Enabling Adaptation with Nature-based Solutions

Key roles for governance, institutional coordination and partnerships



WWF

Enabling Adaptation with Nature-based Solutions

Key roles for governance, institutional coordination and partnerships

This brief draws on the report Overcoming Barriers to Advancing Nature-based Solutions for Climate Change Adaptation (Pandeya et al., 2026) to examine what changes within government systems, and in the partnerships that support them, can help nature-based solutions for adaptation (Nabs-A) to become a routine part of adaptation planning and delivery. It is addressed to governments and the partners they work with, especially international development and conservation organisations.

Key Messages

- **Governance and institutional barriers often pose a greater challenge than technical constraints alone.** NbS-A need to be embedded across adaptation, development, biodiversity and disaster risk reduction policies, with clear roles and stronger coordination across national and subnational levels.
- **Capacity needs to sit inside public institutions.** Technical expertise on NbS-A remains concentrated outside government. Partnerships add most value when they strengthen government's ability to plan, finance, implement and learn from NbS-A, rather than delivering projects on its behalf.
- **Advancing NbS-A requires locally grounded partnerships and better-connected support.** Communities, Indigenous Peoples and local stakeholders need to be partners in design and delivery.
- **Institutional continuity must extend beyond political and funding cycles.** Long-term ecosystem management cannot depend on two- or three-year projects or individual government champions. Institutionalised mechanisms, multi-year financing and long-term partnerships are needed to maintain momentum.

Cover image: World national flags flying representing nationalities and countries.
© Shutterstock/ArtisticPhoto/WWF

Context: why institutions and partnerships matter for NbS-A

Climate change is intensifying floods, droughts, heatwaves and other hazards, while adaptation investment remains far below what is needed: adaptation finance available to developing countries falls well short of the estimated US$359 billion required annually (UNEP, 2024). NbS-A use biodiversity and ecosystem services to reduce climate risks (Chausson et al., 2020) and can provide cost-effective pathways to resilience while supporting biodiversity and wider social benefits (Seddon et al., 2020). They are not appropriate in every situation and cannot always substitute for engineered solutions; effective adaptation will often combine nature-based and engineered approaches.

Despite growing recognition of the value of NbS-A, many initiatives remain fragmented, project-based and disconnected from mainstream adaptation planning. Drawing on extensive stakeholder and expert input and supported by literature reviews, the report (Pandeya et al., 2026) concludes that the main barriers to advancing NbS-A are not ecological or technical but institutional, financial and governance-related.

This brief addresses two issues: **the changes needed within government systems** for NbS-A to become a routine part of adaptation planning and delivery, and **the role of partnerships in accelerating implementation.** It pays particular attention to how to move beyond the pilot scale. It presents evidence and options for consideration rather than prescriptive guidance. In line with the report, NbS-A refers to nature-based solutions designed to reduce climate risks and support adaptation outcomes, which is functionally equivalent to ecosystem-based adaptation (CBD, 2009).

The problem: NbS-A are stuck in the pilot trap

Pilots demonstrate potential, but existing institutional, planning and financing systems do not enable replication. Successful approaches remain isolated, institutional knowledge and investment are lost, and governments repeatedly start again with each new initiative; stakeholders described having to "come back to square one." The consultations and literature reviews behind the report point to a consistent situation across regions:

- **Recognition without mainstreaming.** NbS-A are increasingly recognised in climate and biodiversity frameworks, and successful demonstrations exist across ecosystems and sectors. Yet 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. NbS-A are frequently still associated with environmental projects rather than mainstream adaptation. Awareness also remains limited: NbS-A are often misunderstood as tree planting or conservation activities rather than a strategic approach to managing climate risks, which can reduce political support.
- **Dispersed responsibility.** Because NbS-A span sectors such as environment, water, agriculture, infrastructure, disaster risk management and planning, they rarely fall under the responsibility of a single institution, and implementation often suffers from fragmented mandates, weak coordination and unclear ownership. Fragmented governance of ecosystems impedes the design, financing and implementation of NbS-A. Mangrove ecosystems in Indonesia, where several ministries and regional government hold jurisdiction over different zones from land to sea, are one example of this complexity (Arifanti, 2026). In São Paulo, Brazil, fragmented governance across municipal, state and federal levels delayed the implementation of NbS to reduce flood-risk, despite over 1.3 trillion litres of water inundating 13 municipalities in a single 24-hour flood event in 2023 (Carpenter, 2023).

