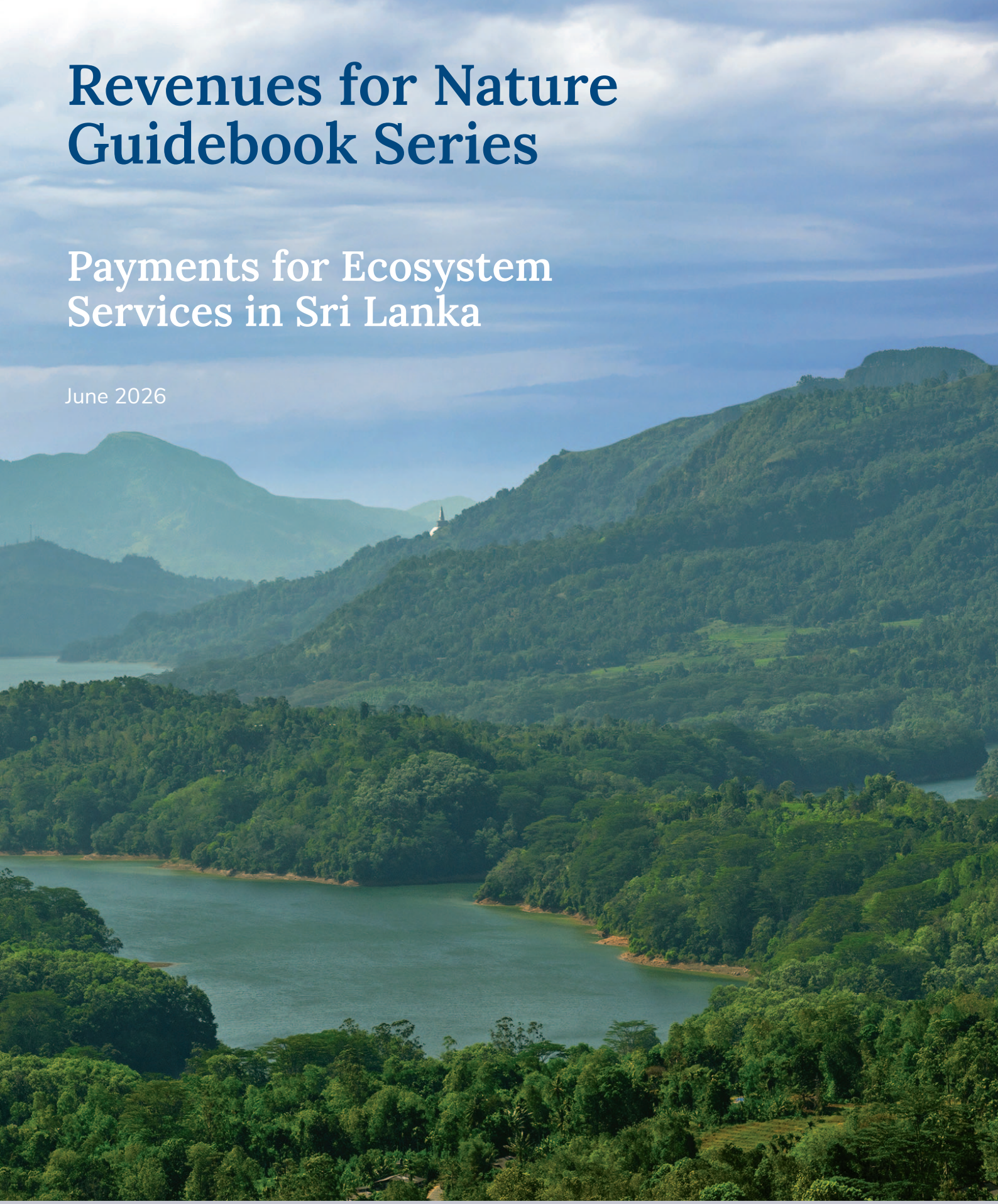
Revenues for Nature Guidebook Series

Payments for Ecosystem Services in Sri Lanka

June 2026



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Revenues for Nature Project

Revenues for Nature (R4N) is a global project led by the Green Finance Institute Hive, in partnership with UNDP Biodiversity Finance Initiative (BIOFIN) and UNEP Finance Initiative (UNEP FI).

R4N aims to contribute to the achievement of Target 19 of the Kunming-Montreal Global Biodiversity Framework (GBF) by supporting countries in identifying and implementing effective models for mobilising private sector finance into nature restoration and conservation.

The project's three pillars of work include:

1. **Knowledge Sharing,** with the publication of a series of detailed guidebooks capturing how to establish, replicate and scale high-integrity nature-based revenue models. The Guidebooks are complemented by a database of nature-based revenue models and markets which mobilise private sector finance into nature conservation and restoration.

2. **Multistakeholder Learning** via a Community of Practice which includes the private sector, governments, investors and funders, and project developers to support shared learning for the development of nature models and markets.

3. **Implementation** plans to support governments and relevant partners in rolling out impactful nature-based revenue models. In Phase 1 of R4N, we are working with partners in eight countries across the globe to support the replication and scaling of revenue models that span supply chain models and regulatory models and that have the potential to unlock an initial USD$200 million by 2027.

R4N is funded by the Gordon and Betty Moore Foundation.

Guidebook Series

The R4N Guidebook Series provides an in-depth analysis of models across the globe that unlock private sector capital into nature restoration or protection, including nature-based solutions (NbS). Each Guidebook offers detailed insights into the development of these models, the enabling conditions that allowed them to succeed, along with key lessons learned. The series examines the ecological, political, and socio-economic factors that support the replicability and scalability of these models in diverse regions, and explores how these models can generate revenue and improve biodiversity while leveraging private sector financing.

The R4N Guidebook Series currently include:

- Biodiversity Net Gain, England – October 2024
- Wetland Mitigation and Endangered Species Habitat Banking, United States – October 2024
- Habitat Banks, Colombia – October 2024
- Nature-based Models for Unlocking Private Investment into Water Quality and Availability, Part 1– October 2024
- Living Amazon Mechanism, Brazil – June 2025
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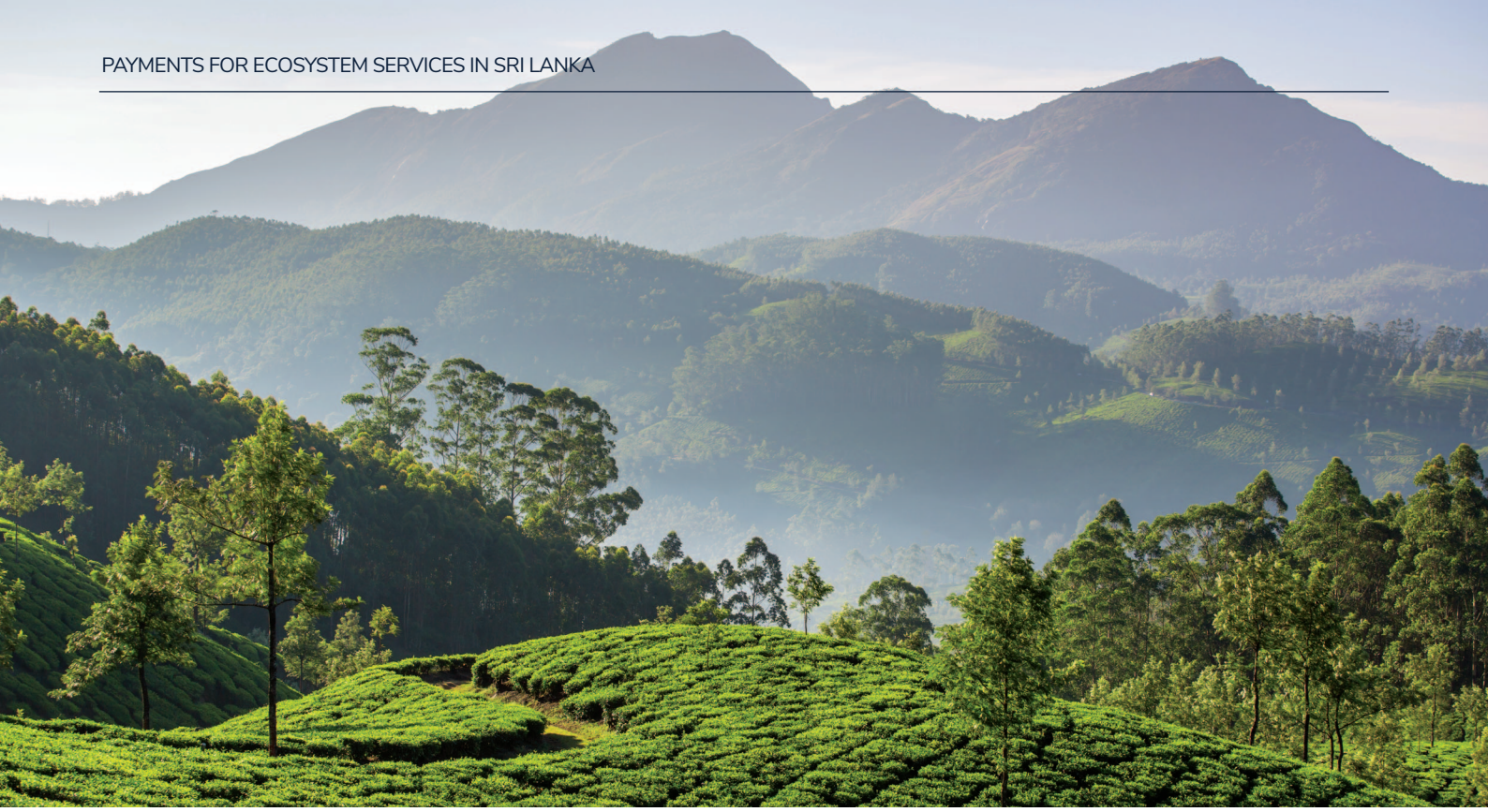
- Project Finance for Permanence & Indigenous-led Conservation, Canada – July 2025
- Nature-based Models for Unlocking Private Investment into Freshwater, Expanded Edition – August 2025
- Revenue Models & Financing Mechanisms for Wildlife Conservation in Sub-Saharan Africa – January 2026
- Revenue Models and Financing Mechanisms for Protecting and Restoring Coastal and Marine Ecosystems – April 2026.

The Guidebook Series is aimed at policymakers, corporates and investors who are interested in scaling high-integrity models to mobilise private sector capital at scale into conservation and nature-positive outcomes.



Preface

Sri Lanka stands at a pivotal intersection of economic recovery and ecological preservation. As An island nation with extraordinary biodiversity from the mist-shrouded central highlands to the vibrant coral reefs of the Indian Ocean, Sri Lankan prosperity has always been deeply rooted in the "natural capital" provided by its ecosystems. However, the vital services rendered by these landscapes, such as water purification, carbon sequestration, pollination, and flood regulation have been treated as "free" public goods.

This Guidebook is born out of a critical necessity. As outlined in the National Environmental Action Plan (2022–2030), Sri Lanka is committed to a green growth trajectory. Yet, the financial gap to meet Sri Lankan national biodiversity targets remains significant. Conventional conservation funding, primarily reliant on government budgets and international grants, is no longer sufficient to address the accelerating threats of climate change and habitat loss. In this context, it is essential to create bridge between the environmental services providers/ protectors and the beneficiaries who rely on them.

The concept of PES is elegant in its simplicity but complex in its execution: those who benefit from environmental services pay those who provide them. Whether it is a hydropower company paying upstream communities to prevent soil erosion and reservoir siltation, or the tourism sector investing in the restoration of mangroves that protect their coastlines, PES transforms conservation from a cost into an investment.

This document serves as a strategic roadmap for policymakers, private sector leaders, and local authorities. It provides the technical frameworks, legal guidelines, and financial mechanisms necessary to institutionalize PES across various sectors, including power generation, tea plantations, and tourism sector and water management. By aligning economic incentives with ecological health, Sri Lanka move away from a model of "protection through exclusion" toward one of "conservation through participation." This Guidebook is an invitation to innovation and investment. Let this be the manual for a new era of environmental stewardship, one where every Sri Lankan has a stake in, and a reward for, protecting the natural heritage that sustains us all.

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Acknowledgements

The completion of this guidebook has been a collaborative endeavor that draws upon the expertise, dedication, and shared vision of numerous stakeholders committed to the future of conservation finance in Sri Lanka. This work would not have been possible without the collective effort of the diverse parties involved in the Payment for Ecosystem Services landscape, whose practical experiences form the empirical backbone of this research.

First and foremost, deep gratitude is extended to the “Sellers” and “Buyers” across the six case studies featured in this document. From the tea estate management and smallholders involved in the “Pekoe Pact” to the community-based organizations in Kanneliya and the coastal stewards in the East, these individuals and institutions have demonstrated that nature-positive economic models are not only theoretical but practically viable. Their willingness to share operational data, challenges, and successes has allowed for the creation of a truly evidence-based guide tailored to the Sri Lankan context.

Special recognition is reserved for the United Nations Development Programme (UNDP),specifically through the Biodiversity Finance Initiative (BIOFIN). The UNDP’s role in facilitating the documentation of Sri Lanka’s PES story has been transformative. Beyond providing the necessary technical and financial support, the UNDP acted as a critical intermediary, fostering the multi-stakeholder dialogues required to refine the concepts of “Conditionality” and “Perpetuity” within local mechanisms. Their commitment to mapping the transition from traditional “Proto-PES” systems to modern, verified ecological contracts has ensured that this Guidebook aligns with international best practices while remaining deeply rooted in Sri Lankan heritage.

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List of Abbreviations

BIOFIN	Biodiversity Finance Initiative
CBD	Convention on Biological Diversity
CSR	Corporate Social Responsibility
DWC	Department of Wildlife
MASL	Mahaweli Authority of Sri Lanka
MEPA	Marine Environmental Protection Authority
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MRV	Monitoring, Reporting, and Verification
NTFP	Non-Timber Forest Product
PES	Payment for Ecosystem Services
TEK	Traditional Ecological Knowledge
UNDP	United Nations Development Programme

Executive Summary

Sri Lanka is experiencing increasing ecosystem degradation driven by land-use change, pollution, and climate-related pressures, resulting in significant ecological and economic losses. Existing conservation financing mechanisms remain inadequate to achieve national biodiversity and climate targets, creating the need for innovative financing approaches. Payment for Ecosystem Services (PES) has emerged as a practical, incentive-based mechanism that links environmental conservation with economic benefits and is increasingly reflected in national initiatives such as the Biodiversity Finance Plan (BFP).

This Guidebook provides a practical framework for institutionalizing PES in Sri Lanka by drawing on lessons from existing PES and PES-like initiatives. The analysis shows a transition from traditional community-based resource management systems to more structured and market-oriented PES models that incorporate scientific valuation, monitoring systems, formal agreements, and private-sector participation. Intermediaries, including organizations such as United Nations Development Programme (UNDP), play a critical role in facilitating transactions, ensuring transparency, and bridging information gaps between service providers and buyers.

Evidence from six case studies across plantation landscapes, watershed catchments, coastal zones, and community-managed ecosystems confirms that PES is already operational in Sri Lanka in hybrid or PES-like forms. These initiatives collectively engage approximately 2,934 people, cover more than 363 hectares, and generate annual ecosystem service values estimated at USD 42,500-43,100 Recent developments, including Memoranda of Agreement, natural capital accounting tools, performance-based incentives, and growing private-sector engagement, indicate gradual institutionalization of PES. However, implementation remains fragmented due to weak coordination, limited standardized monitoring systems, and the absence of a fully operational national framework.

Existing environmental laws and institutions provide a strong foundation for PES development, but current initiatives remain largely voluntary and small-scale because of gaps in policy clarity, valuation capacity, institutional coordination, and financing mechanisms. Strengthening a national PES framework, improving ecosystem service valuation and monitoring systems, and establishing clear contractual and governance arrangements are essential for scaling PES effectively and ensuring long-term credibility.

