



India Advancing with Nature

The current state of play of Nature-based Solutions

- Summary



 India Climate Collaborative

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About the India Climate Collaborative: The India Climate Collaborative is a collective working to identify critical sectors that need investment and drive funding towards climate solutions. We work closely with the climate ecosystem, including research organisations, implementers, government stakeholders, businesses, and more, as well as engage with our domestic and international donor base to ensure that funding flows towards high-impact solutions in the climate ecosystem. Recognising that the climate ecosystem in India often operates in silos, we use our unique position to convene a variety of stakeholders and increase knowledge sharing, collaboration, and collective action. The ICC is legally registered as the Council of Philanthropies for Climate Action.

Website: www.indiaclimatecollaborative.org

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Summary

Why nature matters?

Our economies, livelihoods, and well-being all depend on nature.

Protecting forests, grasslands, freshwater, marine, and other ecosystems can minimise vulnerability by addressing multiple societal and environmental challenges (including the global climate change crisis) that are intrinsically tied to human well-being. The power of nature is evident in its potential to create 191 million new jobs and USD 3.6 trillion of additional revenue or cost savings by 2030ⁱ. As economies around the globe continue to flourish, the stock of their natural resources will determine their economic as well as social welfare in the future. Therefore, conserving, protecting, and restoring nature can help to achieve all the SDGs and act as an essential precondition to accelerate socially just economic development. Nature is the foundation of our existence that must be protected and conserved to deliver not just short-term economic returns but long-term sustainable gains for the people, planet, and economy. Increasingly, protecting and conserving natural resources is becoming a pathway to economic welfare. But it is not just about the economic returns accrued from the conservation of nature. Ensuring human well-being is the primary essence of the multiple benefits provided by nature.

Biodiversity loss is one of the top three global risks facing humanity.

The loss of pollinators has risked USD 577 billion in annual global crop production. Moreover, nature managed by indigenous peoples and local communities (IPLCs) is under increasing pressure with 72% of the local indicators that underpin their local livelihoods showing deteriorationⁱⁱ. But the action to address the mounting challenge is pacing upⁱⁱⁱ. Multiple responses through a host of stakeholders have been initiated to address pressing concerns. For instance, the TNFD was launched to support the much required shift in global financial flows away from nature-negative outcomes and towards nature-positive outcomes. Signatories of the Finance for Biodiversity Pledge have committed to publicly report their contributions to global biodiversity goals linked to their investments^{iv}. The Network for Greening the Financial System, a coalition of 87 central banks and supervisory institutions, has acknowledged climate- and nature-related risks to their finances^v.



Similarly, the Sustainable Insurance Forum, a global network of 30 insurance supervisors and regulators, is undertaking a global landmark study on the financial risk of biodiversity loss to analyse how the insurance sector is responding to this challenge^{vi}. Such initiatives certainly provide hope for a brighter future state.

What are NbS and why invest in them?

The International Union for Conservation of Nature (IUCN) defines NbS as '**actions to protect, sustainably manage and restore natural and modified ecosystems in ways that address societal challenges effectively and adaptively, to provide both human well-being and biodiversity benefits**'. NbS do not just mitigate climate change, but also builds adaptive capacity. It also generates numerous co-benefits such as livelihood generation, biodiversity protection, provision of ecosystem services, and prevention of land degradation. And when done right, with adequate attention to inclusion, free prior and informed consent of communities, tenurial security, equitable access, and benefit sharing, the processes of designing and implementing NbS promote climate justice and equity. The critical role of NbS aligns with the UN Decade on Ecosystem Restoration (2021–30) — a global movement that 'reimagines, recreates and restores natural ecosystems'.



Figure S1: Three-pronged role of Nature-based Solutions

Enhance resilience

NbS contribute to multiple SDGs and enhance adaptive capacity to climate change.

By 2030, NbS can

NbS enhance resilience to extreme events.



