



Strengthening and scaling payments for ecosystem services in India

PAYMENTS FOR ECOSYSTEM SERVICES IN INDIA: CONTEXT AND STATUS

Payments for ecosystem service (PES) is potentially crucial in the Global South as it addresses environmental as well as social concerns, particularly relating to rural livelihoods, thus playing an important role in sustainable development. In India, however, the development and implementation of PES mechanisms and programmes remain at a nascent stage, with PES still being a relatively new concept in the policy context. With the degradation of natural resources and an increasing demand for ecosystem services (ES), this is an opportune time for India to adopt PES to protect the environment. Most recently, the G20 New Delhi Leaders' Declaration 2023 emphasised the importance of healthy ecosystems in addressing climate change, biodiversity loss, desertification, drought, land degradation, pollution, food insecurity, and water scarcity. The Declaration committed to restoring at least 30% of all degraded

ecosystems by 2030 and scaling up efforts to achieve land degradation neutrality. Being one of the signatories of the Kunming-Montreal Global Biodiversity Framework 2022 (GBF), India could leverage, strengthen, and scale PES as a financial model to achieve Targets 18 and 19 directly and ultimately facilitate the delivery of Targets 1, 2, 3, 7, and 8.

The past two decades have witnessed a growing interest in PES and its application among policymakers, civil society organisations and academia focusing on conservation and poverty reduction. PES has been highlighted as an emerging efficient mechanism to translate external, non-market values of ecosystem services into financial incentives for local actors (such as governments and non-governmental organisations) to pay for environmental public goods (such as habitat provision, watershed protection, or carbon sequestration)^{1, 2}. Globally, the application of PES has increased at an exponential rate since 2005.

The majority of PES schemes have been implemented in the tropical and subtropical countries of Asia, Africa and Latin America (The PES approach was pioneered in Costa Rica and has become widely implemented in Latin America). As of 2018, there are roughly over 550 PES programmes around the world, with combined annual payments of over US\$ 36 billion^{1, 2}.

Given the variety of natural resources, their importance for social and economic development, and ecological diversity, India has immense potential for adopting PES-like initiatives to fulfil the objectives of environmental conservation, promotion of local livelihoods and social security³. Like global trends, the key ecosystem service sectors for India with high PES potential are freshwater ecosystems, forests, and sustainable agriculture/agroforestry.

While there have been several suggested PES models and mechanisms in literature^{4, 5}, there are very few cases of on-the-ground implementation of PES. The most notable case is that of Palampur,

Himachal Pradesh, where a 20-year PES mechanism was set up between the municipal corporation and the Village Forest Development Society to protect the local forest and spring for water security. Ultimately, barring a few early and local examples of PES implementation, India has been slower in implementing PES as compared to other countries at a similar level of economic development such as the Central American countries, China, the Philippines, Indonesia, and Vietnam⁶. However, with increasing insights into biodiversity conservation and sustainability, many Indian states are now becoming more concerned about the environmental markets⁷. Several states (Himachal Pradesh, Meghalaya, Sikkim, and Haryana) and other government bodies (e.g., the MoEFCC) are now exploring PES and the potential of its application at a large scale.

While India has a huge potential to adopt schemes like PES, some factors constrain its development and widespread implementation in the country^{6, 3, 7}, such as varied governance structures; under-developed policy frameworks and institutional mechanisms’;