The Guidebook recommends a phased approach to PES development in Sri Lanka. Short-term priorities include establishing a national PES policy, strengthening institutional capacity, incentivizing private-sector participation, and creating a centralized coordination mechanism. Medium-term actions should focus on scaling PES through blended finance mechanisms, accrediting independent intermediaries, and integrating PES into national biodiversity and climate strategies. Long-term priorities include developing digital tracking systems, strengthening land tenure security, and establishing effective compliance and dispute-resolution mechanisms.

Sri Lanka's experience with PES demonstrates how traditional community stewardship systems and Proto-PES practices can gradually evolve into structured conservation financing mechanisms even without a formal national PES policy. Initiatives such as the Canopy Fund and the support provided by UNDP highlight the importance of umbrella institutions and intermediaries in improving coordination, monitoring, stakeholder trust, and long-term management of PES arrangements. At the same time, the country's experience shows that excessive institutional integration may blur the distinction between genuine market-based incentives and administrative re-labelling, creating risks of greenwashing or overstating conservation outcomes.

The Guidebook concludes that Sri Lanka's most viable PES pathway lies in hybrid models that combine traditional ecological stewardship with structured financial incentives. With strengthened governance, institutional coordination, monitoring systems, and inclusive stakeholder engagement, PES can evolve into a credible national mechanism for biodiversity conservation, climate resilience, sustainable natural resource management, and equitable economic development.

1. Introduction

1.1. Background

Sri Lanka, an island nation in the Indian Ocean, is recognized as one of the world's biodiversity hotspots due to its high levels of species richness and endemism shaped by a unique geological and evolutionary history[1,2]. However, Sri Lanka's ecosystems are increasingly degraded due to Anthropogenic pressure and climate related drivers affecting water purification and availability, agricultural productivity, hydropower generation[3], recreational functions[4], and rural livelihoods.

The changes pose substantial economic risks in a resource-dependent economy. Land degradation, particularly soil erosion, reduces agricultural productivity and causes off-site damages such as reservoir sedimentation and hydropower inefficiencies, with estimated losses of about 1-3% of GDP annually[5,6]. Urban environmental problems, including poor solid waste management, generate additional economic burdens through health impacts, property value decline, and environmental contamination[7].

[1] Myers, N., Mittermeier, R. A., Mittermeier, C. G., da Fonseca, G. A. B., & Kent, J. (2000). *Biodiversity hotspots for conservation priorities*. *Nature, 403*, 853–858. https://doi.org/10.1038/35002501

[2] Ministry of Environment. (2016). *National biodiversity strategic action plan (NBSAP) 2016–2022*. Government of Sri Lanka.

[3] World Bank. (2021). *Sri Lanka country environmental analysis*. World Bank.

[4] Central Environmental Authority (CEA). (2019). *Wetland conservation strategy of Sri Lanka*. Central Environmental Authority, Sri Lanka.

[5] Bandara, J. S., Chisholm, A., & Ekanayake, A. (2001). Environmental cost of soil erosion in Sri Lanka: Tax/subsidy policy options. *Journal of Policy Modeling*.

[6] Somaratne, W. G. (2013). Cost of land degradation in Sri Lanka. *University of Sri Jayewardenepura Research Symposium Proceedings*.

[7] Udugama, G. K., & Gunawardena, U. A. D. P. (2017). Economic analysis of externalities of open solid waste dumping: A case study of Meethotamulla dumpsite. *Proceedings of the Faculty of Graduate Studies Symposium*.

Water pollution further reduces economic value, as illustrated by studies of "Beira Lake" showing millions of dollars in foregone property and recreational benefits[8]. Additionally, degradation of coastal and marine ecosystems undermines fisheries and tourism[9], while air pollution contributes to rising health costs and productivity losses[10]. Climate-related disasters further exacerbate these impacts, causing damages equivalent to several percentage points of GDP in extreme years[11]. Overall, the cumulative economic loss from environmental degradation in Sri Lanka is estimated to be in the range of approximately 3-10% of GDP annually when direct, indirect, and disaster-related impacts are considered.

Despite increasing recognition of the urgent need for ecosystem conservation, current investments fall significantly short of the resources required to achieve the conservation targets. According to UNDP-BIOFIN, Sri Lanka faces an estimated biodiversity financing gap of approximately USD 190 million over a seven-year period, in addition to existing government budget allocations.[12] This substantial funding shortfall highlights the need for innovative and sustainable conservation financing mechanisms beyond conventional government and donor-supported approaches.

In response to this challenge, Payment for Ecosystem Services (PES) has emerged as an important alternative financing mechanism and is increasingly being recognized and formalized within the country's environmental policy landscape. The UNDP-BIOFIN initiative identifies PES as a key financing solution capable of mobilizing long-term investments while strengthening the relationship between ecosystem conservation and economic development[13]. In parallel to that, the Biodiversity Finance Plan (BFP), provides a strategic framework for mobilizing public, private, and blended financing to address Sri Lanka's biodiversity financing gap[14] to strengthen national capacity for biodiversity financing, mobilize diverse financial flows, and support the implementation of national conservation priorities.

1.2. Payments for Ecosystem Services

PES has gained prominence as a market-based, incentive-driven policy instrument that simultaneously supports environmental conservation and rural livelihoods[15],[16]. It is most commonly defined as a voluntary transaction in which a well-defined ecosystem service or a land-use practice that secures that service is purchased by at least one buyer from at least one provider, conditional upon the continued delivery of that service17. This definition highlights the contractual, performance-based, and incentive-oriented nature of PES mechanisms. A defining characteristic of PES is its voluntary nature, which distinguishes it from regulatory or command-and-control approaches. PES involves transactions between clearly identified actors: buyers (beneficiaries of ecosystem services), who may include governments, private sector entities, non-governmental organizations, or downstream users; and sellers (providers): typically landholders, farmers, forest-dependent communities, or indigenous groups who directly manage ecosystems and influence service provision[17].

[8] International Institute for Sustainable Development (IISD). (2019). *Application of the SAVi methodology in Sri Lanka: Assessing the value of sustainable infrastructure*.

[9] Jayaratne, R., & Gunawardena, U. A. D. P. (2018). Economic valuation of marine ecosystems in Sri Lanka. *Proceedings of the Faculty of Graduate Studies Symposium*.

[10] Velayutham, E. (2023). *Environmental Kuznets curve hypothesis in Sri Lanka: Evidence from carbon* emissions. *Sustainability*, 15(14), 10983.

[11] Reuters. (2025). Climate-related disaster damages in Sri Lanka.

[12] BIOFIN. (2022). *A win for nature: Investments across the island for biodiversity improvements*. Biodiversity Finance Initiative (BIOFIN). https://www.biofin.org/news-and-media/win-nature-investments-across-island-biodiversity-improvements

[13] Jayawardene, S., & Wijethunga, R. (2025). Revitalizing Payment for Ecosystem Services (PES) in Sri Lanka: Building Capacity for the Future. UNDP BIOFIN.

[14] United Nations Development Programme (UNDP). (2022). *Sri Lanka biodiversity finance plan*. UNDP BIOFIN.

[15] Wunder, S. (2005). *Payments for environmental services: Some nuts and bolts* (CIFOR Occasional Paper No. 42). Center for International Forestry Research (CIFOR).

[16] Organisation for Economic Co-operation and Development (OECD). (2010). *Paying for biodiversity: Enhancing the cost-effectiveness of payments for ecosystem services*. OECD Publishing.

PES is particularly relevant in the Sri Lankan context as it links ecosystem conservation with economic incentives. By assigning value to services such as watershed protection, biodiversity conservation, and landscape aesthetics, PES integrates natural capital into economic decision-making[18]. Several PES building blocks contribute to the current state of PES initiatives in Sri Lanka. A pilot initiative was launched in 2019 involving a mini-hydropower operator at Ganthuna village, Aranayaka Divisional Secretariat Division in Kegalle District where upstream communities were incentivized to adopt watershed conservation practices that secure downstream water supply16. This initiative highlighted both the feasibility of PES and the need for strong governance frameworks and stakeholder coordination. Tourism-related businesses linked to the sustainable tourism certification programme also showed the high potential for tourism-oriented PES arrangements, aligning environmental protection with economic interests.

In addition to these initiatives, the World Agroforestry[19] through a series of consultative process has developed a framework and a road map for PES implementation and it has proposed a national PES implementation body to facilitate PES programme in Sri Lanka.

1.3. PES Models

The PES models that are widely described in many of the management frameworks[20] are Public-to-Public (P2P), Public-to-Private (P2Pvt), Private-to-Public (Pvt2P), and Private-to-Private (Pvt2Pvt) that buyers and sellers are defined accordingly. However, in the Sri Lankan context, additional models have emerged involving community groups and entities registered under the Cooperative Act representing distinct forms. Therefore, in this assessment, such cases are treated separately and categorized as Community (Com) and Cooperative (Coop) to better reflect their functional roles and stakeholder involvement.

1.4. PES Categories

The case studies examined under this assessment demonstrate varying levels of alignment with the core principles of PES. While some initiatives already exhibit key characteristics of formal PES mechanisms, others remain in transitional or emerging stages, adopted certain PES principles, such as ecosystem stewardship, beneficiary contributions, and incentive-based conservation without being formally structured as PES schemes. Based on their level of development and operational characteristics, the cases were categorized into three main groups: PES, PES-like, and Potential PES systems.

In addition to those three categories, a traditional/customary, entirely non-monetary resource reciprocity systems governed by social norms in Sri Lanka has been also been described in the study as a separate category, most similar to the functionality of Proto-PES.

[17] Engel, S., Pagiola, S., & Wunder, S. (2008). Designing payments for environmental services in theory and practice: An overview of the issues. *Ecological Economics, 65*(4), 663–674. https://doi.org/10.1016/j.ecolecon.2008.03.011

[18] The Economics of Ecosystems and Biodiversity (TEEB). (2010). *The economics of ecosystems and biodiversity: Mainstreaming the economics of nature*. Earthscan.

[19] ICRAF (2025). *Payment for Ecosystem Services in Sri Lanka: A Framework for Implementation*. Colombo, Sri Lanka: CIFOR-ICRAF.

[20] Vatn, A. (2010). An institutional analysis of payments for environmental services. Ecological Economics, 69(6), 1245–1252. https://doi.org/10.1016/j.ecolecon.2009.11.018

Table 1 summarizes the key similarities and differences used to distinguish PES, PES-like, and Potential PES systems.

Table 1: Characteristics of PES, PES-like and Potential PES systems

Feature	PES	PES-like	Potential PES
Voluntary Participation	Buyers and sellers participate willingly through formal agreements	Participation may involve regulatory compliance or informal cooperation	Stakeholders have established working relationships and are willing to explore future PES arrangements
Conditionality	Payments are directly linked to verified ecosystem service delivery	Conditionality is weak, implicit, or partially applied	Conditional payment mechanisms are not yet established but could be developed
Directness of Payment	Clear and direct link between ecosystem service provision and payment	Contributions may occur indirectly through grants, subsidies, or shared activities	Conservation support exists but is not formally linked to ecosystem service valuation
Defined Ecosystem Service	Ecosystem services are clearly identified, measurable, and agreed upon	Ecosystem services may be broadly recognized but not formally quantified	Ecosystem services are understood conceptually but lack formal valuation and monitoring systems

1.5. PES Guidebook

This Guidebook provides a practical and evidence-informed framework grounded in lessons learned from existing PES, PES-like initiatives, and potential PES cases, including traditional resource reciprocity systems experiences within Sri Lanka, reflecting institutional, legal, and socio-economic context of the country. By integrating empirical case studies with market assessments, stakeholder analyses and Key Informer Interviews (KII)s, the Guidebook bridges the gap between policy principles and real-world practice, offering clear guidance for the replication and scaling of PES initiatives while supporting the development of a coherent national PES framework.

2. PES Experiences in Sri Lanka

2.1. PES Case Study Summary

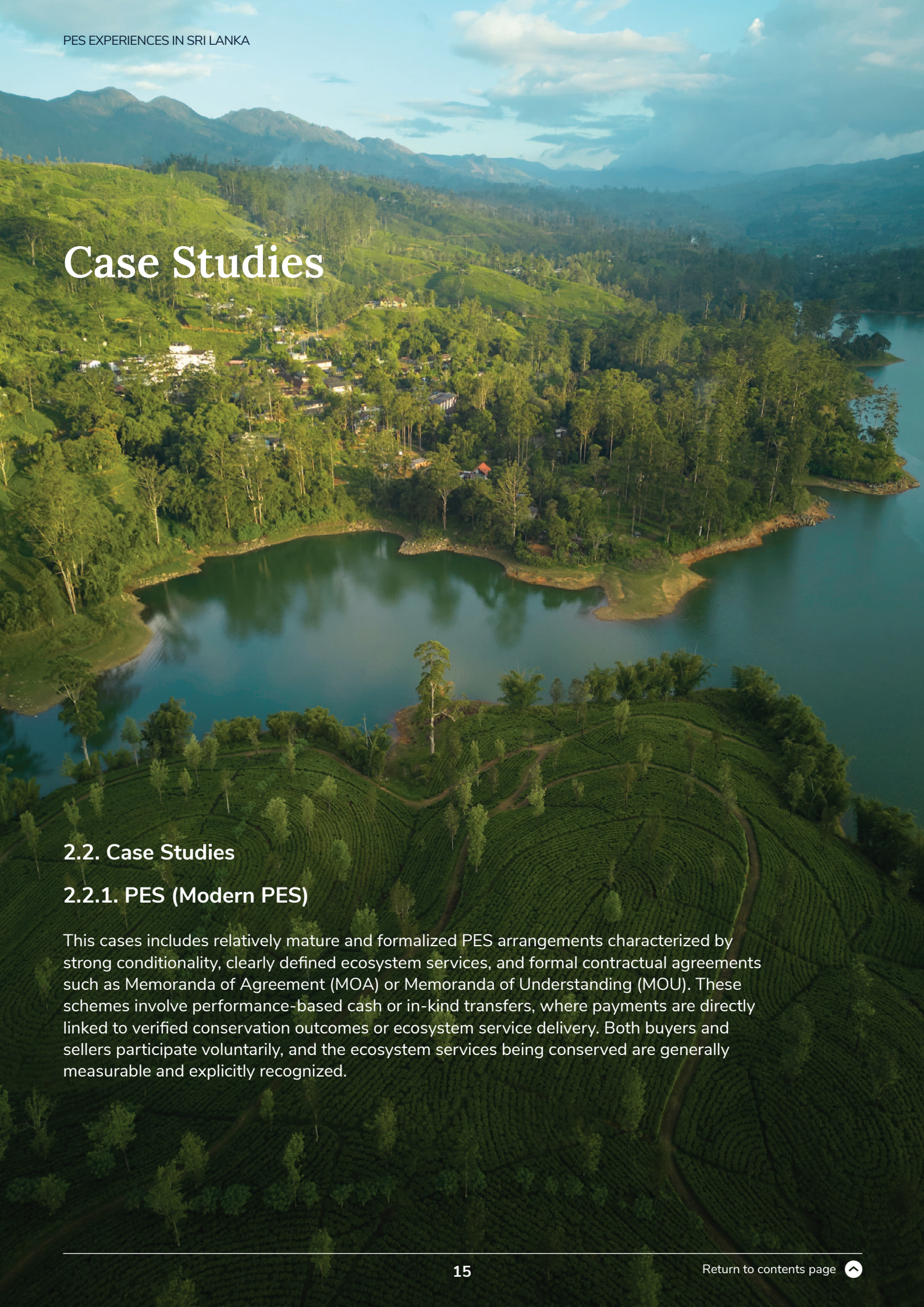
This Guidebook examines six PES, PES-like, and potential PES cases, analyzing them against core PES principles, institutional arrangements, scalability, and the enabling environment for replication. In addition, it reviews proto-PES instruments previously implemented in Sri Lanka, providing a broader perspective on the evolution of incentive-based conservation mechanisms. The PES model and the PES category of the studied cases are presented in Table 2.