- **Ambition that does not reach implementation.** Although many countries have integrated NbS-A into NAPs, NDCs and biodiversity strategies, these commitments are often not translated into sectoral plans, local plans, public investment processes or budget allocations. Participants highlighted poor synchronisation between policymakers and planners as a key constraint. For example, Chile references NbS in its Climate Change Framework Law but implementation remains largely discretionary, while in Mexico the absence of a formal legal definition limits the visibility of NbS in planning and investment processes. Land tenure insecurity, identified as a significant obstacle by Caribbean stakeholders, and inconsistencies in safeguard implementation linked to limited institutional experience, highlighted by participants in Asia, further reduce confidence among governments and investors. As one participant put it, "NbS need a legal framework."
- **Expertise held outside government.** NGOs and external partners continue to play a leading role in developing and implementing NbS-A. Participants highlighted the need for practical training and decision-support tools for planners, and reported persistent government 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.
- **Short political and funding cycles undermine institutional continuity.** Changes in political leadership, shifting government priorities and staff turnover can disrupt implementation efforts and erode institutional memory. 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; for example, in Myanmar and Thailand, youth-led NbS-A initiatives were unable to continue once donor support ended. Short timeframes also shape public investment: 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."

As a result, many promising initiatives remain confined to pilots rather than evolving into sustained and transformative adaptation efforts.

Why does advancing NbS-A require a different institutional and partnership model?

NbS-A are increasingly reflected in national climate, biodiversity and development commitments, but often remain discretionary rather than embedded in sectoral plans, budgets, investment processes and local delivery systems. Clear mandates, cross-ministerial coordination and institutional arrangements that survive political cycles are needed to create continuity. Progress has been hindered by weak institutional coordination, for example between national policy and subnational implementation, and by the lack of wider partnerships between government ministries and departments and other key stakeholders. Three bottlenecks recur across regions:

- **Bottleneck 1: No clear institutional ownership.** NbS-A cross conventional administrative boundaries, creating uncertainty over who sets priorities, approves interventions, coordinates sectors, allocates budgets, monitors outcomes and maintains ecosystems and infrastructure. As one expert observed, "NbS are inherently cross-cutting, but governments are structured in sectoral silos." Because NbS-A span water, agriculture, environment, infrastructure, disaster risk reduction and urban development, assigning responsibility to a single ministry is unlikely to be sufficient. Explicit mandates and institutional leadership are needed, without creating another silo.

- **Bottleneck 2: Weak vertical coordination.** National governments may recognise NbS-A in NAPs, NDCs or biodiversity strategies, while implementation takes place at municipal, watershed or catchment, landscape and community levels. Local contexts matter for the success of NbS-A. Understanding capacity constraints and priorities at the subnational level can help bridge the gap between national ambition and local action. Scaling requires arrangements that connect national policy, subnational planning and local implementation.
- **Bottleneck 3: Capacity sits outside government.** The technical knowledge to design and implement NbS-A exists, but is often concentrated in academia, civil society organisations, consultants and international organisations rather than embedded in government systems. These contributions are important, but they can leave long-term government ownership uncertain and result in repeated dependence on external projects. Partnerships should therefore transfer capability into public institutions, rather than simply deliver projects on their behalf.

Institutional shifts needed to move beyond pilots

The report's four systemic levers (political and regulatory support, economic incentives, social ownership and cross-cutting collaboration) translate, for governments and their partners, into four institutional shifts. Each is presented with options for consideration drawn from the consultations and the examples documented in the report.

Shift 1: From fragmented mandates to coordinated government action

Strategic direction: Move from asking which ministry is responsible to asking how government institutions, national and subnational, work together to deliver NbS-A.

Who acts: National governments (planning, environment, finance and sector ministries), working with subnational authorities.