**Lower 50%
of the biodiversity loss^[1]**



**Open \$10 trillion
of business opportunities^[1]**



**Create
395 million jobs^[1]**



**Mangroves, a type
of NbS, save
an estimated
\$80 billion per year
in avoided losses**

from coastal flooding globally^[5]

Enhance climate justice and equity

NbS produce benefits for the most vulnerable



**17% of the
total carbon
stored in forest lands is
managed by IPLCs^[4]**



**350 million
indigenous people
can be supported by
securing land tenure^[2]**

Mitigate climate change

NbS provide a cost-effective means to reduce emissions



**37% of the globally
pledged carbon
emission reduction
can be achieved cost
effectively by 2030^[3]**

Source: [1] IISD, 2021^{vii}; [2] Veit, 2019^{viii}; [3] Griscom et. al., 2017^{ix}; [4] Frechette et. al., 2018^x; [5] Global Commission on Adaptation, 2019^{xi}

Why invest in land-based NbS in India?

For India, land-based NbS have a high potential to mitigate the negative effects of climate change, protect its rich biodiversity, and support majority of its livelihoods dependent on agriculture and forestry-related sectors that are climate-sensitive. India has already committed to multiple targets focused on land use such as the nationally determined contributions (NDC) target of 2.5–3 billion tonnes of carbon dioxide equivalent^{xii} and the Bonn Challenge with a restoration target of 26 Mha by 2030^{xiii}. NbS investments in the land-based sectors will help to couple economic growth with environmental protection that strengthens livelihoods.

Accelerating investments in nature can serve as a powerful lever and a major stepping stone to achieving nature-positive outcomes in the real economy. In the current Indian scenario, the public sector is the principal financier for NbS. For instance, estimates suggest that 94.4% of landscape restoration efforts in the country are undertaken by government agencies, whilst non-governmental organisations (NGOs) and private companies contribute 3.6% and 2%, respectively^{xv}. This mirrors the global trend where public funds dominate NbS investment^{xvi}. Given the finite nature of public resources along with their ineffective flows, these are not sufficient to meet the desired scale of funding. Therefore, such finite public sector funds must be used strategically to attract additional private sector capital and philanthropic investments to mobilise, unlock, and scale NbS.



Looking to the future, investment in NbS ought to at least triple in real terms by 2030 and increase four-fold by 2050 if the world is to meet its climate change, biodiversity and land degradation targets.^{xiv}

- (UNEP, 2021)

Where can you invest in land-based NbS in India?

In India, nearly 26% of the land with less than 40% tree cover density, with less than 400 people per sq. km, i.e. 87.22 Mha is suitable for agroforestry interventions such as tree plantation on boundaries, Agri-Horti-forestry, and farm forestry^{xviii}. Similarly, about 10% of the land with greater than 40% tree cover density, with less than 200 people per sq. km, i.e., 33.6 Mha is suitable for widespread restoration^{xix}. As per a recent assessment, 11 Mha of degraded agricultural land in India is available for restoration^{xx}. Some of the other land-based NbS suitable for India include agroforestry, assisted natural regeneration, conservation agriculture, and integrated landscape management (ILM) that provide immense co-benefits (such as water regulation, soil conservation, prevention of biodiversity loss, carbon sequestration, and creation of jobs) to ensure societal, environmental, and economic well-being.

NbS arena in India: Barriers and Opportunities

The NbS arena is a system's thinking approach that brings together various actors, including the enablers, consumers, and beneficiaries, generators, partners, and facilitators that enable partnerships and meaningfully drive NbS outcomes and investments.