No	The Case	Case Model	Status
1	Pekoe Pact for Conservation of the Ceylon's Living Buffer, The Pekoe Trail Company (Guarantee) Ltd and Watagoda & Holyrood Estates, Thalavakelle Tea Estates PLC, Nuwaraeliya District	Pvt2Pvt	PES
2	The Dell Mountain Flow: A Blueprint for Watershed Stewardship, Bambarakelle Estate and Horana Plantation PLC, Nuwaraeliya District	Pvt2Pvt	PES
3	Transforming Estate Land into Functional Ecosystem Buffers, Catchment Protection – Talawakelle Tea Estates and Horana Plantation PLC, Nuwaraeliya District	P(Co-op)2Pvt	PES
4	Eastern Coastal Belt Cleaning Programme, The Marine Environment Protection Authority, Hoteliers, "Samurdhi" programme with local community	Pvt2P	PES
5	Watershed protection in Kanneliya Conservation Forest, Forest Department/Weerapana Water Supply Society and community	Com2P(Co-op)/P	PES-Like
6	Watershed Protection in the Kothmale Reservoir Catchment, The Mahaweli Authority of Sri Lanka and Mount Vernon Tea Estate and Upstream Community	P2Pvt	Potential PES

Map of the Case Studies

Case 1: Pekoe Trail Stage 6
Case 2: Bambarakelle Estate
Case 3: Great Western Estate
Case 4: Site of the Eastern Coastal Belt
Case 5: Weerapana Community Water Project – Kanneliya
Case 6: Kothmale Watershed Protection

Case Studies



2.2. Case Studies

2.2.1. PES (Modern PES)

This cases includes relatively mature and formalized PES arrangements characterized by strong conditionality, clearly defined ecosystem services, and formal contractual agreements such as Memoranda of Agreement (MOA) or Memoranda of Understanding (MOU). These schemes involve performance-based cash or in-kind transfers, where payments are directly linked to verified conservation outcomes or ecosystem service delivery. Both buyers and sellers participate voluntarily, and the ecosystem services being conserved are generally measurable and explicitly recognized.

Case Study 01:
Pekoe Pact for Conservation of the Ceylon's Living Buffer

The Pekoe Trail Company (Guarantee) Ltd and Watagoda & Holyrood Estates, Thalavakelle Tea Estates PLC, Nuwaraeliya District.

Pvt2Pvt PES Case

Introduction

Sri Lanka's central highlands represent a unique convergence of ecological sensitivity, cultural heritage, and long-standing plantation-based economic activity. Dominated by expansive tea estates, this landscape has historically balanced commercial production with the conservation of montane ecosystems that are critical for biodiversity, hydrology, and climate regulation. Within this setting, the Watagoda and Holyrood Estates, managed by Talawakelle Tea Estates PLC (TTE), in Sri Lanka play a particularly important role as ecological buffers that protect high-altitude catchments while sustaining plantation livelihoods. These estates also contribute to cultural ecosystem services, including scenic beauty, recreation, and heritage value, which increasingly support nature-based tourism.

In January 2026, Talawakelle Tea Estates and the Pekoe Trail Company launched a private-to-private PES agreement in Sri Lanka's central highlands. Supported by UNDP BIOFIN, the estate protects a 10.5 km trail segment in exchange for USD 12,000 in-kind marketing.

A key feature within this landscape is a 10.5 km segment of Stage 06 of the Pekoe Trail, a globally recognized long-distance hiking route spanning 300 km across Sri Lanka's tea country. The trail's international recognition, including its listing among top global travel destinations, underscores the importance of maintaining high-quality ecosystems within privately managed plantation lands. As such, this case illustrates how ecosystem services, particularly landscape aesthetics, and biodiversity conservation can be integrated into a PES framework within a tourism-driven context.

The PES Project

The PES agreement established for the Watagoda and Holyrood Estates represents an innovative "Private-to-Private" partnership between Talawakelle Tea Estates PLC (the Seller) and the Pekoe Trail Company (Guarantee) Limited (the Buyer), with technical support from the United Nations Development Programme (UNDP) BIOFIN initiative. Formalized through a Memorandum of Agreement in January 2026 (Annexure 01), the arrangement recognizes the plantation landscape not merely as a production system but as a provider of valuable ecosystem services that sustain tourism and biodiversity.

Under this framework, the Seller commits to maintaining and enhancing ecological conditions along the trail corridor through practices such as preserving chemical-free buffer zones, protecting riparian areas, implementing soil conservation measures, and restoring degraded habitats . Probably this could include the maintenance of 100 m buffer in either side of the trail. These actions ensure the delivery of high-quality ecosystem services, including scenic landscapes, biodiversity protection, and safe & clean environments for hikers. In return, the Buyer provides compensation primarily in the form of in-kind contributions valued at about USD 12,000[21] directed toward marketing, branding, and promoting Stage 06 of the Pekoe Trail. This approach increases the commercial and reputational value of the estate gives it an opportunity to sell different products and services to the hikers and earn an income, while incentivizing conservation.

A key feature of this PES model is the principle of additionality, whereby payments are linked exclusively to conservation actions that exceed legal compliance. The agreement also includes a 20% performance-based bonus tied to the successful implementation of an Ecosystem Conservation Plan developed with UNDP support. Financial integrity is ensured through ring-fenced budgeting, preventing diversion of funds to general estate operations.

Governance and accountability are reinforced through a structured monitoring and verification system. The Seller maintains a Natural Capital Ledger to document ecological indicators such as tree survival rates, water quality, and biodiversity metrics, while periodic inspections and "State of the Ecosystem" reports validate performance. The agreement also incorporates risk-sensitive provisions, such as a climate-adjusted force majeure clause, recognizing the environmental vulnerabilities of the highland region.

Importantly, the PES framework is embedded within a broader governance structure led by the Pekoe Trail Organization, a public-private partnership supported by international donors and national stakeholders. The initiative is guided by the "Pekoe Pact," which emphasizes people, environment, knowledge, ownership, and excellence, ensuring that conservation outcomes are aligned with both local and global sustainability goals.

[21] Note: Annual average exchange rate for year 2026 (Upto the month May) is Rs. 312.9607 LKR per USD https://www.exchangerates.org.uk/USD-LKR-spot-exchange-rates-history-2026.html

Analysis and Findings

The model demonstrates several innovative features that contribute to its effectiveness and potential scalability. First, it successfully integrates tourism-driven ecosystem service valuation into a plantation landscape, recognizing cultural and aesthetic services such as scenic beauty and recreational value as legitimate economic assets. This reflects a shift from traditional production-oriented land use toward multifunctional landscape management.

The financial structure of the agreement relies on in-kind contributions rather than direct cash transfers. By investing in marketing and destination development, the Buyer enhances the long-term economic value of the Seller's land while simultaneously funding conservation. This creates a mutually reinforcing relationship where ecological integrity directly contributes to business profitability. Institutionally, the model benefits from strong governance and technical backing. The involvement of UNDP BIOFIN ensures scientific rigor in valuation and monitoring, while alignment with global frameworks such as the Kunming-Montreal Global Biodiversity Framework enhances credibility and relevance. The use of tools like the Natural Capital Ledger represents an advanced approach to translating ecological data into economic metrics, thereby bridging the gap between environmental science and financial decision-making. Socially, the PES agreement emphasizes inclusivity by mandating the creation of "green jobs" and establishing community stewardship mechanisms. This helps transform local residents from passive beneficiaries or potential pressures on ecosystems into active custodians of the landscape. The explicit focus on gender equality and equitable benefit-sharing further strengthens the social sustainability of the model.

Enabling the PES initiative along the entire length of the Pekoe Trail, crossing tea estates managed by 14 - 16 Regional Plantation Companies across 22 stages, presents significant potential for conservation financing. Among these, three stages have already been considered for PES projects, while other plantation companies have expressed interest in joining the initiative. Accordingly, the potential annual conservation commitment is estimated to be approximately USD 210,000 (LKR 3 million × 22 stages). However, certain challenges remain. The reliance on tourism as a primary driver introduces vulnerability to external shocks such as economic downturns or global travel disruptions. Additionally, the in-kind nature of payments, while innovative, may complicate direct valuation and comparison with conventional PES models. The current pilot-scale implementation also requires further testing to assess long-term ecological and financial sustainability, particularly if scaled across the full 300 km Pekoe Trail.

Conclusion and Recommendations

The PES arrangement here has been facilitated by the composition of the Pekoe Trail Company's board of management, which includes representatives from both the Plantation Collective and the Tourism Alliance. This structure provided leverage and oversight across the roles of both seller and buyer. Furthermore, an additional enabling factor has been the integration of tourism development into the PES framework. Beyond ecosystem conservation, tourism, an area in which both parties hold vested interests was incorporated, thereby strengthening alignment and mutual commitment.

If successfully replicated and expanded across all stages of the Pekoe Trail, this PES framework could serve as a replicable blueprint for managing natural capital outside protected areas, not only in Sri Lanka but also in similar plantation-dominated landscapes globally. Ultimately, the initiative underscores the potential of PES to bridge conservation, tourism, and community development, creating a sustainable pathway for both environmental resilience and economic growth.

Case Study 02:
The Dell Mountain Flow: A Blueprint for Watershed Stewardship

Bambarakelle Estate and Horana Plantation PLC, Nuwaraeliya District

Pvt2Pvt PES Case

Introduction

The Bambarakelle Estate, located in the high-altitude montane region of the Nuwara Eliya District in Sri Lanka, represents a landscape of significant ecological and economic value. Characterized by steep terrain, forest patches, and the prominent Dell Mountain catchment, the estate plays a crucial role in regulating water resources, conserving biodiversity, and supporting plantation agriculture. These montane ecosystems function as vital carbon sinks while also sustaining hydrological processes that underpin both human livelihoods and industrial activities. The estate, spanning approximately 1,460 acres at elevations up to 5,400 feet, is renowned for producing high-grown Ceylon tea and contributes substantially to the plantation economy.

In February 2026, Bambarakelle Estate partnered with Horana Plantations in a USD 3,500 PES agreement, conserving watershed services to secure factory hydropower and domestic water for 1,500 residents.

At the core of this case is the ecosystem service of water, which provides multiple benefits including regulation, purification, and soil stabilization. These services are essential for the Bambarakelle Tea Factory, particularly for its hydropower generation, which currently contributes a small but important share of its own energy needs.

Beyond industrial use, the same water resources support approximately 1,500 estate residents and small-scale farming activities. The sustainability of these services is closely tied to the ecological health of the upstream catchment, making conservation a strategic priority. In this context, the Bambarakelle case presents a pioneering example of a PES mechanism in Sri Lanka, linking environmental stewardship with economic incentives.

This initiative is structured as a formalized partnership involving Horana Plantations PLC as the Buyer, Bambarakelle Estate as the Seller, and the United Nations Development Programme (UNDP)-BIOFIN as a technical collaborator. In this arrangement, the Seller, as the land manager and leaseholder, assumes the role of a "Natural Capital Manager," responsible for maintaining and enhancing the ecological integrity of the watershed. The Buyer, whose operational efficiency and profitability depend on a reliable and clean water supply, acts as the "Conservation Contributor," providing financial and technical support to sustain ecosystem services. UNDP-BIOFIN plays a critical supporting role by ensuring scientific rigor through ecosystem assessments, baseline establishment, and monitoring frameworks.

The PES Project

The PES agreement, formalized through a Memorandum of Agreement (MOA) effective from February 1, 2026, marks a significant milestone as Sri Lanka's first private-to-private PES initiative (Annexure 02). The financial mechanism is designed around the principle of additionality, with Horana Plantations PLC allocating a ring-fenced annual budget of USD 3500, supplemented by a 20% performance-based bonus linked to conservation outcomes. This ensures that payments are tied specifically to conservation actions that exceed regulatory requirements.

The Seller's obligations include implementing no-chemical buffer zones near water sources, restoring degraded lands with native vegetation, and maintaining soil conservation structures. A strong emphasis is placed on accountability and transparency, with the Seller maintaining a Natural Capital Ledger that records key ecological indicators such as water turbidity, rainfall patterns, and vegetation survival rates. Payments are conditional upon verified ecosystem service delivery, introducing a results-based financing mechanism. Monitoring is done jointly and also with the involvement of the umbrella company, Hayleys Group. This has been mentioned in following words "The involvement of Horana Plantations PLC and its parent entity ensure alignment with broader sustainability commitments, while UNDP-BIOFIN enhances credibility through scientific validation and standardized monitoring."

It also incorporates social dimensions by promoting community engagement and inclusion. It aims to create green jobs for estate residents, with particular attention to women engagement and establishes community-based stewardship structures to ensure long-term sustainability beyond the agreement period.

Analysis and findings

The Bambarakelle PES initiative reflects several defining characteristics of an effective and innovative PES model. First, it demonstrates a strong alignment with core PES principles, including conditionality, additionality, and direct linkage between ecosystem service provision and payment. The use of performance-based payments and ring-fenced funding strengthens accountability and ensures that financial flows are explicitly tied to measurable conservation outcomes.

Institutionally, the model benefits from a well-defined governance structure that integrates corporate oversight, technical expertise, and operational management. The involvement of Horana Plantations PLC and its parent entity ensure alignment with broader sustainability commitments, while UNDP BIOFIN enhances credibility through scientific validation and standardized monitoring. The use of tools such as the Natural Capital Ledger and periodic ecosystem assessments reflects a robust monitoring, reporting, and verification (MRV) system. Economically, the model is notable for its "user-financed" nature, where the Buyer directly invests in ecosystem conservation to mitigate operational risks, particularly those related to water scarcity and quality. This contrasts with many global PES schemes that rely on government funding or indirect beneficiaries. By directly linking conservation to business continuity, specifically hydropower generation the model ensures strong incentives for sustained investment. Socially, the initiative contributes to local livelihoods by generating employment opportunities and fostering community participation in conservation. The inclusion of gender considerations and community governance mechanisms enhances equity and long-term sustainability.

The model demonstrates that when both the buyer and seller Bambarakelle Estate and Horana Plantations PLC operate under a single administrative umbrella, namely the Hayleys Group, establishing a PES arrangement becomes significantly easier. Seller compliance is effectively assured, while reporting and monitoring processes are streamlined. Consequently, the risk of failure is minimized to an almost negligible level.

However, the model faces certain challenges, including its current short-term (one-year) structure, which may limit long-term ecological impact, and the need to refine baseline data and valuation methodologies for scaling.

The replication potential of this initiative is very high in Sri Lanka, as the majority of tea and rubber estates maintain upstream catchment functions to ensure long-term water retention capacity, thereby securing downstream water requirements.

Conclusion and Recommendations

The Bambarakelle PES initiative represents a pioneering and context-specific approach to ecosystem service financing in Sri Lanka. By directly linking watershed conservation to industrial performance and community well-being, it demonstrates how PES can function as a practical tool for aligning environmental sustainability with economic objectives. The model's emphasis on additionality, performance-based payments, and stakeholder collaboration positions it as a strong example of innovative environmental governance.

While still in its early stages, the initiative offers valuable lessons for scaling PES mechanisms across similar landscapes, particularly in plantation-dominated regions where ecosystem services are critical to production systems. Ultimately, the Bambarakelle case underscores the potential of PES to create a "win-win-win" scenario, delivering benefits for ecosystems, businesses, and local communities while contributing to broader climate and biodiversity goals.

Case Study 03:
From Plantation to Protection: Transforming Estate Land into Functional Ecosystem Buffers

Catchment Protection – Talawakelle Tea Estates and Horana Plantation PLC, Nuwaraeliya District

P (Co-op) 2Pvt PES Case

Introduction

The Great Western Estate, managed by Talawakelle Tea Estates PLC (TTE), is located in the ecologically sensitive high-altitude montane region of Sri Lanka's Nuwara Eliya District. Within this landscape lies a critical 80-hectare upland catchment, which functions as the primary hydrological source for surrounding valleys. This catchment, maintained as a chemical-free zone, provides clean and reguler water supply to downstream users, particularly the plantation community residing in the estate. The water collected is directed to a ponding system and distributed among approximately 1,214 residents across 223 households, supporting both domestic use and small-scale agriculture.

In January 2026, Talawakelle Tea Estates and the Estate Worker Housing Cooperative launched a PES agreement. The community provides 250 annual man-days of labor (valued at USD 2,400) to protect an 80-hectare watershed securing clean water for 1,214 residents.

