 10404, CI and IUCN) supports efforts in Kenya to strengthen IPLC rights and governance of natural and cultural resources, including through capacity building and legal empowerment for interested communities.

110. **A key lesson is the importance of using traditional knowledge of IPLCs.** Some projects have underused this valuable resource, hindering their success. For instance, the management of community seed banks in one project (GEF ID 5549, FAO) overlooked traditional household seed storage practices, a missed opportunity for complementarity.[42] Conversely, projects that effectively integrate traditional knowledge with innovation report positive results. The Ethiopia project (GEF ID 9135, UNDP) serves as a strong example, strategically combining traditional farmer knowledge on soil and water conservation with innovations such as value chains and specific nature-based practices.[43] This inclusive approach fostered community buy-in and increased the adoption of promoted practices. The project's success highlights the value of dialogue and the appropriate application of both traditional and scientific perspectives. Recent projects demonstrate\ GEF's continued support in this area. Under GEF-7, ICI (GEF ID 10404, CI and IUCN) was launched to support IPLCs and their traditional knowledge systems in conserving biodiversity while advancing cultural and economic development. Supported efforts include sustainable land management in Argentina and Kenya, and the revitalization of traditional farming practices to strengthen climate resilience in Fiji and the Cook Islands. Under GEF-8, ICI 2.0 (GEF ID 11761, WWF-US) was launched in 2024, with a new call for expressions of interest expected in 2025

111. Furthermore, data indicates that NbS projects report a slightly lower number of female beneficiaries at the design stage compared to other GEF projects. Among projects reporting on

[41] Terminal evaluation, 2023. Innovative Use of a Voluntary Payment for Environmental Services Scheme to Avoid and Reduce GHG Emissions and Enhance Carbon Stocks in the Highly Threatened Dry Chaco Forest Complex in Western Paraguay (GEF ID 5668).

[42] Terminal evaluation, 2022. Dynamic Conservation and Sustainable Use of Agro-biodiversity in Traditional Agro-ecosystems of the Philippines (GEF ID 5549).

[43] Terminal evaluation, 2021. Food-IAP: Integrated Landscape Management to Enhance Food Security and Ecosystem Resilience (GEF ID 9135).

the number of beneficiaries from GEF-financed investments, women constitute 48.3 percent of beneficiaries in NbS projects, compared to 50.7 percent in other GEF projects.

112. Terminal evaluation reports show mixed results on integrating gender and women's empowerment into projects. While many projects acknowledged the importance and collected gender-disaggregated data, and some achieved positive outcomes for women (e.g., resource access, decision making), significant gaps remain. Several evaluations found limited overall gender inclusion due to a lack of detailed analysis and targeted strategies from the start. Conversely, some projects successfully integrated gender, even exceeding requirements. However, challenges included failing to translate gender studies into action, not proactively targeting women or vulnerable groups, and late gender action plans hindering effectiveness.

3.3.6.2 *NbS and peacebuilding*

113. **NbS serve as a powerful tool for peacebuilding because they address environmental drivers of conflict, such as resource scarcity of water, land, and forests (GEF IEO 2024, FCS Evaluation).** By promoting sustainable resource management and ecosystem restoration, NbS can enhance the availability of essential resources, reducing competition and potential disputes. For example, restoring degraded lands can improve agricultural productivity and water retention, directly benefiting communities reliant on these resources and mitigating conflict triggers (box 6). Additionally, NbS foster cooperation by bringing communities together to address shared environmental challenges, promoting dialogue, collaboration, and trust-building even in conflict-prone areas. Furthermore, the use of participatory approaches in NbS projects strengthens social cohesion by actively engaging local communities in decision-making and implementation processes.

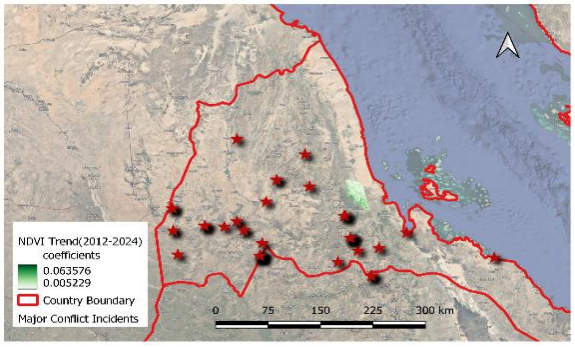
114. **Beyond preventing conflict, NbS contribute to peacebuilding by supporting sustainable livelihoods through ecotourism, sustainable agriculture, and green business development, thereby reducing reliance on unsustainable resource exploitation.** Investments in ecosystem restoration also generate employment in key sectors such as forestry, fisheries, and agriculture, alleviating economic stressors that often underlie social unrest. Moreover, NbS enhance resilience to climate change and environmental shocks, which can exacerbate existing vulnerabilities and trigger conflicts. By protecting and restoring ecosystems such as forests, wetlands, and coral reefs, NbS help communities withstand disasters, prevent displacement, and reduce competition over scarce resources, ultimately contributing to long-term stability.

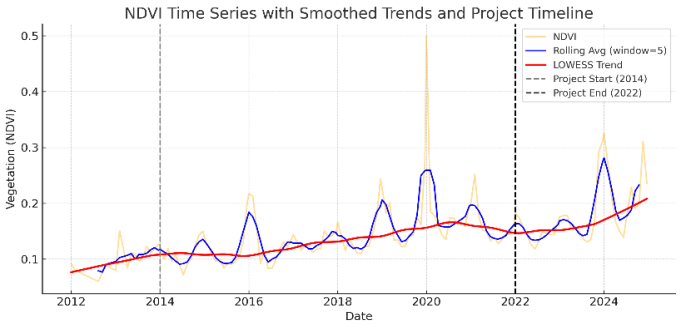
115. **Several GEF-funded projects have successfully applied NbS in diverse contexts to address environmental challenges while simultaneously contributing to peacebuilding.** These projects foster cooperation, provide sustainable livelihoods, empower communities, and strengthen governance in fragile and conflict-affected regions. In Colombia, the Pacífico

Biocultural project (GEF ID 9441, FAO) supports post-conflict recovery by enhancing local governance, promoting sustainable landscape management, and restoring ecosystem services in a vulnerable landscape (MTR 2023). The project also empowers Indigenous and Afro-descendant communities to participate actively in governance and decision making. Similarly, in Burkina Faso, another project plans to support participatory land management efforts to strengthen community resilience and social ties (GEF ID 11003, UNDP). The Heart of the Amazon project (GEF ID 5560, World Bank) in Colombia, part of the Amazon Sustainable Landscapes program, supported peace through inclusive governance, equitable resource management, and sustainable economic opportunities while addressing environmental and social challenges (PIR 2024). By integrating ecological restoration with social and economic benefits, these projects exemplify NbS as a viable strategy for sustainable peacebuilding. Similarly, several NbS-aligned projects in the dryland, SFM, and GEF-supported Great Green Wall Initiatives have actively contributed to peacebuilding in regions affected by environmental and social stress.

Box 6 : NbS in fragile and conflict situations

In Eritrea, the project "Integrated Semenawi and Debubawi Bahri-Buri-Irrori-Hawakil Protected Area System for Conservation of Biodiversity and Mitigation of Land Degradation" (GEFID 4559, UNDP) operated in a post-conflict context marked by severe environmental degradation. Adopting an implicit human rights approach, it aimed to safeguard Eritrea's ecosystems and biodiversity by creating the policy and institutional foundations for a national protected area system. Key outputs included baseline studies, biodiversity management plans, protected area demarcations, and pilot interventions in sustainable land, water, and forest management. Despite these efforts, the project was significantly delayed, lasting nine years instead of the planned seven. The terminal evaluation noted that core outputs were not adopted by the government, leading to no meaningful policy or institutional change. Weak political will and limited ownership hindered the upscaling of pilot interventions. Since the terminal evaluation, however, the two protected areas have been formally recognized under IUCN categories. Satellite data analysis further indicates stable or increasing vegetation cover in these areas over the past decade, underscoring the positive effects of conservation and protection efforts, even though similar local demonstrations have yet to be scaled up nationally (figure below).





Another example of such effort comes from Sudan, where the Sudan Sustainable Natural Resource Management Project (GEFID 5619, WB), part of the GEF GGW initiative, operates in a fragile and conflict-affected context and aims to increase the adoption of sustainable land and water management (SLWM) practices in targeted landscapes. The project used NbS approach by engaging communities in restoring rangelands and forest reserves through measures such as reforestation, rotational grazing, shelterbelt establishment, and integrated water management. It contributed to land rehabilitation, biodiversity protection, and climate change mitigation, reducing an estimated 13.5 million tons of carbon emissions over 20 years. Despite these achievements, the project faced serious challenges. Political instability, institutional disruptions, and the 2021 military takeover significantly undermined continuity and delayed uptake of project outputs. Activities ceased prematurely, and key sustainability measures, including local governance and enforcement mechanisms, remain at risk. The project highlights the potential of NbS in conflict-affected areas but underscores the critical importance of stable governance and long-term institutional support for lasting impact.

3.4 POLICY COHERENCE

116. **Policy coherence[44] is essential for effectively implementing nature-based solutions because it ensures alignment across sectors, governance levels, and policy objectives, enabling NbS to realize their full potential.** It is a cross-cutting principle in the GEF-8 , reflected in both the Programming Directions and the Strategic Positioning Framework reflecting the GEF's recognition of its importance and its increasing integration into projects. STAP recommends that the GEF adopt explicit and comprehensive objectives for policy coherence, ensuring coordination across sectors, government levels, and timescales. Policy coherence should be operationalized at all levels, from projects and programs to country engagement and collaboration with MEAs. Building on Seddon et al. (2020)'s emphasis on effective implementation, evaluating the policy coherence of older projects offers critical lessons for designing successful future NbS interventions and establishing robust governance frameworks essential for their long-term success.

117. Coherence contributed to project success when there was proactive alignment with national and subnational policies, and when GEF interventions established effective coordination mechanisms across institutions and sectors, adapted project strategies to support evolving policy priorities, and created spaces for policy dialogue. For instance, projects that complemented existing government initiatives, such as a biodiversity conservation project[45] in China (GEF ID 4356, FAO), or aligned with national priorities outlined in development strategies, like the conservation agriculture project in Moldova[46] (GEF ID 4366, IFAD), they were more likely to receive strong government support and ensured national ownership, contributing to their overall success. In Rwanda, the success of a GEF project that supported land restoration activities (GEF ID 4952, World Bank) was predicated on its ability to work across the environment, water, and forestry sectors.[47]

118. **However, a lack of policy coherence emerged as a recurring issue in most NbS-aligned projects.** Key factors that undermined coherence included inconsistent alignment with national policy agendas, where project objectives were not always in sync with existing development or sectoral strategies and implementation capacity, limiting buy-in and long-term sustainability (GEF ID 4930, UNEP).[48] Weak interinstitutional and intersectoral coordination was also a common challenge (GEF IDs 4577, FAO; 4892, UNDP; 4905, UNEP, and GEF ID 9243, FAO), with fragmented

[44] In the GEF context, coherence means systematically promoting government policies across various agencies that reinforce one another. Policy coherence creates synergy, helping achieve shared goals. Specifically for international development, this principle often looks like aligning environmental, social, and economic policies to support the SDGs.

[45] Terminal evaluation, 2021. Securing Biodiversity Conservation and Sustainable Use in China's Dongting Lake Protected Areas (GEF ID 4356).

[46] Terminal evaluation, 2021. Climate Resilience through Conservation Agriculture (GEF ID 4366).

[47] Terminal evaluation, 2022. Landscape Approach to Forest Restoration and Conservation (LAFREC) (GEF ID 4952)

[48] Terminal evaluation, 2019. Enhancing the Conservation Effectiveness of Seagrass Ecosystems Supporting Globally Significant Populations of Dugong Across the Indian and Pacific Ocean Basins (GEF ID 4930).

mandates among government agencies leading to inefficiencies, delays, and reduced impact (GEF IDs 4870, 5404, and 5692, UNDP). Several projects faced gaps or overlaps in policy and legal frameworks, creating confusion around roles and responsibilities and hindering effective implementation (GEF IDs 5067 and 4826, UNDP). Political and administrative changes, such as shifts in government mandates, delays in policy approvals, or broader restructuring, disrupted continuity and introduced bureaucratic hurdles (GEF IDs 4479 and 4945, UNDP). Even when national plans or strategies were developed, a lack of a unified vision and harmonized approaches across sectors often weakened policy integration (GEF ID 4905, UNEP). Additionally, sociopolitical issues such as land tenure conflicts and legal ambiguities (GEF ID 5596, WWF-US) further complicate the coherence of environmental and development objectives of these interventions.

119. **Coherent approaches are especially critical to the success of NbS in low-capacity contexts.** KIIs and expert insights highlighted that policy coherence plays a central role in the effective implementation and scaling of NbS. A major challenge stems from institutional fragmentation: environmental ministries, typically the main partners for NbS initiatives, often lack the authority and influence over national budget allocations and development planning, which are usually led by finance and planning ministries. This disconnect limits the integration of NbS into core national strategies. Achieving policy coherence requires bridging these interministerial divides, potentially through targeted analyses demonstrating the socioeconomic benefits of NbS. It also involves embedding NbS principles across sectors such as land-use planning, ensuring that cross-sectoral benefits, like biodiversity's contributions to human well-being, are systematically measured and valued.

120. In addition, practitioners emphasized the need for coherence across international funding mechanisms and conventions. Greater alignment would help prevent fragmented efforts, improve complementarity, streamline reporting processes, and better align external support with national priorities. Such coherence is particularly vital in capacity-constrained countries to enable more impactful, sustainable, and scalable deployment of NbS.

Box 7: Policy coherence

GEF-supported NbS-aligned projects in Indonesia have served as key entry points for fostering policy coherence between conservation and other sectors. Among the 35 GEF-supported projects in Indonesia identified as involving work on policy coherence, most are NbS-aligned. Eight of these projects specifically support coherence between terrestrial conservation efforts and the agriculture and forestry sectors, an alignment critical for ensuring that land use and natural resource management policies are not at odds with environmental goals. Furthermore, seven projects involved activities that contributed to policy coherence between the environmental and development planning sectors. These examples reflect the unique positioning of NbS approaches to bridge sectoral silos, as they inherently seek to generate environmental benefits while addressing development needs.

An example of such coherence is the project Transforming Effectiveness of Biodiversity Conservation in Priority Sumatran Landscapes (GEF ID 4892, UNDP), which explicitly aimed to deliver biodiversity and human well-being benefits through improved landscape governance. The project supported community-based SFM and promoted biodiversity-friendly alternative livelihoods such as ecotourism. To support these outcomes, the project worked to establish intersectoral coordination systems in key Sumatran landscapes, fostering partnerships among conservation, forestry, finance, and law enforcement agencies. However, while the project's design emphasized cross-sectoral coordination, its results framework did not include indicators to track progress in establishing or institutionalizing these mechanisms, despite these being central to one of the project's components. This issue highlights a broader challenge in programming: while projects often advance policy coherence in practice, their contributions in this area may not be fully captured in monitoring and evaluation systems.

3.5 IMPACT AND SUSTAINABILITY

3.5.1 *Broader adoption*

121. **The NbS portfolio offers several examples on how broader adoption[49] has been achieved.** NbS and NbS-related approaches have been institutionalized in GEF Agencies; integrated into national plans, NAPs, NDCs, multisector-integrated approaches, and sector-specific management plans; and replicated in other areas. The GEF has enabled broader adoption through piloting, NbS cofinancing, and partnering with other multilateral funds. In addition, the broader adoption of NbS projects through the Green Climate Fund has been significant. Box 6 and annex 8 provide additional details. Annex 6 presents a case study of mangrove reforestation activities which have been sustained by a local government in Indonesia after the completion of a GEF project.

