Overcoming Barriers to Advancing Nature-based Solutions for Climate Change Adaptation

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Executive Summary

Throughout the globe, climate change is intensifying floods, droughts, heatwaves and other climate hazards, threatening livelihoods, food and water security, biodiversity and economic development. Although governments increasingly recognize the importance of adaptation, investment and implementation remain far below what is required. This adaptation gap is especially acute in developing countries, where limited fiscal space, weakened institutional capacity and constrained access to international climate finance leave communities most exposed to climate hazards with the fewest resources to respond. Nature-based Solutions for Climate Change Adaptation (NbS-A) offer a cost-effective approach to reducing climate risks while delivering multiple co-benefits for biodiversity, livelihoods and sustainable development. However, despite growing political recognition, NbS-A have yet to become a mainstream component of adaptation policy, planning and investment.

Drawing on consultations with governments, development partners, financial institutions, civil society, researchers and practitioners from countries across Latin America, the Caribbean, Africa and Asia, the report finds that the primary barriers to scaling NbS-A are not ecological or technical but institutional, financial and governance-related. Five interconnected barriers consistently emerged: fragmented governance and weak institutional coordination; limited technical and institutional capacity, particularly at subnational levels; insufficient evidence, monitoring and valuation systems to build confidence among policymakers and investors; inadequate and inaccessible adaptation finance; and limited communication, awareness and meaningful stakeholder engagement.

To overcome these barriers, the report identifies four mutually reinforcing systemic levers for accelerating implementation. First, governments should strengthen political and regulatory support by embedding NbS-A across adaptation, development, biodiversity and disaster risk reduction policies, while improving cross-government coordination and aligning national and local implementation. Second, economic incentives should better reflect the full value of healthy ecosystems by improving valuation methods, expanding blended and innovative finance, strengthening project preparation and increasing long-term investment. Third, governments and practitioners should deepen social ownership by ensuring meaningful participation of and co-design with local communities and Indigenous Peoples, recognizing local knowledge, and investing in communication and environmental education. Finally, stronger collaboration across governments, financial institutions, researchers, civil society and the private sector is needed to build capacity, improve knowledge exchange, harmonize monitoring systems and support wider adoptions of successful approaches.

Overall, the report concludes that moving NbS-A from small, isolated projects to widespread, sustained implementation requires systemic change. By acting on these four mutually reinforcing systemic levers, governments and their partners can create the enabling conditions needed to make NbS-A a central pillar of climate-resilient development, biodiversity conservation and sustainable economic growth.



Introduction

Climate change and its cascading impacts are accelerating, yet global adaptation efforts and their financing, particularly those that leverage nature, remain insufficient to build a climate-resilient society. International agreements and frameworks, including the Rio Conventions, the Paris Agreement and the Kunming–Montreal Global Biodiversity Framework, highlight the critical role of nature in addressing climate risks while safeguarding water security, food security, health and livelihoods. Recent assessments by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), including the Nexus Assessment, further underscore the interconnections among biodiversity, water, food, health and climate resilience, and the value of coordinated action across these domains (IPBES, 2024).

Nature-based Solutions for Climate Change Adaptation (NbS-A) utilize biodiversity and ecosystem services to reduce risks from floods, droughts, extreme heat and other climate hazards (Chausson, et al., 2020). They can provide cost-effective pathways to strengthen societal resilience while supporting biodiversity and broader social benefits (Seddon, et al., 2020). Healthy ecosystems regulate water, stabilize soils and moderate temperatures, reducing vulnerability to climate-related hazards while also supporting livelihoods, economic activity and cultural values that contribute to long-term resilience.

This report argues that advancing the effective use of NbS-A depends on progress across 4 mutually reinforcing levers: i) Strengthening Political and Regulatory Support, ii) Aligning Economic Incentives, iii) Deepening Social Ownership and Participation, and iv) Fostering Cross-Cutting Collaboration.

NbS-A interventions can be a cornerstone of climate-resilient development, with benefits often increasing over time as ecosystems recover and mature. However, NbS-A receive only a small share of global climate finance, despite their potential to reduce climate risks and support resilience. Adaptation finance available to developing countries remains far below the estimated US$359 billion needed annually (UNEP, 2024). Funding for NbS-A remains limited and is largely sourced from public investment, highlighting the need for greater mobilization of private and blended finance.

To ensure that nature plays a central role in efforts by governments, financial institutions, civil society organizations, donors and practitioners to reduce climate vulnerability, **Project PLAN** (Partnerships for Large-scale Adaptation through Nature) seeks to improve the enabling conditions to support NbS-A in three interrelated areas (WWF, 2026):

1. **Mainstreaming:** Integrating NbS-A more fully into national and local adaptation and development strategies.
2. **Scaling:** Expanding the number, reach and ambition of adaptation initiatives that leverage ecosystem services to reduce climate risks and vulnerability.
3. **Effectiveness:** Improving adaptation outcomes for climate vulnerable communities while delivering measurable co-benefits for biodiversity.

To advance these objectives, Project PLAN engaged stakeholders and experts from across global regions to examine barriers hindering NbS-A mainstreaming, scaling and effectiveness, and to identify pathways for overcoming them. The analysis draws upon perspectives from a diverse range of actors involved in NbS-A, including government ministries and agencies, financial institutions, conservation organizations and civil society groups. This engagement included technical dialogues across four regions—the Caribbean, Latin America, South and South-East Asia, and Southern and Eastern Africa—involving 47 participants from 17

countries; 21 individual expert interviews; a finance roundtable at UNFCCC COP30; sessions at major adaptation conferences; and a two-day workshop with experts, practitioners and innovators on how technical support platforms can better support the advancement of NbS-A.

This report aims to inform governments, development partners, climate funds and other stakeholders seeking to address systemic barriers to advancing NbS-A. It provides a framework for understanding key constraints and identifying solutions that strengthen enabling environments through targeted technical assistance, innovative financing, institutional collaboration and capacity-building. By highlighting practical pathways to advance NbS-A, the report seeks to support more effective investment in nature as a foundation for climate resilience, biodiversity conservation and sustainable development.

Navigating the Terminology of Nature-Based Approaches

Nature based solutions for climate change adaptation (NbS-A) sit within a broader family of nature based approaches. The United Nations Environment Assembly defines ***nature based solutions (NbS)*** *as "actions to protect, conserve, restore and sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems in ways that address social, economic and environmental challenges effectively and adaptively, while providing human well being, ecosystem services, resilience and biodiversity benefits" (UNEA, 2022).*

NbS therefore constitute an umbrella concept encompassing interventions that address climate change adaptation and mitigation, disaster risk reduction, food and water security and other development objectives. In policy and practice, however, the term NbS is often used without distinguishing between adaptation focused interventions and the wider NbS agenda. In this report, ***nature based solutions for climate change adaptation (NbS-A)*** *refers specifically to interventions designed to reduce climate risks and support adaptation outcomes. For clarity and consistency, this report uses* ***NbS-A*** *to denote adaptation specific interventions and uses* ***NbS*** *only when referring to the broader umbrella concept.*

The term ***ecosystem based adaptation (EbA)*** *predates NbS and is defined under the Convention on Biological Diversity as "the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people adapt to the adverse effects of climate change". EbA is functionally equivalent to NbS-A, but it is more firmly rooted in adaptation policy processes e.g., Nairobi Work Programme under the UNFCCC and places greater emphasis on vulnerability reduction, ecosystem integrity and equitable benefit sharing (CBD, 2009).*

Other related concepts describe narrower applications. ***Ecosystem based disaster risk reduction (Eco DRR)*** *focuses on reducing disaster risk from climatic and non climatic hazards through the conservation, sustainable management and restoration of ecosystems.* ***Green infrastructure*** *and* ***nature based infrastructure*** *refer to engineered or hybrid solutions that use natural systems to deliver services such as flood control or urban cooling. While these approaches share common principles, including ecosystem restoration, risk reduction, social benefits and participatory processes, their scope, primary objectives and institutional origins differ. Nonetheless, many of the insights in this report may also be relevant to these approaches (Cohen-Shacham et al., 2016).*

NbS-A "At Scale"

In developing this report, consultations with stakeholders highlighted recurring interest in advancing NbS-A "at scale." However, the term is often used without a clear definition of what scale means or what outcomes would demonstrate progress. As a result, discussions about scale can obscure important differences in expectations and priorities. For the purposes of Project PLAN, scale refers to increasing the number, reach and ambition of initiatives, while recognizing that "scale" can also be understood in other valid ways.