This case highlights a Public (Cooperate)-to-Private [P(Co-op)2Pvt] PES model, where the Estate Worker Housing Cooperative Society (EWHCS), representing the plantation community acts as the Buyer, while the estate management serves as the Seller responsible for maintaining ecosystem integrity. This is a bit cyclic. Estate management maintain the eco-system services by getting the engagement of the labor provided by the Coop society. This arrangement emerges from a broader socio-economic context marked by historical marginalization of plantation communities.

The Great Western case represents not only an environmental intervention but also a mechanism to address social inequities by securing community access to essential ecosystem services.

The PES Project

The Great Western PES initiative evolved from a context of mutual dependency and initial tension between the plantation community and estate management. The community, facing increasing water scarcity and quality issues, recognized the urgent need to protect the upstream catchment. Simultaneously, estate management viewed community activities such as firewood collection as potential threats to forest integrity and watershed stability. Rather than pursuing a conflict-driven approach, both parties transitioned toward a cooperative model based on shared incentives and responsibilities.

Under this framework, the estate commits to conserving and sustainably managing an 80-hectare upper catchment area, with particular emphasis on protecting and maintaining associated riparian buffer zones as strictly chemical-free areas. The estate further supports ecosystem restoration by implementing sustainable land management practices, including soil erosion control measures, riparian forest rehabilitation, habitat restoration, and the prevention of downstream sedimentation and water pollution. These interventions contribute to improving catchment stability, maintaining water quality, and ensuring continuous water discharge within the landscape.

In return, the surrounding community including estate and non-estate workers, contributes through “in-kind” payments, primarily in the form of approximately 250 annual man-days of labor dedicated to restoration, monitoring, maintenance, and conservation activities within the catchment and riparian zones. This community contribution, valued at approximately USD 2,000–2,400 annually, functions as a locally driven conservation financing mechanism that complements the estate’s environmental stewardship efforts. The arrangement is further strengthened through performance-based incentives that encourage long-term community participation and shared responsibility for ecosystem protection.

The resulting PES agreement, formalized through a Memorandum of Agreement (MOA) on January 30, 2026, represents Sri Lanka’s first cooperative-to-private PES initiative, particularly focused on drinking water provision (Annexure 03). The agreement is further strengthened by technical support from the UNDP-BIOFIN initiative, which provides scientific baselines, monitoring frameworks, and guidance for ecosystem valuation. Governance is structured through multi-level oversight, including estate management, community cooperative, and corporate ESG mechanisms, ensuring transparency and accountability. Monitoring relies on measurable indicators such as water turbidity, sapling survival rates, and cost-benefit analyses comparing conservation investments with avoided environmental and health costs.

Importantly, the PES model incorporates strong social dimensions, including the promotion of gender equality, creation of green employment opportunities, and the establishment of community-led stewardship structures that actively engage local residents in ecosystem management, decision-making, restoration activities, and long-term environmental monitoring. These participatory stewardship mechanisms strengthen community ownership, enhance local accountability for natural resource protection, and encourage collective responsibility for maintaining ecosystem health. By integrating conservation objectives with livelihood support and inclusive community participation, the initiative promotes long-term sustainability, social empowerment, and stronger local commitment to ecosystem conservation.

There are over 1200 families use the same water facility further downstream in the Thalawakelle town area which is managed by the Local Government Authority (LGA). A discussion has been initiated to include them to the extended PES program, in which the LGA has shown interest to annually contribute to conservation of upper catchment area to ensure continuous water flow to their community.

Analysis and findings

The Great Western PES model demonstrates several innovative and context-specific features that distinguish it from conventional PES frameworks. One of its most significant characteristics is its “user-financed” structure, where the beneficiary community itself functions as the buyer rather than relying primarily on government or corporate funding. This reverses traditional top-down conservation financing approaches and empowers marginalized communities to actively invest in securing the ecosystem services upon which they depend.

Particularly the model is the use of in-kind labor contributions as the primary financing mechanism. By valuing community labor as a conservation investment, the initiative demonstrates that meaningful participation in ecosystem stewardship is possible even within low-income communities. This approach strengthens inclusivity while fulfilling the principle of additionality, as the restoration, erosion control, riparian protection, and habitat management activities undertaken extend beyond routine estate management practices and generate measurable environmental improvements.

The model is further strengthened by a robust governance and monitoring framework supported by technical expertise from UNDP BIOFIN and oversight through the Hayleys Group ESG structures. Tools such as the Natural Capital Ledger and performance-based verification systems help ensure accountability, transparency, and measurable conservation outcomes. Environmental indicators including riparian habitat condition, soil erosion reduction, maintenance of chemical-free buffer zones, and continuity of clean water discharge are regularly monitored to assess conservation performance. Community contributions and incentives are linked to these verified outcomes, encouraging long-term stewardship while enabling adaptive management and evidence-based reporting aligned with broader international frameworks. From a socioeconomic perspective, this arrangement addresses issues of equity, participation, and environmental responsibility. The cooperative largely consists of estate workers and their households, meaning that participants already contribute to the plantation economy through their regular employment. Their voluntary labor under the PES agreement therefore represents an additional collective investment in protecting the shared catchment resources that sustain both estate operations and community water security.

The model's reliance on voluntary labor raises concerns regarding long-term sustainability and scalability, particularly if participation especially non-estate workers, declines over time. While reliance on goodwill has remained effective because the participating groups largely consist of the estate's own workforce with a direct interest in maintaining the landscape, the absence of formalized penalties or stronger incentive structures could create future compliance risks. Furthermore, the pilot-scale and relatively short-term nature of the initiative limits assessment of long-term ecological and socioeconomic impacts.

Conclusion and Recommendations

The Great Western Estate PES initiative represents a transformative and socially inclusive model of ecosystem service governance in Sri Lanka. By establishing a "P(Co-op)2Pvt" partnership where an estate community acts as the buyer of ecosystem services, the model challenges conventional PES structures and introduces a more equitable and localized approach to conservation financing. Its emphasis on in-kind contributions, community stewardship, and performance-based outcomes demonstrates how PES can be adapted to contexts with limited financial resources while still delivering meaningful environmental and social benefits.

The initiative not only secures clean water for vulnerable plantation communities but also fosters a shift in perception from resource dependency to collective stewardship. By aligning local actions with global biodiversity and sustainability frameworks, it illustrates the potential for small-scale, community-driven interventions to contribute to broader environmental goals. With further refinement, long-term commitment, and supportive policy frameworks, the Great Western PES model holds significant potential for replication across Sri Lanka's plantation sector and beyond, offering a pathway toward integrated solutions that address both ecological sustainability and social justice.

Case 04:
Eastern Coastal Cleaning Programme

The Marine Environment Protection Authority, Hoteliers, “Samurdhi” programme with local community

Pvt2P PES case

Introduction

Sri Lanka’s coastal belt, spanning approximately 1,620 km, is one of the most ecologically and economically significant landscapes. It supports nearly one-third of the population and hosts diverse ecosystems such as mangroves, coral reefs, lagoons, estuaries, and seagrass beds. These ecosystems provide essential services including coastal protection, carbon sequestration, nutrient cycling, and nursery habitats for fisheries.

Sri Lanka’s Coastal Cleaner Programme of MEPA is a Pvt2P PES model where private banks, insurers, and hotels fund local communities and Samurdhi beneficiaries to maintain beach aesthetics and eco-services.

Sri Lanka’s coastal economy is a major contributor to national development, particularly through tourism and fisheries. Marine and coastal fisheries account for nearly 90% of the national fish catch and support approximately 500,000 formal and informal jobs, while coastal tourism generates significant employment and foreign exchange earnings[22]. However, increasing pressures from pollution, garbage and urbanization threaten the sustainability of these ecosystems.

[22] World Bank. (2017). *Sri Lanka: Managing Coastal Natural Wealth*. Washington, DC: World Bank. https://hdl.handle.net/10986/30860

In this context, PES emerges as a practical, incentive-based approach in conservation of coastal ecosystem. The Marina Pollution Prevention Authority (MEPA), operates under the Marine Pollution Prevention Act No. 35 of 2008, provides a legal basis for safeguarding coastal and marine environments by mobilizing funds through partnerships, donations, and conservation agreements through principles such as “Polluter Pays” and “User Pays”. Under such environment the MEPA has established coastal cleaner programme with the funding assistance of private sector entities such as Banks, Insurance companies and hoteliers.

The PES Project:

Coastal Cleaner Programme (Community-Based Model)
The MEPA has implemented a Private-to-Public (Pvt2P) PES initiative along the Eastern Coastal Belt through two complementary programmes that integrate community participation and private sector engagement. The first, the Coastal Cleaner Programme, adopts a community-based model by engaging the Samurdhi welfare programme to undertake coastal cleaning activities. Under this arrangement, each participant is responsible for maintaining approximately a one-kilometre stretch of coastline, with payments channeled through the Samurdhi system. The programme is financially supported by private sector entities such as banks and insurance companies, operating through formal agreements established with MEPA. In this model, the MEPA through the local communities act as the service providers, while private companies function as the service buyers by contributing funds for ecosystem maintenance.

This approach not only ensures regular coastal cleaning but also creates a direct economic incentive for low-income communities, effectively linking livelihood enhancement with environmental stewardship.

Coastal Cleaner Programme (Private Sector Based Model)

The MEPA has also introduced a hotelier-based coastal maintenance programme that reflects a more conventional private sector-driven PES mechanism in Private-to-Public (Pvt2P) PES modality. Through formal agreements, coastal hotels are encouraged to maintain the cleanliness of beach areas adjacent to their properties, recognizing that the aesthetic and ecological quality of these environments directly influences tourism revenue. Two recent Memoranda of Understanding (MOUs) established in April 2025 between the MEPA and two private entities (Annexure 04), Blue Sand Beach Resort (Pvt) Ltd and Sea View Hotel provide a practical case study of this mechanism in action. These agreements formalize the protection of the coastal and marine ecosystem through structured voluntary cooperative society. The targeted ecosystems are the beach stretches in the Trincomalee District of the Eastern Province. The MOUs define specific boundaries for conservation: a 100-meter stretch at Alles Garden for Blue Sand Beach Resort and another 100meter stretch at Gopalapuram for Sea View Hotel.

The Hotels are responsible for the ‘provision’ of payment through maintaining the ecosystem through daily cleaning and waste management, while MEPA provides technical guidance, and regulatory assistance. The transaction value is rooted in non-monetary exchange and shared responsibility. MEPA provides the ‘Protocol’ - the guidelines and training for marine conservation and waste management, while the hotels provide the labor and local management. The conditions of the agreement are stringent. The hotels must ensure daily cleaning to eliminate litter and debris and implement proper waste management to prevent pollutants from entering the marine environment. MEPA, in turn, conducts periodic monitoring and assessment to ensure the cleanliness of the area meets the required standards. This creates a feedback loop of ‘Perception’, where the hotels’ commitment is visibly demonstrated to guests and the local community through display boards and awareness programs.

A defining feature of these agreements is voluntarism. Both hotels have entered the MOU to cooperate in areas of mutual concern regarding sustainable management and utilization of coastal resources. This voluntary commitment is formalized for a 12-month period, starting April 1, 2025, with provisions for review and renewal. This structure aims for 'Perpetuity', ensuring that the cleanliness of the beach is not a one-time event but a sustainable, long-term practice integrated into the hotels; daily operations. By leveraging the hotels' proximity to the beach and MEPA's regulatory expertise, these MOUs create a localized conservation model. It transforms a public resource into a shared asset, where a clean environment directly benefits the hotels; hospitality business while fulfilling MEPA's mandate to protect Sri Lanka's territorial waters.

Analysis and Findings

The Eastern Coastal Belt Cleaning Programme demonstrates many of the core characteristics of a PES mechanism, although it is not formally recognized as one. The programme reflects key PES principles, including voluntary participation, conditionality, and the provision of clearly defined ecosystem services. Private companies, hotels, banks, and insurance firms voluntarily contribute financial and in-kind support toward maintaining clean coastal environments, recognizing the direct economic and social benefits derived from healthy beaches and marine ecosystems. Coastal cleanliness serves as the primary ecosystem service, contributing to tourism attractiveness, ecosystem health, and public welfare.

A major strength of the programme is the institutional role of the MEPA, which acts as the coordinating intermediary among local authorities, private sector stakeholders, communities, and welfare beneficiaries. Through the legal provisions of the Marine Pollution Prevention Act, MEPA facilitates agreements, oversees implementation, and channels resources through mechanisms such as the Marine Environmental Fund. At the operational level, local authorities remain responsible for waste collection and sanitation, while communities and organized groups participate in cleanup and stewardship activities.

The programme also generates important socioeconomic benefits by providing supplementary income opportunities for vulnerable groups, including Samurdhi beneficiaries, while strengthening community ownership of coastal conservation. At the same time, private sector engagement through corporate social responsibility (CSR) initiatives helps integrate environmental management with business sustainability objectives.

The additional value of the programme lies not simply in conducting beach cleanups, but in creating a structured arrangement where beneficiaries of coastal ecosystem services contribute directly to conservation and maintenance activities. By linking tourism businesses, communities, and public institutions within a collaborative framework, the programme promotes environmental responsibility, local participation, and long-term stewardship of coastal resources.

Despite these strengths, the PES dimensions of the programme remain relatively informal and could be strengthened through further institutionalization and outcome-based approaches. Current interventions focus mainly on downstream cleanup activities, while limited attention is given to addressing upstream causes of pollution such as inefficient waste management, plastic use, recycling gaps, and behavioral issues.

Several improvements could enhance the long-term effectiveness of the programme. These include introducing performance-based incentives linked to measurable environmental outcomes, establishing a formal coastal conservation financing mechanism such as a tourism or hotel environmental levy, and strengthening monitoring, reporting, and verification (MRV) systems using standardized environmental indicators. Greater emphasis on preventive and circular economy approaches, including waste

segregation, recycling, plastic reduction, and public awareness, would further improve sustainability. In addition, clearer institutional coordination among MEPA, local authorities, tourism operators, private sector actors, and communities is needed to strengthen governance, accountability, and long-term implementation effectiveness.

Conclusion and Recommendations

The Eastern Coastal Belt Cleaning Programme demonstrates significant potential as a scalable PES model for coastal and marine conservation in Sri Lanka. Its greatest strength lies not simply in cleaning beaches, but in creating a collaborative governance mechanism that links ecosystem beneficiaries, service providers, and public institutions within a shared framework of environmental responsibility. If further strengthened through formal financing systems, performance-based incentives, stronger monitoring mechanisms, and preventive waste management strategies, the initiative could evolve into a more robust and replicable PES model capable of supporting coastal resilience, marine biodiversity conservation, tourism sustainability, and community well-being across Sri Lanka's coastal regions.

2.2.2. PES-Like Systems

PES-like systems incorporate several important PES principles but do not fully satisfy all the formal criteria of a conventional PES mechanism. These arrangements often involve voluntary participation, co-management structures, or incentive-based conservation activities with relatively weak or implicit conditionality. Payments or contributions may occur through unquantified in-kind support, subsidies, grants, or shared management responsibilities rather than direct performance-based transactions. In many cases, ecosystem services are recognized but not formally valued or measured. Although these systems may lack clearly defined buyers and sellers or legally binding agreements, they still function as important conservation financing and stewardship mechanisms that contribute to ecosystem protection and sustainable resource management[23]. A case on watershed protection in Kanneiya Conservation Forest is studied under this PES category.