[49] Broader adoption in the GEF context refers to the uptake of a GEF-supported intervention by stakeholders through sustaining, mainstreaming, replication, and/or scaling up without the use of GEF funds; Also see Salafsky et al., 2021 for additional details on what GEF NbS broader adoption entails

122. **Broader adoption of NbS has worked well where country ownership is strong and interventions combine different strategies, explicitly embed plans to facilitate wider adoption, and are managed adaptively.** Broader adoption has worked less well where financing of broader adoption has not been carefully considered, NbS scaling theories of change are not developed, and government departments work in silos. For example, an agrobiodiversity project in the Philippines (GEF ID 5549, FAO) and a biodiversity project in Botswana (GEF ID 4544, UNDP) effectively addressed societal challenges but failed to integrate strong economic sustainability measures (annex 3). Additionally, high labor costs, competition from alternative land use, and limited support for adoption and market access expenses further hinder economic returns. For example, in China, the project CBPF-MSL: Strengthening the Management Effectiveness of the Protected Area Landscape in Altai Mountains and Wetlands (GEF ID 4653, UNDP) lacked a clear sustainability plan for the alternative livelihoods interventions it supports, including ecotourism and sustainable agriculture. Without stronger financial planning and market integration, NbS projects risk falling short of their long-term sustainability goals.

123. **Key factors influencing the broader adoption of NbS include awareness raising, capacity building, the creation of incentives, and the fostering of local ownership.** Evaluations by the GEF IEO (2024, 2023, 2022, 2018, 2017) consistently highlight that successful scaling of NbS interventions is enabled by a combination of awareness campaigns, capacity development, joint innovation and learning processes, well-designed incentives, and strong stakeholder ownership. Box 4 shows a case study on policy coherence in Indonesia.

124. **Several project designs within the NbS portfolio have incorporated explicit strategies for mainstreaming NbS**. Scaling up examples includes aligning NbS with national development plans and priorities, which helped ensure their long-term relevance and support. For example, in Timor-Leste, a GEF-supported project[50] that focused on establishing a protected area network and improving catchment management (GEF ID 9434, CI) successfully integrated community-based SFM into village-level natural resource management plans. This project represents a strong example of mainstreaming NbS into local governance and planning processes, laying the groundwork for broader adoption.

125. **MDBs play a crucial role in mainstreaming NbS by strategically blending their substantial resources with targeted funding from the GEF.** This synthesis allows for the integration of long-term environmental benefits into diverse development projects across sectors such as transport, disaster risk reduction, and coastal protection. For instance, The World Bank's Global Program on Nature-based Solutions for Climate Resilience, supported by the GEF, expands NbS investments in LDCs. Furthermore, The World Bank collaborates with the GEF to foster policy coherence necessary for the cross-sectoral implementation of NbS. This combined effort is important for

[50] Terminal evaluation, 2024. Securing the Long-term Conservation of Timor Leste Biodiversity and Ecosystem Services through the Establishement of a Functioning National Protected Area Network and the Improvement of Natural Resource Management in Priority Catchment Corridors (GEF ID 9434).

scaling up and embedding NbS into broader development agendas, adding value beyond standalone MDB financing.

126. **Several GEF-supported promising innovations have been successfully replicated elsewhere.** Examples of scaling out NbS (GEF IEO 2024) include:

(a) Fiji: The World Bank adopted the Jobs-for-Nature approach, inspired by the Ridge to Reef (R2R) national and regional child projects (GEF IDs 5398 and 5404, UNDP). This initiative led to the development of Jobs for Nature 2.0, which attracted significant additional funding from The World Bank.

(b) Broader uptake by partners: Organizations such as Conservation International, World Wildlife Fund, the Wildlife Conservation Society, and IUCN have begun incorporating R2R approaches into their programming.

(c) Vanuatu: The Community-based Prevention and Disaster Preparedness program introduced an innovative infiltration gallery solution, which was later replicated by the government in other water-related projects.

(d) Palau: The R2R child project (GEF ID 5208, UNEP) successfully promoted diversified funding sources, enhancing sustainability across nine states through a combination of investments, ecotourism initiatives, and grants.

127. Concurrently, numerous effective examples of NbS emerging outside the GEF framework present valuable opportunities for cross-learning and knowledge exchange. GEF donors and partner institutions have good NbS experience. Countries such as Australia, Canada, Germany, Japan, Norway, Sweden, Switzerland, and the UK are supporting a diverse range of NbS initiatives that integrate climate mitigation, adaptation, biodiversity conservation, and livelihood resilience. These efforts span a diverse range of ecosystems. Several initiatives emphasize the rights of Indigenous Peoples, tenure security, and locally led restoration, while others explore innovative financing for blue carbon and green infrastructure. Many of these projects offer strong results frameworks, adaptive management tools, and gender-responsive approaches that could inform GEF programming. They also represent valuable opportunities for cross-learning. A list of select examples is provided in Box 8, Box 9 and Annex 9 to highlight models of NbS implementation that could inspire replication and alignment with GEF-8 and future integrated programming.

Box 8: Guyana-EU partnership: Mangrove Restoration Initiative (NbS*)*

Guyana-EU partnership: Mangrove Restoration Initiative (NbS)

Guyana Mangrove Restoration Project (GMRP) exemplifies NbS serving as the core strategy for enhancing coastal resilience in Guyana. Faced with the critical challenge of a low-lying coast highly vulnerable to flooding, erosion, and rising sea levels, which strain expensive seawalls after historical mangrove loss, Guyana adopted an NbS approach centered on mangrove ecosystems. The NbS mechanism leverages the inherent functions of mangroves: their dense structures dissipate wave energy, mitigating coastal impact, while their root systems trap sediment, effectively stabilizing and building the shoreline to counteract erosion and subsidence. Led by the Government of Guyana with major EU support, implementing this NbS involved planting mangrove seedlings on tidal mudflats, using a participatory approach that actively engaged local communities. The results validate the effectiveness of this NbS strategy: successfully established mangrove fringes act as natural buffers, demonstrably reducing wave damage to infrastructure and enhancing sediment accretion. Beyond coastal defense, this NbS approach delivers significant co-benefits, including carbon sequestration (climate change mitigation), habitat creation (biodiversity conservation), and community engagement (social well-being), thereby boosting overall resilience.

Georgetown, Guyana's mangroves provide crucial coastal resilience. This photo clearly shows settlement established along the mangrove coast where waves are weaker. In stark contrast, the area without mangroves lacks settlement, exhibits significant erosion, and is battered by stronger waves, increasing flood risk. (Photo: Anupam Anand/GEF IEO)

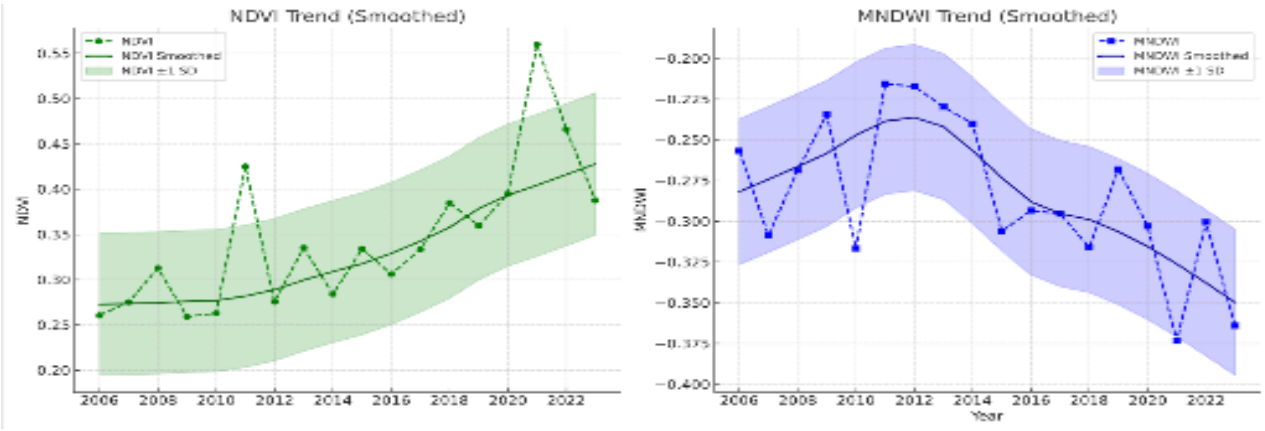
Box 9: India: From pilots to paradigm shift: Scaling up GEF NbS interventions through GCF

Several NbS-aligned GEF projects played a foundational role in piloting EbA approaches in India's coastal regions, notably through initiatives such as "IND-BD Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in Maharashtra and Orissa (GEF IDs 3941 and 3936, UNDP), which focused on mainstreaming biodiversity in production sector through community-based approaches including mangrove restoration and climate-resilient livelihoods. These interventions demonstrated the viability of integrating community-based and ecosystem-centered strategies into coastal management. Building on this groundwork, the Green Climate Fund (GCF) project Enhancing Climate Resilience of India's Coastal Communities (FP084) scaled up the GEF-supported models to a programmatic level across the coastal states of Andhra Pradesh, Maharashtra, and Odisha. The GCF investment expands EbA interventions and climate-adaptive livelihoods to more than 1.7 million direct beneficiaries while also creating mechanisms for replication across all 13 coastal states and territories in India. This transition from pilot to scale reflects a deliberate effort to mainstream climate risk into coastal planning and governance, catalyzed by the initial successes of GEF-funded work.

Map data: Google, Image 2025 Maxar Technologies

2011(Before) 2017(During) 2024(After)

Satellite data analysis shows clear positive ecological changes at the mangrove restoration sites. High-resolution optical imagery, combined with index-based analysis, reveals encouraging trends. Specifically, the normalized difference vegetation index (NDVI), an indicator of vegetation health and greenness, has increased, reflecting improved mangrove density and productivity. At the same time, the modified normalized difference water index (MNDWI), which highlights the presence of surface water, shows reduced variability, suggesting a decline in the extent and frequency of tidal and storm-related flooding in the restored areas. These trends indicate the successful establishment of mangrove ecosystems, which serve as natural buffers against coastal hazards and contribute to long-term shoreline stability.



3.5.2 *Contribution to transformational change*

128. The GEF's NbS-aligned portfolio has made contributions to transformational change through its NbS-aligned projects, including in natural systems, food, and socioeconomic systems. It should be noted that these contributions interact considerably, and results in one area can help or hinder results in another area.

129. **Transformational change in natural systems refers to the fundamental changes in natural systems, including ecosystem restoration, critical biomes, ecosystem protection, and sustainable management of landscapes and waterscapes**. For example, MFA projects protected and rehabilitated ecosystems to improve biodiversity; maintain ecosystem services like soil stabilization, water quality and quantity; and maintain carbon sinks (GEF IEO 2017). The projects also employed SLM practices to rehabilitate agroecosystems, sequester carbon, increase plant diversity, and improve agricultural productivity. The GEF's NbS-aligned portfolio has made emerging contributions to transformational change in natural systems. Examples include:

(a) The following aggregate positive contributions through investing in SFM for almost 30 years: (1) at least 78 million ha of forests have been given new protected area status and/or improved protected area management, (2) GEF SFM projects helped to restore at least 1.9 million ha of forests, and (3) 41 percent of GEF SFM projects achieved notable biodiversity gains, with gains in soil and water conservation and other protective functions in 25 percent of projects (GEF IEO 2022).

(b) The LDCF- and SCCF-supported interventions resulted in the establishment of 1.6 million ha of sustainable land and water management practices across 12 countries, and the Sahel and West Africa Program (SAWAP) in support of the Great Green Wall Initiative and the Supporting Sustainable Land Management in Steppe and Semi-arid Zones through Integrated Territorial Planning and Agro-Environmental Incentives project in Kazakhstan reduced the climate vulnerability of agro-ecosystems in the pilot areas and diversified farming systems (GEF IEO 2024).

(c) In Ethiopia, work with smallholder herders through the Resilient Food Systems IAP has resulted in high levels of vegetation and biodiversity recovery by preventing cattle from grazing in more than 59,000 ha of agricultural and forest land. The Commodities IAP (Good Growth Partnership or GGP) (1) improved the management of 28 million ha, avoiding a reported 140 Mt of CO_2 emissions; (2) protected 5,000 ha of high conservation value (HCV) forest in Liberia, leading to the avoidance of almost 6 Mt of CO_2 emissions; and (3) protected over 800,000 ha of HCV and/or high carbon stock in Indonesia, including almost 200,000 ha of HCV forest (Stancliffe 2023). At the same time, nearly half of the evaluated CBA projects improved land

management, recovered endangered and threatened species, restored degraded land, sequestrated carbon, reduced wildlife poaching and illegal logging, and enhanced the provision of water as an ecosystem service (GEF IEO 2023).

130. NbS-aligned projects have provided significant contributions. Examples of benefits related to transformational change in food systems include:

(a) The GEF evaluation report (2020) reveals that in Ethiopia, the Resilient Food Systems IAP resulted in about 118,000 households participating in more diversified production and livelihood activities in different value chains, reducing fuelwood and dung demand for energy and diversifying both on-farm and off-farm livelihoods.

(b) Under the same IAP, 38,900 farmers in Nigeria adopted climate-resilient agricultural practices and improved their livelihoods. Through the GGP, Indonesia, Paraguay, and Liberia producers have adopted more sustainable practices, which cover nearly 6 million ha and produce economic benefits, biodiversity benefits, and sustainable food production.

(c) In Indonesia, the GGP encouraged funding for and coordination of farmer capacity strengthening in the Palawan district, leading to new regulations promoting private sector involvement in supporting smallholders. This project resulted in companies partnering with smallholders, providing access to input, capacity building, and market access for sustainably produced palm oil.

131. Socioeconomic benefits are key for driving broader systems transformation. Their inclusion in this review reflects the recognition, embedded in the NbS framework, that socioeconomic systems are integral to addressing both global environmental and societal challenges (IUCN 2020). The GEF also recognizes this significance via its commitment to address relevant SDGs and its understanding that the sustainability of GEBs depends on the production of socioeconomic benefits. Examples of emerging areas of transformational change in NbS-aligned projects include:

(a) In Brazil, the Demand Project[51] influenced some large companies to revise their sourcing policies and helped Proforest engage with the Soft Commodities Forum. Members of the Soft Commodities Forum have agreed to monitor and publish data on trading company soy supply chains from 25 Cerrado municipalities facing the highest risk of conversion of native vegetation to soy production. Cargill and Amaggi,

[51] Terminal evaluations, 2021. Commodities-IAP: Generating Responsible Demand for Reduced-Deforestation Commodities (GEF ID 9182, child project); Comm-IAP: Taking Deforestation Out of Commodity Supply Chains (IAP-PROGRAM) (GEF ID 9072, parent program).

two major soy traders in Brazil, used the Soy Toolkit to update their corporate environmental policies (Stancliffe 2023).

(b) In Madagascar, CBA was used in mangrove conservation through participatory planning activities. These activities improved the livelihoods of local communities by allowing them to sell crabs and fish harvested from protected areas (GEF IEO 2023).

(c) MFA projects have contributed to diverse socioeconomic benefits by, for example, (1) creating at least 139,300 new formal jobs, which increased local community income, (2) significantly improving community empowerment and gender equality, (3) strengthening institutional capacities and governance, improving the management of forests, and creating conditions for social, institutional, and/or environmental sustainability beyond the project period (GEF IEO 2017).

(d) Co-benefits from the Pacific SIDS NbS interventions include integrating traditional systems with scientific models. For example, some R2R projects integrated traditional systems, such as taro water farming, with scientific models to address multidisciplinary local planning in Vanuatu (GEF IEO 2024).

4 CONCLUSIONS

4.1 RELEVANCE

132. **The GEF NbS-aligned project portfolio employs a diverse mix of interventions.** The GEF's NbS-aligned portfolio is a major contributor to advancing the objectives of multiple MEAs, while addressing interlinked environmental and development challenges. It features a diverse set of interventions, including capacity building, policy support, ecosystem restoration, and green infrastructure, often applied through integrated approaches such as ecosystem-based management and area-based conservation. The portfolio also supports climate-smart agriculture, eco-DRR, and hybrid infrastructure solutions. Projects commonly combine multiple NbS approaches to tackle issues such as biodiversity loss, climate change, land degradation, and community resilience in a holistic and scalable manner. However, NbS-aligned projects account for only about 30 percent of the total GEF portfolio during the review period, indicating significant potential to scale up and mainstream the NbS approach across a broader range of interventions. The lack of a clear operational definition and inconsistent tagging within GEF somewhat limits strategic coherence and assessment of relevance across the portfolio.