Since NbS-A are highly contextual approaches, scaling is not just about replicating activities in greater numbers. It can involve one or more of the following:

- *Increasing positive impacts for nature, communities, and economies.*
- *Expanding geographically to new locations and larger areas.*
- *Strengthening physical and functional connectivity across ecosystems so interventions contribute to landscape- or seascape-level resilience.*
- *Mobilizing more funding from public, private, and philanthropic sources.*
- *Growing market demand and adoption for products and services generated through nature-based solutions.*

It is important to consider in efforts to scale NbS-A that they are not appropriate in every situation and cannot always act as a substitute for conventional engineered solutions. Effective adaptation will often require combinations of nature-based and engineered approaches.





Barriers to Mainstreaming, Scaling, and Effectiveness of Nature-based Solutions for Climate Change Adaptation

Despite growing consensus on the value and importance of nature-based solutions for adaptation (NbS-A), regional dialogues, expert consultations and the NbS for Adaptation workshop confirm that widespread adoption has remained elusive. Decision-makers and planners often perceive NbS-A as high-risk, hard to measure and less financially attractive than engineered alternatives, which keeps many initiatives confined to small, standalone projects rather than integrated, multi-sectoral programmes. These barriers were confirmed both in literature reviews that resulted in a series of technical briefs, and in subsequent stakeholder consultations. The challenges identified across these consultations fall into five broad categories: governance, policy and institutional constraints; technical capacity and implementation challenges; evidence, knowledge and learning gaps; financing and investment constraints; and limitations in awareness, communication and stakeholder engagement. Addressing these challenges is essential if NbS-A are to move from isolated pilot projects into a more consistent and mainstream component of adaptation planning and delivery.

1. Governance, Policy and Institutional Barriers

Governance and institutional barriers often pose a greater challenge to advancing NbS-A than technical constraints alone. Because NbS-A span sectors such as environment, water, agriculture, urban planning and disaster risk management, they rarely fall under the responsibility of a single institution. As a result, implementation often suffers from fragmented mandates, weak coordination and unclear ownership.

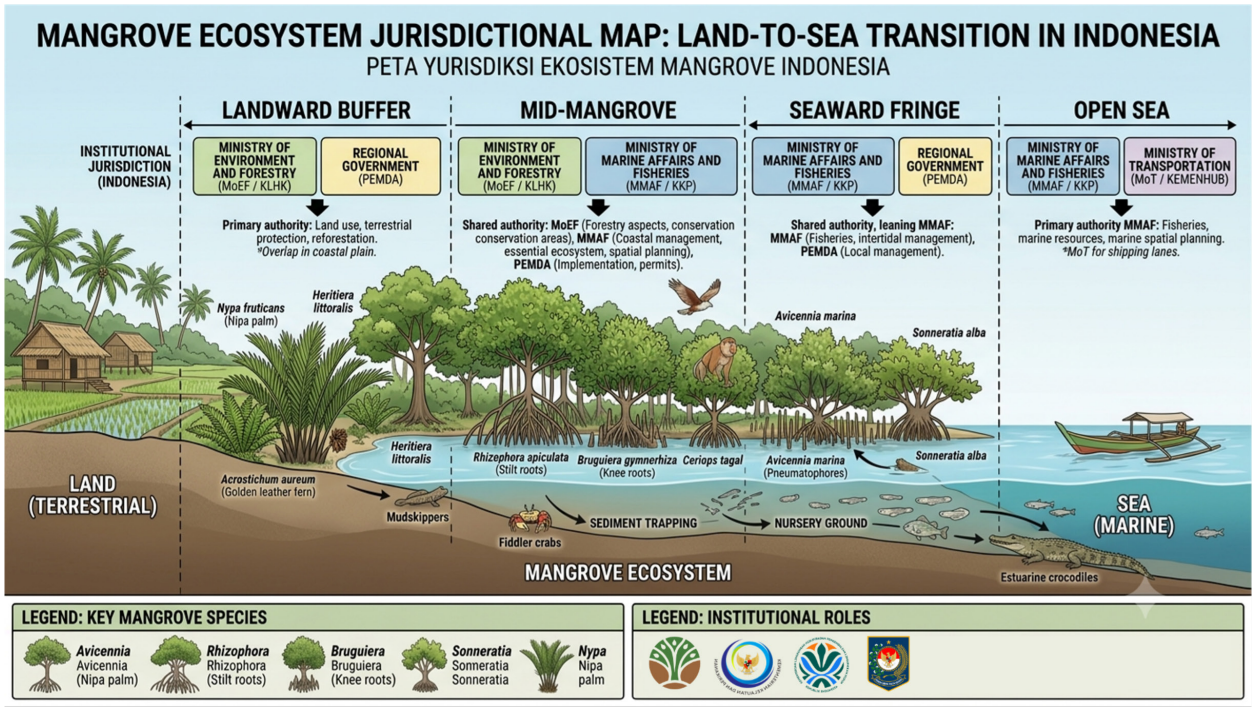


Figure 1. Designing, financing and implementing nature-based solutions is often impeded by fragmented governance of ecosystems. This example from Indonesia shows the complexity of working with mangrove ecosystems. From "Arifanti, V.B. 2026. Mangrove blue carbon as a nature-based solution: Advancing research and governance in Indonesia. 7th Mangrove Macrobenthos and Management Conference: Towards Nature Positive Mangroves. Ishigaki, Japan."

Stakeholders across Latin America, the Caribbean, Asia and Africa highlighted that these challenges become particularly acute when no ministry or agency has a clear responsibility for leading NbS-A implementation. As one expert observed, *"NbS are inherently cross-cutting, but governments are structured in sectoral silos."* Another noted that unclear responsibilities across ministries and departments can significantly slow progress.

These coordination challenges are often reinforced by weak policy mandates and regulatory frameworks. While NbS-A are increasingly referenced in national climate and adaptation policies, such recognition does not always translate into implementation requirements, planning obligations or investment priorities. Chile, for example, references NbS within its Climate Change Framework Law, but implementation remains largely discretionary. In Mexico, the absence of a formal legal definition for NbS further limits its visibility within planning and investment processes. At present, and in many contexts, NbS-A are therefore frequently treated as an option rather than a standard component of adaptation planning. As one participant explained, *"NbS need a legal framework. Without it, governments are generally not held accountable for putting them into practice."*

Policy stability is also critical. For NbS-A, the challenge is not only whether policies are coherent across sectors, but whether they provide a predictable, long-term framework for action. Frequent changes in regulations, shifting priorities and inconsistent policy signals can undermine confidence among public agencies, investors and implementing partners, particularly where NbS-A require long time horizons for planning, ecosystem recovery and maintenance. Without stable and credible policy frameworks, governments and partners may struggle to build pipelines of investable NbS-A projects or sustain implementation beyond individual political or funding cycles.