Roshni Arora

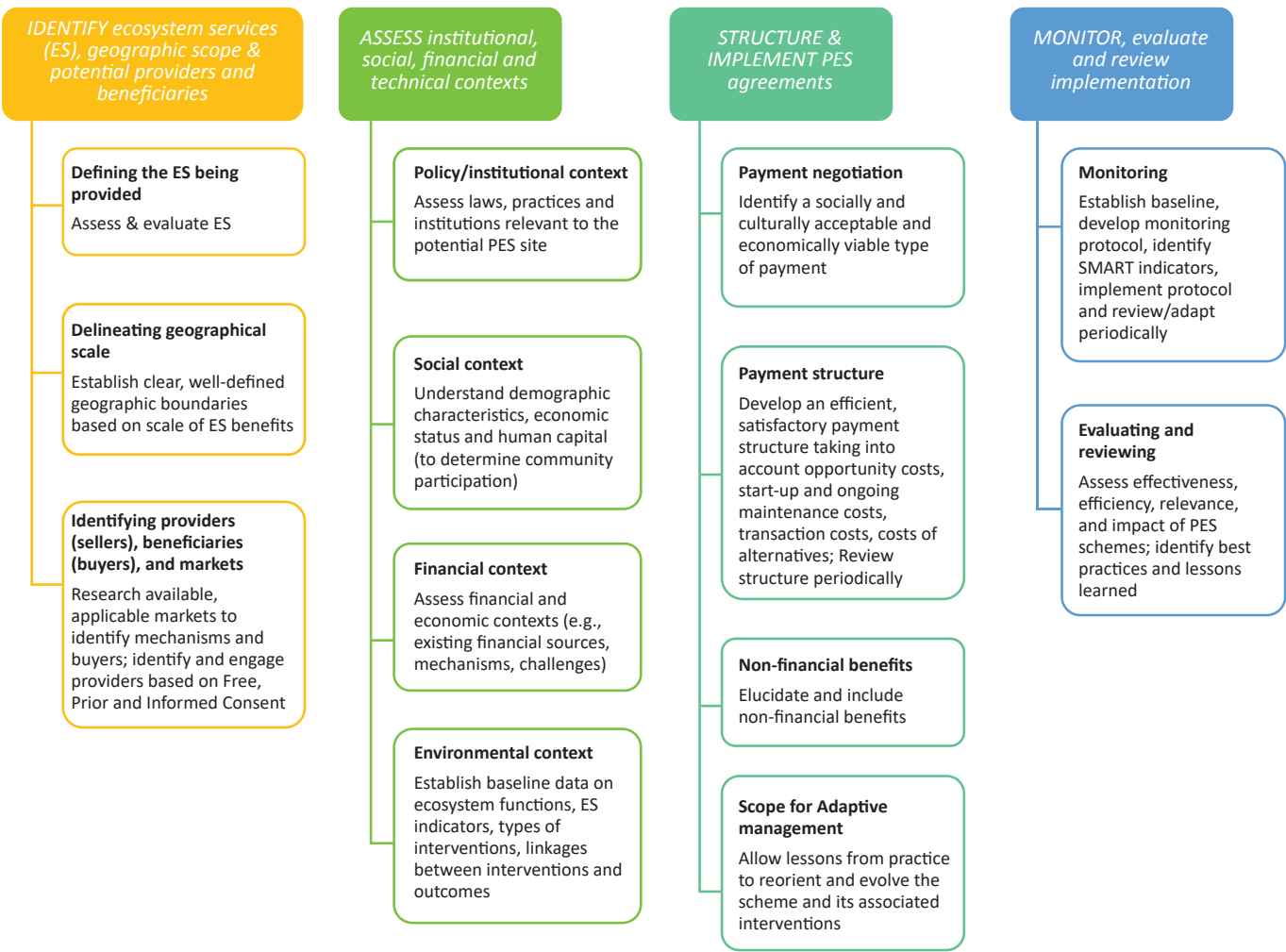
Discussions with the Village Forest Development Society members during a field visit to Palampur, Himachal Pradesh.

- 1 Schomers, S. and Matzdorf, B., 2013. Payments for ecosystem services: A review and comparison of developing and industrialized countries. *Ecosystem Services*, 6, pp.16-30.
- 2 Salzman, J., G. Bennett, N. Carroll, A. Goldstein, and M. Jenkins. 2018. The global status and trends of payments for ecosystem services. *Nature Sustainability* 1(3):136-144.
- 3 Behera, B., Mishra, P. and Nayak, N.C., 2011. Payments for Environmental Services: Issues and Implications for India. *Economic and Political Weekly*, pp.64-68.
- 4 Ranjan, R., 2021. Payments for ecosystems services-based agroforestry and groundwater nitrate remediation: The case of Poplar deltoides in Uttar Pradesh, India. *Journal of Cleaner Production*, 287, p.125059.
- 5 Rasheed, S., Venkatesh, P., Singh, D.R., Renjini, V.R., Jha, G.K. and Sharma, D.K., 2021. Ecosystem valuation and eco-compensation for conservation of traditional paddy ecosystems and varieties in Kerala, India. *Ecosystem Services*, 49, p.101272.
- 6 Verma, M. and Negandhi, D., 2011. Desired institutional and legal environment for implementing PES mechanisms In India. *Envtl. L. & Prac. Rev.*, 1, p.23.
- 7 Rath, S., Das, A., Srivastava, S.K., Kumara, T.K. and Sarangi, K.K., 2023. Payment for ecosystem services and its applications in India. *Current Science*, 124(7), p.799.