133. **NbS approaches are relevant to the GEF's mandate to deliver GEBs and co-benefits under its MEAs mandate, though some skepticism remains about their cost effectiveness compared to non-NbS approaches.** The relevance of NbS in the GEF arises from its integrative potential, which is needed to produce synergistic relationships and results. Synergistic

relationships include those between NbS-aligned approaches, diverse GEF stakeholders, multiple scales of operation, and various MEA goals. NbS also has the potential to establish processes to balance environmental and societal benefits and benefit distribution across stakeholders and scales. Moreover, NbS principles also strongly align with national governments' priorities as outlined under policy coherence findings. However, some skepticism exists about the relevance and effectiveness of specific NbS projects to deliver more cost effectively than non-NbS projects.

4.2 EFFECTIVENESS

134. **NbS-aligned projects demonstrate effectiveness comparable to the overall GEF portfolio. However, sustainability remains a concern.** These projects significantly contribute to the GEF's core indicators and deliver substantial GEBs, particularly in areas like protected area management, land restoration, and landscape improvements. However, these achievements contrast with weaker performance in ensuring the long-term sustainability of results, as measured using ratings drawn from GEF IEO validated terminal evaluation dataset. NbS projects significantly underperform compared to the broader portfolio, raising questions about the durability of the outcomes achieved. Key factors hindering sustainability, as identified in terminal evaluations, include persistent challenges in securing long-term financial flows and addressing the institutional complexity inherent in the multisectoral nature of NbS, necessitating better advance planning for financing and governance arrangements. Issues such as delayed private sector engagement, difficulties mobilizing resources, and insufficient coordination among government agencies contribute to these concerns.

135. **While alignment with global NbS standards appears to strengthen over time, some important areas still require further development, particularly economic viability, governance, and adaptive management, which are linked in part to the absence of dedicated GEF institutional infrastructure and guidance for NbS.** When assessed against the IUCN Global Standard for NbS, the portfolio NbS-aligned projects demonstrate clear strengths, especially in addressing societal challenges and delivering net gains for biodiversity, reflecting alignment with core NbS principles and the GEF's mandate. However, performance on economic viability was comparatively lower, pointing to ongoing difficulties in ensuring financial sustainability. Inclusive governance and adaptive management based on evidence also scored somewhat lower, suggesting opportunities to enhance stakeholder engagement, participatory processes, and the use of M&E systems to support learning and adaptive implementation. Underlying these gaps is a lack of dedicated GEF institutional infrastructure for NbS, including a unifying theory of change, specific integration guidance across approaches and robust monitoring, evaluation, and learning systems needed to systematically apply, track, and scale NbS effectively across the portfolio.

136. **The GEF NbS-aligned projects contribute to socioeconomic co-benefits, recognizing their link to sustaining GEBs, but their ability to systematically demonstrate this effectiveness is**

constrained by persistent measurement gaps and framework limitations. The evaluation confirms that NbS-aligned projects effectively generate socioeconomic co-benefits, such as improved livelihoods, increased farm incomes, enhanced resilience, and employment, which are crucial for sustaining GEBs. However, the ability to systematically demonstrate and measure this aspect of effectiveness is hindered by inconsistent inclusion of socioeconomic indicators in project designs, lack of baseline data, and the narrow scope of the GEF's official co-benefit indicator (Core Indicator 11). While GEF acknowledges the importance of these benefits, the current framework limits a comprehensive assessment of NbS's full contribution to human well-being.

137. **The GEF's support for NbS-aligned interventions risks underdelivering desired results due to systemic weaknesses in outcome-focused monitoring and adaptive learning processes.** The evaluation finds that project monitoring often stops at output-level indicators, providing limited tracking of crucial socio-ecological impacts and insufficient basis for effective adaptive management during implementation. While projects with stronger M&E systems performed better, such practices remain the exception. Furthermore, knowledge generation and learning across the NbS portfolio appear fragmented and largely reactive. This result is attributed to the lack of NbS-specific guidance, a unifying theory of change within GEF for NbS, and effective mechanisms to integrate evidence-based Indigenous and local knowledge with scientific understanding, ultimately constraining the potential for learning, adaptation, and achieving transformative impact through NbS.

138. **Inclusion of diverse stakeholders in NbS projects has improved, enabled by GEF policies and benefiting various groups, yet effectiveness is still hampered by the complexities of multistakeholder processes and specific challenges in engaging marginalized groups meaningfully.** Inclusion is central to NbS effectiveness, and GEF projects, particularly more recent ones, show increased effort in engaging marginalized groups like women and IPLCs. Recent efforts in promoting inclusion in NbS-aligned projects include ICI (GEF ID 10404, CI and IUCN), which introduced new mechanisms for direct financing and was structured to enable IPLCs to lead projects, including those that are NbS-aligned, and the aspirational target of the GBFF in allocating 20% of resources to support actions by IPLCs. Furthermore, the GEF's Policy on Gender Equality (2017) and its accompanying guidance (2018), effective since mid-2018, provide a foundation for more gender-responsive project design and implementation. Governments also leverage NbS support for policy coherence and environmental action. Nonetheless, challenges persist in project implementation due to the inherent complexity of managing multistakeholder processes. Significant gaps remain, particularly regarding gender mainstreaming and ensuring meaningful IPLC involvement throughout the project cycle, and navigating cultural sensitivities around traditional knowledge.

139. **While the GEF's NbS-aligned projects identify potential trade-offs during design, effectiveness is limited by the lack of active trade-off management during implementation and weaknesses in the adaptive capacity needed to navigate these complexities.** Effectively managing trade-offs between different environmental goals, societal benefits (local vs. global), time frames (short-term vs. long-term), and stakeholder interests is central to NbS. The evaluation finds that while GEF projects often identify potential trade-offs during the design phase, explicit management of these trade-offs during implementation is limited, often relying on implicit assumptions rather than active engagement. Strategies like compensation, compromise, or value addition are sometimes employed, often within multistakeholder processes that tend toward win-win narratives. This shortcoming is compounded by weaknesses in adaptive management capacity, limiting the ability to effectively monitor, evaluate, and adjust strategies to navigate trade-offs as they emerge.

140. **GEF-supported innovative finance initiatives show promise, yet scaling and demonstrating viability remains elusive.** While the GEF's large-scale programs (IAPs, impact programs, integrated programs) have created space and piloted innovative financial solutions (like blended finance, bonds, and NGI projects) for private sector engagement in NbS, sometimes achieving higher cofinancing ratios compared to the GEF average, scaling these efforts effectively across the portfolio remains elusive. Project evaluations reveal significant practical challenges hindering broader success, including difficulties forming effective partnerships, aligning project objectives with private sector operational and financial needs, achieving timely financial viability, and ensuring the long-term integration of project outcomes. Consequently, this initial engagement through pilots has not yet translated into scaled impact across the portfolio, nor has it consistently ensured the economic viability of the NbS interventions. Attracting private capital is further complicated by the delayed realization of benefits common to many NbS measures, often clashing with private sector preference for quicker returns, alongside persistent barriers related to demonstrating financial returns and the lack of clear engagement pathways.

141. **The overall effectiveness of the GEF's NbS interventions is frequently constrained by knowledge and capacity gaps among stakeholders, hindering the translation of NbS potential into consistently robust, resilient, and context-appropriate solutions.** The successful implementation of effective NbS interventions is often hampered by insufficient scientific knowledge, technical expertise, and local capacity. While interest in NbS is high, translating this interest into technically sound, context-specific solutions requires robust evidence and understanding, which is often lacking. This gap can lead to implementation risks, uncertainty about long-term results, underestimation of resources needed, and failure to leverage valuable traditional knowledge of IPLCs, ultimately limiting the effectiveness and resilience of NbS projects. The GEF’s Principles and Guidelines for Engagement with Indigenous Peoples, as well as the Social and Environmental Safeguards Guidelines, recognize and seek to elevate traditional

knowledge. However, the GEF IEO evaluation on Institutional Policies and Engagement (2022) identified areas where Western knowledge may still overpower traditional epistemologies.

4.3 Coherence

142. **Policy coherence is critical for NbS effectiveness and contributes significantly to project success when achieved; however, its frequent absence due to institutional and political challenges represents a major constraint across the portfolio.** The evaluation confirms that coherence contributes significantly to project success; interventions that proactively align with national and subnational policies, establish effective cross-sectoral coordination, and adapt to policy evolution achieve stronger national ownership and better results. However, a lack of policy coherence emerges as a major and recurring impediment across the NbS-aligned portfolio. This difficulty is frequently caused by inconsistent alignment between project objectives and national development agendas, weak interinstitutional coordination stemming from fragmented mandates, gaps or overlaps in legal frameworks, and disruptions from political or administrative changes. Particularly in low-capacity contexts, institutional fragmentation, especially the disconnect between environmental ministries and central finance or planning bodies, hinders the integration of NbS into core national strategies. Achieving greater coherence requires not only bridging these domestic institutional and sectoral divides, but also ensuring coherence among international funding mechanisms and conventions to support national priorities and impactful NbS deployment effectively.

4.4 Impact and Sustainability

143. **The GEF's NbS portfolio shows clear emerging contributions to transformational change across multiple systems, yet achieving deeper and more widespread systemic shifts remains constrained by significant capacity and financing limitations.** The evaluation highlights significant, albeit emerging, contributions to fundamental positive changes in interconnected natural, food, and socioeconomic systems. However, while impactful examples exist, the evaluation indicates that more projects struggled to achieve transformational change than succeeded. This challenge is largely attributed to persistent capacity constraints among GEF agencies, implementing partners, national stakeholders, and local communities, limiting their ability to prioritize NbS, develop coherent strategies, access financing, and implement projects effectively. Notably, the capacity to manage complex multistakeholder partnerships was seen as a particular constraint affecting newer NbS projects, alongside the ongoing challenge of securing adequate long-term financing required to deliver sustained, transformative impact.

144. **The GEF partnership has catalyzed broader NbS adoption by piloting innovations, mobilizing cofinancing, partnering with the GCF and MDBs, and integrating NbS into national policies and plans such as NAPs, NDCs, and sector strategies.** The GEF partnership has played a

critical role in enabling broader adoption by piloting NbS approaches, mobilizing cofinancing, collaborating with GCF and MDBs, and integrating NbS into national development priorities, including NAPs, NDCs, and sectoral planning processes. Successful scaling up typically occurs when interventions combine multiple types of innovation, are managed adaptively, and are supported by multistakeholder platforms that facilitate knowledge sharing and coordination. In contrast, broader adoption has been limited where financing strategies for scale-up were not clearly defined, underlying economic sustainability measures are weak, or institutional silos persist. Despite promising examples, uncertainty around future funding remains a recurring concern across the portfolio.

145. **Persistent evidence deficits surrounding NbS effectiveness and benefits contribute significantly to decision-maker hesitancy and challenges in ensuring sustained management of interventions.** The difficulties in measurement (highlighted by M&E weaknesses), the long-time frames often required for NbS benefits to accrue fully, and uncertainties about performance under specific conditions create a significant evidence gap. As noted in the evaluation, this deficit fosters hesitancy among decision makers when considering NbS investments compared to conventional alternatives. It makes securing the long-term commitments needed for sustained management and broader scaling is harder. Overcoming these barriers requires concerted efforts to advance the scientific foundation, build technical capacity for robust analysis (including feasibility studies), and establish clear, credible measurement protocols to ensure that NbS projects are appropriately designed and can deliver demonstrable, resilient outcomes.

5 RECOMMENDATIONS

146. **Recommendation 1**: **Develop NbS-specific guidance for integration, tracking, and adaptive management.** Institutional and systemic gaps in knowledge and learning continue to limit the GEF's ability to drive transformational outcomes through NbS. To address this, the GEF should build on its extensive experience by developing clear and concise guidance that includes potential entry points for effective NbS integration across the GEF, a specific theory of change on NbS, guidance on NbS terms and approaches, and indicators. These should align with internationally accepted criteria and be fully embedded within GEF programming. Doing so would enable more consistent and strategic integration of NbS into program and project design, enhance coherence, improve outcome tracking, and support adaptive management, especially in addressing trade-offs, reinforcing governance processes, and enabling long-term impact.

147. **Recommendation 2**: **Scale private sector engagement through blended finance for NbS.** Blended finance offers significant potential to catalyze private sector engagement in NbS, but unlocking this potential requires a more strategic and targeted approach. Future efforts should prioritize building strong partnerships, aligning objectives with private sector interests, and ensuring both short-term financial viability and long-term integration of outcomes. It is also

critical to address gaps in return expectations and establish clear, accessible engagement pathways. By leveraging instruments such as multilateral development banks and strategically aligning with the objectives of the KMGBF, the SCCF, and the LDCF, the GEF can enhance the scale, impact, and sustainability of private sector participation in NbS.

148. **Recommendation 3: Support countries in implementing NbS through inclusive capacity-building efforts, with a strong emphasis on fostering policy coherence**. The GEF, in collaboration with agencies and partner governments, should strengthen capacity development for national and local stakeholders, focusing on enhancing multi-stakeholder platforms, promoting gender-responsive approaches, and improving the engagement and governance roles of IPLCs. Building institutional capacity and readiness, including strengthening cross-sectoral coordination and alignment with national priorities, is essential for managing the complexity of NbS, achieving policy coherence, and sustaining outcomes over the long term.

149. **Recommendation 4: Strengthen the evidence base on cost-effectiveness and co-benefits of NbS approaches, including by enhancing the integration of Indigenous and local knowledge systems.** While NbS have the potential to deliver multiple environmental and socio-economic benefits, systematic evidence, particularly robust cost-benefit analyses, remains limited across the GEF portfolio. Additionally, the valuable contributions of Indigenous and local knowledge systems to the effectiveness, relevance, and sustainability of NbS are not adequately recognized or integrated. These knowledge systems offer critical contextual insights that can enhance targeting, implementation, and community ownership of NbS interventions. Currently, there is no systematic mechanism within the GEF to document or incorporate such knowledge into project design, monitoring, or evaluation frameworks. These two gaps, limited economic evidence and insufficient integration of Indigenous knowledge, constrain the ability to make informed, context-sensitive, and cost-effective investment decisions and to scale transformative NbS approaches. To address this, a combined approach that integrates scientific evidence with Indigenous and local knowledge is strongly recommended.