Even where policy frameworks exist, implementation can be constrained by practical governance challenges. Land tenure insecurity, weak safeguards and limited institutional familiarity with environmental and social management systems reduce confidence among both governments and investors. Caribbean stakeholders identified land tenure issues as a significant obstacle, while participants in Asia highlighted inconsistencies in safeguard implementation linked to limited institutional experience. Corruption and land governance challenges can present additional barriers to NbS-A. As demand for land increases for restoration, conservation and carbon-related projects, weaknesses in land administration systems may increase the risk of non-transparent land transactions, elite capture and disputes over resource rights (Maslen, 2023). These challenges can erode community trust, delay project implementation and increase perceived investment risk, highlighting the importance of transparent governance systems and meaningful stakeholder participation.

A further obstacle is the disconnect between policy ambition and implementation. Although many countries have integrated NbS-A into national adaptation plans (NAPs) and strategies, and nationally determined contributions (NDCs), these commitments are often not translated into sectoral plans, public investment processes or budget allocations. Participants highlighted poor synchronization between policymakers and planners as a key constraint, noting that policy intent is not consistently reflected in planning processes. This disconnect is often exacerbated by political and institutional discontinuity, including changes in political leadership, shifting government priorities and staff turnover, which can disrupt implementation efforts, erode institutional memory and force agencies and partners to "come back to square one" when advancing NbS-A initiatives.

In many countries, NGOs and external partners continue to play a leading role in developing and implementing NbS-A projects. While these contributions are important, they can sometimes create uncertainty about long-term government ownership and integration into planning systems. National and regional coordination mechanisms are emerging in some contexts, but their absence continues to limit the mainstreaming of NbS-A, particularly in rapidly urbanizing areas facing competing development priorities.

1 Building Institutional Continuity Beyond Political Cycles

Why permanent coordination mechanisms matter

Many stakeholders identified political turnover and institutional restructuring as major obstacles to sustained adaptation action. Long-term resilience objectives often extend beyond electoral cycles, creating challenges for continuity and implementation.

One stakeholder highlighted the importance of creating permanent mechanisms that can maintain momentum over time:

> *"There should be a core group who would support the government and ministries. It shouldn't be connected with political cycles where we have to rebuild political will every time."*

Dedicated adaptation units, technical secretariats and formal cross-government coordination bodies can help preserve institutional memory, maintain partnerships and support implementation over the long term. In Colombia, CONPES 4058 (2021), a national policy led by the National Planning Department, formally embeds adaptation coordination within government structure. Under it, the Intersectoral Commission on Climate Change established the National Nature-based Solutions Network (2024), bringing together 20+ organizations across four thematic clusters to coordinate NbS design and implementation. By anchoring this function in a standing intersectoral commission rather than a single administration, the Network shows how formal cross-government bodies sustain technical coordination and institutional memory across political transitions.

KEY TAKEAWAY: Durable adaptation outcomes depend on institutions that can survive beyond individual projects, staff changes and political transitions.

2. Technical Capacity and Implementation Barriers

Even where governance arrangements and policy commitments are in place, many institutions lack the technical capacity required to translate NbS-A ambitions into effective implementation.

Technical expertise on NbS-A often remains concentrated within academia, civil society organizations and specialist consultants rather than embedded within government institutions. While governments are not necessarily responsible for designing NbS-A interventions themselves, they play a critical role in identifying priorities, evaluating options, allocating resources and integrating NbS-A into development and adaptation planning. Limited in-house expertise can therefore constrain the ability of public institutions to mainstream and implement NbS-A effectively.

In Mexico, stakeholders highlighted the need for practical training and decision-support tools to help planners and non-specialists incorporate NbS-A into planning and investment processes. Similarly, an expert in Asia identified "*significant knowledge gaps among those responsible for adaptation planning*" and emphasized the need for stronger government "*capacity-building support.*"

Capacity constraints affect the entire implementation cycle, from project identification and appraisal to implementation, monitoring and evaluation. Stakeholders in Latin America reported challenges incorporating NbS into territorial planning instruments and adaptation processes, while Indonesia highlighted persistent

staff shortages and high turnover. These constraints are often most severe at subnational levels, where implementation responsibilities are concentrated but resources and technical expertise are frequently limited.

Weak data and information systems further hinder implementation. Limited analytical capacity, weak climate-information systems and the absence of national knowledge platforms reduce the ability of institutions to identify priorities, coordinate interventions and monitor progress. Access to geospatial technologies, planning tools and locally relevant datasets also remains limited in many countries, particularly in the Global South.

As one participant observed, adaptation progress remains difficult to assess without sector-specific indicators. Another noted that *"We often lack the data and information needed for effective planning, especially when integrating NbS into wider development and adaptation strategies."*

Addressing these barriers will require sustained investment in technical skills, institutional learning and implementation support. Strengthening government capacity at both national and subnational levels, embedding expertise within public institutions and improving access to practical planning tools will be critical for moving from pilot projects to large-scale implementation.

2 Closing the Capacity Gap

Building skills for implementation

Many institutions continue to face challenges translating high-level adaptation commitments into practical implementation. Capacity constraints remain a recurring barrier across sectors and regions.

One stakeholder from Zimbabwe observed:

> *"There is limited expertise in designing, implementing, and monitoring nature-based solutions programmes, as well as demonstrating their benefits at scale."*

Addressing these gaps requires sustained investment in technical skills, institutional capacity and cross-sector learning.

KEY TAKEAWAY: Building implementation capacity is essential for moving from adaptation ambitions to measurable outcomes.

3. Evidence, Knowledge and Learning Barriers

A persistent barrier to NbS-A is the limited availability and use of evidence demonstrating their effectiveness, value and long-term benefits.

Although the evidence base for NbS-A is growing, many decision-makers continue to perceive nature-based approaches as less reliable, less measurable or higher risk than conventional infrastructure solutions. This perception is reinforced by weaknesses in monitoring systems and by the limited availability of clear, accessible information on performance, costs and outcomes.

One challenge is the lack of practical frameworks and methodologies for assessing ecological, social and economic benefits in a consistent manner. Existing appraisal and investment processes often struggle to

capture outcomes such as ecosystem resilience, biodiversity gains and social co-benefits, making it difficult to compare NbS-A with traditional infrastructure approaches.

A respondent from a multilateral development bank noted that *"An important barrier is the lack of ability to compare advantages between green and grey infrastructure."* Without robust methods for comparing options and assessing trade-offs, many decision-makers default to more familiar engineered solutions.

Weak monitoring and evaluation systems present an additional challenge. Co-benefits are often not systematically measured, and data on long-term adaptation outcomes remain limited. The absence of standardized approaches for monitoring ecological, social and economic impacts reduces opportunities for learning and limits the evidence available to justify larger investments.

Participants across regions also emphasized that research findings are not always translated into formats and languages that are useful or understandable by practitioners, local governments and communities. As one respondent noted, *"Climate information must move from knowledge products to practical tools that communities can use."*

Strengthening the evidence base for NbS-A will require better monitoring systems, more accessible knowledge products, improved methods for comparing green and grey approaches, and greater investment in learning and adaptive management. Without stronger evidence and more effective knowledge-sharing mechanisms, political and financial support for NbS-A is likely to remain constrained.

4. Financing and Investment Barriers

Financing for NbS-A remains far below what is needed for large-scale implementation. While adaptation finance is already limited relative to overall climate finance, NbS-A face additional challenges in attracting investment because their benefits often accrue over longer timeframes and across multiple sectors. Public investment frequently continues to favour grey infrastructure, where costs, outcomes and implementation pathways are perceived as more predictable.

As one participant observed, *"Adaptation financing is constrained, and when only state budgets are available, grey infrastructure tends to be favoured due to its short-term feasibility and quicker results."*

Stakeholders from multilateral development banks (MDBs), governments and regional dialogues noted that existing investment appraisal frameworks often fail to capture adequately the full range of benefits generated by NbS-A. While engineered infrastructure is typically designed to deliver a single objective, NbS-A can simultaneously contribute to climate resilience, biodiversity conservation, livelihoods and ecosystem health. However, these broader benefits are not always reflected in conventional investment assessments, making NbS-A projects less competitive when funding decisions are made.

