Payment for Ecosystem Services and its Application in India: A Review

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Abstract

Ecosystem Services are those processes of the nature that directly or indirectly benefit the human beings. These services need to be conserved through incentive-based market approaches for a sustainable future. Payment for ecosystem services (PES) is one such approach that aims at managing the natural resources and ecosystem stewardship wherein the users of the services recompense the conservators of the ecosystem services. While the approach of PES has numerous benefits in amplifying the awareness of the linkages between well-being of humans (eg. poverty alleviation) and ecosystem services, it is constrained by some major challenges especially in the developing countries like India. This paper reviews the significant issues and challenges of the environmental marketing in India and suggests measures to promote the PES.

Keywords: Ecosystem Services, Environment, Market, PES, Livelihood

JEL Codes: H24, P36, P46, Q57.

Introduction

The world is experiencing a rapid decline in biological diversity. Almost a quarter of the total plant and animal species are on the verge of extinction. This in turn is undermining the "productivity, resilience and adaptability" of nature thereby putting our economies, livelihoods and wellbeing at risk. Nevertheless, the biodiversity of the globe is still immense. It's time to rebalance the demand for nature's goods and services with its capacity to supply them for a sustainable path of production and consumption[1]. The Millennium Ecosystem Assessment (MEA) and The Economics of Ecosystems and Biodiversity (TEEB) suggest the use of market-based instruments for internalizing externalities associated with the use of nature's goods and services[2,3,4,5]. Payments for Ecosystem Services (PES) have thus gained currency to provide incentives for the improvement of ecological services thereby promoting ecological sustainability and livelihood security[6].

Since the publication of Millennium Assessment Report of 2005 by the United Nations, the concept of Payments for Ecosystem Services (PES) has been widely recognized as a remunerative tool for the farmers and the local masses for the creation of positive externality through conservation of nature and provision for a sustainable future. The debate on ecosystem services has kicked off two decades ago with the two popular studies by Gretchen Daily [7] and Costanza et al [8]. The concept of PES is a useful tool for achieving overall sustainability. Even though PES had evolved over three decades, it is still at a nascent stage in many countries particularly in developing and underdeveloped nations. In this article we conducted a systematic review on the evolution of PES and examined the status of implementation of PES programmes in India. We also put forth a few suggestions for the promotion of PES projects in developing countries.

History of Ecosystem Services

The concept of environment benefitting the human society can be traced to several millennia. The current concept of this interaction has emerged as environmental services[9]. The term "nature's service" was first identified in a paper in 1977 (ref.10). However, Ehrlich and Ehrlich and later Ehrlich and Mooney described the term "ecosystem services" more elaborately[11,12]. The concept actually gained momentum from 1997 onwards[7,8,13,14]. This idea, originally used as a metaphor[15], has now become the basis for an increasingly vast literature that seeks to assess, measure and value the dependance of humans and society on nature. It is also believed to have triggered shifts in policy as well. Often policy makers seek for valuations and economic assessments as to how the loss in biodiversity has had a direct relationship with the losses in the welfare [such as the TEEB study commissioned by the European Union[16]], and thus 90 governments joined hands to establish an inter-governmental Platform on Biodiversity and Ecosystem Services[17]. Concurrently, a number of (PES) programmes have been launched, spanning watershed services, biodiversity conservation, carbon sequestration and other ecological services.

Concepts and Definitions

Theoretical Perspectives of PES

Environmental economics, ecological economics and the rejection of the very idea of ecosystem services are the three main perspectives concerning PES. The environmental economists consider PES as a voluntary transaction between the buyer and the seller of the ecosystem service based on the condition of conserving that particular service or land used. It derives its roots from the Coase property rights (economic negotiations to settle disputes over property). On the other hand, the ecological economists describe PES under three schematic components. The first component

describes the importance of giving economic incentive in terms of the relative weight it carries in accordance with the non-economic incentives like social, moral, etc., while the second component speaks of the directness of environmental marketing between the buyer and the seller. It proposes that a direct programme will be that where there would be presence of no intermediaries in the marketing channel and the functionaries would include only one buyer and one seller. Compared to the first and second components, the third one is relatively more important as it describes PES in terms of the degree of commodification. It addresses the question of to what extent the ecosystem service can be either assessed or measured such as the number of tons of carbon sequestered. Nevertheless, the major challenge comes from those who reject the valuation of environmental service arguing that conservation of nature should be done for nature's very purpose and that it is next to impossible to quantify or commodify the nature as its value tends to infinity and thus commodification of the natural capital may lead to underestimation of its true value. They believe that PES may decrease in utility because the wealth becomes concentrated in a way that the scarcity of the natural resources results in higher short-term value for unsustainable extraction of those resources and also the long-term cost to cover replacement services is externalized onto the citizens.