ANNEX 1: REFERENCES

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ANNEX 2: KEY INFORMANT INTERVIEWS

Organization	Role	Name
Evaluation Reference Group		
GEF Secretariat	Senior Biodiversity Specialist	Jurgis Pierre-Louis Sapijanskas
GEF STAP	Chair	Rosina Bierbaum
GEF STAP	Secretary	Sunday Leonard
GEF STAP	Panel Member	Christopher Whaley
African Development Bank (AfDB)	Chief Natural Resources Officer	Innocent Onah
Asian Development Bank (ADB)	Environment Specialist	Isao Endo
Development Bank of Latin America and the Caribbean (CAF)	Principal Executive for the Environment and Climate Change	Cecilia Guerra
Food and Agriculture Organization of the United Nations (FAO)	Climate Change and Environmental Sustainability Specialist	Manar Abdelmagied
United Nations Development Programme (UNDP)	Regional Technical Advisor for Ecosystems and Biodiversity	Monica Moldovan
United Nations Environment Programme (UNEP)	Deputy Director of UNEP-WCMC	Melissa De Kock
The World Bank	Environmental Specialist	Sara Choufi

The World Bank	Natural Resources Management Specialist	Dinara Akhmetova
World Wildlife Fund (WWF-US)	VP for Adaptation and Resilience and Deputy Lead for Climate Change	Shaun Martin
IUCN (External Peer Reviewer)	Global Head Climate Change and Energy Transition	Ali Raza Rizvi
Strategy-level key informants		
GEF	GEF Secretariat Focal Point, Senior Biodiversity Expert	Jurgis Pierre-Louis Sapijanskas
GEF	GEF Secretariat, Senior Climate Change Specialist	Tshewang Dorji
The World Bank	Co-TTL for several NbS projects, Senior Environmental Specialist	Ruth Tiffer-Sotomayor
The World Bank	Senior Natural Resources Management Specialist	Diana Akhmetova
United Nations Framework Convention on Climate Change (UNFCCC)	Secretariat, Program Management Officer	Debapriya Roy
UNFCCC	Secretariat, Climate Change Finance Subprogram Manager	Hyunwoo Noah Kim
UNFCCC	Secretariat, Climate Change Finance Subprogram Manager	Yolando Velasco
UNCCD	Secretariat, Chief Scientist of the Science,	Barron Joseph Orr

	Technology and Innovation	
CBD	Secretariat, Programme Management Officer for Biodiversity, Climate Change and Dry and Sub-humid Lands	Tristan Tyrrell
ADB	Climate and Environment Finance Specialist	Arun Abraham
Third World Network (TWN)	Head of Programs	Meena Raman
UNEP	Program Management Officer, Biodiversity, Climate Change and Dry and Subhumid Land	

Case Study Informants

Category	**Organization**	**Role**	**Name**
GEF Agency	UNDP (Ecuador)	Representative	Inka Mattila
	UNDP (Ecuador)	ProAmazonia Project Coordinator	Mireya Villacis
	UNDP (Ecuador)	Technical Monitoring Assistant (ProAmazonia)	Liset Herrera
	UNDP (Ecuador)	Coordinator REDD+	Patricio Jaramillo
	UNDP (Ecuador)	Advisor in Sustainable Cattle	Paul Ochoa
	UNDP (Ecuador)	Staff Member	Carmen Cabrera
	UNDP (Ecuador)	Staff Member	Wellington Bermeo
	UNDP (Ecuador)	Staff Member	Romel Garcia
	UNDP Regional (Ecuador)	Senior Adviser on Biodiversity	Alexandra Fischer

	UNEP (Nepal)	Project Lead (EbA-II Project)	Top Bahadur Khatri
	UNEP (Nepal)	Staff Member (EbA-II Project, Salyan)	Dr. Digambar Dahal
	UNOPS (Nepal)	Execution Agency Staff (via UNEP/UNOPS EbA-II Project)	Top Bahadur Khatri
	CI (Ecuador)	General Coordinator of the Connectivity Project	Joy Woolfson
	CI (Ecuador)	Project Coordinator (Corridor Project at Arutam)	Joy Woolfson
	CI (Ecuador)	Project Assistant (Corridor Project at Arutam)	Juan Neira
	CI (Ecuador)	General Coordinator of the Connectivity Project (CI Ecuador)	Joy Woolfson
	CI (Ecuador)	Staff	Jackeline Sarmiento
	CI (Ecuador)	Expert in Biodiversity	Juan Neira
	CI (Ecuador)	Expert in Management at Field Level and Land Planning	Tatiana Carjaval
	CI (Ecuador)	Staff	Erica Zambrano
	WCS (Ecuador)	Director – Landscape and Jaguar Projects (2 GEF Projects)	Galo Zapata
	UNDP (Armenia)	Team Leader Climate, Environment and Resilience	Hovhannes Ghazarya
	WWF Nepal	Project Staff (Ilam Project)	Shiva Raj Bhatta
	WWF Nepal	Project Staff (Ilam Project)	Bharat Gotame
	WWF Nepal	Project Staff (Ilam Project)	Nishant Adhikari
	WWF Nepal	Project Team (Ilam Project Site Office, Kohalpur, Banke)	5 Staff Members

	IUCN (Nepal)	Project Staff (Lakhandei Project)	Narendra Pradhan
	IUCN (Nepal)	Project Staff (Lakhandei Project)	Gyanendra Mishra
	IUCN (Nepal)	Project Staff (Lakhandei Project)	Amit Poudyal
IPLC and Civil Society	Field Interviews (Ecuador)	Local Farmer	Coffee Farm
	Field Interviews (Ecuador)	Association Members	Coffee Processing Plant “La Unión”
	Field Interviews (Ecuador)	Provincial President (SINAI County GAD)	Ing. Mercy Duchitanga
	Field Interviews (Ecuador)	President of the Union Association	Ivan Patinio
	Field Interviews (Ecuador)	Youth Representative	“Rico Suave” Coffee Bartender Organization
	Tsapau Association (Ecuador)	Project Coordinator (Jaguar Projects)	Community Member
	Tsapau Association (Ecuador)	Community Members	Tsapau Honey Bee Initiative
	Tsapau Association (Ecuador)	Community Members	Jaguar Projects
	Shuar Centre (Ecuador)	President, Centros Shuar de Sevilla Association	Erick Nawech
	Shuar Centre (Ecuador)	Vice President, Centros Shuar de Sevilla Association	Fany Puenchir
	Shuar Centre (Ecuador)	Gender Representative	Shuar Community

	Shuar Centre (Ecuador)	Community Members	Market Remodulation Beneficiaries
	Corridor Project (Ecuador)	Project Coordinator (CI)	Joy Woolfson
	Corridor Project (Ecuador)	Project Assistant (CI)	Juan Neira
	Corridor Project (Ecuador)	President, Shuar Federation of Pastaza & AFP Member	Ernesto Vargas
	Corridor Project (Ecuador)	Former President	Not Named
	YAPIT Project (Ecuador)	Women Representatives	Not Named
	Community & Civil Society (Nepal)	NTFP Enterprise Operators (Sunauli Bazaar, Salyan)	Mr. and Ms. Yog B Budhathoki
	Community & Civil Society (Nepal)	Community Members (Bhirchuli CFUG, Ward 7, Salyan)	
IPLC and Civil Society	FECOFUN (Nepal)	District Chair (Banke District)	Sabitra Pun
	FECOFUN (Nepal)	District Chair (Sarlahi District)	Pabitra BK
	FECOFUN (Nepal)	Central Committee Member	Uttar Kumar Mainali
Government	Government of Pastaza	GAD P Pastaza, International Development	Catalina Jiménez
	Government of Pastaza	Sustainable Development Subdirector	Alexis Fernández
	Government of Pastaza	Staff Member	Valeria Pozo
	Government of Pastaza	Director of Agriculture and Cattle Business (Estrategia de Agronegocios)	Matuas

	Government of Pastaza	Administrative Staff	Jefferson
	Divisional Forest Office (Nepal)	District Forest Officer (Salyan)	Tek Bahadur Rawal
	Divisional Forest Office (Nepal)	Staff Member (Salyan)	Anjana Sharma
	Divisional Forest Office (Nepal)	Project Officer (Sarlahi)	Prashant Roka
	Divisional Forest Office (Nepal)	Project Officer (Sarlahi)	Alamgir Ahmad
	Divisional Forest Office (Nepal)	DFO & Staff (Sarlahi)	Santosh Kumar Jha and team
	Local Government (Nepal)	Mayor (Bangad Kupinde Municipality, Salyan)	Karna Bahadur Budhathoki
	Local Government (Nepal)	Municipal Staff (Bangad Kupinde Municipality, Salyan)	3 Members
	Ministry of Forest and Environment (Nepal)	Chief, Planning Division	Badri Raj Dhungana
	Ministry of Forest and Environment (Nepal)	Under Secretary, Planning Division	Deepa Oli
	Bardiya National Park (Nepal)	Warden (Thakurdwara, Bardiya)	Dr. Ashok Kumar Ram

ANNEX 3: EXAMPLES OF NBS-ALIGNED GEF PROJECTS AND THEIR JUSTIFICATIONS

Project ID	Justification
Biodiversity	
Project 9584: Integrated Approach in the Management of Major Biodiversity Corridors (IA-Biological Corridors), GEF Phase 6, Start date: July 2021, End date: Ongoing, Country: Philippines	This project was visited in-person as part of the Philippines country visit and stands as an example of a biodiversity project with strong alignment because it scored highly on all indicators, in particular on addressing societal challenges, considering scale and the wider landscape, and delivering net gains for biodiversity and ecosystems. This project addresses biodiversity conservation through improved protected area management, reforestation, and sustainable land use practices, making it a strong example project for biodiversity focal areas. It is also a good example of GEF investment into multistakeholder partnerships. The project is designed to bring together a variety of stakeholders, and to date, a lot of effort has been spent on establishing the governance and engagement processes for the corridor. These processes take a lot of time and resources to establish, and while the project is underway, the ultimate impacts on GEBs and socioeconomic benefits will take time to come to fruition. There are also questions about the economic viability of some components that don't currently have a clear funding source. These include components that are being piloted to provide socioeconomic benefits such as SLM. This project possesses similar scores to the wider biodiversity portfolio, scoring 2.00/3.00 for both economic viability and sustainability.
Project 5549: Dynamic Conservation and Sustainable Use of Agro-Biodiversity in Traditional Agro-Ecosystems of the Philippines, GEF Phase 5, Start date: May 2016, End date: March 2023, Country: Philippines	This project was visited in-person as part of the Philippines country visit and is a useful resource for understanding areas that would benefit from improvement within the wider biodiversity subportfolio. While this project performed well in terms of addressing societal challenges, it performed poorly in terms of economic viability, balance of trade-offs, and adaptive management, with the last point performing particularly poorly due to weak evidence. Critical technical guidance and adaptive approaches were missing, with inconsistent monitoring and a lack of capacity to modify strategies based on feedback. These issues limited the project's ability to adjust and learn from on-ground challenges.

	The relatively poor performance around economic viability was due to challenges with financial viability caused by limited uptake of agrobiodiversity enterprises and low economic returns from community interventions. The lack of market-oriented strategies and inadequate planning for long-term economic benefits leaves economic viability uncertain. Finally, the relatively poor performance around balancing trade-offs was attributed to not demonstrating efforts to manage trade-offs between biodiversity objectives and economic or social benefits, with limited models being provided to balance these aspects within the broader intervention framework.
Project 4544: Improved Management Effectiveness of the Chobe-Kwando Linyanti Matrix of Protected Areas, GEF Phase: 5, Start date: January 2014, End date: December 2017, Country: Botswana	This project aimed to improve the management effectiveness of the Chobe-Kwando Linyanti Matrix of Protected Areas in Botswana. It focused on biodiversity conservation, sustainable development, and enhancing the capacity of local stakeholders. While the project aligned with strategic priorities, there are weaknesses in project design, such as limited analysis and guidance on policy and legislative frameworks, which affect its consideration of scale and the wider landscape. The project contributed to biodiversity conservation objectives and supports sustainable development plans, but weaknesses in stakeholder engagement and facilitation impacted its effectiveness. The project supports training and provision of equipment, but delays and lack of private sector engagement affect the economic viability of the solutions. The project aims to balance trade-offs by supporting biodiversity conservation and sustainable development, but delays and lack of progress towards intended results indicate challenges in achieving multiple benefits.
Climate change	
Project 5610: Reducing GHG Emissions Through Community Forests and Sustainable Biomass Energy in Afghanistan, GEF Phase 5, Start date:	This project aims to address key environmental issues, such as greenhouse gas emission reductions and the adoption of sustainable biomass energy. It shows excellent performance in economic viability and inclusive governance processes, thus being a good model of climate change projects. This project scored a 2.00/3.00 for both

August 2016, End date: July 2019, Country: Afghanistan	adaptive management and economic viability, both common issues for the climate change project portfolio.
Project 4456: Conservation and Sustainable Use of the Threatened Savanna Woodland in the Kidepo Critical Landscape in North Eastern Uganda, GEF Phase 5, Start date: July 2013, End date: May 2019, Country: Uganda	This project scored below average for the climate change subportfolio, with particularly low scores for inclusive, transparent, and empowering governance processes and sustainability. The low score for governance processes was attributed to limited evidence of inclusivity and transparency, with significant gaps in institutional links and participation flagged. Sustainability performed poorly due to lack of financial resources and agreed approaches to effective conservation management.
International waters	
Project 4690: Capturing Coral Reef and Related Ecosystem Services (CCRES), GEF Phase 5, Start date: September 2013, End date: December 2018, Countries: Indonesia and Philippines	This project seeks to address societal challenges, considering scale and landscape, and realize net benefits to ecosystems and biodiversity in its operations. It addresses the conservation of marine spatial planning and coral reefs and contributes to the sustainable use of reefs, and thus it is a high scoring project for the international waters focal area. This project stands as a good example of the issues within the wider international waters project portfolio, scoring 2.00/3.00 for both economic viability and inclusive governance.
Project 9359: Enabling Transboundary Cooperation and Integrated Water Resources Management in the Dniester River Basin, GEF Phase 6, Start date: August 2017, End date: December 2021, Country: Moldova and Ukraine	The project included a component focusing on strengthening water resources and biodiversity conservation involving the piloting of small river restoration, with a high potential for replication through other projects (including GEF-supported projects) in the region. The project also contributed to policy coherence through cross-sectoral collaboration facilitated by a proactive Project Coordination Unit with staff members based in both participating countries. While no institutional, socio-political, nor environmental risks to sustaining long-term project results were foreseen at project closure, and the likelihood of financial sustainability was weak due to public investment uncertainties and macroeconomic situations in both countries.
Land degradation	

Project 4750: Multiplying Environmental and Carbon Benefits in High Andean Ecosystems, GEF Phase 5, Start date: April 2014, End date: December 2018, Countries: Ecuador and Peru	This project is a focal area model project on land degradation due to its integrated design, alignment with various priorities, significant positive carbon stock and biodiversity outcomes, and institutional capacity development. In spite of some weaknesses in the consideration of social benefits, gender, and equity (each scoring 2.00/3.00), the project developed high-quality, science-based outputs and fostered innovative agroforestry systems. Note that the project was approved prior to the adoption of the Policy on Gender Equality (2017) and the Guidance to Advance Gender Equality in GEF projects and programs (2018). The project adapted to change well, enforced strict oversight, and sealed loopholes in its monitoring and assessment system. Except for conservation areas, a number of publications and increased levels of capability for public agency staff ensured long-term sustainability and mainstreaming of activities and was a good model of environmental conservation and effective land management. This project scored 2.00/3.00 for economic viability, aligning with the broader trend in land degradation projects.
Project 4605: Management and Protection of Key Biodiversity Areas, GEF Phase 5, Start date: January 2015, End date: September 2019, Country: Belize	This project is a useful example of a land degradation project with areas of performance that could be improved, scoring low overall, with notably poor performance in terms of how it considered scale and the wider landscape, as well as economic viability. The former was due to the lack of implementation of community-based activities and incomplete forest management planning, while the latter was due to budget constraints that affected the project outcomes, with only 15 percent of the targeted ha being brought under management plans.
Multifocal areas	
Project 9389: Ensuring Sustainability and Resilience (ENSURE) of Green Landscapes in Mongolia, GEF Phase 6, Start date: December 2018, End date: Ongoing, Country: Mongolia	This project possesses a multilevel and multidimensional approach, using landscape management at national, provincial, and local levels. It seeks to deliver significant biodiversity benefits through the establishment of new protected areas and emphasizes the reduction of rangeland and forest degradation, and therefore it is an excellent example of a multifocal area project. This project scored 2.00/3.00 for the adaptive management and economic viability indicators, both of which are a common occurrence within the multifocal area project portfolio.