An expert from Africa highlighted that *"While mitigation efforts can often access funding through mechanisms such as carbon pricing, securing adequate finance for adaptation remains significantly more challenging."*

The long-term nature of ecosystem-based adaptation and NbS-A creates additional financing challenges. Many projects are funded through short-term grants lasting only two to three years, whereas ecological restoration and resilience outcomes may require sustained management and investment over much longer periods. Short funding cycles create uncertainty around maintenance, monitoring and the continuation of activities after project support ends.

Administrative and procedural barriers further constrain access to finance. Complex proposal and donor requirements, donor-specific reporting systems and lengthy approval processes increase transaction costs and limit the ability of governments, local organizations and communities to develop bankable NbS-A

projects. A recurring constraint is the comfort level of funders themselves: their willingness to let resources flow to local levels and to accept the reporting that comes from those levels. Where multiple funding sources converge on a single grantee, the result can be five sets of indicators and five separate reports for the same work on the ground. Participants pressed funders to set requirements that are realistic and rooted in ground realities, so that communities spend their time, for example, monitoring mangroves and coral reefs rather than servicing reporting systems. MDB representatives and stakeholders from Latin America emphasized that operations and maintenance financing and the gap between funding commitments and disbursements remain significant obstacles. It was noted, however, that this is also true for conventional, engineered solutions.

Country experiences demonstrate how these challenges affect implementation in practice. In Belize, restrictive banking regulations limited the ability of restoration projects to channel resources directly to communities involved in wetland and mangrove conservation. In Myanmar and Thailand, youth-led NbS-A initiatives were unable to continue once donor support ended. Respondents from Argentina and Pakistan also emphasized the challenges of accessing resources from global climate and environmental finance mechanisms such as the Green Climate Fund, where strong institutional capacity and extensive technical requirements can present significant barriers.

One expert from Asia noted that *"It is very difficult to get funding. We used to go for bidding for the World Bank, then it would be a big challenge in terms of access to adaptation funding."* Another interviewee echoed this perspective, explaining *"We try to strengthen communities by giving them funds so they can manage resources and implement activities independently, but it is always very challenging and difficult to access adaptation funding for local communities."*

Overall, financing barriers remain a fundamental constraint to large-scale NbS-A. Addressing them will require greater adaptation finance, investment approaches that better recognize the multiple benefits of nature-based solutions, longer-term funding commitments, more accessible financing mechanisms for local actors and communities, and predictable policy environments that help build credible pipelines of NbS-A projects that are ready for investment and implementation.

3 The Valuation Challenge

Comparing green and grey solutions

Stakeholders repeatedly noted that many investment decisions continue to favour conventional infrastructure because the benefits of ecosystems are not adequately reflected in appraisal frameworks.

As one participant observed:

> *"An important barrier is the lack of ability to compare advantages between green and grey infrastructure."*

Traditional appraisal approaches frequently undervalue avoided losses, resilience benefits and ecosystem services, making it difficult for NbS-A investments to compete directly with engineered alternatives.

KEY TAKEAWAY: Improved valuation methods are needed to ensure adaptation decisions account for the full benefits provided by ecosystems.

5. Communication and Stakeholder Engagement Barriers

Even where supportive policies, technical capacity and financing exist, NbS-A cannot advance without broader understanding, support and participation from decision-makers, practitioners and local communities.

Across many regions, awareness of NbS-A remains limited among both policymakers and implementation agencies. Participants repeatedly noted that NbS is often misunderstood as tree planting or conservation activities rather than a strategic approach to managing climate risks and strengthening resilience. This narrow understanding can reduce political support and limit consideration of NbS-A within adaptation planning and investment processes.

Limited awareness is reinforced by communication challenges. Information about NbS-A benefits is frequently presented in technical language that does not resonate with decision-makers, community members or practitioners working outside the environmental sector. As a result, important evidence and lessons often fail to influence planning and investment decisions.

A participant in a regional consultation noted:

> *"NbS being a fairly new concept, an emerging concept, the decision-making body should be aware of this concept. People are less aware, especially at local level. If we ask people in the local government what NbS are, most have only a minimal idea."*

Communication challenges are particularly important at the local level, where successful implementation depends on stakeholder understanding, participation and long-term ownership. Community engagement emerged as a consistent theme across regional dialogues and expert consultations. Participants emphasized that communities must be recognized as active partners in the design and implementation of NbS-A rather than passive beneficiaries.

Weak communication and engagement can also undermine project effectiveness. Participants highlighted examples where insufficient consultation reduced local support and buy-in, limiting social ownership and, consequently, the sustainability of interventions. One respondent from Belize described a project that struggled because communities were not adequately involved in project planning and decision-making. Another participant noted that *"Climate change and NbS are often communicated in technical terms, which can limit community ownership."*

Limited engagement also creates risks for the inclusion of Indigenous Peoples and local communities. Regional dialogues indicated that weak communication systems, limited access to information and insufficient consultation processes can result in local knowledge being overlooked despite its importance for adaptation planning and ecosystem management.

Disconnects between national institutions, local governments, civil society organizations and communities present additional challenges. These gaps can reduce awareness of financing opportunities, technical guidance and successful NbS-A practices, slowing learning and replication.

Addressing these barriers requires more than simply increasing awareness of NbS-A. It requires investment in continuous communication, inclusive participation processes and locally relevant messaging that links climate adaptation to community priorities and national climate, biodiversity and development commitments and goals. Building trust, strengthening local ownership and ensuring meaningful participation will be critical for sustaining NbS-A interventions over the long term.

4 Community Engagement as a Foundation for Resilience

Participation drives long-term success

Community participation emerged as one of the most important factors influencing the success of NbS-A initiatives. Projects that engage communities early and meaningfully are often more effective, equitable and sustainable.

A stakeholder from Jamaica emphasized:

> *"One major barrier is community understanding and engagement. Many people do not fully understand the role they can play in building resilience."*

Building awareness and creating opportunities for participation can strengthen ownership while ensuring interventions respond to local priorities and risks.

KEY TAKEAWAY: Communities are not only beneficiaries of adaptation—they should be essential partners in designing and sustaining solutions that build resilience.

Because these barriers reinforce one another, addressing them individually is unlikely to produce durable change. Mainstreaming, scaling and improving effectiveness of NbS-A require interventions that target the underlying governance, economic, social and institutional systems shaping adaptation decisions. The following section identifies four systemic levers that can drive the mainstreaming, scaling and effectiveness of NbS-A.





Systemic Levers for Advancing Nature-Based Solutions for Adaptation

The transition from fragmented and small-scale implementation of nature-based solutions for adaptation (NbS-A) to wider and/or large-scale deployment requires changes to the systems that shape decision-making, investment and delivery. Incremental project-level interventions alone are insufficient. Structural change is required across governance frameworks, economic systems, social processes and institutional networks.

Analysis of stakeholder consultations, regional dialogues, expert interviews and technical workshops identified four systemic levers that can address the interconnected barriers limiting NbS-A uptake:

- Strengthening political and regulatory support
- Aligning economic incentives
- Deepening social ownership and participation
- Fostering cross-cutting collaboration

These levers reinforce one another. Progress in one area can accelerate gains in others, though the extent to which this occurs depends on context. Stronger governance creates confidence for investment. Better evidence strengthens political support. Community ownership improves implementation outcomes. Institutional collaboration accelerates learning and innovation. Together, these levers provide a framework for embedding NbS-A within adaptation policy, planning and investment systems. The following sections outline priority actions stakeholders identified for operationalizing each lever and overcoming the barriers that continue to constrain NbS-A.