Options for action include:

1. **Align NbS-A with existing frameworks.** Embed NbS-A in NAPs, NDCs, biodiversity strategies, development plans and disaster risk reduction (DRR) frameworks. Bhutan, for example, is aligning its national development plan in every sector while integrating adaptation and mitigation. DRR is a practical and politically compelling entry point: analyses of ecosystem-based DRR projects in Haiti, India, Indonesia and Uganda found significant reductions in hazard-related losses and positive long-term economic returns (Vicarelli et al., 2024).
2. **Establish standing coordination arrangements and clarify roles.** Dedicated adaptation units, technical secretariats and formal cross-government coordination mechanisms can preserve institutional memory and maintain partnerships, with roles and accountability clarified across national, subnational and local levels. Cross-ministerial working groups, national adaptation committees and central planning bodies can also improve policy coherence and facilitate joint decision-making. In Colombia, CONPES 4058 (2021) embeds adaptation coordination in government structure, and the Intersectoral Commission on Climate Change established the National Nature-based Solutions Network (2024), bringing together more than 20 organisations in four thematic clusters.
3. **Provide multi-year mandates and legally embedded targets.** Multi-year mandates, cross-institutional endorsement and legally embedded adaptation targets can sustain implementation

across administrations. As one stakeholder put it, a core group supporting ministries "shouldn't be connected with political cycles."

4. **Use demonstration sites and peer learning to build familiarity, understanding and support for NbS-A among decision-makers and planners.** Demonstration sites can show how NbS-A contribute to development and adaptation objectives; in Mexico, new civil servants are routinely taken to visit them, increasing familiarity and understanding of NbS-A. Communities of practice and peer-learning networks complement these efforts.

Expected result: Coordinated action across sectors and levels of government, with continuity that does not depend on individual champions.

Shift 2: From external expertise to embedded institutional capacity

Strategic direction: In many contexts, NGOs, research organisations and international programmes lead climate-risk assessment, NbS design, monitoring and evaluation, and project reporting, because capacity within government institutions is still limited. The shift is primarily about building capacity inside institutions.

Who acts: Governments with research institutes, NGOs and international organisations supporting knowledge transfer.

Options for action include:

1. **Build institutional and technical capacity** to apply climate-risk tools, NbS standards, valuation methodologies, participatory approaches, monitoring frameworks and adaptive management. Stakeholders in Mexico highlighted the need for practical training and decision-support tools for planners.
2. **Strengthen government skills for project preparation:** feasibility assessment, business model development, financial structuring and risk management.
3. **Support whole-of-government planning and local government leadership,** since implementation responsibilities are concentrated at subnational level, where resources and expertise are most limited. Decentralised implementation can be supported through clear mandates, technical guidance, fiscal transfers and practical implementation frameworks.
4. **Design partnerships around institutional strengthening and knowledge transfer,** rather than delivery on behalf of government, and retain and institutionalise the knowledge generated through demonstration projects.

Expected result: Partners strengthen government's ability to plan, finance, implement and learn from NbS-A, rather than delivering NbS-A projects for government.

Shift 3: From project partnerships to long-term strategic partnerships

Strategic direction: Scaling depends on relationships with communities, Indigenous Peoples, local governments, civil society, practitioners, researchers and private-sector actors. Transient consultation and engagement, or project-based partnerships, are insufficient for interventions that depend on long-term ecosystem stewardship and local ownership.

Who acts: Governments, especially local, with communities, Indigenous Peoples, civil society, researchers and the private sector.

Options for action include:

1. **Understand before designing.** Invest time in community priorities, livelihoods, governance structures, cultural values and existing relationships with natural resources before identifying solutions, and build trust through sustained engagement to avoid consultation fatigue.
2. **Develop solutions with communities rather than for communities,** treating participation as a core design principle from design through implementation, monitoring and adaptive management, with clear roles, supported by rights-based and inclusive governance frameworks co-designed with those concerned. A community-led mangrove restoration project in Tanzania, based on Participatory Forest Management, is showing positive results for governance, ecological recovery and livelihoods (Western Indian Ocean Mangrove Network, 2025).
3. **Integrate local and Indigenous knowledge alongside scientific and technical input,** including through participatory monitoring and citizen science.
4. **Invest in environmental education and stewardship.** In San Luis province, Argentina, a travelling environmental school reached more than 100 schools in 2024 alone, helping young people understand environmental changes and take part in local resilience-building activities.
5. **Create mechanisms for continuous dialogue, joint learning and locally led partnerships.** The Andean Water Funds Platform has scaled impact through peer-to-peer learning across ten Water Funds and demonstration sites. Better coordination among technical support platforms can also reduce duplication and link users to relevant knowledge, technical expertise, financing opportunities and implementation partners.