[23] Muradian, R., Corbera, E., Pascual, U., Kosoy, N., & May, P. H. (2010). *Reconciling theory and practice: An alternative conceptual framework for understanding payments for environmental services*. *Ecological Economics, 69*(6), 1202–1208. https://doi.org/10.1016/j.ecolecon.2009.11.006

Watershed protection in Kanneliya Conservation Forest

Forest Department/Weerapana Water Supply Society and community
Com2P (Co-op)/P PES Case

Introduction

The Kanneliya Forest Reserve (part of the Kanneliya–Dediyagala–Nakiyadeniya complex), a biodiversity-rich lowland rainforest and UNESCO-recognized biosphere reserve that functions as a critical watershed for the Gin River which is covering about 932 km², lies predominantly within the Galle District (around 83% of the catchment) and serves as a major water resource in Sri Lanka's wet zone. This forest harbors high levels of endemic flora and fauna and plays a vital role in regulating streamflow, maintaining water quality, and sustaining downstream human and ecological systems. The local communities, particularly those in Weerapana village, depend heavily on Kanneliya forest for their domestic water needs. Relying on its springs and catchment functions for a continuous water supply.

The Weerapana Community Water Scheme is an emerging Com2P PES model where 150 local families pay a volumetric tariff (USD 2,500 annually) to manage forest-water infrastructure and support Kanneliya Forest Reserve catchment conservation.

The water supply system in Weerapana was established in 1998 under the Samurdhi Programme as a community-driven initiative aimed at improving access to safe drinking water. In its early stages, the system operated entirely on a collective management basis, relying on voluntary participation and shared responsibility, without any formal pricing structure or explicit incentives for conservation. While this approach fostered strong community ownership, several challenges gradually emerged.

The absence of metering led to excessive and unregulated water use, resulting in frequent shortages and inefficiencies in distribution. This also contributed to inequitable access among users, as some households consumed disproportionately higher amounts of water. In addition, the infrastructure, particularly the pipeline system began to deteriorate over time due to age and lack of systematic maintenance, further exacerbating water losses. Importantly, there were no formal mechanisms in place to link water use with the conservation of the forest catchment that sustains the supply, creating a gap between resource use and ecosystem stewardship. In response to these issues, elements of a PES approach began to emerge, as the community introduced user payments, improved governance, and adopted conservation-oriented practices. This evolving system reflects a shift towards a more structured and incentive-based model, offering a flexible and locally adapted alternative to conventional command-and-control regulatory approaches.

However, the sustainability of this critical ecosystem service is increasingly under pressure due to multiple interacting factors, including unregulated and often inefficient water extraction, leakage and deterioration of aging distribution infrastructure, and recurring localized drought conditions linked to climate variability. In addition, upstream land-use changes, encroachment risks at forest edges, and small-scale agricultural expansion contribute to catchment degradation and reduced water retention capacity. These pressures, combined with limited monitoring and enforcement of water use practices, pose significant challenges to the long-term resilience of the Kanneliya forest ecosystem and the water security of dependent communities.

The PES Project

The water supply system involves a range of actors who collectively contribute to the functioning and sustainability of what is increasingly evolving into a community-to-Public Cooperation/Public [(Com2P(Co-op)/P] PES arrangement. The primary service providers, or sellers, include the Forest Department Sri Lanka, which holds custodianship over the forest ecosystem, and the Weerapana Community Water Society, which plays a critical role in local-level management and stewardship of both the water infrastructure and the surrounding catchment. The main buyers, are the local households; currently targeting around 150 beneficiary families as well as religious institutions and community centers that rely on the system for their water needs. Supporting this arrangement is the Community Water Supply Department, which functions as an intermediary by providing technical assistance, infrastructure improvements, and institutional support.

The payment mechanism has gradually evolved into a structured system based on volumetric pricing, where users are charged according to their water consumption. The tariff is set at LKR 15 per unit for the initial consumption block and increases to LKR 20 per unit for higher usage, complemented by a monthly service fee of LKR 100. In addition, new users are required to make a substantial entry contribution of over LKR 30,000, reflecting both infrastructure costs and commitment to the system. All payments are cash-based and collected on a monthly basis, with funds allocated towards system maintenance, staff remuneration, administrative functions, and increasingly, conservation-related activities. Total annual value of the tariff is around USD 2500.

Governance of the system is undertaken by a formally registered community-based organization that operates under a constitution, conducts regular monthly meetings, and maintains transparent financial records. Although there are no legally binding PES contract, strong informal norms and community agreements underpin compliance and collective action. Land tenure is secure, as the forest remains under state ownership, but enforcement of conservation practices largely depends on social cohesion and local accountability mechanisms. The Weerapana community water society is considering explicitly incorporating` a PES component, linking user payments to ecosystem protection.

Monitoring and reporting are primarily carried out at the community level, focusing on multiple dimensions of performance. Inputs such as tree planting and maintenance activities are tracked alongside outputs including improved infrastructure functionality and reduced water losses. At the outcome level, indicators such as continuous water availability and sustained forest condition provide evidence of the system's effectiveness. However, external verification remains limited, indicating a need for more formalized monitoring frameworks.

Despite its strengths, the system faces several risks. Environmental challenges include the potential for over-extraction and vulnerability to drought conditions, while technical risks are associated with aging and frequently damaged pipeline infrastructure. Financial constraints limit the ability to undertake major upgrades, and the absence of formal contractual arrangements presents institutional vulnerabilities. Important lessons emerge from this case are strong community institutions are fundamental to success, pricing mechanisms play a key role in improving efficiency and equity, and importantly, informal community-managed systems can gradually evolve into structured PES models when supported by appropriate incentives and governance arrangements.

Analysis and Findings

The Weerapana water supply system demonstrates several key characteristics that align with standard PES qualification criteria, although some elements remain partially developed. Conditionality, which is central to PES, is present in an implicit form rather than through formal contractual arrangements. In practice, continued access to reliable water is closely tied to the community's commitment to protecting the forest catchment, creating a de facto condition that incentivizes conservation behavior, even in the absence of legally binding agreements. "Additionality" is moderate, as the introduction of user payments, improved governance, and heightened awareness has strengthened conservation practices beyond what might have occurred under a purely open-access system.

However, it is also likely that some level of conservation would have persisted due to the community's dependence on the resource. Leakage appears to be minimal, given that the community has limited reliance on alternative forest areas and demonstrates strong stewardship within the catchment. The permanence of ecosystem service delivery is assessed as moderate to high, supported by continuous water flow even during dry periods and sustained community engagement in protection activities, with the Forest Department although long-term sustainability will depend on infrastructure improvements and formalization of management systems. Cost-effectiveness is notably high, largely due to the reliance on community-based management, voluntary contributions, and relatively low administrative overheads compared to externally driven projects.

The above stated institutional arrangement reflects a hybrid governance model combining state ownership of forest resources with community-based management of water extraction services. However, the absence of formalized agreements between the Forest Department and the community-based management highlights a critical institutional gap that may affect long-term accountability and benefit-sharing mechanisms. To address these risks, several mitigation strategies are recommended, including the establishment of a dedicated maintenance fund, phased infrastructure rehabilitation, introduction of water-saving technologies, and formalization of conservation agreements with clear roles and responsibilities.

Conclusion & Recommendations

The Weerapana community water supply model demonstrates strong potential for replication across Sri Lanka, particularly in forest-dependent catchments where communities rely on ecosystem services for water supply. Similar approaches could be implemented in areas surrounding forest ecosystems such as the Kanneliya Forest Reserve, Sinharaja Forest Reserve, and Knuckles Mountain Range, where clear links exist between forest conservation and water security. The model highlights the importance of strong community institutions, basic water infrastructure, and public awareness of the ecological relationship between healthy catchments and reliable water supply. In its current form, however, the system functions mainly as a community-managed water supply scheme, where user payments primarily cover water delivery and operational costs rather than ecosystem conservation itself.

To evolve into a fully developed PES mechanism, the model would require the inclusion of a dedicated conservation component within the water tariff structure. Such a mechanism could directly finance activities including forest protection, reforestation, erosion control, riparian restoration, biodiversity monitoring, and sustainable watershed management in upper catchments. This would create a clearer financial connection between downstream water users and upstream ecosystem stewardship while improving both environmental and financial sustainability. Long-term scalability would further depend on supportive national policies, institutional coordination, monitoring systems, technical assistance, and diversified financing sources such as climate finance, ecotourism contributions, and watershed partnerships, especially the enabling environment to shift the practices of Forest Department. Overall, the Weerapana experience demonstrates how community-led institutions can integrate ecosystem conservation, water security, and rural livelihoods within an emerging locally driven PES framework.

2.2.3. Potential PES Systems

Potential PES systems refer to existing institutional arrangements, conservation partnerships, or financing mechanisms that possess the capacity to evolve into formal PES schemes if enabling conditions are established. These cases often involve identifiable ecosystem service providers and beneficiaries who already share mutual interests and long-standing collaborative relationships. However, they continue to operate primarily under voluntary corporate social responsibility (CSR) initiatives, informal agreements, or project-based conservation activities without clearly defined performance metrics or conditional payment systems. With appropriate legal frameworks, monitoring systems, stakeholder agreements, and valuation mechanisms, these initiatives could be transformed into structured PES arrangements. Watershed protection in the Kothmale Reservior has been disussed under this category.

Watershed Protection in the Kothmale Reservoir

The Mahaweli Authority of Sri Lanka and Mount Vernon Tea Estate and Upstream Community

P2Pvt Potential PES Case

Introduction

The Kothmale catchment in the central highlands of Sri Lanka is an ecologically significant and complex landscape shaped by diverse land uses and environmental conditions. Extending to about 500 meters above mean sea level under the expanded definition, it experiences a humid tropical climate with high rainfall for most of the year. Land use is highly heterogeneous, including tea plantations, intensive vegetable farming, fragmented forest patches, and human settlements. At its core lies the Kothmale Reservoir, a critical resource supporting hydropower generation, irrigation under the Mahaweli development scheme, and domestic water supply for downstream communities. The catchment provides essential ecosystem services; such as sediment control and water purification, and biodiversity. However, these services are increasingly threatened by human activities.

The MASL is developing PES model in the Kothmale catchment, providing technical inputs and future performance payments to Mount Vernon Tea Estate and upstream farmers to reduce.

Soil erosion from agriculture, heavy agrochemical use, and plastic waste accumulation in tributaries, unsustainable sand mining, and invasive species are degrading water quality and ecosystem health.

Management of the catchment is led by the Mahaweli Authority of Sri Lanka under the Mahaweli Authority Act, with a central role in water resource management and agricultural development. Despite this institutional framework, implementation gaps persist. Enforcement of riparian protection is weak, formal catchment protection mechanisms are limited, and systems for monitoring and valuing ecosystem services remain underdeveloped. Fragmented land ownership further complicates coordinated conservation efforts.

While MASL oversees reservoir management, upstream landholders particularly the Mount Vernon Tea Estate play a key role in maintaining ecosystem services. The estate manages extensive tea lands alongside about 200 hectares of High Conservation Value Forest and has adopted practices such as soil conservation, bamboo planting, and ecological restoration.

Growing environmental pressures and the limitations of existing regulatory approaches have prompted interest in introducing a PES mechanism in the Kothmale catchment. Increasing sedimentation and pollution threaten the reservoir's long-term viability, while past conservation efforts largely government-funded and regulatory have struggled to address diffuse impacts, especially on private lands. A major gap is the absence of incentives for landowners to adopt conservation practices. In this context, PES offers a promising alternative by encouraging voluntary participation, linking conservation actions with financial incentives, and providing greater flexibility than traditional command-and-control approaches.

The PES Project

The case involves multiple stakeholders with distinct but interconnected roles. On the demand side, key buyers of ecosystem services include the MASL of Sri Lanka, representing public sector interests. On the supply side, ecosystem service providers include private actors such as Mount Vernon Tea Estate and upstream farming communities. Their interaction reflects an emerging, though still informal, PES arrangement.

Currently, incentives are largely in-kind, including seedlings and technical support. For instance, the MASL through school nursery programs produces around 50,000 plants annually for reforestation through upstream community. The upstream community plants trees for reforestation and MASL buy the service by providing plants, and technical support. However, a more structured PES mechanism is being developed, combining cash and in-kind payments, potentially funded through government allocations. Payments may be annual or linked to performance indicators tied to ecosystem service outcomes.

This upstream–downstream dependency provides a strong basis for a public-to-private (P2Pvt) PES model, where MASL acts as the buyer on behalf of beneficiaries and compensates private land managers for maintaining watershed services. A formal program is being initiated for the Kothmale Reservoir, including draft agreements with upstream farmers and estates. Service providers would commit to sustainable land management, forest and water source protection, erosion control, and participation in monitoring, reporting, and verification (MRV). MASL, in turn, would provide technical guidance, oversee monitoring, and deliver incentives based on performance. The initial implementation period is planned for 24 months, with potential extension. There is also scope for greater involvement from downstream beneficiaries such as the water supply and electricity sectors.

While in-kind incentives have supported activities like reforestation, they are insufficient to drive sustained behavioral change, underscoring the need for performance-based payments. In this context, Mount Vernon Tea Estate stands out as a key service provider, already contributing to watershed protection through forest conservation, soil stabilization, and environmentally responsible practices. The estate has also indicated willingness to expand restoration efforts with adequate technical and material support.

A more formalized P2Pvt PES model is therefore envisaged, with MASL acting as both buyer and facilitator, channeling funds potentially supplemented by the treasury. Under this model, upstream farmers and estates would receive performance-based incentives for activities such as reforestation, riparian restoration, and soil conservation, ultimately enhancing water quality and reducing sedimentation in the reservoir.

Analysis and Findings

The assessment of the Kothmale case against standard PES criteria highlights both strengths and limitations. A key weakness is conditionality, which remains poorly developed. Current incentives mainly provided through programs led by the MASL are largely input-based and not clearly tied to measurable outcomes such as reduced sedimentation or improved water quality in the Kothmale Reservoir. This limits accountability and effectiveness. In addition, the presence of multiple actors within the catchment makes it difficult to isolate the specific contribution of individual providers, underscoring the need for agreed monitoring points and clearer attribution methods.

Additionality is moderate. Some conservation actions, particularly by Mount Vernon Tea Estate, would likely occur even without PES due to existing sustainability practices. However, PES could help expand these efforts, especially in degraded areas. Leakage is also a concern, as restricting harmful activities in one location may shift them elsewhere in the catchment where oversight is weaker.

Permanence of ecosystem service delivery is uncertain and depends heavily on continued government funding. The limited involvement of other key stakeholders, such as the National Water Supply and Drainage Board and the Ceylon Electricity Board, is a notable gap. As revenue-generating state entities that benefit directly from the reservoir, their participation could strengthen financial sustainability. Without a stable and diversified funding mechanism, long-term conservation outcomes remain at risk.

Conclusion and Recommendations

The Kothmale catchment case highlights strong potential for scaling up PES across similar environmental settings in Sri Lanka. The approach is particularly relevant to other catchments within the Mahaweli system and reservoir-based ecosystems, where upstream land use directly affects downstream water quality and hydrological functions. However, successful replication depends on key enabling conditions: a clear and coherent PES policy framework especially where public institutions are involved sustainable and diversified financing sources, and robust monitoring systems that link payments to measurable environmental outcomes.

The collaboration between the MASL, Mount Vernon Tea Estate, and upstream farming communities illustrates a shift toward a private-to-public PES model, where private land management aligns with public environmental goals. It underscores the role of upstream landholders as key providers of watershed services and the capacity of public institutions to act as both buyers and facilitators in such systems.

2.3. Ancestral Reciprocity Frameworks of PES in Sri Lanka (Proto-PES)

Introduction

The traditional resource management systems in Sri Lanka reflect Proto-PES through reciprocal arrangements, collective action, and customary governance rather than monetary payments[24],[25]. The practices represent hybrid, non-monetary PES-like systems where conservation incentives are embedded in social norms, collective responsibility, and customary institutions rather than formal monetary payments[26]. Such PES schemes increasingly adopt co-management approaches, wherein responsibilities for ecosystem stewardship are shared among communities, government agencies, and private sector actors. Rather than relying on a single authority, these collaborative arrangements combine local knowledge, regulatory oversight, and financial or technical resources to improve both efficiency and legitimacy in conservation efforts. This co-management framework often generates multiple co-benefits beyond the primary ecosystem service being targeted. Additionally, by actively involving communities in decision-making and implementation, PES schemes can foster a sense of ownership and long-term stewardship, ultimately contributing to more sustainable and equitable conservation outcomes[27],[28].