Lever 1: Strengthening Political and Regulatory Support

Why this matters

Governance and policy systems strongly influence whether NbS-A are treated as a mainstream adaptation strategy or remain limited to isolated projects; political will is key. Across regions, stakeholders consistently highlighted fragmented mandates, weak coordination mechanisms and insufficient regulatory support as major constraints to widespread implementation. Because NbS-A generate benefits across multiple sectors, including water, agriculture, infrastructure, biodiversity conservation and disaster risk reduction, they often fall between institutional mandates, creating uncertainty about leadership, accountability and financing responsibilities. Strengthening political and regulatory support is therefore fundamental to creating an enabling environment for large-scale implementation.

1.1 Aligning national and subnational policy processes

NbS-A commitments are frequently established at the national level while implementation occurs at local and subnational levels. This can result in misalignment between policy ambition and delivery capacity. Strengthening vertical, multilevel integration across governance levels can help ensure that national adaptation priorities are translated into locally relevant actions.

Governments can improve coherence by embedding NbS-A into national adaptation plans, planning and development strategies, biodiversity plans, land-use policies and infrastructure programmes. Decentralized implementation should be supported through clear mandates, technical guidance, fiscal transfers and practical implementation frameworks. Local and regional authorities are often best positioned to lead implementation because they possess contextual knowledge of ecosystems, communities and climate risks.

5 Policy Alignment in Practice: Bhutan

Bringing adaptation into whole-of-government planning

Advancing NbS-A requires alignment between national policy ambitions and implementation across sectors and levels of government. Bhutan offers an example of how adaptation objectives can be embedded across national development processes rather than treated as a standalone environmental issue.

A stakeholder from Bhutan described ongoing efforts to integrate adaptation and mitigation priorities across government planning:

> *"We are aligning our national development plan in every sector and we are working on integrating adaptation and mitigation."*

This approach demonstrates how policy coherence can help ensure that adaptation objectives are reflected in sectoral decision-making, investment planning and implementation processes. By embedding climate resilience across government systems, countries can create stronger foundations for advancing NbS-A.

KEY TAKEAWAY: Mainstreaming NbS-A across national development planning can strengthen implementation and ensure adaptation is treated as a shared government priority rather than a standalone environmental agenda.

1.2 Establishing cross-ministerial coordination mechanisms

NbS-A initiatives often require collaboration across sectors that traditionally operate through separate mandates, budgets and performance frameworks. Without effective coordination, opportunities for integrated planning and investment may be missed.

Formal coordination mechanisms such as cross-ministerial working groups, national adaptation committees and central planning bodies can improve policy coherence and facilitate joint decision-making. Bringing together actors from environment, finance, agriculture, infrastructure, water and disaster risk management institutions can help align priorities, budgets, monitoring systems and implementation approaches across government.

1.3 Introducing flexibility in permitting, compliance, and procurement systems

Many existing permitting and compliance frameworks were designed for static infrastructure and predictable environmental conditions. These systems can inadvertently constrain adaptive ecosystem management and make it more difficult to implement innovative NbS-A approaches.

As climate risks intensify and environmental conditions change, permitting, procurement and associated regulatory frameworks need greater flexibility to support context-specific and adaptive management approaches while maintaining appropriate safeguards (The Nature Conservancy, 2025). Regulatory systems that accommodate iterative decision-making can encourage innovation, facilitate implementation and reduce institutional barriers to NbS-A.

1.4 Promoting long-term institutionalized adaptation planning

Short political cycles, staff turnover and project-based approaches can undermine continuity and weaken long-term adaptation efforts. Many stakeholders emphasized that adaptation initiatives often lose momentum when institutional leadership changes.

Embedding NbS-A objectives within legislation, statutory plans and long-term development strategies can help ensure continuity across political administrations and organizational changes. Multi-year mandates, cross-institutional endorsement and legally embedded adaptation targets can provide the stability required to sustain implementation over time.

1.5 Integrating NbS-A into disaster risk reduction frameworks

Disaster risk reduction (DRR) frameworks provide a practical and politically compelling entry point for NbS-A. Demonstrating how ecosystems reduce flood risk, improve drought resilience, protect livelihoods and enhance water security can strengthen support for nature-based approaches.

Aligning NbS-A interventions with national and local DRR strategies, as well as Sendai Framework objectives, can improve policy coherence and strengthen implementation. Ecosystem-based adaptation and ecosystem-based disaster risk reduction are increasingly recognized as low-regrets approaches that deliver benefits under a wide range of climate scenarios while reducing long-term hazard-related losses.

6 Ecosystems as Disaster Risk Reduction Infrastructure

Evidence from Eco-DRR initiatives

Nature-based approaches can play a critical role in disaster risk reduction by reducing vulnerability to climate hazards while delivering social and environmental co-benefits. Evidence from ecosystem-based disaster risk reduction (Eco-DRR) initiatives demonstrates their potential to generate measurable resilience outcomes.

Analyses of projects in Haiti, India, Indonesia and Uganda found significant reductions in hazard-related losses and positive long-term economic returns. In Haiti and India, annual losses from climate-related hazards fell substantially within five years of implementation (Vicarelli, Georgescu, & Sudmeier-Rieux, 2024).

These findings reinforce growing evidence that healthy ecosystems can function as critical resilience infrastructure while supporting biodiversity and livelihoods.

KEY TAKEAWAY: Integrating NbS-A into disaster risk reduction strategies can reduce climate risks while delivering long-term economic and social benefits.

1.6 Creating rights-based and inclusive governance frameworks and regulations

Inclusive governance is essential for ensuring that NbS-A interventions are equitable, legitimate and sustainable. Stakeholders consistently emphasized that adaptation initiatives are more effective when they recognize rights, support meaningful participation and integrate Indigenous Peoples' and local knowledge systems.

Rights-based approaches can strengthen social ownership, improve benefit-sharing and support more locally grounded adaptation outcomes. Establishing supportive institutional frameworks, regulations, and clear guidance for integrating local and Indigenous knowledge can help ensure that NbS-A contributes to both climate resilience and broader social objectives.

1.7 Clarifying and strengthening the role of the private sector through policy and regulatory signals

Private-sector engagement in NbS-A has often been limited by uncertainty regarding investment pathways, implementation responsibilities and expected returns. However, growing attention to nature-related risks and sustainability commitments is creating new opportunities for private-sector participation.

Governments can help accelerate engagement by providing predictable policy and regulatory signals, including sustainability reporting requirements, fiscal incentives, risk-sharing arrangements and clear guidance on private-sector roles in project development, financing and implementation. Stronger public-private collaboration can enhance investment, lower risks for governments and broaden support for NbS-A.

1.8 Mainstreaming NbS-A within investment and regulatory frameworks

Embedding NbS-A into regulatory and investment systems can help ensure that nature-related risks, resilience benefits and ecosystem services are systematically considered in decision-making.

Integrating NbS-A into project appraisal processes, investment frameworks, risk assessment methodologies and regulatory guidance can improve consistency across sectors and increase investor confidence. Standardized approaches can also support the development of adaptation-friendly markets and encourage wider adoption by public and private actors.

Summary Message

Together, these actions can help create the policy certainty, institutional accountability and enabling regulatory environment needed to move NbS-A from isolated projects to mainstream adaptation practice across sectors and governance levels.

Lever 2: Aligning Economic Incentives

Why this matters

Current financial systems often favor investments that generate immediate and easily quantified returns. NbS-A frequently delivers benefits over longer periods, across multiple sectors and through avoided losses that are not adequately reflected in conventional investment approaches. As a result, ecosystems remain undervalued relative to engineered alternatives and investment in NbS-A remains well below what is needed. Aligning economic incentives is therefore essential for large-scale and widespread implementation.