lack of awareness and a shared vision on the scope; needs and role of PES in addressing environmental problems in the country; insufficient financial allocations for biodiversity/ecosystems/conservation; lack of comprehensive financing tools/mechanisms/strategies; high transaction costs; and ill-defined property rights. Designing PES schemes in India, therefore, requires careful consideration of a range of factors, including the specific ecosystem services being provided, the needs and capacities of local communities and stakeholders, and the

availability of funds. The key considerations for designing a PES scheme in India (adapted based on the existing guides and publications^{6, 8, 9, 10, 11}), and our understanding of the factors relevant to designing such schemes in the country, are encapsulated in the figure below.

The Nature Conservancy (TNC) supported a Working Group¹² to review the experience with existing PES initiatives and develop a set of recommendations for a PES model at the national or sub-national level in India.



Considerations for designing and implementing an effective payment for ecosystem services programme.

8 Smith, S., Rowcroft, P., Everard, M., Couldrick, L., Reed, M., Rogers, H., Quick, T., Eves, C. and White, C. (2013). *Payments for Ecosystem Services: A Best Practice Guide*. Defra, London.

9 Adhikari, B. and Boag, G., 2013. Designing payments for ecosystem services schemes: some considerations. *Current Opinion in Environmental Sustainability*, 5(1), pp.72-77.

10 Leimona, B., Van Noordwijk, M., De Groot, R. and Leemans, R., 2015. Fairly efficient, efficiently fair: Lessons from designing and testing payment schemes for ecosystem services in Asia. *Ecosystem Services*, 12, pp.16-28.

11 Paudyal, K., Baral, H., Bhandari, S., Keenan, R.J., 2018. Design considerations in supporting payments for ecosystem services from community-managed forests in Nepal. *Ecosystem Services* 20, 61–72.

12 Comprised of Ms Kavita Sachwani, Dr Ajita Padhi, Dr Archana Godbole, and Dr Hishmi Jamil Husain; with contributions from Dr Sanjay Kumar, IFS (Retd.) and Mr Sanjay Upadhyay.