In the Sri Lankan context, proto-PES is strongly rooted in indigenous resource management traditions such as the Tank Cascade System (Wew and Yaya system), village-level irrigation governance structures, and forest-edge resource sharing arrangements. Within these systems, key ecological functions including water regulation, soil conservation, hydrological stability, and biodiversity protection are maintained through socially enforced rules, culturally embedded norms, and inter-generational transmission of ecological knowledge.

Key traditional practices such as Shramadana (communal voluntary labour for the maintenance of tanks, canals, and catchments), the Bethma system (temporary equitable redistribution of irrigated land during periods of water scarcity), and the historical roles of village-level custodianship institutions such as the Gamarala and Welvidane represent early institutionalized forms of ecosystem service stewardship. Collectively, these systems demonstrate that environmental governance in Sri Lanka has historically been sustained through culturally embedded socio-ecological institutions that explicitly link human well-being with ecosystem integrity. Within this conceptual framework, proto-PES functions as a bridging mechanism between indigenous commons-based governance systems and emerging market-oriented PES frameworks, thereby reinforcing the continued relevance of traditional ecological knowledge in contemporary environmental governance discourse.

Proto-PES Examples in Sri Lanka

- A prominent example is the role of the Gamarala (village headman) in traditional Chena cultivation systems, where land allocation, shifting cultivation cycles, and fallow management were historically regulated through customary authority structures. The Gamarala played a critical role in coordinating cultivation timing, preventing excessive forest land conversion, and maintaining ecological stability by ensuring that shifting cultivation followed agreed rotational cycles that allowed sufficient regeneration of vegetation and restoration of soil fertility.

[24] Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press.

[25] Berkes, F. (2012). *Sacred ecology* (3rd Ed.). Routledge.

[26] Panabokke, C. R. (2009). *Small tank systems in Sri Lanka: Evolution, present status, and issues*. International Water Management Institute (IWMI).

[27] Food and Agriculture Organization of the United Nations (FAO). (2020). *Payments for ecosystem services and sustainable agriculture*. FAO.

[28] World Bank. (2021a). *The changing wealth of nations 2021: Managing assets for the future*.

- Another significant proto-PES dimension is evident in the ethical framework governing water management in village irrigation systems, particularly within Sri Lanka's tank-based agrarian landscapes. Water distribution was historically governed by strong moral and social norms emphasizing fairness, restraint, collective responsibility, and non-wasteful use, reflecting an implicit recognition of water as a shared ecosystem service rather than an individual economic commodity.

- Within traditional village tanks (wewa), water use was also spatially and functionally differentiated to ensure hygienic use, efficiency, and ecological protection. Distinct access zones were demarcated for specific purposes, including protected draw-off points for domestic drinking water, separate designated areas for bathing and washing, and clearly defined zones for livestock watering and bathing. This structured spatial zoning minimized contamination risks, reduced user conflicts, and maintained overall water quality within the tank ecosystem, reflecting a highly sophisticated form of indigenous water governance.

- Similarly, the practice of "Kurulu Paluwa" in traditional paddy cultivation represents a culturally embedded conservation ethic within Sri Lanka's agrarian systems. Under this practice, a portion of the paddy field was deliberately left unharvested and reserved for birds (kurullo). This practice was not simply tolerant coexistence but a deliberately recognized ecological strategy acknowledging the functional role of avifauna in agro-ecosystem regulation. Birds contributed to natural pest control through insect predation, supported seed dispersal processes, and enhanced overall biodiversity within cultivated landscapes. In return, farmers experienced indirect benefits such as reduced pest pressure and improved ecological resilience of paddy systems. This practice therefore represents an early form of ecosystem service co-management, where ecological functions such as pest regulation and biodiversity maintenance were ensured through customary norms, ethical stewardship, and reciprocal human–nature relationships rather than external financial incentives or formal regulatory frameworks. It illustrates how traditional Sri Lankan farming systems systematically integrated agricultural productivity with ecological sustainability through embedded conservation principles in everyday decision-making.

- The Kandyan Home Garden system represents a traditional proto-Payment for Ecosystem Services (PES) and community-based ecosystem co-management system in Sri Lanka. Predominantly found in the central highlands, these multi-strata agroforestry systems integrate trees, crops, medicinal plants, and livestock within small landholdings, generating important ecosystem services such as biodiversity conservation, soil fertility enhancement, carbon sequestration, microclimate regulation, and sustainable food and fuel production. The integration of diverse plant species reflects strong traditional ecological knowledge, efficient resource use, and long-term household stewardship. Although the system does not involve formal financial compensation for ecosystem services, it functions as a self-sustaining proto-PES mechanism where conservation is driven by livelihood security, cultural values, intergenerational knowledge transfer, and risk diversification. Households serve as custodians of ecosystem health while maintaining resilient socio-ecological systems that balance production and conservation through indigenous ecological practices and sustainable land management.

- The Veddah's (forest-dwelling indigenous people) indigenous knowledge system of forest resource use, particularly hunting practices, further reflects proto-PES characteristics through territorial stewardship systems, seasonal restrictions, selective harvesting practices, and ritual-based ethical norms governing resource extraction. Forest areas were traditionally managed through customary boundaries and culturally reinforced rules that regulated extraction intensity and ensured the long-term sustainability of wildlife populations and forest ecosystems. In addition to hunting practices, the collection of timber and non-timber forest products (NTFPs) in traditional Sri Lankan society also exhibits proto-PES characteristics. Communities historically harvested timber, fuelwood, medicinal plants, fruits, resins, honey, and other forest products under customary access regimes and informal

governance arrangements that regulated harvesting quantity, timing, and extraction methods. Sacred groves, village forests, and buffer forest zones were often governed by cultural taboos and community enforcement mechanisms that restricted overexploitation and protected regenerating forest patches. In many instances, resource extraction was guided by principles of necessity, restraint, and reciprocity, where harvesting was carefully balanced with natural regeneration cycles. This ensured the long-term availability of ecosystem services such as forest regeneration, watershed protection, and biodiversity conservation. Collectively, these indigenous systems demonstrate that Sri Lanka's rural landscapes have historically operated under informal yet highly structured ecological governance systems, where ecosystem services including water regulation, soil fertility maintenance, and biodiversity conservation were sustained through socially enforced norms, ethical obligations, and culturally transmitted ecological knowledge. These systems represent foundational proto-PES mechanisms that predate modern environmental economics and reflect the deep historical integration of ecological sustainability within Sri Lanka's agricultural and governance traditions.

Analysis and Findings

The analysis of proto-PES systems in Sri Lanka reveals that these arrangements are fundamentally embedded within socio-cultural, institutional, and customary governance systems, rather than being driven by explicit market transactions or formalized payment structures. Across a wide range of contexts including tank cascade irrigation systems, Chena cultivation practices, home garden agroforestry systems, paddy farming traditions, and forest resource use systems, ecosystem service management is predominantly maintained through norm-based regulation, ethical obligations, and collective stewardship mechanisms. These systems demonstrate that environmental governance in Sri Lanka has historically functioned as an integrated socio-ecological process in which human well-being and ecosystem integrity are closely interdependent and mutually reinforcing through culturally transmitted knowledge systems.

A key finding is that proto-PES systems are most effective in contexts where strong traditional institutions and high levels of social cohesion exist, particularly through roles such as the Gamarala and Welvidane, customary water ethics within tank-based irrigation systems, and communal labour arrangements such as Shramadana. These institutions function as informal enforcement mechanisms that regulate resource use, minimize conflicts, and ensure equitable access to ecosystem services. The existence of clearly defined social norms such as spatial zoning of water use in village tanks and customary restrictions governing forest extraction indicates a high degree of ecological sophistication embedded within traditional governance structures.

Another important finding is that proto-PES systems operate predominantly through non-monetary incentive structures, where conservation outcomes are achieved through livelihood security, reciprocity, cultural values, and inter-generational responsibility. Practices such as Kurulu Paluwa in paddy cultivation and biodiversity-friendly management of Kandyan home gardens demonstrate that ecosystem services, including pest regulation, soil fertility maintenance, and microclimate stabilization are sustained without direct financial compensation. Similarly, Veddah's territorial stewardship and regulated NTFP extraction reflect conservation incentives grounded in necessity, restraint, and cultural ethics rather than market-based valuation mechanisms.

Proto-PES systems such as the cascade tank systems in Sri Lanka represent socio-ecological arrangements where ecosystem stewardship and reciprocal benefits already exist informally, even though direct cash payments are absent. Therefore, if such systems are to evolve into formal PES mechanisms, the objective would not necessarily be to commodify existing community relations, but to support and reinforce sustainable management practices while preserving social cohesion and traditional governance structures.

In the context of cascade systems, the likely "buyers" would include downstream water users, irrigation beneficiaries, tourism actors, government agencies, or climate finance mechanisms that benefit from maintained ecosystem services. The "sellers" would not necessarily be individuals acting in isolation, but rather farmer organizations, local communities, tank user associations, or custodial groups whose land and water management practices sustain those ecosystem services.

Importantly, incentives in such systems need not be limited to direct cash transfers. Given the sensitivity of altering long-standing communal arrangements, PES incentives could include:

- Support for restoration activities,
- Improved irrigation infrastructure,
- Access to agricultural extension services,
- Preferential access to credit or markets,
- Community development investments,
- Tenure security,
- Climate adaptation assistance, or
- Performance-based community grants.

Such non-cash or collective incentives may be more socially acceptable and better aligned with existing reciprocal traditions within cascade systems. Therefore, the evolution toward PES in Sri Lanka may be more appropriate through hybrid or "PES-like" models that complement rather than disrupt customary socio-ecological governance arrangements.

The analysis also identifies important limitations that constrain the scalability of these systems in contemporary policy contexts. Although proto-PES arrangements are highly effective at local levels, they often lack formal institutional recognition, standardized monitoring systems, and financial sustainability mechanisms. Furthermore, as traditional governance structures weaken due to socio-economic transformation, urbanization, and institutional change, the effectiveness of customary enforcement mechanisms is progressively diminishing. This creates significant challenges for maintaining ecosystem service integrity under increasing resource pressures and external market influences.

The findings indicate that Sri Lanka's proto-PES systems constitute a critical foundational base for modern PES development, offering valuable insights into low-cost, socially embedded, and ecologically effective governance mechanisms. These systems highlight the importance of integrating traditional ecological knowledge with contemporary policy instruments, particularly in designing PES frameworks that are socially legitimate, institutionally feasible, and ecologically resilient. There is also a risk that monetary based instruments could undermine the foundations of proto-PES, which are rooted in social norms and traditional practices often expressed through rituals. However, knowledge of proto-PES can be leveraged to design and strengthen formal PES arrangements, ensuring that cultural values are integrated into economic mechanisms.

Conclusions and Recommendations

Sri Lanka's proto-PES systems demonstrate that ecosystem service governance has historically been embedded within indigenous knowledge systems, customary institutional arrangements, and culturally reinforced social norms, rather than formal market-based or monetary compensation mechanisms. Across diverse ecological and agricultural landscapes including tank cascade systems, Chena cultivation areas, paddy farming systems, Kandyan home gardens, and forest resource use regimes, ecosystem services such as water regulation, soil fertility maintenance, biodiversity conservation, and climate regulation have been sustained through collective stewardship, ethical resource governance, and inter-generational knowledge transmission.

A key conclusion is that proto-PES arrangements remain effective because they are supported by strong customary governance structures and culturally embedded enforcement systems, including the roles of the Gamarala and Welvidane, communal labour practices such as Shramadana, and moral codes governing water use and forest resource extraction. Practices such as Bethma, Kurulu Paluwa, and regulated NTFP harvesting further demonstrate that conservation outcomes can be achieved through reciprocity, restraint, and shared responsibility rather than external financial incentives.

However, a critical observation is that many of these traditional systems are increasingly under pressure due to socio-economic transformation, weakening of customary authority, land-use change, and declining transmission of traditional ecological knowledge. Consequently, informal enforcement mechanisms that historically ensured sustainable resource use are gradually eroding, resulting in increased ecological stress and reduced resilience of traditional governance systems.

In response to these challenges, it is recommended that Sri Lanka's proto-PES systems be formally recognized and strategically integrated into modern environmental governance frameworks rather than replaced or marginalized. Strengthening hybrid governance models that combine traditional ecological knowledge with formal PES mechanisms can enhance ecological effectiveness, institutional legitimacy, and social acceptance. Policy interventions should prioritize documentation, revitalization, and institutional strengthening of traditional practices, while also enabling their adaptation to contemporary environmental and socio-economic contexts. Additionally, embedding cultural values and customary norms into PES design can reduce implementation costs and improve long-term sustainability.

2.4. Cross-Case Lessons from Existing PES Initiatives

The case studies in this Guidebook demonstrate that Sri Lanka has entered an important transitional phase in the development of PES, with several pilot initiatives already incorporating key PES principles through ecosystem restoration, watershed protection, pollution control, biodiversity conservation, and community-based stewardship. Most initiatives focus on maintaining critical ecosystem services such as water purification, sediment control, catchment stabilization, and biodiversity conservation across plantation landscapes, forest catchments, coastal ecosystems, and marine environments.

Several important lessons emerge from these initiatives. First, watershed and plantation landscapes provide strong entry points for PES implementation because ecosystem services such as water regulation, erosion control, and biodiversity conservation are directly linked to economic productivity and local livelihoods. Second, active community participation is essential for long-term sustainability, as successful programmes rely heavily on local involvement in restoration, monitoring, pollution control, and ecosystem management activities. Furthermore, the studies reveal that ecosystem services remain significantly undervalued in Sri Lanka despite their critical contribution to water security, agriculture, tourism, and climate resilience. At the same time, limited formal engagement of government conservation agencies and the absence of a dedicated national PES policy framework remain major constraints to institutionalizing and scaling PES mechanisms nationally.

One of the most innovative lessons emerging from the plantation sector is the development of "user-financed" and "labor-as-payment" models. In cases such as Great Western, local communities and estate workers contribute labor as a form of conservation investment, demonstrating that PES can function effectively even in low-income contexts where cash payments may be limited. These approaches strengthen community ownership while simultaneously supporting environmental conservation and livelihood development. Similarly, the Pekoe Trail initiative demonstrates how branding, ecotourism, and global market recognition can create incentives for private sector participation beyond regulatory compliance by linking environmental stewardship with reputational and economic value.

The case studies also reveal several PES implementation models with strong scaling potential in Sri Lanka. Public-to-Public (P2P) models are particularly relevant for watershed management, forest protection, and climate adaptation programmes but remain constrained by limited public financing and administrative regulations. Public-to-Private (P2Pvt) arrangements involving plantation companies, tourism operators, and hydropower developers show significant potential because they directly connect ecosystem conservation with business sustainability and green branding opportunities. Private-to-Community and Private-to-Private models are already functioning through voluntary partnerships that support forest restoration, coral reef conservation, ecotourism, and local stewardship initiatives. Community-led approaches also demonstrate strong potential due to their integration of local ecological knowledge and collective resource management practices, although expansion is often constrained by limited technical and financial capacity.

Across the case studies, the core pillars of PES are gradually becoming more visible and operationalized. Sellers of ecosystem services include state agencies, plantation companies, local communities, and community organizations that actively manage landscapes and ecosystem functions. Buyers increasingly extend beyond government institutions to include private companies, tourism operators, hydropower producers, local households, and community-based organizations that directly benefit from ecosystem services. Payments vary considerably, ranging from direct cash transfers and wages to in-kind labor contributions, marketing support, and conservation investments. This reliance on non-monetary or hybrid payment systems reflects Sri Lanka's socioeconomic context and has proven important for increasing community participation in conservation activities.

Most PES initiatives currently focus on hydrological services such as water regulation, purification, and sediment control, which are critical for domestic water supply, hydropower generation, and plantation agriculture. However, some cases have expanded to include ecosystem services such as landscape aesthetics, tourism value, marine biodiversity conservation, and coastal protection. Increasingly, conservation outcomes are being linked to measurable ecosystem indicators through monitoring systems, conditional agreements, and tools such as Natural Capital Ledgers. Recent Memoranda of Agreement (MOAs) introduced in several pilot cases represent important progress toward formalizing conditionality, accountability, and performance-based conservation financing.