2.1 Strengthening economic appraisal frameworks

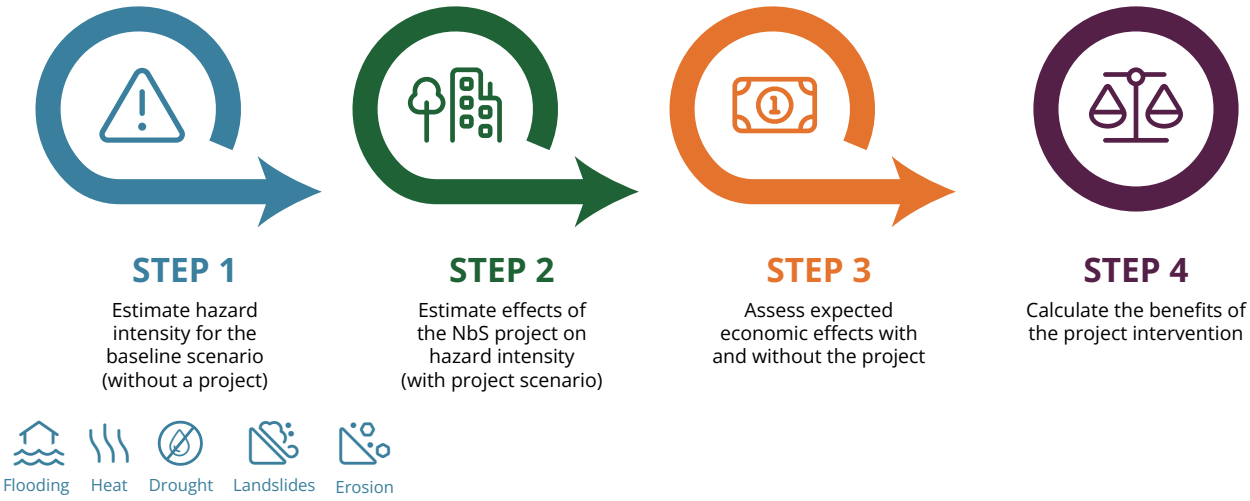
Conventional appraisal approaches often fail to fully capture the value of ecosystem services, avoided damages, resilience benefits and wider social outcomes. This can create a bias towards grey infrastructure solutions that are easier to quantify using traditional cost-benefit methods.

Governments, development banks and investors require stronger methodologies for valuing the full range of benefits generated by NbS-A and by other adaptation options. Improved appraisal frameworks can help decision-makers compare adaptation options more effectively and strengthen the business case for investment by accounting for long-term returns, ecosystem services and other societal benefits, and avoided climate-related losses. Lifecycle costing approaches should also be incorporated to ensure that long-term maintenance and operational benefits are considered.

2.2 Communicating the economic value of NbS-A

Strong economic evidence alone is often insufficient unless it is communicated in ways that resonate with decision-makers and investors. Stakeholders emphasized the need for clearer narratives demonstrating how NbS-A reduces risks, protects assets, supports livelihoods and contributes to economic stability.

Communication efforts should move beyond project-level benefits to emphasize broader economic resilience, including protection against climate shocks, reduced public expenditure on disaster recovery and strengthened ecosystem-dependent sectors. Clear messaging on avoided losses and long-term returns can help build confidence among governments, multilateral development banks and private investors.



Four-step process for valuing risk reduction benefits using the avoided damages method (Van Zanten, et al., 2023).

2.3 Linking mitigation and adaptation finance

NbS are often treated as either mitigation or adaptation interventions, which can unnecessarily limit access to financing opportunities. In reality, many nature-based interventions deliver both adaptation and mitigation benefits simultaneously.

Integrating adaptation and mitigation objectives can increase funding opportunities, improve project viability and strengthen political support. More coordinated climate finance approaches can unlock additional resources while supporting interventions that contribute to resilience, biodiversity conservation and emissions reductions.

7 Breaking Down the Adaptation–Mitigation Divide

Unlocking integrated climate finance

Many NbS initiatives contribute simultaneously to climate adaptation, biodiversity conservation and emissions reductions. Yet financing mechanisms often treat adaptation and mitigation as separate objectives.

One stakeholder described this fragmentation succinctly:

> *"Siloing mitigation and adaptation for NbS is a barrier in itself."*

For example, a road project in Guatemala demonstrated that incorporating reforestation and restoration to reduce flood risk produced benefits sixteen times greater than repeated infrastructure repairs, while also contributing to national mitigation targets and creating local employment.

Greater integration across climate finance streams could improve efficiency, strengthen project viability and expand opportunities for investment in nature-based approaches.

KEY TAKEAWAY: Integrated climate finance can unlock larger and more flexible funding streams for NbS-A while maximizing environmental and resilience benefits.

2.4 Building financial capacity across institutions

Limited financial literacy, project preparation capacity and understanding of financing mechanisms continue to constrain NbS-A investment. Governments, project developers, financial institutions and local actors often face challenges in developing bankable projects and navigating available funding opportunities.

Building financial capacity should include strengthening skills in project preparation, feasibility assessment, business model development, financial structuring and risk management. Enhanced understanding across institutions can improve the quality of NbS-A proposals, increase investment readiness and support more effective engagement with public and private finance providers.

2.5 De-risking early-stage investments

Despite their long-term benefits, NbS-A investments are often perceived as high-risk because of limited performance data, long implementation timelines and uncertain revenue streams. These factors can discourage private investment and delay implementation.

Public finance and concessional funding can play a catalytic role by absorbing early-stage risks and improving project attractiveness. Blended finance approaches, guarantees, risk-sharing arrangements and public-private partnerships can help improve risk-return profiles and mobilize larger volumes of private capital.

2.6 Tailoring finance mechanisms to local contexts

Financial solutions that work in one context may not be suitable in another. Stakeholders emphasized that financing mechanisms need to reflect local ecological, social and economic realities.

Locally appropriate models such as trust funds, municipal tariffs, community financing mechanisms and ecosystem-based enterprises can provide sustainable revenue streams while strengthening local ownership. Tailoring financial mechanisms to specific contexts can improve access to finance and help bridge the gap between short-term funding cycles and longer ecological recovery timeframes.

8 One Size Does Not Fit All

Tailoring finance to local realities

Stakeholders stressed that financial mechanisms must be adapted to local contexts. Approaches that work in large continental ecosystems may not always be suitable for Small Island Developing States (SIDS) or other highly context-specific settings. *"Direct access to finance that reflects local realities is essential. Financing models must be adapted to different geographies, ecosystems and socio-economic conditions."* A respondent from the Caribbean highlighted that *"approaches suited to large ecosystems such as the Amazon may not translate to Small Island Developing States (SIDS)".*

Participants highlighted the importance of developing locally relevant financing solutions that reflect specific ecological, economic and institutional realities. Community-based financing mechanisms, trust funds and local revenue models were all cited as promising approaches in different contexts.

KEY TAKEAWAY: NbS-A requires flexible financing models that reflect local needs and realities rather than standardized approaches.

NbS-A will require a broader range of financial instruments than those currently available. Reliance on traditional donor funding alone will not be sufficient to meet adaptation needs.

Emerging approaches—including biodiversity bonds, debt-for-nature swaps, parametric insurance products, climate resilience funds and blended finance models—offer opportunities to diversify funding sources and attract new classes of investors. Expanding the use of innovative financing instruments can help overcome structural barriers and support implementation.

2.8 Strengthening the evidence base for investment decisions

Investors and policy-makers require robust evidence demonstrating that NbS-A interventions deliver measurable outcomes and represent sound investments. The availability of locally relevant data remains a significant factor influencing investment decisions. It is essential for governments and other stakeholders to have access to reliable and easy-to-use technology that supports gathering actionable data and evidence.

Improved monitoring systems, cost-benefit analyses, case studies and evidence repositories can strengthen confidence in NbS-A and help inform financial decision-making. Generating and sharing practical examples

of successful implementation can support replication, improve investment readiness and demonstrate the value of integrating nature into adaptation planning.