RECOMMENDATIONS

Critical success factors in implementing an effective PES programme

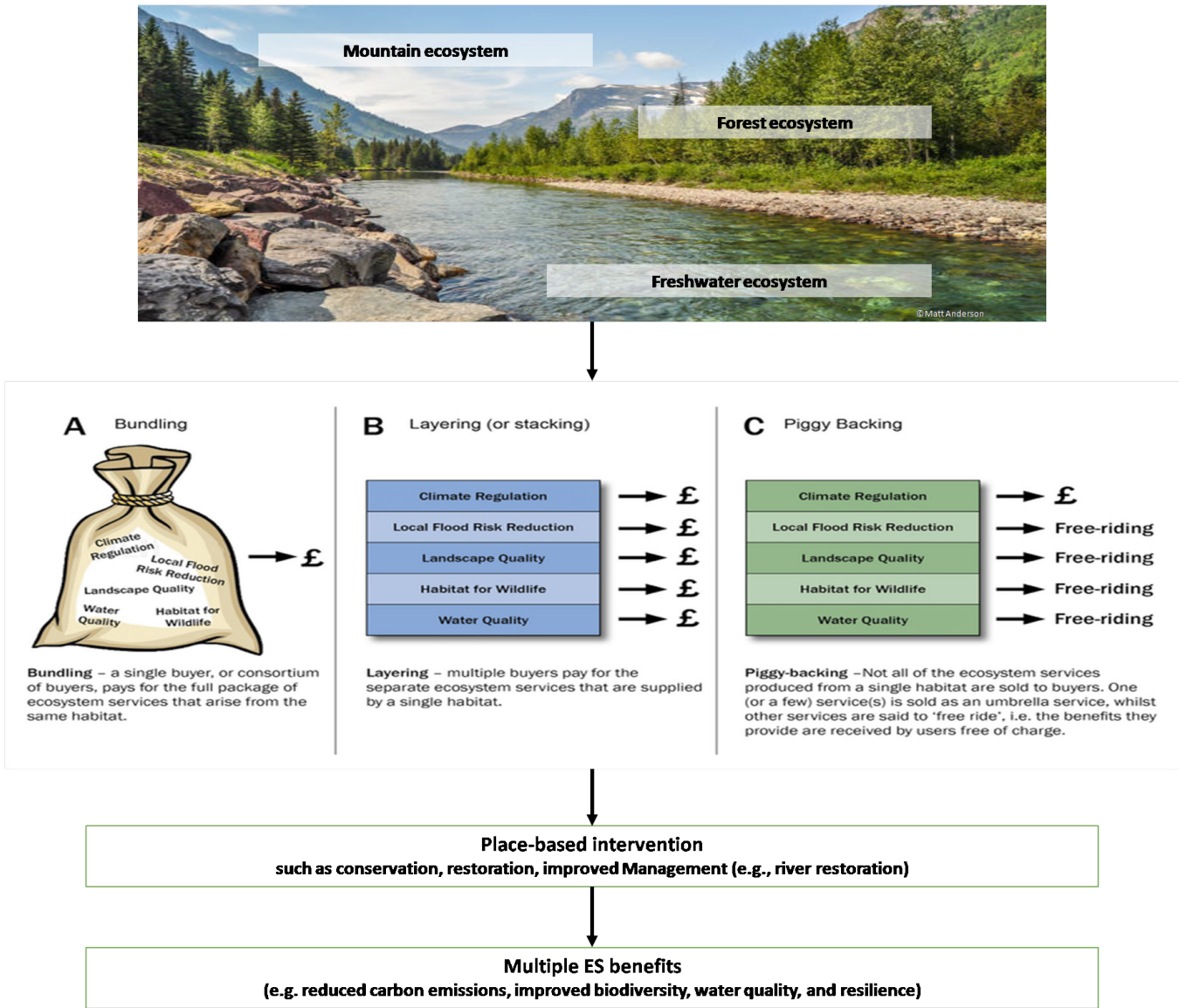
- 1. Clear objectives and targets:** Define clear and measurable objectives, such as biodiversity-related services, carbon sequestration, or water quality improvement. Set specific targets to track progress and success.
- 2. Robust ES assessment:** Conduct a thorough assessment of the ES provided by the target area. This involves quantifying the benefits generated by the ecosystem, which provides the basis for determining payment levels.
- 3. Well-defined property rights and ownership:** Clarify property rights and land ownership or resources involved. Legal and institutional frameworks should support secure land tenure and resource rights for the participants.
- 4. Engagement of multiple stakeholders:** Involve all relevant stakeholders, including landowners, local communities, government agencies, NGOs, and potential buyers of ES. Effective stakeholder engagement is essential for buy-in, transparency, and conflict resolution. Clearly defining the roles of different stakeholders can go a long way in ensuring a robust and sustainable PES model. For instance, the government can provide a robust legal framework and, along with the private sector, facilitate the diversification of financial resources and reduce transaction costs to make schemes economically viable for both sellers and buyers; CSOs can facilitate trust-building among communities and develop their capacity; while the academia can develop robust baseline data (including ES evaluation) and monitoring framework.
- 5. Appropriate payment mechanisms:** Choose the most suitable payment mechanism that can include government payments, user fees, voluntary contributions, or market-based approaches, and that are fair, transparent, and financially viable.
- 6. Nature of contracts:** Contracts should be flexible, ongoing and open-ended, for ensuring scheme efficacy.
- 7. Incentive design:** Tailor payment structures to align with the interests of landowners and providers. Offer incentives that are attractive enough to encourage participation and long-term commitment to conservation practices. In-kind contributions such as community infrastructure projects, access to markets, capacity development, and the recognition of identity and rights have led to a higher rate of success as compared to only cash or a combination of cash and in-kind incentives.
- 8. Monitoring and verification:** Develop a robust system for monitoring and verifying the delivery of ecosystem services. Accurate data collection and reporting are critical to ensure that payments are made based on actual performance.
- 9. Adaptive management:** Be prepared to adapt the PES model over time based on monitoring results and changing circumstances. Flexibility allows for improvements and adjustments as needed.
- 10. Compliance and enforcement:** Establish clear rules and regulations for PES participation, to ensure compliance and implement mechanisms for enforcing agreements, and resolving disputes.
- 11. Financial sustainability:** Develop a sustainable financing mechanism, taking into account long-term funding needs. Seek multiple sources of funding, including public and private sector contributions.
- 12. Capacity building:** Build the capacity of local communities, landowners, and relevant institutions to effectively participate in the PES programme. This includes trainings in conservation practices and administrative skills.
- 13. Benefit sharing:** Ensure that benefits from the PES programme are distributed equitably among all participants. Fair distribution of payments and benefits can foster support and cooperation.