Expected result: A shift from stakeholder engagement around projects to shared ownership of long-term adaptation outcomes.

Shift 4: From short-term projects to long-term investment and planning systems

Strategic direction: Appraisal frameworks often fail to capture the full range of NbS-A benefits, and short grants favour grey infrastructure, whereas restoration and resilience outcomes may require sustained management over much longer periods. The shift is from funding a project to creating the institutional and financial conditions for a long-term adaptation programme.

Who acts: Finance and planning ministries, with development banks and other financial institutions, donors and the private sector.

Options for action include:

1. **Embed NbS-A in investment and planning systems,** including climate risk assessments, sectoral investment strategies, infrastructure development planning and regulatory guidance, and align economic incentives so that they recognise ecosystem services, avoided losses, resilience benefits, social outcomes and development benefits.
2. **Increase flexibility in permitting, compliance and procurement systems where appropriate,** while maintaining safeguards (The Nature Conservancy, 2025).
3. **Develop locally appropriate finance.** Tailor financing mechanisms to local contexts and institutional capacity, exploring combinations of blended finance, risk-sharing mechanisms, climate adaptation or resilience funds, biodiversity bonds, trust funds and community-based financing. Governments can

also encourage private-sector engagement through predictable policy and regulatory signals and clear guidance on private-sector roles in project development, financing and implementation.

4. **Work with finance ministries and financial institutions to establish multi-year financing and maintenance arrangements,** and to build monitoring and adaptive management into programmes from the outset.
5. **Harmonise metrics and monitoring approaches** to improve consistency, comparability and credibility while retaining locally relevant indicators and knowledge, and communicate results as practical benefits for communities, livelihoods and local development.

Expected result: NbS-A that are financed, maintained and maintained as elements of an integrated programme, with lessons carried forward, rather than as a sequence of isolated projects.

What does success look like?

Because NbS-A are highly contextual, success is not just replicating activities or increasing numbers. This brief, rather, focuses on transformation in how governments and partners operate, illustrated in Figure 1.

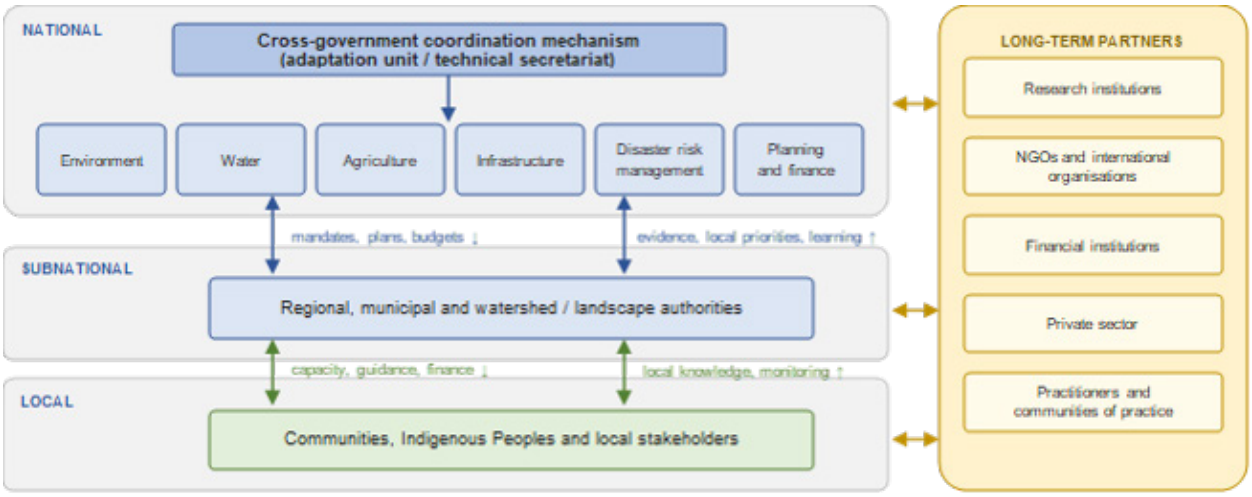


Figure 1. *Illustrative system: vertical links (national, subnational and local institutions) and horizontal links (across sectors and with long-term partners). Schematic only; it does not depict any specific country. Source: UNEP-WCMC, 2026.*