Project 4868: CBPF-MSL: Strengthening the Management Effectiveness of the Protected Area Network in the Daxing'anling Landscape, GEF Phase 5, Start date: September 2013, End date: November 2019, Country: China	As mentioned within the section, multifocal area projects typically score higher than projects with only one focal area, so it is important to note that the performance for this project is not weak overall, but comparatively weaker when compared to the stratified multifocal area subportfolio. Areas for improvement that were flagged are considering scale and the wider landscape, economic viability; inclusive, transparent, and empowering governance; and sustainability. In order, the reasons for this comparatively low performance are as follows. Biodiversity and the wider landscape scored lower because while the project successfully expands the protected area network and establishes the Daxing'anling Biodiversity Conservation Committee (DBCC) for cross-border coordination, the overall landscape strategy remains weak. Limited approval and operationalization of the Action Plan for Biodiversity Conservation reduce the effectiveness of landscape-level integration. Economic viability was scored lower because economic sustainability remains uncertain due to challenges in securing long-term funding and heavy reliance on government funding, moving forward. Inclusive, transparent, and empowering governance scored lower due to the limited activity and participation of the body set up to coordinate cross-border activities. Local community involvement was noted but constrained by jurisdictional silos and lack of robust mechanisms for inclusive governance. Indigenous participation remains a challenge. Finally, sustainability was found to be moderately likely due to government funding commitments and policy alignment. However, unresolved issues like weak cross-sectoral coordination, high staff turnover, and limited operationalization of key strategies undermine full mainstreaming and long-term impact.

ANNEX 4: FURTHER INFORMATION ON THE SCREENING PROCESS FOR THE PORTFOLIO REVIEW AND DEEPER ANALYSIS

Given the large number of NbS-aligned projects (933 projects following the manual review), it was not feasible to analyze each project individually within the constraints of time and resources. To address this constraint, a statistically driven sampling method was applied to create a representative subset for further analysis. This sample allows us to generalize findings to the entire portfolio with a high level of confidence, ensuring that the diversity of project types, regions, and focal areas are adequately captured.

From the total 933 projects, 298 projects were identified as having reached a later stage in their project cycle, with sufficient qualitative data available for detailed analysis (e.g., midterm and terminal evaluation reports). While the full 933 projects remain the population of interest, these 298 projects form a key subset for in-depth qualitative analysis. Sampling for the qualitative analysis was conducted within this subset.

Given that each project has unique features and goals, the primary focus was to ensure that the sample represents the diversity of common characteristics such as geographical areas, thematic focuses, and funding sources. By doing so, the findings remain applicable to the broader set of 933 projects, even if individual projects vary in their specific attributes.

First layer: Initial filter using keyword search

The initial filtering layer uses an automated keyword search formula that scans project descriptions across multiple cells within a dataset of 3,855 projects to identify those potentially aligned with NbS criteria. This formula searches for specified keywords across each cell, flagging projects that contain any of the relevant terms. If a match is found, the formula returns a Yes, signaling a preliminary alignment; if no keywords are detected, it outputs a No, indicating that the project does not meet the baseline criteria for NbS alignment at this stage.

This initial filtering step is designed to quickly assess whether a project addresses two critical questions essential to NbS classification. Only projects that meet both criteria will advance to the next phase of the evaluation process. These foundational questions are:

- **Does the project address one or more societal challenges?** This description includes a focus on areas such as climate change adaptation and mitigation; disaster risk reduction; food security; health, social and economic development; and water security.
- **Does the project seek to deliver a net gain to biodiversity and ecosystems?** Projects that contribute to biodiversity gains or ecosystem restoration, particularly through addressing biodiversity loss and ecosystem degradation, are flagged here.

To streamline this filtering process, two distinct sets of keywords are used, each tailored to one of the foundational questions above. For projects addressing societal challenges, keywords include terms such as "disaster risk," "ecosystem service," "climate resilience," and "green infrastructure," each pointing to the project's potential societal contributions. For the biodiversity and ecosystem question, keywords like "biodiversity benefit," "ecosystem restoration," "habitat protection," and "soil regeneration" are employed to identify projects centered on ecological improvements and biodiversity conservation. This structured, keyword-based methodology effectively narrows down the project list by isolating those that meet the foundational NbS alignment criteria. Out of the initial 3,855 projects, this first filter produced a positive match for 1,224 projects, which will proceed to the next layer of filtering.

Second layer: Preliminary analysis of project objectives against key questions

Building on the initial keyword search, the second filtering layer uses a set of predetermined filters developed under the guidance of the GEF IEO. This layer focuses on refining the selection of projects by excluding those that do not align with the core objectives of NbS from the dataset of 1,224 projects identified in the first layer. Specifically, this phase filters out projects from the GEF-4 period onward that fall into categories not typically associated with direct NbS outcomes. These categories include projects under the Small Grants Programme (SGP), which are evaluated separately due to their unique scope and scale, and other projects that primarily focus on capacity building, technology transfer, innovative technologies, and enabling activities, and those pertaining to access and benefit-sharing, biosafety, and energy efficiency.

The rationale behind this focused exclusion is to ensure that the remaining projects in the dataset are those most likely to embody the principles and goals of NbS, such as ecosystem restoration, biodiversity enhancement, and the provision of ecosystem services. By applying these filters, the evaluation process becomes more streamlined, isolating projects that are more representative of NbS initiatives in terms of scope and impact potential.

From this round of filtering, 1,028 projects have been identified as aligning with NbS criteria and will move on to the next step for a deeper level of analysis.

Third layer: Detailed manual review of project objectives

The third layer of filtering involves a detailed manual review of project objectives to assess each project's alignment with NbS criteria, with a particular focus on addressing societal challenges and promoting biodiversity gains. The primary goal of this stage is to refine the list from the initial keyword-based filter, confirming that each project clearly demonstrates a commitment to leveraging natural systems to tackle societal issues while fostering biodiversity.

In this process, each project that passed the two previously described filters undergoes a thorough examination of its objectives and activities. This manual assessment helps identify projects that explicitly align with the core NbS principles of using nature to provide societal benefits and biodiversity/ecosystem benefits, addressing limitations of the keyword search by filtering out those that may have matched relevant terms but do not substantially align with these NbS principles (such as renewable energy projects with additional biodiversity outcomes). This step enhances precision by focusing on how each project's stated actions relate to the two core NbS questions, detailed as follows:

- **Addressing societal challenges:** To meet this criterion, a project must demonstrate that it actively addresses at least one societal challenge, such as climate change adaptation; disaster risk reduction; food security; health, social and economic development; or water security. Projects that fulfill this requirement should clearly indicate how they employ sustainable management, restoration, or protection of natural or modified ecosystems to provide solutions to these challenges.

- **Delivering net gains to biodiversity and ecosystems:** For this criterion, projects must specify actions directly aimed at enhancing biodiversity and ecosystems, such as habitat restoration, sustainable resource management, or ecosystem protection. Additionally, they should outline measurable outcomes related to biodiversity improvements or mitigation of ecosystem degradation.

Through this layer, projects that lack explicit relevance to these NbS criteria are filtered out. By applying this manual review, we address potential limitations in the keyword search process by ensuring that only projects with clear, nature-based interventions for societal and biodiversity gains are selected for our portfolio review. This approach also acknowledges the possibility of false negatives from the first layer, a point to be noted as a methodological limitation.

Through this third filtering process, of the 1,028 projects that passed the earlier filtering stages, 933 projects were confirmed as NbS-aligned following the manual review.

Selection of representative sample for portfolio review and deeper analysis

With 933 NbS-aligned projects identified, analyzing each individually was not feasible within time and resource constraints. To ensure robust analysis, a statistically driven sampling approach was applied to create a representative subset.

From this total, 298 projects had advanced sufficiently in their cycle to provide qualitative data through midterm and terminal evaluations. Using Cochran's formula, a statistically reliable sample size was determined. Initially, for an infinite population, the required sample was

calculated as 138 projects. However, adjusting for the finite population of 298 projects, the sample size was refined to 60 projects, ensuring efficiency while maintaining statistical reliability.

To preserve diversity, a stratified sampling approach was used, dividing projects by GEF phase, region, focal area, and funding source. Each stratum's proportion in the subset dictated the number of projects selected, ensuring a representative sample. Random selection within strata minimized bias.

This methodology balances statistical rigor with resource efficiency, allowing generalization of findings from the 60 sampled projects to the broader 933-project portfolio with high confidence. Detailed analysis of this stratified sample is provided in subsection 3.2.4.

Scoring the stratified sample

The following step was the creation of a scorecard system to assess the performance of the aforementioned stratified sample of the GEF NbS project portfolio.

For the scoring process, Itad has identified projects that aligned with the United Nations Environmental Assembly (UNEA) definition of NbS, addressed one or more societal challenges, and provided net gain to biodiversity and ecosystems. We then analyzed this portfolio of NbS-aligned projects to identify trends, scoring them from 0 to 3 on how well their midterm and terminal project evaluations suggested they had performed against the eight IUCN criteria.

Each evaluated project is scored across the following indicators, according to the following score guide:

(1) **Does the project address one or several societal challenges?**

(2) **Does the project consider scale and the wider landscape?**

(3) **Does the project seek to deliver a net gain to biodiversity and ecosystems and avoid or minimize loss?**

(4) **Are the solutions proposed and implemented under the project economically viable?**

(5) **Are the solutions proposed and implemented based on inclusive, transparent, and empowering governance processes?**

(6) **Does the project balance trade-offs between primary objectives and the provision of multiple benefits?**

(7) **Is the NbS project (and its implemented solutions) managed adaptively based on evidence?**

(8) **Are the proposed and implemented solutions sustainable and mainstreamed within an appropriate jurisdictional context?**

Score Guide			
	3	**Present**	Strong evidence in the project documentation confirms this indicator has been met.
	2	**Partial**	Some evidence in the project documentation indicates that this indicator has been met, though the evidence is mixed or not strong.
	1	**Unknown**	The project documentation does not provide any indication of whether this indicator has been met.
	0	**Negative**	Evidence in the project documentation suggests that this indicator has not been met.

The scorecards generated by this process provide a comprehensive overview of each project's strengths and areas for improvement, allowing for a detailed analysis of performance across the eight indicators. The scorecards may help stakeholders understand the effectiveness and impact of the projects, guiding future decision making and resource allocation.

Confidence level and sample size calculation

To determine an appropriate sample size for the in-depth qualitative analysis of the 298 projects, Cochran's formula for population proportion studies was used. This formula is a widely accepted statistical approach to calculate the minimum sample size required to achieve reliable generalizations about a population with a desired confidence level and margin of error.

Initial formula for an infinite population

The formula for an infinite population assumes a very large population size and is given by:

$$n_0 = \frac{Z^2 \times p \times (1-p)}{E^2}$$

Where:

n_0 is the sample size for an infinite population

Z is the Z-score corresponding to the 95 percent confidence level (1.96)

p is the estimated accuracy in NbS alignment (90 percent)[1]

E is the margin of error (5 percent)

Substituting the values:

$$n_0 = \frac{(1.96)^2 \times 0.90 \times \left(1 - 0.90\right)}{(0.05)^2} = \mathbf{138.3\ projects}$$

Thus, the initial sample size for an infinite population is approximately 138 projects.

The initial calculation assumes a very large (theoretically infinite) population as a conservative baseline. This step is critical because it:

Ensures statistical rigor: It provides the maximum required sample size for reliable generalizations, ensuring that the sample is large enough to account for the worst-case scenario of extreme variability.

Establishes a baseline for adjustment: This calculation serves as the starting point for later adjustments, such as accounting for a finite population.

While the infinite population assumption is ideal for large datasets, it overestimates the required sample size for smaller, finite populations like the 298 projects with MTRs/TEs in this study.

Adjusting for finite population:

To reflect the actual, finite population size of 298 projects, the sample size was adjusted using the finite population correction formula:

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

Where:

n is the adjusted sample size for the finite population

N is the finite population size (298 projects with MTRs/terminal evaluations)

Substituting the values:

$$n = \frac{138.3}{1 + \frac{138.3 \ \ 1}{298}} = \mathbf{94.73\ Projects}$$

Therefore, the adjusted sample size rounds up to 60 projects.

Why adjust the sample size for a finite population?

While the infinite population formula provides a robust starting point, it overestimates the required sample size when the population is finite. For the finite population of 298 projects, the adjustment accounts for:

Avoiding oversampling: Sampling too many projects from a small population wastes time and resources without improving statistical accuracy.

Efficiency and proportional representation: A smaller sample can still represent the population because a greater proportion of the population is included in the sample.

By starting with an infinite population calculation and adjusting for the finite population size, this methodology ensures that the sample size of 60 projects is both statistically reliable and resource-efficient. This approach provides a robust foundation for analyzing the selected sample while accurately representing the broader population.

Stratified sampling approach

To ensure that the selected 60 projects accurately represent the diversity within the subset of 298 projects, we applied a stratified sampling method. Stratified sampling divides the population into distinct groups, or strata, ensuring that each subgroup is proportionally represented in the sample.

For the NbS-aligned project list, we identified key categories that could affect how projects align with NbS principles:

GEF phase: Different GEF phases may reflect shifts in policy or focus, influencing how projects are structured and their alignment with NbS.

Region: Projects implemented in different regions face unique environmental and regulatory factors, which could impact their design and NbS alignment.

Focal area: Thematic focuses like biodiversity, climate change, and land degradation may influence a project's degree of alignment with NbS.

Funding source: Funding sources may impose specific priorities or criteria that affect how projects align with NbS.

Process of stratification and sample selection

The process began by organizing the 298 projects with evaluation reports into strata based on the identified categories. Each unique combination of these categories formed a stratum, such as "GEF-5, Africa, Biodiversity, GET."

The proportion of each stratum in the subset was calculated, and a corresponding percentage of the 60 sampled projects was selected from each stratum. For example, if a stratum represented 10 percent of the subset, then 10 percent of the sampled projects (approximately 14 projects) were selected from that stratum.

Projects within each stratum were then randomly chosen to avoid selection bias. This stratified approach ensures that the sampled 60 projects reflect the diversity of the full subset of 298 projects.

By combining Cochran's formula and stratified sampling, this methodology ensures that the findings from the 60 sampled projects are both statistically robust and broadly representative of the full NbS-aligned portfolio. This approach balances the need for comprehensive analysis with practical resource constraints while maintaining a high level of confidence in the results.[52]

Analysis for this stratified sample is in subsection 3.2.4.

Methodology for categorizing project interventions

This annex outlines the methodology used to categorize the types of interventions across projects. First, the full terminal and final evaluation reports for each project were reviewed, with particular attention given to sections describing project objectives, strategies, and key activities. From this detailed information, the evaluators identified the core focus areas that each project was designed to address, such as sustainable management practices, capacity building, policy reforms, and specific sectoral interventions (e.g., fisheries or land rehabilitation). These descriptions were then condensed into concise, uniform categories by grouping similar activities under consistent terminology (for example, "capacity building" or "protected area management"), thereby facilitating direct comparisons across projects. Finally, the resulting categories were cross-verified against the stated project objectives and reported outcomes to

[52] As stated in the main body, data saturation was reached after evaluating 60 projects from the stratified sample of GEF NbS projects.

ensure that they accurately reflected the primary interventions. This systematic approach provided a succinct and comparable snapshot of each project's intervention strategy.

Limitations of the methodology

The methodology used in this study, while scientifically robust, presents several limitations that affect the generalizability of the findings:

Restricted subset for analysis: The complete portfolio comprises 933 projects. However, only 298 of these projects, which have undergone MTRs or terminal evaluations, were eligible for detailed analysis. This subset represents projects that have reached a stage of maturity sufficient for an in-depth evaluation. Consequently, the findings from this subset may not necessarily apply to the entire portfolio, particularly to those projects that are less mature or lack comprehensive evaluation data.

Representativeness of the 298-project subset: The selection of the 298 projects was based on the availability of MTRs or terminal evaluations, introducing a selection bias. These mature projects may not exhibit the same characteristics or trends as the remaining 605 projects, many of which are either in earlier stages of implementation or lack detailed evaluations. While the insights gained from this subset are valuable, they should be applied with caution when considering the broader portfolio. Itad recognizes that later projects that are excluded are also likely to have aligned with more recent policy changes covered in the portfolio review. Newer projects likely reflect the GEF's latest thoughts on NbS even though they lack outcome data.