- 14. Communication and outreach:** Develop a communication strategy to raise awareness about the programme’s objectives and benefits. Effective outreach can encourage participation and support from the broader community.
- 15. Legal and regulatory framework:** Ensure that the PES programme aligns with existing laws and regulations. Advocate for legal frameworks that support PES initiatives and facilitate their implementation.
- 16. Long-term commitment:** Recognise that PES is often a long-term endeavour. Secure long-term commitments from both providers and buyers of ES to ensure programme sustainability.

Recommended priority ecosystem services: a grouped, place-based approach

One of the key criticisms of PES has been that it simplifies the complexity of ecosystem processes to singular ‘services’ and value systems that do not differentiate between an income from ecological, social, or spiritual values’ perspective. To address this, grouping ES through bundling and layering can help sort quantification and attribution issues in PES schemes by quantifying and monetising different ES simultaneously, linked to a specific intervention (such as peatland restoration)¹³.

Hence, it is recommended that a grouped, integrated, place-based PES approach that bundles and stacks



Grouped, place-based ecosystem services approach to developing and implementing potential payment for ecosystem services schemes.

Reed et al., 2017¹³ define place-based PES as schemes that:

- (i) facilitate networked and multi-level governance that incorporates a holistic understanding of the social, economic, and biophysical attributes that shape a given place;
- (ii) bundle or layer the widest relevant range of ES over relevant (potentially multiple) spatial and temporal scales (and in some cases, multiple habitats) in the same location; and
- (iii) are part of a voluntary transaction between service users and providers, with payments conditional on agreed rules of natural resource management and reflecting the shared values of multiple ES sellers and other offsite stakeholders who may be positively or negatively impacted by the scheme.

diverse ES be explored as a pathway for scaling out PES across the country (see figure). For instance, restoration of freshwater and terrestrial ecosystems such as wetlands, grasslands, forests, and mangroves at a landscape scale (e.g., basin/watershed scale) can enhance carbon sequestration and contribute towards reducing carbon emissions while protecting against climate-induced disasters. PES can support such Ecosystem-based Adaptation (EbA) approaches in the most vulnerable and climate-sensitive geographies (with declining forests, waterscapes, and other loss of nature), towards revival and rejuvenation of these ecosystems and multiple-derived ES. To enable this to raise demands, comprehensive funding inclusive of PES is required in the form of a financing toolkit. It is essential to enable multiple funding sources, all focused on assuring landscape-level conservation and restoration on the ground.

Recommended Priority Geographies

The following geographies could be considered to commence studies to create a database on existing

PES models in force or proposed. Support and challenges in these models should be mapped with an objective to revitalise existing schemes or establish new schemes as appropriate:

- 1. Himalayan states, especially Himachal Pradesh, Sikkim, and Meghalaya:** The Indian Himalayan region is endowed with rich vegetation and is home to almost 36% of the country's biodiversity. Over 41.5% of the region is covered by forests, representing one-third of India's total forest cover. These states are among the few that have initiated some local processes around PES, and hence are sensitised to the need and strength of PES as a tool to facilitate environmental outcomes.
- 2. Western Ghats (especially the section in Karnataka):** The Western Ghats are a source of several important rivers of peninsular India. The section of the Ghats falling in Karnataka state contains the uppermost portion of the Cauvery river basin (41% of the basin area), where the Western Ghats form the western boundary. The river feeds 80 million (8 crore) people in Southern India. A PES scheme (Kodagu Model Forest Trust) is being proposed within the state with the hope of expanding the model to larger landscapes such as the Cauvery river basin.
- 3. Central Indian Highlands region:** The Central Highlands region spreads across the states of Madhya Pradesh, Chhattisgarh and Maharashtra. This region is home to 54 million (5.4 crore) people, including tribal groups, smallholder farmers, and growing urban populations. About 70% of the population is rural which is highly dependent on forests for fuelwood, fodder, and livelihood. The landscape supports about 30% of India's tiger population and has been identified as a Global Priority Landscape for tiger conservation¹⁴.