Finally, stakeholder perception, trust, and long-term sustainability remain central to the success of PES in Sri Lanka. Community-based models demonstrate that strong local trust and shared recognition of ecosystem dependence can significantly strengthen stewardship and compliance. However, long-term sustainability will require PES systems to move beyond short-term pilot projects and become integrated within national environmental policy, financing systems, and development planning frameworks. Establishing self-sustaining financing mechanisms, strengthening scientific monitoring, and maintaining collaborative partnerships among communities, government agencies, and the private sector will be critical for transforming Sri Lanka's natural capital into a resilient and sustainable economic asset for future generations.

Table 3 summarizes the cross-case lessons learned from the selected case studies, highlighting the roles of buyers and sellers, their involvement in ecosystem maintenance, and the expected improvements under each PES arrangement. Table 04 summarizes the financial aspects and socioeconomic engagement associated with the cases. The total annual value of the studied cases is estimated at USD 42,500-43,100, demonstrating strong potential for replication and expansion into similar initiatives. Altogether, the activities involve approximately 2,934 people and cover more than 363 ha of land. Although the exact proportion of female participation is not available, it is estimated that women represent more than 60% of the total participants.

All case studies demonstrate considerable potential for scaling up, provided that the identified gaps and constraints are adequately addressed. Among them, the Kothmale Reservoir catchment protection initiative shows moderate scaling potential, primarily because it involves government entities that require stronger policy and regulatory support at the national level. With appropriate policy frameworks and institutional mechanisms enabling government agencies to formally engage in PES arrangements, there would be substantial opportunities to establish and replicate PES models involving public sector participation.

Among the sectors examined, the tea and plantation sector offers one of the strongest opportunities for PES expansion in Sri Lanka. Plantation landscapes overlap with critical watersheds and biodiversity-rich ecosystems, while international tea markets increasingly value sustainability certification and environmentally responsible production systems. Ecosystem conservation within plantation landscapes can therefore contribute simultaneously to biodiversity protection, water security, climate resilience, and export competitiveness.

The tourism sector also provides significant opportunities for PES development. Nature-based tourism in forests, wetlands, marine protected areas, and mountain ecosystems can generate conservation financing through visitor fees, ecotourism partnerships, and community-managed tourism enterprises. Similarly, the hydropower and water resource sectors could support upstream watershed conservation through payment systems that recognize the importance of healthy catchments for water supply and energy production. Coastal and marine ecosystems, including mangroves and coral reefs, also offer growing opportunities for PES through blue carbon financing and coastal climate resilience programmes.

Following sectors could be identified for scaling up PES in Sri Lanka:

- **Plantation sector** – With its well-structured corporate entities and established management culture, plantations provide an organized framework for implementing PES schemes.
- **Hydropower and drinking water sector** – Rising demand coupled with increasing scarcity of water resources creates strong incentives for PES mechanisms to secure watershed protection and sustainable supply.
- **Tourism sector** – Given its heavy reliance on healthy ecosystems and the financial capacity of tourism operators and visitors to contribute, this sector offers significant potential for PES-based conservation financing.

Table 3: Comparative analysis table of PES case studies

No.	Case Study	Ecosystem Service	Buyer	Seller	Key Activities Implemented	Ecosystem Improvements
1	Pekoe Pact for Conservation of the Ceylon's Living Buffer	Cultural and aesthetic services such as scenic beauty, recreational value and biodiversity	Pekoe Trail Company	Talawakelle Tea Estates PLC	Maintenance of wildlife habitats and aesthetic value of estate landscapes through the regulation of human interventions and sustainable estate management practices	Pollution-free habitats and enhanced biodiversity conservation
2	The Dell Mountain Flow, Babarakele Estate: A Blueprint for Watershed Stewardship	Watershed protection/Hydropower/ water for domestic use	Horana Plantations PLC	Bambarakelle Estate (Natural Capital Mgr)	Protection of watershed catchment functions by controlling unsustainable human activities and reducing pressure on natural resources	Improved catchment condition, biodiversity conservation, and continuous discharge of clean water
3	Transforming Estate Land into Functional Ecosystem Buffers, Great Western Estate, Thalawakele	Watershed protection/Water for domestic use	Estate Worker Housing Coop (EWHCS)	Talawakelle Tea Estates PLC	Prevention of downstream sedimentation and water pollution through sustainable land management (SLM), soil erosion control, riparian forest restoration, and establishment of chemical-free zones within plantation landscapes	Catchment rehabilitation, riparian habitat restoration, erosion control, biodiversity enhancement, and sustained water flow
4	Eastern Coastal Belt Cleaning Programme, Nilaweli Beach, Trinkolalee	Coastal Cleanliness/ Aesthatic/Marine biodiversity	Banks, Insurance, Hoteliers	Local Communities (Samurdhi) / MEPA	Maintenance of pollution- and garbage-free coastal zones to support marine and coastal ecosystems	Coastal and marine biodiversity conservation
5	Weerapana community water project, Kanneliya Conservation Forest	Watershed protection/Water for domestic use	Local Households	Community Water Society / Forest Dept	Community participation in reforestation, forest fire control, monitoring illegal logging, forest clearing, poaching, and mining activities	Catchment protection, biodiversity conservation, and sustained clean water discharge
6	Kothmale Reservior watershed and Catchment Protection	Watershed protection/erosion control	Mahaweli Authority (MASL)	Mount Vernon Tea Estate	Establishment of community-based forest nurseries, reforestation programmes, and sustainable land management practices	Soil erosion control, riparian habitat restoration, and improved watershed stability

Table 4: Finance and biodiversity aspects of PES cases

No.	Case Study	Annual PES Value (~USD)	Area Protected	People Involved	Legal / Formal Agreement	M&E / Conditionality	Gender & Social Inclusion	Scalingup potential
1	Pekoe Pact for Conservation of the Ceylon's Living Buffer	11000 (In-kind (Marketing) + 20% bonus)	210ha (200mX 10500m)	20 (Estimated for track maintenance and service provider)	MOA (Jan 2026)	Science-led; UNDP BIOFIN framework	High; Community Stewardship	High
2	The Dell Mountain Flow, Babarakele Estate: A Blueprint for Watershed Stewardship	3200 (Annual + 20% performance bonus)	1ha Tank and 20ha (Estimated) tank reservation	1,500 Resident estate community	MOA (Feb 2026)	Strong; Natural Capital Ledger, UNDP BIOFIN framework	High; "Green Jobs" for women	High
3	Transforming Estate Land into Functional Ecosystem Buffers, Great Western Estate, Thalawakele	2000 – 2400 (250 man-days)	80ha	1,214 Resident Estate community	MOA (Jan 2026)	Performance-based; Success Survival Rate, UNDP BIOFIN framework	Explicit; tracks female labor %	High
4	Eastern Coastal Belt Cleaning Programme, Nilaweli Beach, Trinkolalee	4500 (In-kind/Welfare transfers)	2+ha	4	MOUs signed April 2025	Periodic assessment by MEPA	High (Samurdhi beneficiaries)	High
5	Weerapana community water project, Kanneliya Conservation Forest	2500-3000 (Volumetric pricing)	No data	750 (Estimated 5 X150 families)	Community Constitution	Moderate; community-led tracking	High community engagement	High
6	Kothmale Reservior watershed and Catchment Protection	19,000 (Seedlings and Technical aid)	50ha (Estimated 100mX5000 riparian area)	100 (Estimated number of upstreem farmers)	No formal PES contract	Weak; input-based (plants given)	Not specified	Medium

3. PES Enabling Environment in Sri Lanka

Based on key informant interviews (KIIs), Case studies and a review of the available literature, this chapter presents an overview of the enabling environment for PES in Sri Lanka. It also explores the key requirements for scaling or strengthening the PES in the country.

Sri Lankan Journey of PES

Sri Lanka's PES landscape is currently evolving through a gradual transition from traditional Corporate Social Responsibility (CSR) approaches toward more structured and performance-oriented ecosystem financing mechanisms. Earlier, environmental initiatives were largely driven by CSR, where companies provided voluntary and often one-time support for conservation activities without linking contributions to measurable environmental outcomes. Over time, many of these initiatives evolved into PES-like arrangements that introduced reciprocal stewardship, community participation, and in-kind contributions based on trust, shared responsibility, and observed conservation efforts. Although these systems often lack formal monitoring and legally binding conditionality, they already reflect several core PES principles.

The next stage of evolution is the emergence of more formal PES mechanisms, where payments or incentives are directly linked to verified ecological outcomes such as improved water quality, reduced sedimentation, habitat restoration, or biodiversity enhancement. Recent pilot initiatives supported by monitoring tools such as Natural Capital Ledgers and performance verification systems demonstrate this shift toward conditionality and accountability, where the principle of "no service, no pay" increasingly guides conservation financing.

Despite the absence of a dedicated PES law, Sri Lanka already possesses several proto-PES and PES-like systems embedded within existing conservation and resource management practices including wildlife tourism revenues, community-based natural resource management systems, watershed partnerships, and ecotourism initiatives which already create indirect links between ecosystem use and conservation financing. Traditional resource stewardship systems and community conservation practices further demonstrate that informal and culturally-embedded environmental stewardship mechanisms have long existed within the country.

However, the transition toward fully structured PES systems remains constrained by limited knowledge, weak institutional coordination, lack of monitoring frameworks, unclear property rights, and the absence of national policy guidance. In many cases, private sector contributions continue to be framed primarily as CSR rather than conditional ecosystem payments, while government agencies often focus on conservation activities rather than measurable ecosystem service outcomes. In addition, uncertainty remains regarding how PES-related investments would be treated under existing tax regulations, particularly if CSR-based initiatives, which are tax exempt are converted into formal PES arrangements. Sri Lanka is currently in a transitional phase where hybrid PES models are emerging across multiple sectors. Strengthening awareness, institutional capacity, legal guidance, and ecosystem monitoring systems will be essential for transforming these fragmented and largely voluntary initiatives into a more structured, scalable, and nationally recognized PES framework.

Existing Legal Framework that can Support PES

Sri Lanka does not yet have a dedicated legal instrument specifically governing PES. Nevertheless, the country possesses a comprehensive environmental legal framework that provides a strong foundation for the future development and institutionalization of PES mechanisms. Key legislation, including the Fauna and Flora Protection Ordinance, Forest Ordinance, Coast Conservation and Coastal Resource Management Act, National Environmental Act, Marine Environment Protection Act, and various Local Authority Acts, collectively regulate the conservation, management, and sustainable use of natural resources and ecosystems. These legal instruments establish state custodianship over natural resources while providing regulatory mechanisms such as Environmental Impact Assessments (EIA), Initial Environmental Examinations (IEE), Environmental Protection Licenses (EPL), and pollution-related levies to manage environmental impacts and resource use.

These mechanisms are further reinforced by the Constitution of Sri Lanka. Article 27 recognizes the State's responsibility to protect, preserve, and improve the environment for the benefit of the community, while Article 28(f) establishes a fundamental duty for every citizen to protect nature and conserve its resources. Together, these constitutional and legal provisions already reflect important environmental governance principles, particularly the "polluter pays" principle, through licensing systems, environmental taxes, and compliance requirements imposed on resource users. Existing financial mechanisms, such as conservation funds established under wildlife and environmental legislation, also demonstrate that legal pathways for channeling financial resources toward environmental management already exist within the country's governance framework.

Despite this strong institutional and legal base, the "beneficiary pays" principle that underpins PES has not yet been formally recognized or operationalized in Sri Lanka. Though the ecosystem services generate substantial economic and social benefits, these services remain largely unpriced and uncompensated within formal economic systems. Existing PES-like arrangements remain fragmented and indirect. For example, entrance fees collected by the Department of Wildlife Conservation are reinvested into protected area management through conservation funds, thereby linking ecosystem use with conservation financing. However, such systems do not function as formal PES arrangements because they lack explicit ecosystem service valuation, contractual agreements, conditional payments, and clearly defined buyer-seller relationships.

Encouragingly, recent policy developments indicate growing national interest in formalizing PES within Sri Lanka's environmental governance system. The Ministry of Environment, with support from UNDP-BIOFIN, has initiated efforts to develop PES-related guidelines and regulatory frameworks through a dedicated Technical Committee. Broader policy instruments, including the National Environmental Policy (2022) and the National Climate Change Policy (2023), also provide indirect support by promoting sustainable resource management, climate resilience, ecosystem restoration, and incentive-based conservation approaches. These developments signal a gradual transition toward recognizing PES as a viable mechanism for mobilizing sustainable financing for biodiversity conservation and ecosystem management.

With guidance from UNDP, several existing PES pilot initiatives in Sri Lanka have developed Memoranda of Understanding (MOUs) to formalize voluntary agreements among participating parties. These MOUs provide an important operational and institutional foundation for PES implementation by clearly outlining mutual responsibilities, conservation commitments, and financial or in-kind transfers between ecosystem service providers and beneficiaries. Their main strength lies in the fact that all parties enter the arrangement voluntarily and collaboratively, helping build trust and shared ownership of conservation outcomes. However, since these agreements primarily function as instruments of mutual understanding rather than legally binding contracts, their enforceability in court may be limited. To strengthen legal recognition and improve accountability, future PES agreements could be formally reviewed, witnessed, or endorsed through legal professionals or notarized contractual arrangements while still maintaining the voluntary nature of participation. However, the PES policy are in place, these instruments would fall under a legal framework.

With support from UNDP-BIOFIN, Sri Lanka has already drafted a national PES Policy aimed at establishing PES as a nationally recognized mechanism for mobilizing additional resources for biodiversity conservation and ecosystem management while supporting ecological integrity, social equity, and national development priorities. The draft policy is guided by core principles intended to ensure transparency, fairness, environmental credibility, and alignment with both national environmental goals and international.

Enabling Environment PES in Sri Lanka

Although PES is fundamentally based on voluntary participation, its effective implementation in Sri Lanka requires coordinated legal, institutional, and operational reforms that build upon existing environmental governance systems. A national PES framework is needed to provide policy clarity, define stakeholder roles, and formally recognize the "beneficiary pays" principle alongside existing environmental regulations. Integrating ecosystem service valuation into EIA and IEE processes would help mainstream PES within environmental decision-making by identifying ecosystem beneficiaries, impacts, and appropriate compensation mechanisms.

Institutionally, establishing a centralized PES authority or intermediary mechanism could improve coordination, manage dedicated PES funds, facilitate stakeholder agreements, and ensure transparent allocation of resources. Structured agreements among ecosystem service providers, beneficiaries, and intermediary bodies should clearly define responsibilities, payment mechanisms, and performance indicators. Given Sri Lanka's socioeconomic context, PES systems should also recognize in-kind and community-based contributions such as provision of labor and stewardship activities, to ensure greater inclusivity and local participation.

Strengthening monitoring, reporting, and verification systems is essential to support performance-based payments and build stakeholder trust. At the same time, greater private sector participation can be encouraged through incentives such as tax benefits, sustainability certification, and public recognition, particularly in sectors such as tourism, agriculture, energy, and plantations. Awareness creation and capacity building among policymakers, communities, and private actors are equally important to improve understanding of ecosystem services and PES benefits.

Sri Lanka can further scale PES by utilizing existing conservation funds, environmental levies, and hybrid financing models that combine public and private contributions. Emerging mechanisms such as the Canopy Fund could serve as important platforms for future PES financing if supported by clear operational and disbursement guidelines. Overall, Sri Lanka already possesses a strong legal and institutional foundation for PES development. With targeted reforms, improved coordination, and context-specific approaches that recognize traditional practices and equitable benefit-sharing, PES has significant potential to become a practical tool for biodiversity conservation, climate resilience, and sustainable development in the country.

Replication Lessons for Other Countries

Sri Lanka's emerging PES experience provides several valuable lessons for other countries seeking to develop ecosystem-based conservation financing mechanisms.