ANNEX 5: GCF PROJECTS INVOLVING BROADER ADOPTION OF GEF-SUPPORTED NBS

ID	Project name	Entity	Countries	GEF projects mentioned
FP011	Large-scale Ecosystem-based Adaptation in The Gambia: developing a climate-resilient, natural resource-based economy	UNEP	Gambia	4724
FP015	Tuvalu Coastal Adaptation Project (TCAP)	UNDP	Tuvalu	3694, 5550
FP016	Strengthening the resilience of smallholder farmers in the Dry Zone to climate variability and extreme events through an integrated approach to water management	UNDP	Sri Lanka	4609
FP034	Building Resilient Communities, Wetland Ecosystems and Associated Catchments in Uganda	UNDP	Uganda	1837
FP037	Integrated Flood Management to Enhance Climate Resilience of the Vaisigano River Catchment in Samoa	UNDP	Samoa	5404
FP049	Building the climate resilience of food insecure smallholder farmers through integrated management of climate risk (R4)	WFP	Senegal	4702, 5503
FP053	Enhancing climate change adaptation in the North coast and Nile Delta Regions in Egypt	UNDP	Egypt	3242
FP072	Strengthening climate resilience of agricultural livelihoods in Agro-Ecological Regions I and II in Zambia	UNDP	Zambia	3689
FP084	Enhancing climate resilience of India's coastal communities	UNDP	India	3941
FP089	Upscaling climate resilience measures in the dry corridor agroecosystems of El Salvador (RECLIMA)	FAO	El Salvador	4616
FP107	Supporting Climate Resilience and Transformational Change in the Agriculture Sector in Bhutan	UNDP	Bhutan	9199
FP109	Safeguarding rural communities and their physical and economic assets from climate induced disasters in Timor-Leste	UNDP	Timor-Leste	4696

FP116	Carbon Sequestration through Climate Investment in Forests and Rangelands in Kyrgyz Republic (CS-FOR)	FAO	Kyrgyzstan	4761, 6958, 9037
FP131	Improving Climate Resilience of Vulnerable Communities and Ecosystems in the Gandaki River Basin, Nepal	IUCN	Nepal	5111
FP133	Resilience to hurricanes in the building sector in Antigua and Barbuda	DOE ATG	Antigua and Barbuda	5523
FP136	Resilient Landscapes and Livelihoods Project	World Bank	Ethiopia	2794, 5220
FP165	Building Climate Resilient Safer Islands in the Maldives	JICA	Maldives	3847
FP167	Transforming Eastern Province through Adaptation	IUCN	Rwanda	9385
FP184	Vanuatu community-based climate resilience project (VCCRP)	SCA	Vanuatu	5049, 10415
FP199	Public-Social-Private Partnerships for Ecologically-Sound Agriculture and Resilient Livelihood in Northern Tonle Sap Basin (PEARL)	FAO	Cambodia	10177
FP203	Heritage Colombia (HECO): Maximizing the Contributions of Sustainably Managed Landscapes in Colombia for Achievement of Climate Goals	WWF	Colombia	5680
FP226	Resilient Puna: Ecosystem based Adaptation for sustainable High Andean communities and ecosystems in Peru	GIZ	Peru	9092
FP227	Increase Resilience to Climate Change of Smallholders Receiving the Services of the Inclusive Agricultural Value Chains Programme (DEFIS +)	IFAD	Madagascar	5233
SAP023	River Restoration for Climate Change Adaptation (RIOS)	FMCN	Mexico	4792, 10735
SAP032	Local Climate Adaptive Living Facility – LoCAL	FNEC	Benin	3704, 5904
SAP033	Enhancing Climate Information Systems for Resilient Development in Sierra Leone	AfDB	Sierra Leone	5902

ANNEX 6: CASE STUDY ON A MANGROVE REFORESTATION PROJECT IN INDONESIA

EAS: Scaling up the Implementation of the Sustainable Development Strategy for the Seas of East Asia (GEF ID 5405, UNDP)

The GEF project supported integrated coastal management in Tangerang, a coastal district west of Jakarta, with a key focus on mangrove rehabilitation activities. Since the 1980s, the northern coast of Java, including Tangerang, has experienced extensive mangrove deforestation, exposing this densely populated region to increased disaster risks such as wave and storm surges, erosion, and other hazards (Solihuddin et al. 2021). Rapid clearing of mangrove forests for fish and shrimp ponds, among other uses, led to this rate of deforestation (Suwandana 2019).

The project encountered challenges during implementation leading to changes in pilot locations. Initially, five villages facing some of the highest rates of coastal erosion in the region were identified for rehabilitation activities.[53] However, limited interest among these villages in participating led to the project's scope being scaled back to three villages in 2015, during the early stages of implementation (Mahardika 2022). By 2021, the project expanded to a total of five villages, including four of the five originally prioritized villages. However, one of the initial priority villages with severe abrasion was replaced by another village in the same subdistrict.[54]

The mangrove rehabilitation activities predominantly involved the planting of local propagules. By early 2018, a total of 30,000 mangrove propagules from the *Avicennia* and *Rhizophora* genera were planted in the region.[55] These species, native to the area and proven to be well adapted to the local environment, exhibited high survival rates. *Avicennia* achieved a survival rate of 90.71 percent, while *Rhizophora* recorded a survival rate of 79.34 percent (Mahardika 2022).

The GEF project was integrated into local government policies. Mangrove rehabilitation activities were incorporated into Tangerang's flagship coastal community development program, Gerbang Mapan, which began in 2014 and continued until 2023, after the GEF project concluded.[56] Codesigned by the project's executing entity PEMSEA and the local fisheries agency, the program aligned mangrove rehabilitation with broader coastal development initiatives, such as improving sanitation, supporting economic growth, and empowering communities. A local fisheries official coordinated the mangrove activities to ensure consistency with the local government's broader policy objectives.[57] To ensure smooth coordination between involved local government agencies, the district head institutionalized a working group through a formal decree,

[53] PEMSEA Annual Progress Report for the GEF/UNDP Project on Scaling up SDS-SEA Implementation 2019.

[54] "Melalui Gerbang Mapan, Dinas Perikanan Bantu Pulihkan Ekonomi Masyarakat - Suara Tangerang" (2021).

[55] "Mangrove Restoration and Environmental Education: Community Coastal Development in the Tangerang Regency" (2018).

[56] Ibid.

[57] OceanPractices (2023).

while a research center based at a university in a neighboring region provided technical assistance.[58]

To promote behavioral change, the project implemented several initiatives. These included an awareness campaign in which volunteers visited over 30 primary schools to educate students about waste management, environmental protection, and related topics.[59] Local government officials describe the program as the most extensive outreach effort under the Gerbang Mapan program (Maezahroh et al. 2018). However, limited evidence is available to assess the effectiveness of this campaign in changing long-term behavior (Mahardika and Zaldivar 2018).

Several rehabilitated mangrove forests were transformed into ecotourism sites to create alternative livelihoods that relied on environmental conservation. For example, Google Street View imagery from Tanjung Pasir Village revealed continued mangrove planting even after the GEF project ended in 2020, though some ponds remained empty as of 2023. Similarly, in Ketapang Village, ecotourism site development continued after the project's conclusion, with major upgrades in 2022. This post-completion development of the GEF project involved the relocation of some households from around the site. A 2023 study documented initial pushback from the community regarding the relocation, but extensive engagement efforts eventually resulted in informed consent from affected residents (Puro 2023). The development of ecotourism sites required coherence between the local fisheries agency, which was responsible for mangrove rehabilitation activities, and the local public works agency, which was responsible for developing tourism infrastructure.[60]

Ecotourism sites have continued to be operational past the GEF project closure, but several challenges remain. By 2024, Google Street View imagery confirmed ongoing mangrove growth. However, a study from the same year reported poor conditions of *Rhizophora* mangroves, while *Avicennia* ones were in a relatively better condition (Azahra et al. 2024). Another recent study indicates that visitor numbers to the site in Ketapang Village, the more developed ecotourism site, declined in 2024 compared to the previous year, raising concerns about the sustainability of ecotourism as a livelihood source (Yanuadi et al. 2024). The sites have nonetheless served as a model for other regions in Indonesia interested in adopting a similar approach. For instance, government officials from a district in Papua, Indonesia's easternmost island, visited the ecotourism site in Ketapang in 2023 to learn from its implementation. Additionally, a World Bank managing director visited the site in 2022 to explore its potential for replication in other parts of Indonesia.[61]

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[58] "Pemkab Tangerang Penataan Pesisir Melalu Program Gerbang Mapan Jadi Percontohan Nasional" (2022).

[59] "Mangrove Restoration and Environmental Education: Community Coastal Development in the Tangerang Regency" (2018).

[60] Ibid.

[61] For example, see: Fikri, "Taman Mangrove Tangerang yang Eksis di Media Sosial, Ada di Mana?," *tangselpos.id*, May 9, 2024, https://tangselpos.id/detail/23535/taman-mangrove-tangerang-yang-eksis-di-media-sosial-ada-di-mana.; "Direktur Bank Dunia Puji Penataan Kawasan Pesisir di Ketapang," *Suara Tangerang*, January 19, 2022, sec. Headline, https://suaratangerang.id/headline/2022/01/19/direktur-bank-dunia-puji-penataan-kawasan-pesisir-di-ketapang.

A bioeconomy approach was adopted to promote alternative livelihoods. In another village, the project promoted the use of mangroves for producing food and soap (Rani, 2022). However, a 2024 study highlighted significant challenges, including low demand for these products due to limited consumer awareness and inadequate marketing efforts. Despite these obstacles, external actors, such as university students, have provided training programs to support local entrepreneurs (Khaerudin 2024).

Private sector involvement in mangrove rehabilitation was limited to corporate social responsibility (CSR) initiatives by a few large domestic companies and a state-owned enterprise. These companies typically signed memorandums of understanding with local governments to plant mangroves. However, CSR efforts often suffered from poor site selection, leading to low survival rates for planted mangroves. Over time, CSR activities have shifted to established ecotourism sites, which have shown better results in terms of survival rates and community engagement (Mahardika 2022). Furthermore, one of the ecotourism sites is now operated by a local government-owned enterprise, PT Mitra Kerja Raharja, in a bid to ensure its financial sustainability.[62]

Google Street View Images of the ecotourism site in Tanjung Pasir Village

Entrance to the ecotourism site (July 2023)

Empty pond (July 2023)

[62] Yanuadi et al. (2024).

Comparison of mangrove ponds

September 2022	July 2023

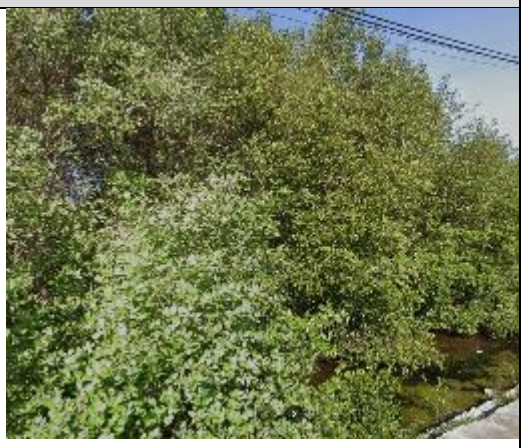
Google Street View images of the ecotourism site in Ketapang Village

Entrance to the site

July 2022	
November 2022	
February 2024	

Mangrove rehabilitation site (genus Avicennia*) sponsored by a CSR project from an Indonesian pulp and paper company*

Comparison of mangrove ponds and surrounding area

July 2022	February 2024
	

ANNEX 7: NATURE-BASED SOLUTIONS IN NATIONALLY DETERMINED CONTRIBUTIONS (NDCS)

Nationally Determined Contributions (NDCs), the key mechanism for countries to outline climate action under the Paris Agreement, increasingly highlight nature's role in mitigation and adaptation. The integration of nature-based solutions (NbS) is gaining momentum as the global community recognizes its importance in meeting climate goals. COP26 in Glasgow highlighted the interconnection between climate change, land degradation, and biodiversity, underscoring the importance of protecting and restoring ecosystems. It is crucial to understand, however, that NbS should complement—not replace—urgent emissions reductions and the phaseout of fossil fuels, reinforcing broader decarbonization efforts.

The integration of NbS into national climate commitments is steadily increasing. NbS principles now feature in various political frameworks, including UNCCD decisions, High-Level Political Forum declarations, and G7/G20 communiqués. Of the 122 new NDCs submitted in 2021, over 80 percent included ecosystem protection and restoration, although only 41 percent explicitly referenced NbS. While many countries recognize the role of ecosystems in climate plans, formal adoption of the NbS concept is still evolving. By May 2023, 96 of 101 developing nations in the NDC Partnership had incorporated NbS, highlighting their relevance to these nations' unique vulnerabilities.

NDCs featuring nature-related actions often highlight specific ecosystems and NbS measures. Forests are the most cited (92 percent), reflecting their role as carbon sinks, followed by agricultural lands (75 percent) and oceans and coasts (57 percent). Mangroves (46 percent) and wetlands (45 percent) are valued for their role in carbon sequestration and coastal protection, while urban areas (27 percent) are gaining attention for their use of green and blue infrastructure. Less frequently mentioned are savannahs and grasslands (8 percent) and peatlands (4 percent), indicating areas for greater focus. Common NbS measures include forest conservation, afforestation, agroforestry, sustainable agriculture, and coastal habitat restoration. Urban strategies emphasize the use of green infrastructure and the expansion of green spaces. These diverse measures reflect countries' tailored approaches to climate mitigation and adaptation.

While NbS are integrated into NDCs, targets often lack specificity and measurability, making progress assessment challenging. Many commitments are broad, without quantified goals or timelines. The complexity of ecosystems and the long-term nature of NbS add to this difficulty.

International organizations have provided key recommendations on integrating NbS in NDCs. The UNFCCC encourages the adoption of NbS, as defined by UNEP, while COP28 emphasizes the importance of ecosystem conservation and restoration in meeting the Paris Agreement targets. The Global Stocktake acknowledged the links between climate and biodiversity, referencing the KMGBF, which includes NbS in Targets 8 and 11 for climate action, alongside broader restoration

(Target 2) and conservation (Target 3) objectives. UNEP established the first multilateral definition of NbS and promotes it through NAPs. The IUCN, a longtime NbS advocate, has developed the Global Standard for NbS, emphasizing biodiversity benefits and participation of IPLCs.

ANNEX 8: THE GEF AS A CATALYST FOR BROADER ADOPTION BY OTHER MULTILATERAL FUNDS

1. To assess the broader adoption of GEF-supported NbS initiatives, this evaluation analyzes evidence from Green Climate Fund (GCF) projects. Both the GEF and the GCF serve and report to the same convention, the UNFCCC. Together, the GEF and the GCF account for the entirety of the financial resources for the UNFCCC financial mechanism. A previous IEO evaluation on scaling up impact describes the GCF's approach in scaling up and building on effective interventions that have been previously implemented by other institutions, including by the GEF.[63] The GCF's role to scale up projects is also linked to its vision in catalyzing transformational change.[64] Furthermore, the Long-Term Vision on Complementarity, Coherence, and Collaboration (LTV) between the GCF and the GEF recognizes GCF investments to bring interventions supported by the GEF family of funds to scale.[65] This evaluation leveraged a systematic review of GCF project documents to identify broader adoption examples. Specifically, the review involved analyzing approved funding proposals of GCF projects up to the 38th Meeting of the GCF Board in March 2024.

2. **This evaluation identified 26 GCF projects that involve broader adoption of GEF-supported NbS projects.** Collectively, these GCF projects reference 34 different GEF projects (annex 5), including 10 projects from before GEF-5. Although these older projects are not part of the current evaluation portfolio, they are included in this analysis on broader adoption. Additionally, two GCF projects involve the broader adoption of GEF-supported SGP projects, but they are not included in this analysis. Notably, 20 of the GEF projects mentioned in these GCF projects come from the LDCF/SCCF portfolio, including multitrust fund projects that received funding from LDCF or SCCF.