It is recommended that the Ministry of Environment, Forest and Climate Change (MoEFCC) commissions studies on ES evaluation across key ecosystems (such as freshwater, forests, mountains) in these

13 Reed, M.S., Allen, K., Attlee, A., Dougill, A.J., Evans, K.L., Kenter, J.O., Hoy, J., McNab, D., Stead, S.M., Twyman, C. and Scott, A.S., 2017. A place-based approach to payments for ecosystem services. *Global Environmental Change*, 43, pp.92-106.

14 DeFries, R., Sharma, S. and Dutta, T., 2016. A landscape approach to conservation and development in the Central Indian Highlands. *Regional Environmental Change*, 16, pp.1-3.

recommended priority geographies. MoEFCC may commission a study to locate, evaluate, and assess the potential and/or effectiveness of PES in India in collaboration with the state governments, especially their most relevant departments dealing with environment, forests, water resources, and agriculture.

Recommended Priority Levers

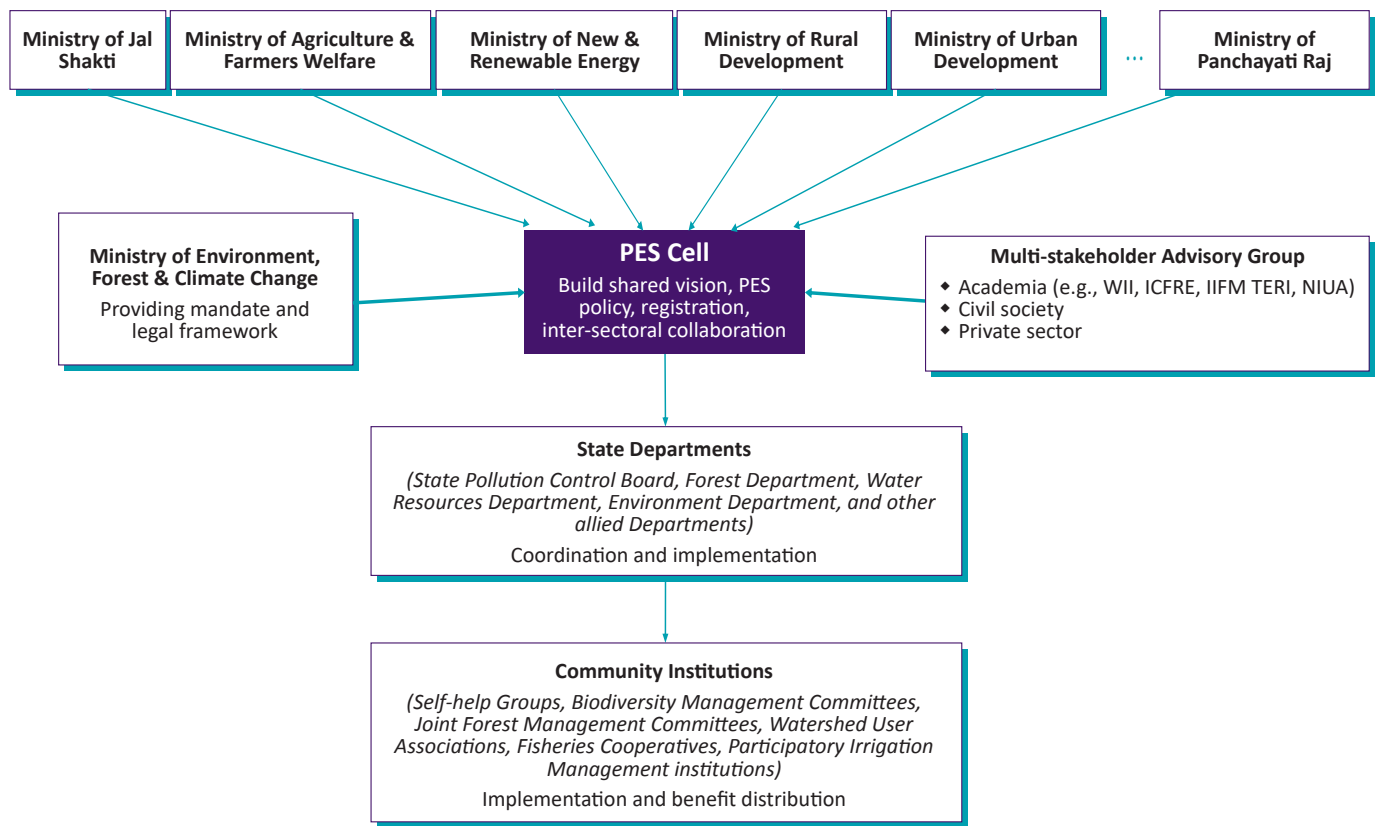
1. Develop a shared vision and policy for PES