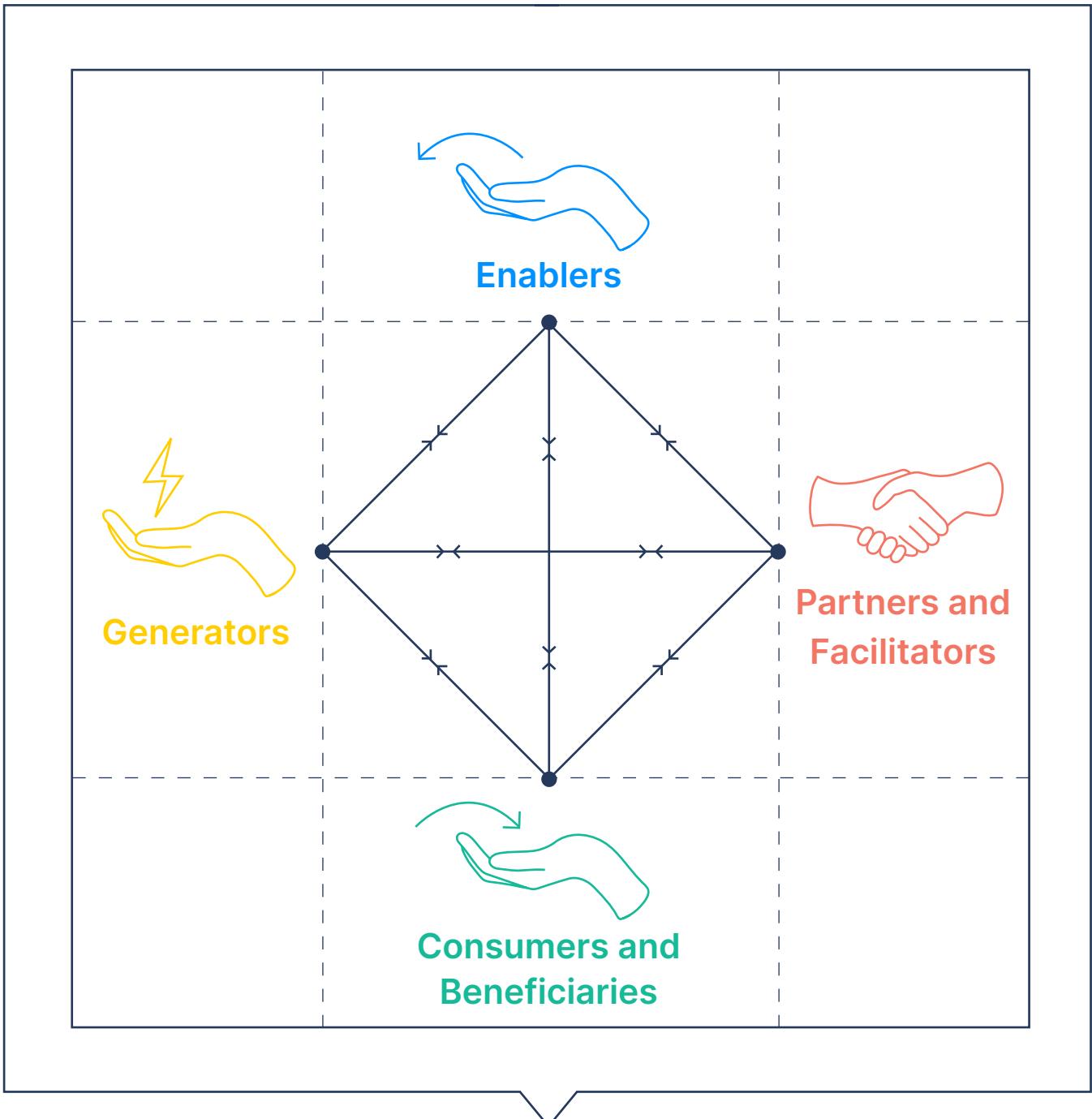
The NbS arena in India comprises various participants (Figure S2). The generators are the ones who generate demand for NbS through their policies, nature of businesses, or livelihood dependency. The enablers catalyse the NbS arena through their policies, incentives, or financing. The consumers and beneficiaries are the ones who benefit from NbS. The partners facilitate the implementation of NbS on the ground through research and development, technology, monitoring and evaluation, and advocacy.