3. **Several GEF projects referenced in these GCF projects explicitly embed plans to facilitate broader adoption in project design or at the evaluation stage**. For example, the project Strengthening the Resilience of Post Conflict Recovery and Development to Climate Change Risks in Sri Lanka (GEF ID 4609, UNDP) includes an outcome focused on codifying and sharing knowledge to enable replication and scaling up. Meanwhile, the Ridge-to-Reef project in the Pacific (GEF ID 5404, UNDP) has dedicated components to mainstream its NbS interventions. Some projects also identify broader adoption plans toward the end of the project cycle. For instance, the GEF-4 project Adaptation to Climate Change in the Nile Delta Through Integrated Coastal Zone Management (GEF ID 3242, UNDP) explicitly identified a scaling-up pathway through

[63] GEF Independent Evaluation Office, *GEF Support to Scaling Up Impact (Evaluation Report No. 138),* Washington, DC: GEF Independent Evaluation Office, 2020.

[64] Green Climate Fund, *Turning Ambition into Action: How GCF Catalyses Transformational Change*, Yeonsu-gu: Green Climate Fund, 2019.

[65] "Towards a Long-Term Vision on Complementarity GEF and GCF Collaboration", Green Climate Fund and Global Environment Facility, 03 November 2021, https://www.greenclimate.fund/document/towards-long-term-vision-complementarity-gef-and-gcf-collaboration.

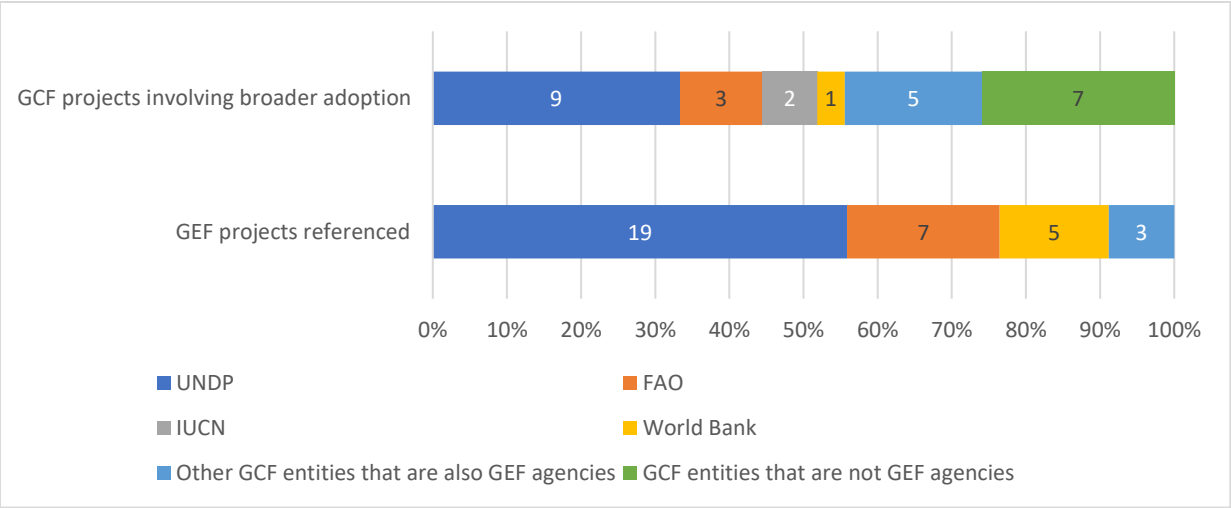
the GCF in its terminal evaluation. The GEF-supported Nile Delta project was subsequently scaled up through the GCF-supported Enhancing climate change adaptation in the North coast and Nile Delta Regions in Egypt (GCF ID FP053).

4. Another related example is the GEF-funded project Sustainable Development of the Ecuadorian Amazon: Integrated Management of Multiple Use Landscapes and High Value Conservation Forests (GEF ID 9055, UNDP), integrated into the PROAmazonía initiative, Ecuador's national REDD+ investment program led by the Ecuadorian government. This project was cofinanced by the GCF and has subsequently been scaled up through further GCF investments. It used NbS approaches, including SFM, deforestation-free production, bioentrepreneurship, and payment for ecosystem services (PES), achieving an impressive 92.99 percent reduction in deforestation rates within participating farms. Additionally, the initiative facilitated a 41 percent adoption rate of sustainable technologies and successfully transitioned 93,105 ha toward sustainable agricultural production systems. In terms of policy coherence, the project made a significant contribution to strengthening governance and planning capacities. It supported the development and enhancement of provincial and cantonal Development and Land Use Plans (PDOTs), embedding principles of conservation and sustainable production. Building on these accomplishments, the GCF-funded project "pago por resultados" to Ecuador for the reduction of deforestation 2014[66] expanded and reinforced these efforts, positioning Ecuador as the second country globally to receive performance-based payments associated with REDD+ outcomes.

5. **Among the 26 GCF projects identified as involving broader adoption of GEF-supported NbS initiatives, more than half are implemented by just three GCF-accredited entities that also serve as GEF Agencies: UNDP, FAO, and IUCN (figure 10).** Notably, none of the nine GCF projects implemented by UNDP incorporate NbS elements from GEF projects executed by other agencies—they exclusively build on interventions previously implemented by UNDP itself. Similarly, FAO-led GCF projects primarily leverage their own GEF-funded initiatives, although they also draw selectively from experiences led by The World Bank and UNDP.

[66] "FP110: Ecuador REDD-plus RBP for results period 2014"

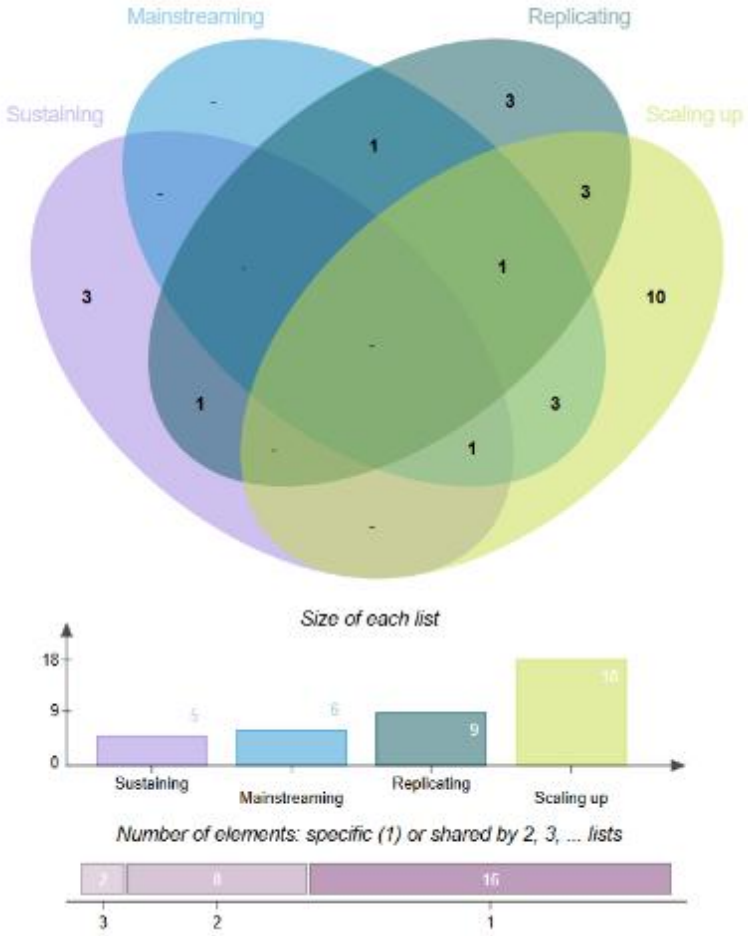
Figure 10: GCF projects involving broader adoption of GEF-supported NbS interventions, by agency



Source: IEO review of GCF funding proposals.

6. **The approaches to broader adoption in GCF projects vary, but most involve scaling up GEF-supported NbS activities (figure 11**). For example, the Resilient Landscapes and Livelihoods Project (GCF ID FP136) was specifically requested by the government of Ethiopia to scale up the GEF-supported SLM projects, which were seen as successful and implemented in two phases (GEF IDs 2794 and 5220, World Bank). The proposal for this GCF project highlights that the GEF-supported SLM initiatives were highly relevant to Ethiopia's context, with evidence showing that they contributed to improved water and food security in participating regions during the severe 2015–16 drought. Broader adoption through sustaining is the least common. One example is the GCF-supported project Local Climate Adaptive Living Facility – LoCAL (GCF ID SAP032), which sustains activities to strengthen the capacity of agricultural communities to adapt to climate change under the GEF-supported Integrated Adaptation Programme to Combat the Effects of Climate Change on Agricultural Production and Food Security (GEF ID 3704, UNDP), including through NbS, in specific communes in Sierra Leone.

Figure 11: Number of GCF projects involving broader adoption by broader adoption pathways.



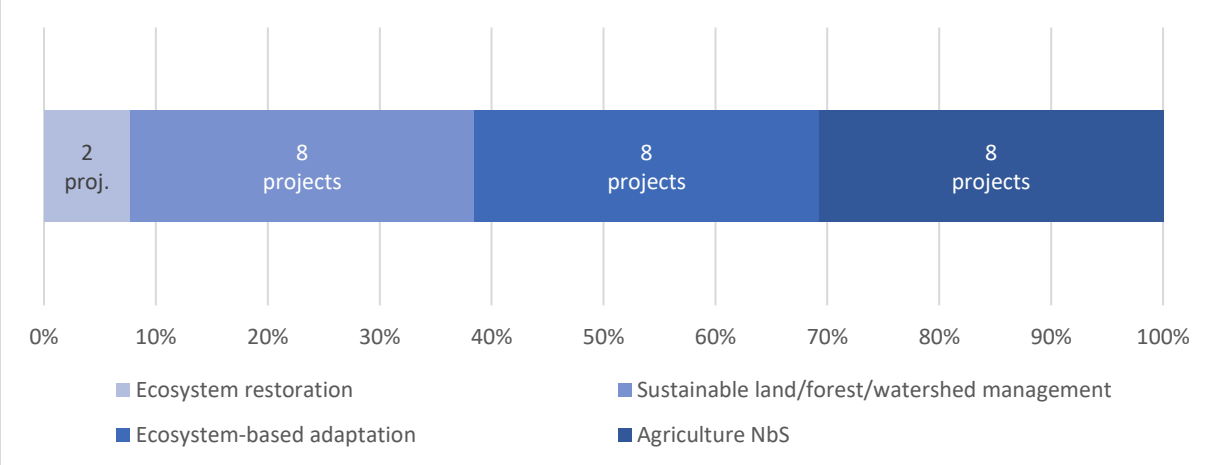
Source: GEF IEO review of GCF funding proposals.
Note: A project may involve more than one broader adoption pathway.

7. **A total of 10 GCF projects reported employing more than one approach, indicating a multidimensional strategy for broader adoption**. Broader adoption through mainstreaming, for example, is always paired with other approaches. The GCF-supported Tuvalu Coastal Adaptation Project (TCAP) (GCF ID FP015) builds on two different GEF-supported projects: Increasing Resilience of Coastal Areas and Community Settlements to Climate Change (GEF ID 3694, UNDP) and R2R Implementing a Ridge to Reef Approach to Protect Biodiversity and Ecosystem Functions (GEF ID 5550, UNDP). The GCF project notes that the GEF-supported projects identified a range of coastal protection options for climate adaptation on Tuvalu's outer islands, including NbS, which can be sustained, mainstreamed, and scaled up using GCF investments. Meanwhile, the GCF-supported project Resilient Puna: Ecosystem based Adaptation for sustainable High Andean communities and ecosystems in Peru (GCF ID FP226) mainstreamed and replicated a business development strategy to conserve and ensure sustainable use of agrobiodiversity in the high Andes, which was piloted through an ongoing GEF project, Sustainable Management of Agro-

Biodiversity and Vulnerable Ecosystems Recuperation in Peruvian Andean Regions Through Globally Important Agricultural Heritage Systems (GIAHS) Approach (GEF ID 9092, FAO).

8. **Agricultural NbS, EbA, and sustainable management of land, forest, or watershed are common interventions subject to broader adoption in GCF projects (figure 12).** EbA approaches include a wide set of interventions, including green infrastructure for climate adaptation to ecosystem-based disaster risk reduction. For example, a GCF project in Nepal, Improving Climate Resilience of Vulnerable Communities and Ecosystems in the Gandaki River Basin, Nepal (GCF ID FP131) builds on the GEF-supported Reducing Vulnerability and Increasing Adaptive Capacity to Respond to the Impacts of Climate Change and Variability for Sustainable Livelihoods in the Agriculture Sector project (GEF ID 5111, FAO), which supported bioengineering investments to address soil erosion in Nepal. Meanwhile, only two GCF projects involve the broader adoption of ecosystem restoration. This includes the Upscaling climate resilience measures in the dry corridor agroecosystems of El Salvador (RECLIMA) project (GCF ID FP089), which seeks to scale up restoration models tested through the GEF-supported Climate Change Adaptation to Reduce Land Degradation in Fragile Micro-Watersheds Located in the Municipalities of Texistepeque and Candelaria de la Frontera project (GEF ID 4616, FAO) to a wider landscape level.

Figure 12: Number of GCF projects involving broader adoption by the primary type of NbS.

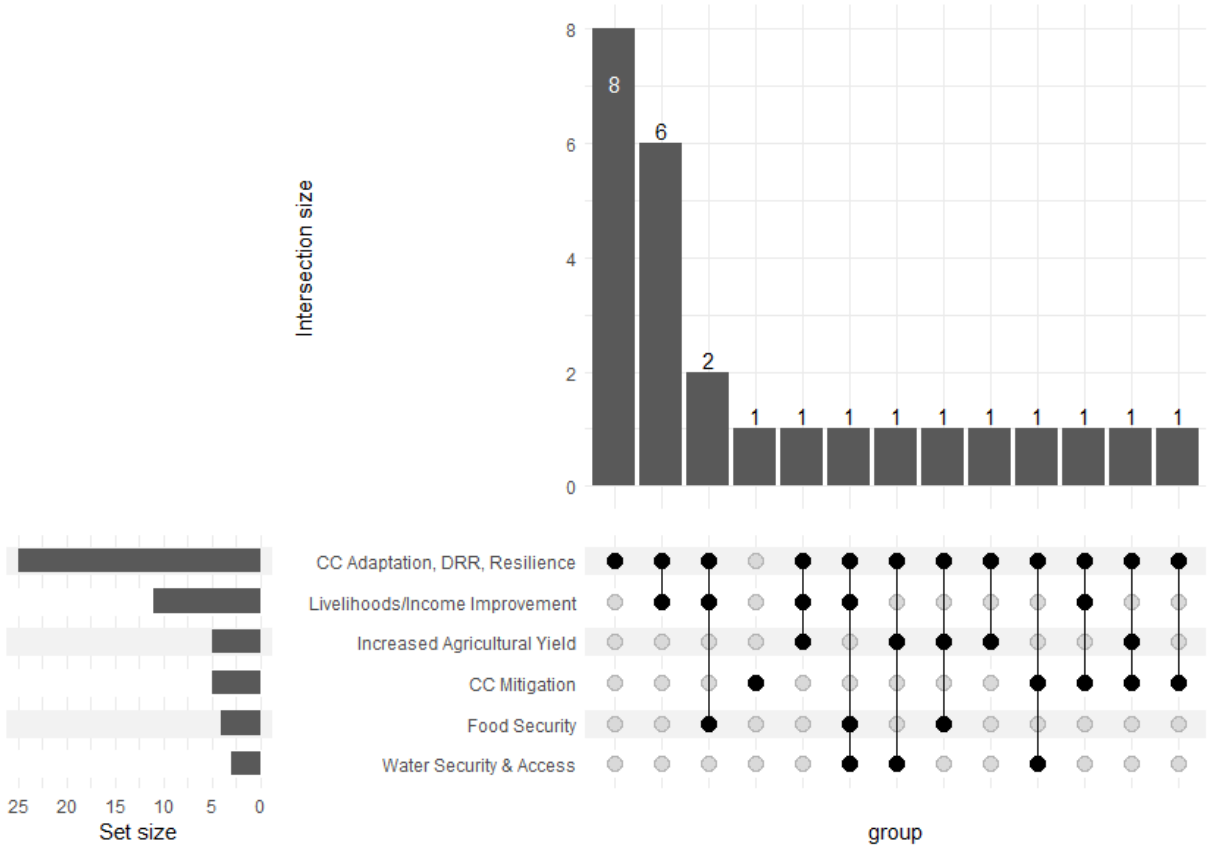


Source: GEF IEO review of GCF funding proposals.