It is recommended to establish a ‘PES Cell’ within the MoEFCC, which will work in close collaboration with other relevant ministries and departments to locate, evaluate, assess, and prepare for mainstreaming of PES as a scalable and sustainable model for protection and conservation of nature using a community-led approach. The PES Cell, with the support of a multi-stakeholder advisory group, can facilitate activities such as policy development, PES mechanism design, monitoring and reporting, identifying financial mechanisms/sources to support proposed PES schemes, conducting capacity building programmes, and initiating evaluation of ES. More specifically, the

role of the PES Cell could include the following:

- ◆ Facilitate and build a collaborative shared vision for the country, which can form the basis for policy development.
- ◆ Frame PES policy guidelines that would outline the key considerations, criteria, mechanisms, risks/assumptions, role of different departments/ institutions for developing, reviewing, and implementing PES schemes in India.
- ◆ Ensure inter-sectoral coordination with different ministries/departments.
- ◆ Register past, ongoing, and future PES schemes across the country.

The policy can support the mainstreaming of PES by establishing a framework that facilitates capacity building, and the creation of funds and other financial products focused on sustainable forestry, agriculture, and water resources management. This can be realised via tax incentives, de-risking tools, and/or reducing subsidies detrimental to biodiversity and ecosystems. This policy could also specify how new



Proposed institutional model for implementing PES in India (adapted from Verma and Negandhi, 2011).



Ashok Biswal

and future programmes or frameworks, such as the Green Credit Programme initiated by the MoEFCC or other ministries, can be leveraged to facilitate the development and implementation of PES schemes. The government may also contribute to the growth of investment activities that support the conservation of nature by passing a legislation that provides incentives for the financial sector to make a positive contribution to the environment as well broader societal benefits rather than only financial returns. This also resonates well with the increasing focus on the environment, social, and governance issues in the corporate sector.

2. Explore the role of 'blended finance'

Recently, India's Finance Minister asserted the role and need for 'blended finance' as a tool to achieve the SDGs and scale sustainable finance. Blended finance is defined as the strategic use of development finance and philanthropic funds to mobilise private capital flows to emerging and frontier markets. It has also been included as one of the tools to increase biodiversity funding (Target 19, GBF-2022). Hence, it is recommended to explore the role of private sector corporates as well as the financial sector to seek their support in aligning to the goals and targets of the GBF related to furthering PES as a scalable model for implementation. These include halting and reversing nature loss; bringing 30% of degraded terrestrial, freshwater ecosystems under active restoration; and recognising and respecting the rights of the local communities. The private financial sector can work towards funding nature

conservation by leveraging green financial products or co-investing with governments or multilateral development institutions. They can provide grants and concessional loans and also facilitate relevant technical support for national conservation strategies (e.g., GIZ in Palampur). In addition, multilateral development banks can provide concessional capital and guarantees that can encourage further private sector investments in conservation under the PES model.

3. Enable community institutions and other stakeholders to implement PES model

Community institutions are well suited for facilitating the implementation of PES as they understand the local context. Grassroot institutions such as Self-help Groups, Joint Forest Management Committees, Water User Associations, Fisheries Cooperatives, Participatory Irrigation Management institutions, *Panchayats*, and Cooperative Societies among others, can shoulder local or regional PES implementation. Capacity building sessions can be organised by the PES Cell to empower and enable these institutions with the knowledge, resources, and tools to start the process of developing, proposing, and implementing a PES scheme. Furthermore, community institutions will be enabled to collaborate with the government and the private sector to develop a conceptual framework for analysing different mechanisms for place/landscape-based revenue generation. This can be based on critical factors such as amount (how much funding will be raised?), timeframe (over what period?), level (at what level is finance aggregated?), payer (who will/should pay?), and value (why will they pay?).

Our Partners