Ecosystem Services and Human Dependency

Since time-immemorial, human societies are dependent on the nature and its resources for a diverse array of benefits. Humans have also realized and understood this dependency since long. Example dates back to the Greek Philosopher Plato who recognized that deforestation was the major cause of soil erosion and reduced water flows in the Greek regions of Attica[18]. However, as per the Millennium Ecosystem Assessment Report (MA), 2005 (ref. 19), the concept of ecosystem

services gave light to the human-nature inter-dependance and thus gave way to understanding the global ecosystems and their ability to aid the human well-being.

Ecosystem services cover the diverse range of benefits that support and fulfill human lives[7,19]. According to the MA, ecosystem services are divided into four categories viz. provisioning (food, water, wood), regulating (climate regulation), cultural (aesthetic, spiritual and recreational) and supporting (nutrient cycling, soil formation) services. MA report recognizes that human activities are depleting the natural capital and ecosystem services globally. The extent of depletion is creating a potential strain on the Earth's ability to cater to the basic needs of the present and future human generations. It was found that about 62% (15 out of 24) of the ecosystem services examined globally were used unsustainably between a time period of 1950 to 2000 (ref. 19). However, it was interestingly found that provisioning services represented the major portion where enhancements in the service were realized over time followed by the regulatory services. Since supporting services were not directly used by the humans, they were not included in the analysis as opposed to provisioning, regulatory and cultural services. This tradeoff between enhanced and degraded ecosystem services motivates an important societal challenge i.e., human societies at both local and global levels are troubled with a dilemma between catering for immediate needs (like food, water, etc.) while also supporting the services for long term sustainable needs (like regulating services)[19]. As per the reports of MA, 2005, addressing the above tension and reverting the damaged ecosystems back to normal is possible over the next 50 years but it requires substantial policy support and adopting sustainable practices. Ecosystem service approaches are becoming pivotal in the conservation practices in different countries following the framework laid by MA. With this new approach also comes new methods and practices that partially or fully provide alternatives to the ongoing conservation strategies. According to Goldman[20] "where traditional

approaches focus on setting land aside by purchasing property rights, ecosystem service approaches aim to engage a much wider range of places, people, policies and financial resources in conservation." Out of all the new strategies, the most prominent tool/technique is the payments for ecosystem services that have been reviewed in this paper.

Ecosystem Services

The outputs, conditions, or processes of natural systems that directly or indirectly benefit humans or enhance social welfare are termed as ecosystem services. They render a lot of benefits to the people either directly or as inputs into the production of other goods and services. According to Costanza et al.[8], "ecosystem services are the ecological characteristics, functions or processes that directly or indirectly contribute to the human well-being: that is, the benefits that people derive from the functioning of the ecosystems". However, it is also important to note the concept of ecosystem dis-services. Ecosystem dis-services are the processes and functions of the environment that affect the humans in a negative manner[21,22]. The anthropocentric and utilitarian view of the nature argues that nature has its existence only for serving the human beings[23,24]. But this view seems to be a biased one as nature and humans are interconnected and inter-dependent systems. Thus, the concept of ecosystem services provides a wholesome approach towards nature, human beings and the other living organisms in the environment at large. They are broadly categorized into four main categories: (1) Provisioning services, (2) Regulatory Services, (3) Cultural Services, and (4) Supporting Services (Table 1).

Table 1. Categorization and functions of various ecosystem services

Provisioning Services	**Regulatory Services**	**Cultural Services**	**Supporting Services**
Food Prodution (Crops, vegetables, fruits, fish, etc.)	Regulation of Climate & Gases	Recreation (Eco-tourism, sport fishing, and other outdoor recreational activities.)	Formation of Soil
Raw Materials (lumber, fuel or fodder.)	Ecosystem Disturbances regulation, Pollination & Biological Control	Cultural/Eco-tourism (Aesthetic, artistic, educational, spiritual, and/or scientific values of ecosystems.)	Nutrient cycling
	Water Regulation & Supply		Refugia
	Control of Soil Erosion & sediment retention		Genetic resources
	Waste treatment		

Source: ref. 25 and and authors' compilation

Payments for Ecosystem Services (PES)