Success for NbS-A would mean that:

- NbS-A are routinely considered in national and subnational adaptation and development planning.
- Institutional responsibilities and accountability are clear.
- Ministries and agencies coordinate across sectors and levels.
- Local governments and communities have meaningful roles in decision-making and delivery.
- Technical and institutional capacity is retained within public systems.
- NbS-A are incorporated into investment appraisal, procurement and financing processes.
- Partnerships extend beyond individual projects and funding cycles.
- Monitoring, evidence and learning inform adaptive management and future investment.
- Programmes have mechanisms for long-term financing, ecosystem maintenance and institutional continuity.

Conclusions

Advancing NbS-A requires coordinated action across policy, institutions, finance and communities. The challenge is no longer proving that NbS-A are effective but creating the conditions for them to become a routine and integral component of adaptation planning, investment and implementation. The task is not simply to replicate more projects, but to change the systems that determine what governments plan, finance and implement. By establishing clear mandates, connecting institutions across sectors and levels, aligning regulations, strengthening local capacity and building long-term partnerships, governments can turn successful NbS-A pilots into durable programmes for climate resilience.

Looking ahead. The report also outlines **elements of an accessible and coordinated, on-demand technical assistance mechanism** that could help governments bridge the gap between their willingness to act and their ability to implement. This support could help national and sub-national governments integrate NbS-A into plans, budgets and investment decisions, strengthen institutional frameworks, and improve coordination across sectors and levels of government. It could also build the capacity to prepare and implement projects and connect governments with finance providers and financing instruments suited to local conditions. For more information, see the full report (Pandeya et al., 2026) **here** and the contact for Project PLAN (**ProjectPLAN@wwfus.org**).

References

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.

Carpenter, G. (2023). Post Event Report: Extreme Flooding in São Paulo, Brazil. https://www.guycarp.com/insights/2023/03/Flooding-03-02.html

CBD (2009). *Connecting Biodiversity and Climate Change Mitigation and Adaptation: Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change.* Montreal: Secretariat of the Convention on Biological Diversity.

Chausson, A. et al. (2020). Mapping the effectiveness of nature-based solutions for climate change adaptation. *Global Change Biology,* 26(11), 6134–6155.

Pandeya, B., Foliot, E., Khan, I., Pulgar-Vidal, M., Mohamed, N., Gomez, R., Joshi, S., Martin, S., Kapos, V., & Morales, V. (2026). *Overcoming Barriers to Advancing Nature-based Solutions for Climate Change Adaptation.* WWF and UNEP-WCMC. https://www.worldwildlife.org/publications/overcoming-barriers-to-scaling-nature-based-solutions-for-climate-adaptation/

Seddon, N. et al. (2020). Understanding the value and limits of nature-based solutions to climate change and other global challenges. *Philosophical Transactions of the Royal Society B,* 375(1794), 20190120.

The Nature Conservancy (2025). *The Power of Policy: Creating the Conditions to Scale Nature-Based Solutions for Water Security.* Arlington, VA: TNC.

UNEP (2024). *Adaptation Gap Report 2024: Come Hell and High Water.* Nairobi: United Nations Environment Programme.

Vicarelli, M., Georgescu, A. and Sudmeier-Rieux, K. (2024). Cost-benefit and equity analysis of nature-based solutions in Haiti, India, Indonesia and Uganda. *Nature-Based Solutions,* 100196.

Western Indian Ocean Mangrove Network (2025). *Laws on Paper, Loss on the Ground: Turning Mangrove Laws into Action in Tanzania.* PANORAMA Solutions for a Healthy Planet. https://panorama.solutions/en/solution/laws-paper-loss-ground-turning-mangrove-laws-action-tanzania



© 2026 WWF. All rights reserved by World Wildlife Fund, Inc.
WWF® and © 1986 Panda Symbol are owned by WWF. All rights reserved.