Summary Message

These actions can help ensure that financial systems recognize avoided losses, resilience benefits, ecosystem services and long-term returns, making NbS-A more attractive to investors, governments and development partners alike.

Lever 3: Social Ownership and Participation

Why this matters

NbS-A cannot be imposed through standardized or externally developed approaches. Their effectiveness depends on public support, community ownership, Indigenous and local knowledge and sustained stewardship. Adaptation interventions are most effective when they respond to local social, cultural and ecological contexts. Strengthening participation therefore improves both legitimacy and long-term outcomes.

3.1 Understanding and building trust with the community

Effective NbS-A interventions begin with a deep understanding of the local context. Practitioners, planners and technical experts should invest time in understanding community priorities, livelihoods, governance structures, cultural values and existing relationships with natural resources before identifying potential solutions. What may appear to be a suitable adaptation measure from a technical perspective may not align with local needs, capacities or development priorities.

Building trust is equally important. Communities are often asked to participate in planning processes without seeing tangible outcomes, which can lead to consultation-fatigue and skepticism. Establishing trust requires sustained engagement, transparent communication and a willingness to listen to local concerns and experiences. By investing in relationships early and demonstrating respect for local knowledge and perspectives, practitioners can create the foundation for meaningful participation, stronger ownership and more durable adaptation outcomes.

3.2 Embedding community participation and ownership

Community participation should be treated as a core design principle rather than a project activity. Meaningful engagement helps ensure that NbS-A interventions reflect local priorities, address community needs and build long-term commitment to implementation.

Participation should begin during project design and continue throughout implementation, monitoring and adaptive management. Assigning communities clear roles and responsibilities can enhance ownership while strengthening the sustainability of adaptation outcomes.

3.3 Strengthening co-design processes

Co-design approaches help ensure that adaptation interventions are grounded in local realities while drawing on scientific evidence and technical expertise. Stakeholders consistently highlighted the importance of developing solutions with communities rather than for communities.

Integrating Indigenous Peoples' knowledge, local experience and scientific understanding can improve project effectiveness, strengthen stewardship and support more resilient outcomes. Co-design also helps build trust and increases the likelihood of long-term community engagement.

9 Co-Designing Adaptation with Communities

Bringing climate, nature and people together

Stakeholders consistently emphasized that adaptation interventions are most successful when local communities play a central role in design and decision-making.

As one project developer explained:

> *"Co-creating projects with local communities helps bring a nexus of climate, nature and people together."*

Co-design approaches can strengthen local ownership, improve project relevance and create solutions that reflect both scientific evidence and local knowledge systems.

KEY TAKEAWAY: Co-design improves legitimacy, strengthens stewardship and helps ensure NbS-A interventions respond to local priorities.

3.4 Supporting citizen science and participatory monitoring

Citizen science and participatory monitoring can strengthen both evidence generation and local ownership. Community involvement in monitoring helps ensure that adaptation interventions remain responsive to changing conditions and local priorities.

Participatory approaches also generate valuable place-based knowledge that may not be captured through conventional monitoring systems. By embedding monitoring functions within local governance structures, these approaches can improve accountability and support adaptive management.

3.5 Investing in environmental education and stewardship

Long-term adaptation success depends on building environmental awareness and fostering future generations of ecosystem stewards. Education programmes can help communities better understand climate risks, ecosystem services and the role of NbS-A in building resilience.

Investing in environmental education can strengthen social capital, encourage community leadership and support the long-term sustainability of adaptation interventions. Educational initiatives can also empower young people to participate actively in local resilience-building efforts.

10 Building Future Stewards

Environmental education in Argentina

Environmental education can play a critical role in fostering long-term support for adaptation and ecosystem stewardship. In Argentina's San Luis province, a travelling environmental school has become an important part of local adaptation and restoration efforts.

The programme engages schools and communities across the province, helping young people understand environmental challenges and participate in local resilience-building activities. Stakeholders reported that more than 100 schools were reached during 2024 alone.

KEY TAKEAWAY: Investing in environmental education helps build the social foundations needed to sustain adaptation efforts over generations.

3.6 Improving communication and public awareness

Public understanding of NbS-A remains limited in many contexts. Stakeholders noted that nature-based approaches are often reduced to tree planting initiatives rather than recognized as comprehensive resilience strategies.

Communication strategies should translate technical concepts into accessible and compelling narratives that demonstrate practical benefits for communities, livelihoods and local development. Clearer communication can strengthen public support, improve stakeholder engagement and increase political momentum for implementation.

3.7 Making adaptation knowledge accessible and actionable

Large volumes of adaptation knowledge already exist, but decision-makers and practitioners often struggle to identify and apply relevant information within specific contexts.

Knowledge products should be translated into practical guidance, decision-support tools and audience-specific resources that facilitate implementation. The potential of artificial intelligence can also be explored to provide guidance and decision-making. Climate risk assessments, opportunity mapping and locally relevant evidence can help decision-makers understand how NbS-A can address adaptation challenges in their specific circumstances (Terton, Qi, & Jang, 2024).

3.8 Improving accessibility and user orientation of technical support platforms

Many technical support platforms focus primarily on information provision rather than helping users navigate implementation processes. Stakeholders emphasized the need for platforms that provide clearer pathways to technical assistance, partnerships and financing opportunities.

Improving accessibility, simplifying technical information and developing more user-centred support systems can help governments and practitioners access the resources they need. Emerging technologies, including AI-enabled search and decision-support tools, may also help improve platform usability and effectiveness.

Summary Message

These actions can strengthen trust, legitimacy and long-term stewardship while ensuring that NbS-A reflects local priorities, values and realities. Social ownership is essential for sustaining adaptation outcomes and maintaining ecosystem resilience over time.

Lever 4: Fostering Cross-Cutting Collaboration

Why this matters

Advancing NbS-A requires collaboration across ministries, disciplines, sectors and stakeholder groups. Stronger institutional capacity, shared learning systems and coordinated technical support are needed to bridge the gap between science, policy and implementation. Stakeholders consistently highlighted the need for stronger networks and partnerships to accelerate learning and replicate successful approaches.

4.1 Expanding institutional and technical capacity across sectors

Capacity constraints continue to limit the translation of NbS-A commitments into effective implementation. Many institutions lack sufficient expertise in climate risk assessment, ecosystem valuation, participatory approaches and adaptation planning.

Sustained investments in capacity building can strengthen understanding across sectors and help integrate NbS-A into routine planning and decision-making processes. Developing technical and interdisciplinary skills can also support more effective design, delivery and monitoring of adaptation interventions.

4.2 Strengthening communities of practice and peer-learning networks

Communities of practice provide important opportunities for learning, innovation and knowledge exchange. Peer-to-peer engagement helps practitioners and policymakers adapt successful approaches to their own contexts.

Regional and international networks can facilitate exchange of experience, strengthen policy learning and support replication of effective models. Communities of practice also help maintain momentum by connecting actors facing similar implementation challenges.

11 Learning Through Regional Collaboration

Peruvian Water Fund for Lima

The Peruvian Water Fund for Lima and Callao helped revive ancestral water management methods to safeguard watersheds. In Latin America, the Andean Water Funds Platform has scaled its impact through peer-to-peer learning across ten Water Funds and demonstration sites. The Platform also demonstrates how peer-to-peer learning, policy alignment and stakeholder coordination can scale locally led adaptation across countries. Networks of "guardians" facilitate knowledge exchanges

The Andean Water Funds Platform

The Andean Water Funds Platform illustrates how peer learning and collaborative governance can accelerate adaptation and watershed resilience across countries.

By connecting multiple Water Funds through shared learning, demonstration sites and knowledge exchange, the platform has helped strengthen local implementation while supporting replication across the region. The initiative demonstrates how collaboration can bridge science, policy and practice while supporting locally led adaptation.

KEY TAKEAWAY: Peer learning networks can help accelerate uptake, reduce duplication and strengthen adaptation outcomes across regions.