PES are market-based conservation tools in which the beneficiaries of the ecosystem service compensate the providers who protect, enhance, or restore ecosystem services[26,27]. PES has been one of the most promising innovations in the conservation strategy of Biodiversity since the Rio Meet in 1992. PES has evolved to be one of the most potential approaches to address economic externalities of commodity production and optimum resource extraction, improving socially, ecologically and economically desirable outcomes. The basic idea behind PES is to pay landowners to protect their land for ensuring the provision of some "services" provided by the nature, such as water, habitat, climate regulation or carbon storage[28]. The important and attractive aspect of PES is that it not only promotes the investment for the conservation of the environment

but also rewards the people for the same. This clearly indicates that PES have the potential to alleviate poverty and reduce the conflicts between conservationists and local communities. PES derives its roots from the conservation programmes in the past like the Conservation and Development Programmes (ICDPs). The definition of PES is a market-based definition that describes that the beneficiaries of the ES (directly or indirectly) pay the providers of the service. PES schemes require the involvement of beneficiaries and providers of ES (buyers and sellers) and also the intermediaries who act as a link between the both. But the scale and implementation of the programmes depends mainly on the location, political and administrative will of the governments and the financing agencies.

PES is basically a market-based approach for achieving environmental outcomes by internalizing the economic externalities[29]. Carbon sequestration, water-related services, forest and biodiversity are some of the areas where PES schemes are primarily being used around the globe[30]. Over 280 PES-type schemes were found to be in development (or operational) by the early 2000s (ref. 31) and a good number of advancements have been made thereafter as well. The ecosystem marketplace is an internet-based information portal for PES that has attempted to compile all the information about the PES programmes going on worldwide. It identified the market values for ES that indicate the scale of markets for ecosystem services partially. For biodiversity, 39 existing programmes and 25 programmes in various stages of development were analyzed (with prime focus on North America) all amounting to a minimum annual market size of $1.8-2.9 billion[32]. In case of carbon markets, a minimum of $149.2 million has been transacted till date for forest carbon credits[33]. In case of watersheds, out of 216 identified PES programmes, only 113 were functional with active transactions with a market value of $9.2 billion[34]. In 2008, about 289 million hectares (Mha) of area were protected by PES programmes (270 Mha in China, 16.4 Mha in the United

States, 2.3 Mha in Latin America and less than 0.2 Mha in Asia, Africa and Europe)[34]. It is expected that in the times to come, substantial growth can be seen across carbon, water and biodiversity PES programmes. From the pioneering national programme in Costa Rice in 1997, PES has gone to be tested at different locations globally including the water funds across Latin America[34], steep-slope land conversion in China[35], and watershed health in the United States[34]. However, with the growing importance of PES, some sophisticated debate about the potential benefits and challenges of such market-based approaches for sustainable development have also come to the fore-front that need to be assessed deeply.

Benefits of PES

PES projects have been found to have extended multiple benefits for ecosystem stewardship and communities. PES has the potential to impact the landowners' perceptions towards the protection of environment and enhance the awareness about the interlinkages between ecosystem services and the well-being of humans thereof. Ecosystem services are often considered as externalities by the landowners that gives them little incentives to produce or conserve these services[20,36]. As a result, assessing the monetary value of such services can demonstrate the value of conserving such services to the participants[26,36]. PES schemes that provide incentives for implementing better extraction and land-use patterns along with improvement of the ecosystem services may serve as suitable livelihood generating projects for the people whose income depend on subsistence farming[37]. Key on-site benefits of PES schemes like water saving, enhanced soil fertility, shade, reduction in chemicals may often be initially missed by the beneficiaries but can be quickly realized once the programme is implemented.[38]. Studies have evidences that PES projects can both protect as well as restore ecosystem services than any other man-made technological approaches[39,40,41], thereby resulting in equal or greater net benefits because of the opportunity of

PES to protect the environmental services (co-benefits)[20,42,43]. They are also seen to have facilitated better communications among the stakeholders by alleviating upstream and downstream stakeholder tensions thereby acting as a conflict resolution tool along with law enforcement, increased awareness of landowners and community self-policing resulting in greater community self-empowerment[44,45]. The knowledge about environmental awareness is a key to ensure the success and long-term sustainability of PES programmes. Therefore, empowering the local farmers and rural masses with education and monetary incentive refine and enhance their practices in favour of the environment can lead to a sustainable investment in community to achieve self-sufficiency.