More than 60% of India's GDP is moderately to highly dependent on nature. This opens a huge addressable market for different participants to contribute to NbS.^{xvii}

- (WEF, 2021)

Figure S2: NbS arena in India



Underpinned by data and technology, sustainable finance, innovation, market standards, skills and collaboration

Generators

- Central, state, district and sub-district government
- Private sector entities with high supply chain dependent on nature
- Institutional real asset investors
- Small and medium farmers, tenant farmers, farm labours, landowners
- Forest dependent communities

Enablers

- Central, state, district and sub-district government
- Public sector entities
- Development Finance Institutions – national and international
- Private Sector Entities
- Financial institutions, such as, banks (e.g., NABARD and others), non-banking financial corporations, Micro Finance Institutions (MFIs), underwriters, insurers
- Institutional investors, impact investors, fund managers, retail investors
- Philanthropies

NbS Arena in India

Consumers and Beneficiaries

- Public and private sector entities, such as, those involved in extractive and / or energy intensive businesses – mining and manufacturing
- Private and public sector entities highly dependent on nature in their supply chain, such as, FMCG
- Small and medium farmers, tenant farmers, farm labours, landowners
- Forest dependent communities

Partners and Facilitators

- Civil Society Organisations
- Science, Research and Development organisations
- Independent verification and accreditation
- Expert and institutions

Each of these factors has different motivations that are well aligned to NbS as well as different strengths, when leveraged collectively will optimise the effectiveness of NbS in India. The role any NbS actor can play is not mutually exclusive and will depend on the specific context of NbS projects. Over time, as the NbS arena becomes more mature and independent and NbS considerations become entrenched within decision-making by private actors,

the NbS actors will be able to evolve the role they play. The potential of these actors is impeded by the presence of systemic, institutional, social, and economic barriers in the NbS arena. However, several drivers, as identified below, can help overcome these barriers and create opportunities that can transform the existing arena into a more functional space that incentivises effective participation of all actors of the NbS arena (Table S1).



Credit: Sushavan Nandy



**Table S1: NbS arena: barriers, drivers, opportunities.
(non-exhaustive)**

01  Systemic	Existing barriers <ul style="list-style-type: none"> Lack of commonly accepted & harmonised NbS methodology, metric, taxonomy, and framework Lack of data and evidence base to understand the effectiveness of NbS Information asymmetry between arena actors Lack of digital platforms, and technology enablement Drivers for addressing barriers <ul style="list-style-type: none"> Dedicated investments in areas that enable the evaluation of ecosystem services Creation of data repositories for spatial information and evidence 	Potential opportunities for the NbS arena <ul style="list-style-type: none"> Espousing new alliances for knowledge sharing
02  Institutional	Existing barriers <ul style="list-style-type: none"> Conflicting policy frameworks Lack of vertical and horizontal institutional coordination Limited enforcement of rights of the local authorities Lack of awareness and capacity Internal resistance to change Drivers for addressing barriers <ul style="list-style-type: none"> Conducive policy environment Strong regulatory and governance structure Institutional partnerships 	Practically & meaningfully addressing the identified market barriers Bringing together public & private entities to co-design, finance, & jointly implement NbS projects
03  Economic & finance	Existing barriers <ul style="list-style-type: none"> Undervalued or unvalued natural capital Limited liquidity due to maturity between investment horizon and return expectations Lack of investable products and proof of concept Lack of investor confidence Insufficient or poorly directed patient & risk-adjusted finance Drivers for addressing barriers <ul style="list-style-type: none"> Investing with a long-term perspective Natural capital accounting Financial shifts away from activities that damage nature 	Crowding-in & cultivating new investor markets beyond finite government grants Reorienting how we value nature Building platforms to collaborate
04  Social	Existing barriers <ul style="list-style-type: none"> Weak consent architecture for community buy-in Misaligned incentives between farmers/landholders, conservation, and investors Unclear rural dynamics and land rights Trust deficit between arena actors involved in financing and implementation Drivers for addressing barriers <ul style="list-style-type: none"> Inclusive decision-making Identifying proximate benefits 	Making farmers & forest communities an instrumental part of the solution Rewarding & incentivising farmers & communities for good environmental stewardship Positively impacting the lives of the most vulnerable