4.3 Coordinating technical support platforms

Numerous technical support platforms already exist, yet stakeholders often struggle to navigate a fragmented landscape of tools, resources and initiatives.

Improved coordination among platform providers can reduce duplication, identify gaps and enhance accessibility. Greater collaboration can help create a connected ecosystem of support that links users to relevant knowledge, technical expertise, financing opportunities and implementation partners.

4.4 Enhancing institutional capacity to use tools and methodologies

The availability of tools and standards alone does not guarantee effective application. Many institutions require additional support to select, adapt and apply methodologies appropriate to their specific contexts.

Strengthening capacity to use climate risk tools, monitoring frameworks, valuation methodologies and NbS standards can improve implementation quality and consistency. Common indicators and practical guidance can also strengthen long-term monitoring and adaptive management.

4.5 Generating robust and locally relevant evidence

Reliable evidence remains essential for informing policy, attracting investment and improving implementation. Stakeholders emphasized the need for more evidence demonstrating the effectiveness of NbS-A under different environmental and socio-economic conditions.

Case studies, monitoring systems, impact evaluations and locally generated data can improve understanding of what works and why. Generating context-specific evidence also helps build confidence among decision-makers and investors.

4.6 Harmonizing metrics and monitoring approaches

Differences in methodologies and indicators can make it difficult to compare results across projects and assess adaptation outcomes consistently. This creates challenges for policy-makers, investors and practitioners seeking to evaluate effectiveness.

Developing harmonized approaches to monitoring and evaluation can improve comparability, accountability and learning. Standardized metrics should balance scientific rigour with practical applicability while incorporating locally relevant indicators and Indigenous and local knowledge where appropriate.

4.7 Using demonstration sites to accelerate learning and uptake

Demonstration sites provide tangible evidence of how NbS-A works in practice. Seeing successful implementation firsthand can help overcome skepticism, reduce perceived risks and build support among decision-makers and investors.

Field-based learning opportunities can improve understanding of adaptation benefits, strengthen institutional commitment and encourage replication. Demonstration sites are particularly valuable for translating abstract concepts into practical implementation experience.

12 Seeing Adaptation in Practice

Demonstration sites as catalysts for change

Demonstration sites provide a powerful way to translate concepts into practical understanding. Stakeholders repeatedly emphasized the value of field-based learning for decision-makers and practitioners.

A participant from Mexico described how site visits are used to build institutional commitment:

> *"Whenever new civil servants join the government, they are taken to visit the NbS demonstration sites, which strengthens institutional understanding and commitment."*

By reducing perceived risks and showing tangible outcomes, demonstration sites can help build support for wider implementation.

KEY TAKEAWAY: Real-world examples remain one of the most effective tools for convincing decision-makers and accelerating uptake of NbS-A.

4.8 Strengthening knowledge translation between research, policy and practice

Important knowledge often remains disconnected across research institutions, government agencies and implementation partners. This can limit the practical application of evidence and slow the uptake of innovation.

Strengthening knowledge translation requires clearer communication, stronger partnerships and mechanisms that connect scientific findings with policy and implementation needs. Bridging these communities can accelerate learning, improve decision-making and support uptake of effective NbS-A approaches.

Summary Message

These actions can help create the networks, capabilities and knowledge systems required to advance NbS-A beyond individual projects and sectors. By strengthening collaboration across institutions and disciplines, they can accelerate implementation and support more integrated adaptation outcomes.





Conclusion

Nature based Solutions for Climate Change Adaptation (NbS-A) have demonstrated their potential to reduce climate risks, strengthen resilience, support biodiversity and deliver social and economic benefits. Yet despite growing recognition of their value, NbS-A remain far from mainstream. The challenge is no longer proving that NbS-A work. The challenge is creating the conditions for them to become a routine and integral component of adaptation planning, investment and implementation.

Stakeholder consultations revealed a consistent message: the barriers to NbS-A are not primarily technical. They are systemic. Fragmented governance, inadequate financing, limited institutional capacity, weak knowledge translation and insufficient community engagement continue to constrain progress. As a result, many promising initiatives remain confined to pilots rather than evolving into sustained and transformative adaptation efforts.

This report identifies four mutually reinforcing levers for overcoming systemic barriers:

1. **Strengthening political and regulatory support** to create clear mandates, accountability and long term policy certainty.
2. **Aligning economic incentives** so that investment decisions reflect the full value of resilience, ecosystem services and avoided climate losses.
3. **Deepening social ownership and participation** by placing communities and Indigenous Peoples at the centre of adaptation efforts that build on the local knowledge they hold.
4. **Fostering cross cutting collaboration** to bridge the gaps between sectors, institutions, disciplines and stakeholders.

Elements For a Way Forward

Overcoming systemic barriers will require more than a set of individual actions. Governments would benefit from an accessible and coordinated technical assistance mechanism that helps translate their existing interest and commitment into the policies, capabilities, partnerships, financing, and implementation conditions required to benefit from NbS-A.

Such a mechanism could support governments and other relevant actors by:

- Providing tailored policy and technical assistance to integrate NbS-A into national and subnational adaptation plans, development strategies, land-use policies, infrastructure programmes, disaster risk reduction frameworks, budgets, and investment processes.
- Strengthening governance and institutional frameworks by helping clarify mandates, roles, accountability, and financing responsibilities across institutions and levels of government.
- Supporting cross-sectoral and multilevel coordination through cross-ministerial mechanisms and collaborative processes that connect national and subnational authorities and bridge traditionally separate areas such as environment, finance, agriculture, infrastructure, water, biodiversity, and disaster risk management.

- Creating the enabling conditions for implementation on the ground, including support for regulatory alignment, flexible permitting and procurement, institutional capacity, community engagement, and practical delivery frameworks.
- Strengthening project preparation and investment readiness by supporting feasibility assessments, business models, economic appraisal, financial structuring, risk management, and the development of robust pipelines of implementable and investable NbS-A projects.
- Connecting governments and project developers with finance providers through funding matchmaking and facilitating access to public, private, concessional, and philanthropic resources.
- Supporting the design and use of innovative and locally appropriate financing mechanisms, including blended finance, guarantees, risk-sharing arrangements, resilience funds, biodiversity bonds, debt-for-nature swaps, insurance products, trust funds, and community-based financing models.
- Supporting the development and application of sustainable-finance taxonomies, appraisal methods, and investment frameworks that recognize ecosystem services, avoided losses, resilience benefits, social outcomes, and long-term returns.
- Assessing climate, environmental, social, financial, and implementation risks under different scenarios, while helping governments compare NbS-A with other adaptation options and identify low-regrets pathways.
- Building institutional and technical capacity to apply climate-risk tools, NbS standards, valuation methodologies, participatory approaches, monitoring frameworks, and adaptive management practices.
- Improving access to targeted and actionable knowledge by connecting users with context-specific data, tools, guidance, technical expertise, financing opportunities, and implementation partners.
- Harmonizing metrics and monitoring approaches to improve the consistency, comparability, and credibility of results while retaining locally relevant indicators and knowledge.
- Coordinating and connecting existing technical-support initiatives to reduce duplication, identify gaps, and create a more navigable ecosystem of knowledge, expertise, financing, and implementation support.

Together, these functions could help bridge the gap between governments' willingness to act and their ability to implement. They would provide a pathway from fragmented projects and isolated initiatives toward coordinated, inclusive, investable, and sustained NbS-A implementation at scale.

As climate change and its impacts intensify and adaptation needs grow, the cost of inaction is increasing. NbS-A offers a pathway to address climate resilience, biodiversity loss and sustainable development together. Realizing this opportunity will require moving beyond isolated projects toward coordinated system wide action. The four levers and corresponding actions presented in this report provide a practical roadmap for making nature a core pillar of climate resilient development.

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