The UNDP BIOFIN, has played a significant role in advancing the development and recognition of PES in Sri Lanka as part of broader efforts to strengthen biodiversity financing and sustainable ecosystem management. Under the BIOFIN programme, UNDP has supported policy analysis, stakeholder consultations, biodiversity finance assessments, and the identification of innovative financing solutions to address national conservation funding gaps. A key contribution has been facilitating the development and documentation of PES and PES-like case studies that involve plantation landscapes, watershed management, tourism, coastal conservation, and community-based natural resource management. UNDP BIOFIN has also provided technical guidance for developing monitoring frameworks, Natural Capital Ledgers, performance verification systems, and draft PES policy frameworks, while creating platforms for dialogue among government agencies, private sector actors, local communities, and conservation organizations. Through these efforts, UNDP has helped position PES as a practical and scalable financing instrument capable of linking ecosystem beneficiaries with environmental stewards while supporting Sri Lanka's national biodiversity, climate resilience, and sustainable development objectives.

Sri Lanka's experience demonstrates that even in the absence of a formal PES policy or dedicated regulatory framework, numerous PES-like mechanisms can emerge and function across different sectors and landscapes. Many existing initiatives in watershed management, plantation landscapes, forest conservation, tourism, and coastal ecosystem management already incorporate key PES principles, although often in informal or partially structured forms. Importantly, these arrangements have not emerged in isolation but have evolved from long-standing Proto-PES traditions rooted in customary resource management, reciprocal labor systems, collective stewardship, and community-based conservation practices that historically governed natural resource use in Sri Lanka. These traditional systems created social and institutional foundations based on trust, shared responsibility, and collective benefits, which continue to influence modern PES-like arrangements. The Sri Lankan experience therefore highlights that formal PES systems do not necessarily begin with legislation alone; rather, they can gradually evolve from existing local practices, informal partnerships, and co-management arrangements before eventually becoming institutionalized through policy and regulatory support.

Sri Lanka already possesses several institutional and financial mechanisms that could support the development of PES and PES-like instruments, including existing conservation financing facilities such as the Wildlife Conservation Fund and the Marine Pollution Prevention Fund. These mechanisms demonstrate that legal and administrative pathways for collecting, managing, and channeling environmental financing already exist within government systems. However, most of these funds currently operate under conventional public financial regulations and administrative restrictions, limiting their flexibility to function as fully operational PES mechanisms with direct beneficiary payments, conditional incentives, and performance-based conservation agreements. To transform these existing instruments into more effective and formal PES systems, clear regulatory guidelines and institutional frameworks are needed to enable government agencies to engage in ecosystem service valuation, establish buyer - seller arrangements, manage conservation-linked payments, and implement transparent monitoring and verification systems. Such reforms would allow existing environmental funds to evolve from traditional conservation financing tools into more dynamic and accountable PES mechanisms capable of supporting long-term ecosystem stewardship and sustainable financing.

Transitioning to fully formalized PES systems in Sri Lanka will take time and requires stronger technical knowledge, institutional commitment, policy support, regulatory guidelines, and robust monitoring mechanisms. Given these constraints, hybrid PES models offer a practical interim solution. Although they may not satisfy all the formal characteristics of true PES systems, they already incorporate many core PES principles such as ecosystem stewardship, beneficiary contributions, community participation, and conservation-linked incentives. These flexible approaches can help build experience, stakeholder trust, and institutional capacity while gradually creating the foundation for more structured and legally recognized PES mechanisms in the future.

Although government institutions generally require formal legal and regulatory frameworks to implement PES mechanisms due to public financial regulations and administrative procedures, private sector entities and local communities can often initiate PES arrangements through voluntary partnerships and mutually agreed commitments even in the absence of specific PES legislation. Where trust, shared benefits, and common conservation interests exist, private companies, community organizations, and local stakeholders can collaboratively establish incentive-based conservation agreements that support ecosystem stewardship and sustainable resource management. Such voluntary arrangements can serve as important pilot models and learning platforms while broader legal and institutional frameworks for PES continue to develop at the national level.

Access to natural resources, particularly water, is widely recognized as a fundamental right, and this principle has been reinforced through several Supreme Court judgments in Sri Lanka. As a result, directly charging communities for basic ecosystem services that are traditionally considered public rights may become legally and socially contentious if challenged in court. However, legal discussions and interpretations have also acknowledged that users can reasonably contribute toward improvements and additional conservation measures required to maintain or enhance those services. In this context, PES mechanisms in Sri Lanka may be more appropriate when they focus on financing the “additionality” component such as watershed restoration, pollution reduction, habitat rehabilitation, and improved ecosystem management rather than charging for the basic natural resource itself. This distinction provides a more socially acceptable and legally defensible pathway for developing PES systems within the country.

Successful PES programmes must place communities at the center of conservation efforts by ensuring that local people receive direct economic and social benefits from ecosystem protection. Conservation outcomes are often more effective and sustainable when linked to livelihood improvement, employment generation, and community-based enterprise development. In Sri Lanka, community participation can be further strengthened through organized institutional structures such as community-based organizations (Com) or cooperative societies registered under the Cooperative Act [P(Coop)]. These collective structures enhance coordination, accountability, equitable benefit-sharing, and long-term stewardship while enabling communities to participate as formally recognized partners in PES arrangements. In such models, in-kind payment mechanisms are particularly appropriate, especially where communities perceive the ecosystem as a shared resource that they have a collective responsibility to protect and sustain. Contributions through labor, restoration activities, monitoring, or local management therefore become both a form of conservation investment and an expression of community stewardship.

Most importantly, the Sri Lankan experience demonstrates that ecosystem conservation and socioeconomic development should not be treated as separate objectives. Well-designed PES systems can simultaneously strengthen biodiversity conservation, improve climate resilience, secure water resources, and enhance rural livelihoods when supported by strong policy frameworks, equitable governance structures, and long-term financial mechanisms.

4. Conclusions and Recommendations

Conclusions

Sri Lanka's PES enabling environment is currently in a transitional phase, shaped by an evolving blend of CSR-driven conservation, proto-PES traditions, and emerging formal PES mechanisms supported by policy reforms, pilot initiatives, and improved monitoring tools. The case study evidence shows that PES is already operational in practice across plantation landscapes, watershed catchments, coastal zones, and community-managed ecosystems, although often in hybrid or semi-formal forms. Collectively, six major case studies including the Pekoe Trail conservation initiative, Dell Mountain Flow Babarakele watershed project, Great Western estate restoration, Nilaweli coastal cleaning programme, Weerapana community water project, and Kothmale reservoir catchment protection demonstrate measurable ecological and socioeconomic outcomes. These initiatives collectively mobilize an estimated annual PES value of approximately USD 42,500–43,100, directly involving about 2,934 people and covering over 363 hectares of ecosystems across Sri Lanka.

Recent updates from these cases indicate growing formalization through MOAs, introduction of Natural Capital Ledgers, performance-based incentives, and increasing private sector engagement, particularly in plantation and tourism-linked landscapes. In addition, innovative payment modalities such as in-kind labor contributions, community stewardship, and marketing-linked incentives are expanding the operational flexibility of PES in low-income and community-based contexts.

Despite these advances, PES is still at an early stage in Sri Lanka. While there are no large-scale, formal PES schemes in place, several pilot projects and donor-supported initiatives have experimented with PES-like mechanisms, particularly in watershed protection and biodiversity conservation. Alongside these, informal arrangements such as voluntary contributions or corporate social responsibility programs have emerged. These efforts demonstrate the potential of PES, but they also highlight the challenges of moving from informal, goodwill-driven initiatives to structured, contractual agreements. In addition, the absence of standardized national guidelines and data systems limits the ability to scale and replicate successful pilot initiatives.

A key concern in formalizing PES is that converting voluntary conservation contributions into contractual arrangements may risk weakening intrinsic motivation rooted in ethics, reciprocity, and customary stewardship. However, the Sri Lankan evidence suggests that these two dimensions are not necessarily contradictory, but can instead be mutually reinforcing when carefully designed. The case studies show that many current PES-like initiatives already operate through trust-based, voluntary engagement while gradually introducing elements of conditionality, performance recognition, and formal agreements (e.g., MOAs) without displacing community norms. In this sense, contracts need not replace intrinsic motivation; rather, they can function as enabling frameworks that safeguard fairness, clarify responsibilities, and ensure continuity of benefits, while still allowing space for cultural values, collective identity, and stewardship ethics to drive participation.

Many organizations currently take pride in their voluntary involvement and use it to enhance their reputation. If participation becomes a contractual obligation, the sense of voluntary stewardship may diminish. Therefore, while formal PES arrangements can bring clarity and accountability, they must be designed carefully to preserve the spirit of voluntary engagement. Hybrid models that combine voluntary recognition with light contractual frameworks may help balance motivation and accountability.

However, PES is not without challenges. One major issue is information asymmetry. Many potential participants lack the expertise to calculate the economic value of ecosystem services. Without credible data, trust in PES agreements may be limited. This underscores the need for trusted intermediary organizations or government agencies to provide cost-benefit analyses and risk assessments. Their role is crucial in building confidence among both buyers and sellers. The development of national-level valuation databases and open-access tools could significantly reduce these information gaps.

Monitoring and enforcement present another challenge. As with any contractual arrangement, there is a risk of non-compliance. Effective monitoring systems are essential, but they come at a cost. While these costs may be lower than traditional enforcement, they are not negligible. Arbitration mechanisms must also be established to resolve disputes quickly, given the delays in Sri Lanka's judicial system. Without reliable monitoring and dispute resolution, PES risks losing credibility. Emerging technologies such as remote sensing, GIS, and community-based monitoring could help reduce monitoring costs and improve transparency.

The nature of participants also matters. Large companies with reputational concerns may be more committed to compliance, while smallholders facing immediate livelihood pressures may struggle to honor long-term commitments. This makes careful site selection and participant profiling essential for successful PES schemes. Land tenure adds another layer of complexity: many farmers and estate workers operate under lease arrangements, which discourages long-term investment in ecosystem services. Secure tenure is therefore a prerequisite for sustainable PES. Equity considerations, including fair benefit-sharing and inclusion of marginalized groups, are also critical to ensuring long-term sustainability and social acceptance.

Potential buyers of ecosystem services in Sri Lanka include government agencies such as the Ceylon Electricity Board, the National Water Supply and Drainage Board, and the Irrigation Department. These organizations depend heavily on ecosystem services but often lack the capacity or incentive to engage in PES. Their monopolistic structures and reliance on government funding reduce their motivation to adopt innovative market mechanisms. Not all staff within these organizations have been exposed to PES arrangements, and as a result, the necessary support is not consistently available across all relevant departments. This lack of awareness and engagement limits institutional capacity and hinders the effective implementation of PES initiatives. Private sector actors such as tourism operators, beverage companies, and agribusinesses may be better positioned to participate, as they directly benefit from healthy ecosystems and face competitive pressures to innovate. International buyers, including carbon markets and sustainability-focused investors, may also present future opportunities for expanding PES financing.

A key concern in formalizing PES is that translating voluntary conservation behavior into contractual, performance-based arrangements may unintentionally weaken intrinsic motivations rooted in reciprocity, cultural ethics, and customary stewardship. At the same time, there is also a risk that loosely defined or internally managed "PES-like" arrangements particularly where both buyers and sellers operate under the same administrative umbrella may blur the distinction between real market-based incentives and administrative re-labelling, creating space for potential greenwashing or overstatement of PES outcomes. While such integrated arrangements can improve compliance, simplify monitoring, and reduce transaction failures, they may fall short of the ideal PES condition of clearly separated buyers and sellers with explicit willingness-to-pay and conditional payments for verified ecosystem services.

The Sri Lankan experience suggests that the solution is not to reject either approach, but to design a calibrated system that balances credibility with practicality. Where internal arrangements dominate, transparency, robust monitoring, and independent verification become essential to maintain environmental integrity and avoid "labeling" existing conservation expenditure as PES. Conversely, where buyers and sellers are distinct such as in plantation-community, tourism-ecosystem, or hydropower-watershed linkages PES mechanisms become more explicit and economically meaningful, but also require stronger coordination and enforcement mechanisms. In both contexts, the role of an intermediary becomes critical to bridge institutional gaps, ensure accountability, safeguard conditionality, and maintain trust among stakeholders, thereby preventing both governance inefficiency and the dilution of PES principles.

Sri Lanka once had a rich proto-PES foundation, but over time it has been eroded by commercialization and urbanization. While fully resurrecting these traditional systems may not be possible, the knowledge and practices that underpin proto-PES can still inform the design of modern PES arrangements. Integrating this traditional wisdom into contemporary frameworks would help ensure that cultural values complement economic mechanisms.

Institutional roles must be clarified. Regulatory agencies such as the Central Environmental Authority or the Forest Department face a paradox: they are tasked with enforcing environmental laws but may also be asked to facilitate PES. This dual role can create conflicts of interest. They are also not used work with other agencies outside the government structure. A more effective approach may be to establish independent intermediaries either government-backed or private who can manage PES schemes transparently and professionally. Clear institutional mandates and accountability frameworks will be essential to avoid overlaps and ensure efficiency.

PES holds promise for Sri Lanka as a mechanism to align conservation with economic incentives. Yet its success depends on careful design: preserving voluntary motivation, ensuring credible intermediaries, addressing tenure issues, and engaging both public and private buyers. With thoughtful implementation, PES can evolve from scattered pilot projects into a robust tool for sustainable development, benefiting ecosystems, communities, and the economy alike. Long-term success will also depend on continuous policy learning, adaptive management, and integration with broader development planning.

Recommendations

In the short term, the priority is to establish a clear national PES policy that provides legal recognition, institutional guidance, and operational clarity for all actors involved in ecosystem service markets. Such a policy should define the roles of regulators, service providers, and intermediaries, while also addressing gaps in existing legal and governance frameworks and outlining appropriate PES arrangements and guidelines. Alongside this, targeted capacity-building and awareness programmes are essential to improve understanding of PES design, valuation, and management among government agencies and key stakeholders. The government should also take an enabling role during the initial phase by providing seed funding, technical support, and oversight to reduce early-stage risks and build confidence in implementation. Incentive mechanisms, including tax benefits and recognition schemes, should be introduced to encourage private sector participation, particularly in tourism and resource-dependent industries. To ensure coordination and consistency, a centralized national PES coordination body should be established to align key institutions such as the CEA, Forest Department, and Wildlife Department, while also overseeing financing, monitoring, and verification systems.

In the medium term, the focus should shift toward scaling and institutional deepening through blended finance approaches that combine public funding, donor support, and private investment to reduce financial risk and expand PES coverage. Independent intermediaries such as NGOs, research institutions, and technical organizations should be formally developed and accredited to support valuation, facilitate agreements, and ensure compliance, thereby improving credibility and reducing conflicts of interest. At the same time, PES should be mainstreamed into national biodiversity and climate policy frameworks, including watershed management plans, and Nationally Determined Contributions (NDCs), to strengthen policy coherence and unlock access to international climate finance.

In the long term, the system should be supported by robust digital and institutional infrastructure. This includes the development of integrated data-sharing platforms and digitized PES transaction systems to improve transparency, traceability, and decision-making. Strengthening land tenure security, establishing effective dispute resolution mechanisms, and implementing clear compliance safeguards will be essential to ensure the integrity and long-term stability of PES agreements. Together, these measures will provide the institutional foundation required for a resilient, transparent, and scalable PES system in Sri Lanka.

Annexes

Annex 1 – MOA – Pekoe Trail & TTE
https://drive.google.com/file/d/1y9BB9Iyr4kaf7oB9alYc2kIdDGiWN8aw/view?usp=sharing

Annex 2– MOA – Bambarakele & Horana Plantation
https://drive.google.com/file/d/1NVuh7V7UxI65cgCZEoC3xdk8HXMxI3nN/view?usp=sharing

Annex 3– MOA – Great Western
https://drive.google.com/file/d/12hWq-Th_umetC-IBU20Z6OcnFFLtnvqQ/view?usp=drive_link

Annex 4 – MOU – MEPA & Hotels
https://drive.google.com/file/d/1wg_Lu0KQr_1amjy1otPTzZJdnAKSzbIV/view?usp=sharing

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