This knowledge product includes approaches that address some key barriers and optimise the opportunities for scalable and impactful NbS projects. For instance, NatureVest is the impact investment arm of The Nature Conservancy. It is working towards structuring a pipeline of investable projects with different risk-return profiles to raise capital from different investors such as impact investors, foundations, development financial institutions, and pension funds. This is inclined to generate both financial returns and conservation outcomes thereby connecting funders directly with the NbS arena. In another unique intervention, Avani, an NGO based

in Uttarakhand, is helping the local communities of Uttarakhand by reducing the unreliability in power supply by providing access to chir pine-based electricity enabled by supportive government policies and incentives. Initiated with a 9kW power plant in 2009, it scaled up to about eight power plants in 2019, with an installed capacity of 500kW for generating chir pine-based electricity^{xxi}. The management and processing of piruls fibre not only provided an additional power source as well as employment to the communities but also prevented 250 Ha of forest land from forest fire with an avoided emission of 6250 tonnes of carbon^{xxii}.

NbS arena in India: Future state and call for action

The land-use sector in India has the potential to evolve into a thriving arena for NbS that brings different actors to unlock and build a fully functional NbS ecosystem.

The following three key pathways can serve as a call for action for transitioning to the future state of the NbS arena:



Increasing communication and advocacy: Through creating awareness about NbS and ensuring the right voices reach the right place



Enabling collaboration amongst all stakeholders of the NbS arena: By facilitating the convergence of all the stakeholders and leveraging their strengths in the NbS arena



Supporting mobilisation to scale up NbS projects: The binding glue of the financial system can be a powerful lever to achieve scale, but it is only a means to an end and not the end in itself.

This future state envisions to invigorate the actors by providing them the right incentives and pooling in catalytic capital from the private and philanthropic sectors.
 Developing a multi-donor grant-based 'NbS Investment

'Readiness Accelerator Fund' can be a strategic way to provide pooled public and private grant funding for the design and launch of catalytic blended finance solutions to pilot and scale NbS in India. (Refer Figure S3)

Figure S3: Role of public sector, private sector, and philanthropy in unlocking, mobilising, and enlarging finance for NbS

 Public sector	 Private sector	 Philanthropy
<ul style="list-style-type: none"> Provide guarantees and grant concessional funds to support NbS and reduce risks for other investors to participate Collaborate with the private sector on different platforms for pooling in more private funding Offer financial assistance to contribute towards specific areas of the value chain such as building technical capacity Provide funding for technical assistance e.g. to establish a baseline and a monitoring and verification system 	<ul style="list-style-type: none"> Invest in assessing and conserving the natural capital utilised by your organisation Invest in integrating land-based NbS programmes/projects in your net zero strategy, de-carbonisation journey, and supply chain Integrate the social return on investment as an integral part of your NbS projects to better understand the value of its benefits relative to costs Collaborate with the public sector by investing in projects led by government Harmonise with other private entities to pool in money into aggregated funds that can support large-scale NbS projects to improve your scope of returns 	<ul style="list-style-type: none"> Provide proof of concept, early-stage design, and research grants to support the formative stage of NbS, including assessment of baseline, development of monitoring systems, and building of market reach Mobilise your collective power to drive impact by developing financing aggregation platforms to accelerate the adoption of NbS Empower communities to build up social capital Invest in establishing a public evidence base for NbS that can help increase its uptake

Source: Authors

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