9. **In addition to delivering biodiversity benefits, the reviewed GCF projects specify societal challenges targeted by their NbS activities (figure 13).** All but one of the projects are designed to address challenges related to climate adaptation, resilience, and DRR. The exception is a GCF project in Kyrgyzstan, Carbon Sequestration through Climate Investment in Forests and Rangelands in Kyrgyz Republic (CS-FOR) (GCF ID FP116), which focuses solely on climate change mitigation. This project seeks to scale up the SFM system developed under the GEF-supported project Sustainable Management of Mountainous Forest and Land Resources under Climate

Change Conditions (GEF ID 4761, FAO) and leverage the coordination and synergies established by the GEF-supported Sustainable Forest and Land Management project (GEF ID 9037, World Bank).

Figure 13: Number of GCF projects involving broader adoption, by societal challenges addressed



Source: GEF IEO review of GCF funding proposals.

10. **Most of the GCF projects identified drew lessons from GEF-supported initiatives implemented within the same country**. However, there are notable exceptions where knowledge transfer has crossed national boundaries. For example, a GCF project in Senegal, Building the climate resilience of food insecure smallholder farmers through integrated management of climate risk (R4) (GCF ID FP049), builds on two different GEF projects that promoted climate smart agriculture through the farmer field school methodology, including the Integrating Climate Resilience into Agricultural and Pastoral Production for Food Security in Vulnerable Rural Areas through the Farmers Field School Approach project (GEF ID 4702, FAO), which was implemented in Niger. The 26 GCF projects identified are geographically diverse. There are 10 projects each in Africa and Asia, while the remaining five projects are in Latin America and the Caribbean.

ANNEX 9: EXAMPLES OF NBS PROJECTS OUTSIDE GEF

Donor	Project	Region/Country	Ecosystem Focus	Key Outcomes
Australia	Blue Carbon Accelerator Fund (BCAF)	Indo-Pacific Region	Coastal Blue Carbon Ecosystems	Supports blue carbon project development in developing countries; facilitates private sector finance in blue carbon projects; training and private sector links.
Australia	Pacific Resilience Facility	Pacific Island Countries	Various ecosystems	Supports locally- led adaptation projects; enhances resilience in Pacific Island nations.
Canada	Kiwa Initiative – NbS for Climate Resilience	Pacific Islands (regional)	Coastal & terrestrial	22 NbS projects across Pacific Islands; >6,000 beneficiaries; 27,583 ha improved; strong regional cooperation.
Canada	Biodiversity Ecosystems Restoration for Community Resilience project	Bangladesh	Forests, watersheds	Landscape restoration with agroforestry and water conservation in Chittagong Hill Tracts; reaches 182,000 people.
Canada	Nature-based Solutions for Climate Adaptation: Monitoring &and Impact Evaluation	Global	Various ecosystems	Global partnership to enhance NbS project design, monitoring, and gender integration.
Germany	Ecosystem-based Adaptation in Mountain Regions	Nepal, Uganda, Peru	Mountain forests and wetlands	Reforested hill slopes; spring restoration; >6,000 households benefit; integrated into national policy.
Germany	Integrated Land–Seascape Management, Indonesia	Indonesia (Sulawesi, Java)	Land–seascape	Ecosystem restoration with community engagement; sustainable agroforestry, aquaculture, and eco-finance pilots.
Japan	Community Mangrove Rehabilitation	Myanmar, Indonesia	Mangrove coasts	Post-cyclone mangrove replanting and management; enhanced storm buffer and blue carbon potential.

Donor	Project	Region/Country	Ecosystem Focus	Key Outcomes
Japan	Watershed Reforestation, Philippines	Philippines (Magat/Cagayan Basin)	Watersheds, forests	Reforestation of degraded slopes; soil erosion reduction; enhanced hydropower reservoir function.
Netherlands	**NL2120**	Global	Water management, biodiversity	Collaborative effort, research, develop, and implement NbS solutions
Norway	Amazon Fund (REDD+ Partnership)	Brazil (Amazon)	Tropical rainforest	REDD+ success; helped reduce deforestation; reactivated with 2023 contribution.
Norway	Indonesian Peatland Restoration	Indonesia (Sumatra, Kalimantan)	Peatlands	Canal blocking and rewetting to restore peat; fire reduction and sustainable livelihoods.
Norway	Tenure Facility Support for Indigenous Forest Rights	Global (focus on developing countries)	Tropical Forests	€10.3 million support to secure forest rights of Indigenous Peoples; promotes legal tenure and sustainable forest use.
Sweden	Urban Resilience in Koa Hill Settlement	Solomon Islands (Honiara)	Urban river valley	Bamboo and vetiver planting in urban informal settlement; reduced disaster risks; food security improvement.
Sweden	Income for Coastal Communities for Mangrove Protection	Pakistan, Thailand, Vietnam	Mangroves	Mangrove protection linked to income generation; community engagement and carbon financing pilots.
Switzerland	Green Gold Pasture Restoration	Mongolia (steppe)	Grasslands (rangelands)	20 millionM ha rangeland restored; 92,000 herders in co-management; improved grazing and soil carbon.
Switzerland	BioCultura – Andean Forests and Water	Bolivia (Andes)	Mountain wetlands, agroforestry	Alpine wetland and agroforestry restoration; improved water retention and rural climate resilience.
United Kingdom	Kenya UK PACT Forest Landscape Restoration (FLR)	Kenya (Taita Hills)	Forest & watershed	Community-led forest restoration; policy support and capacity- building in FLR monitoring and implementation.
United Kingdom	Overseas Territories (OTs) Coral and DRR Program	Caribbean and South Atlantic OTs	Coral reefs, coastal ecosystems	Coastal habitat and coral reef restoration; disaster risk reduction in small island OTs.

ANNEX 10: TABLES

Table 1: Three-step process for screening of projects for NbS alignment

Step	Process	Outcome
First layer: Initial filter using keyword search	- Uses automated search to scan 3,855 projects across multiple cells. - Applies keywords that cover societal challenges (e.g., climate resilience) and biodiversity/ecosystem focus (e.g., ecosystem restoration). - Identifies projects related to NbS based on specified keywords.	1,224 projects flagged as aligned with NbS criteria for second layer of review.
Second layer: Preliminary analysis of project objectives against key questions	- Applies predefined filters. - Excludes projects unrelated to direct NbS outcomes (e.g., Small Grants Program, capacity building, technology transfer). - Refines selection to projects more likely to embody NbS principles.	1,028 projects remaining after filtering for manual review.
Third layer: Detailed manual review of project objectives	- Assesses alignment with NbS principles and direct relevance to NbS objectives. - Focuses on societal challenges and biodiversity/ecosystem gains. - Excludes non-aligned projects. - Includes other projects identified through case studies, interviews, and manual reviews of select project documents.	933 projects confirmed as NbS aligned and imported into the qualitative coding software.

Table 2: Examples of practical advice on NbS integration from STAP for GEF-7 and GEF-8

STAP recommendations for GEF NbS interventions to produce high environmental and societal benefits (Stafford 2020)	STAP recommendations on taking NbS programs to scale (Salafsky et al. 2021)
Approach NbS from the standpoint of solving societal problems, rather than environmental problems, to open up different ways of delivering global environmental benefits. Apply systems thinking to address interconnected environmental, social, economic, and governance challenges. Develop a concept equivalent to LDN to avoid leakage, which pertains to all global environmental benefits, and apply it to NbS interventions.	Be explicit about the scaling approach or approaches. Use the scaling approach or approaches to inform pathways of change. Use systems thinking to inform change pathways and reinforce positive feedback loops.

Improve valuation and better understand the true costs and benefits for nature and people, including trade-offs. Develop a clear rationale and robust theory of change covering the drivers of environmental degradation, assumptions and outlining causal pathways, and robust and adaptive responses. Analyze the barriers to and enablers of scaling and transformation. Establish a monitoring, evaluation, and learning process to track the intended innovations, integration, transformation, and indicators of durability. Ensure durability of project outcomes and impacts by applying systems thinking, engaging the right stakeholders, and incentivizing key stakeholder participation flexibility in project design and implementation.	Ensure and check the adequacy of scaling assumptions. Integrate behavior change into scaling pathways, noting that the drivers of behavior change are (1) awareness, (2) norms and emotions, (3) skills and capacity, (4) economic incentives, (5) choices, and (6) requirements.

Table 3: Inclusion of NbS in GEF strategies

GEF-8 focal area strategy	Provisions for NbS integration
Biodiversity (GBFF) strategy	NbS are primarily integrated into the strategy through the alignment of projects with the KMGBF Targets 8 and 11. NbS are used to (1) restore, maintain, and enhance nature's contributions to people, including ecosystem functions and services and protection from natural hazards and disasters for the benefit of all people and nature; and (2) minimize the impact of climate change and ocean acidification on biodiversity and foster positive impacts of climate action on biodiversity.
LDFF and SCCF programming strategy	The strategy emphasizes building on emerging science and lessons from NbS for adaptation and enhancing support for efforts to strengthen the economic case for NbS, thereby enabling transformative shifts. The strategy also aims to complement the GEF Trust Fund's efforts in enhancing adaptation considerations, supporting net-zero, nature-positive targets, valuing and monetizing NbS, and addressing the socioeconomic priorities of LDCs and SIDS. In addition, the LDCF uses NbS to support innovation and private sector engagement opportunities, while SCCF uses it to support SIDS in addressing priority themes, such as coastal protection.
Land degradation strategy	The strategy incorporates NbS to produce multiple global environmental benefits through an integrated approach to managing natural resources through integrated programs. The Net-Zero Nature-Positive Accelerator Integrated Program accelerates the implementation of nature-positive, net-zero pathways by investing in nature and new technologies. The Blue and Green Islands Integrated Program incorporates the value of nature into national decision making to address development challenges of SIDS related to food security, adaptation, tourism, and urban development. The Ecosystem Restoration Integrated Program generates multiple environmental benefits by restoring degraded ecosystems globally.

International waters strategy	The GEF-8 International Waters strategy explicitly incorporates NbS to (1) restore degraded key marine and coastal habitats; (2) improve water quality and freshwater ecosystems health, support sustainable wetlands management, and recharge aquifers; and (3) accelerate joint action to support sustainable blue economic development.

Table 4: Examples of integrated programs' intent to use NbS and NbS-aligned approaches for transformational change

PFD title and GEF ID number	How the program intends to use NbS for transformational change
Mesoamerica Critical Forest Biome Integrated Program: 11273	Transformational change will be achieved through applying the GEF's levers of transformation to (1) promote the development of nature-friendly productive activities that reduce the pressure of deforestation of primary forests; (2) recharge water tables and increase streamflow; (3) develop innovative financing instruments, catalyze an increased flow of funding, and incentivize nature-friendly productive activities; (4) influence nature-positive trade policies and climate and biodiversity negotiations; and (5) support the implementation of novel incentives and business models to incentivize nature-friendly activities toward intact forest landscapes.
Food Systems Integrated Program: 11214	The integrated program's overall goal is to catalyze transformation into sustainable and regenerative food systems that are nature positive, resilient, and pollution free. The transformation sought through the program and its constituent child projects will consist of deep, systemic, and sustainable change with large-scale impact in areas of global environmental concern. NbS-driven transformational change will entail (1) moving from paradigms based on high external input food systems to nature-positive, low-carbon, and resilient food systems planned across multiple landscapes; (2) using international trade rules as an opportunity to leverage transformation from environmentally degrading to nature-positive practices; (3) supporting restoration, nature-based infrastructure/corridors, sustainable management and conservation-set asides, and valuable shared ecosystem services for stakeholders; and (4) promoting NbS and/or EbA to minimize the impact of climate change on biodiversity and increase its resilience.
Sustainable Cities Integrated Program: 11287	The integrated program will support cities in scaling up commitments to achieve urban sustainability through the five multidimensional levers: policy, finance, innovation, partnership, and innovation and learning. Transformational change will be achieved through (1) investing in nature-positive, climate-resilient, and carbon-neutral urban development; (2) economic valuing of natural assets; (3) accelerating the green transition and building stronger, greener, and equitable infrastructure and resilient systems and institutions; (4) developing a portfolio of investments that deliver sustainable, nature-positive impacts; and (5) strengthening partnerships toward nature-positive development.

Greening Transportation Infrastructure Development: 11467	The project aims to (1) improve the enabling conditions for decision making and investing in delivering sustainable, nature-positive transportation infrastructure services; (2) strengthen integrated, multisectoral, and participatory planning to maximize nature-based infrastructure services and sustainably engineered approaches at scale; (3) enhance financing and de-risking mechanisms for delivery of sustainable, nature-positive approaches to providing transportation infrastructure services; and (4) build the technical capacity to facilitate integrated planning and design processes to deliver greener transportation infrastructure.
Clean and Healthy Ocean Integrated Program: 11349	This integrated program will apply a landscape-based approach to promote conservation and NbS to regenerate coastal zone biodiversity and achieve the desired transformative improvements in agriculture, wastewater management, coastal conservation and monitoring, and bio-based innovations. This approach aligns with the CBD, GBF, and Marine Biological Diversity of Areas Beyond National Jurisdiction (BBNJ) agreement.
Blue and Green Islands Integrated Program: 11250	This integrated program intends to achieve transformational change through (1) policy and regulatory reform as well as multi-stakeholder dialogues to support the integration of nature into decision making, facilitate the scaling of NbS, and incentivize private sector participation; (2) private sector engagement and innovative financial mechanisms to improve availability and access to public and private sector finances for NbS; (3) strategic knowledge management and effective capacity building to support collective action for NbS at scale.

Table 5: Contribution of NbS-aligned portfolio

Core Indicator	Projected contribution of NbS-aligned project at design stage (%)	Actual contribution of NbS-aligned project at closure (%)
Core Indicator 1: Terrestrial protected areas created or under improved management for conservation and sustainable use (million ha)	44 (237 projects)	53 (29 projects)
Core Indicator 2: Marine protected areas created or under improved management for conservation and sustainable use (million ha)	84 (74 projects)	3 (7 projects)
Core Indicator 3: Area of land and ecosystems under restoration (million ha)	57 (355 projects)	95 (35 projects)
Core Indicator 4: Area of landscapes under improved practices (million ha; excluding protected areas)	62 (474 projects)	89 (58 projects)
Core Indicator 5: Area of marine habitat under improved practices to benefit biodiversity (million ha; excluding protected areas)	33 (40 projects)	100 (1 project)
Core Indicator 6.1: Greenhouse gas emissions mitigated in the agriculture, forestry, and other land use (AFOLU) sector (million metric tons of CO_2e)	54 (341 projects)	88 (27 projects)
Core Indicator 6.2: Greenhouse gas emissions mitigated outside the AFOLU sector (million metric tons of CO_2e)	7 (65 projects)	0.2 (4 projects)
Core Indicator 7: Number of shared water ecosystems (fresh or marine) under new or improved cooperative management	19 (26 projects)	11 (1 project)
Core Indicator 8: Globally overexploited marine fisheries moved to more sustainable levels (thousand metric tons)	21 (14 projects)	0 (0 projects)
Core Indicator 9: Chemicals of global concern and their waste reduced (thousand metric tons)	3 (5 projects)	0 (0 projects)
Core Indicator 10: Persistent organic pollutants to air reduced (grams of toxic equivalent gTEQ)	3 (3 projects)	0 (0 projects)

Source: GEF IEO analysis of Core Indicators (GEF Portal).

ANNEX 11: EXAMPLES OF TYPES OF NBS IN GEF PROJECTS

Philippines: Plantation along the contours

Nepal: Check dam with vegetation reinforcement for flood protection

Nepal: A retention pond

Ecuador: Agro-ecological farming

Nepal: Contour farming

Brazil: Urban agriculture

Kenya: Land restoration

India: Indigenous Sloping Agriculture Land Technology (MiSALT)