Challenges in Addressing PES

PES schemes have numerous benefits to the society. Nevertheless, the challenges associated with PES need to be addressed effectively so that it can continue as an effective conservation and policy tool.The examination of the existing programs points towards potential programmatic inefficiencies, such as lack of additionality, leakage, and incorrect payments[26,41]. Lack of additionality means paying those beneficiaries who were already conserving the ecosystem services for other reasons like financial, legal, etc.[26,41,46]. Spillover or leakage occurs when ecosystems are damaged due to activities outside the PES targeted regions for reasons like market pressure or increased land demand[26,41,47]. However, leakages may also offset positive outcomes from the environment that may have been achieved within the area of the PES project. Incorrect payments may occur in two ways- one, insufficient payment to the landowners that may make them continue the old and poor land use practices and secondly, high payments that can result in inflated payment price for the existing services[26]. Engel et al[26] also raised an additional concern of lack of permanence of PES projects. This means the benefits of the PES projects will be realized

for a particular period of time that varies from project to project (but commonly range about 10-20 years, 50-100 years, etc.). External factors such as market or agricultural demands that influence the land use or land management practices by the farmers might affect the permanence by creating negative externalities on the ecosystem services. Lack of long-term and secure funding sources for a PES program can also threaten its permanence. Sometimes the landowners may incur an initial income loss while altering their production practices to meet the goals of the PES projects[36,48]. This situation may arise due to high cost of changes in vegetation or plating new trees or need for crop diversification. This is an important concern for the poor as they face potential financial challenges in covering upfront costs to participate in and benefit from a PES contract.

An Ecosystem Marketplace report in 2009 pointed out that majority of the PES schemes though similar in nature, do not fulfill the actual definition of PES in reality. Failure to generate buyers and avoiding the PES provision of conditionality are the two major areas where projects like PES fail to follow through[49]. Funding has also been a debatable topic for PES schemes as many of them have failed to look beyond external donors for the schemes and often lack to locate the potential long-term funding for the beneficiaries of the ecosystem services. Even though there are multitude of lessons to be learned from the existing theoretical and practical applications of PES schemes, it is important to note that project design and implementation with appropriate research and proper engagement of stakeholders could help in enhancing the potential to deliver environmental and social benefits and minimizing problems therein.

Implementation of PES around the Globe

The first PES programme implemented on a national scale was in 1997 in Costa Rica named Pagos por servicios ambientales (PSA) which was funded by the World Bank and the Global

Environment Facility (GEF). It was named as “Ecomarkets”. In 2003 came a programme in Los Negros, Bolivia for a combined payment for watershed and biodiversity started by a local NGO. The farmers in Jamestown, Rhode Island, United States had the practice of harvesting hay in their fields twice annually, which destroyed the habitats of many local birds. To save the birds, economists of University Rhode Island and EcoAssets Market Inc raised money from the residents’ worth 5 to 200 dollars per person. Similarly, another city in the United States named Salt Lake City managed the majority of its watershed through regulatory mechanisms. They defined allowable uses and land easement purchases. Another such project was started by the local Council for Administration of Water and Sewage Disposal (JAPOE), Honduras for benefitting the coffee producers who lived upstream and the local people who loved downstream thereby charging the villagers around 0.06 dollars per household per month for the upstream farmers. A program was started for the shade-grown coffee plantations in Chiapas, Mexico for creating market for its positive externalities. In this programme the farmers were agreed to continue responsible farming and reforestation practices by getting payments for the carbon offsets. The first PES intervention was started for a randomized control trial to empirically determine its impact on deforestation in Hoima and Kibaale. In the concerned villages, the owners of the forested land were paid an amount of 28 dollars per annum for two consecutive years for every hectare of land that was not disturbed with the provision of additional payment for new plantations and it had amounted to 5 % of the annual income of the participating land owner.

Role of PES in Livelihood Improvement in Developing Countries

PES and sustainable development are closely related. PES is potentially crucial in developing countries as it addresses the environmental as well as social concerns particularly relating to the rural livelihoods thus playing an important role in sustainable development. Apart from ecosystem

management, PES schemes are also directed to improve the livelihoods of economically backward communities[37]. Though the concept of PES is very clear and direct, the impacts of such projects on the environmental goals achieved by them may vary along with providing either positive social results or ensuring that no negative social impacts affect the people[50].

Tropical forests are essential providers of ecosystem services, a large portion of which are in the developing countries. Moreover, these countries comprise a majority of the world's poor populations, which makes them the perfect setting to employ poverty and reduction measures for ecosystem degradation such as PES[35]. Pattanayak et al.[41] synthesized a number of literatures on PES and ascertained, "whether or not poverty alleviation is an explicit side objective, the poverty impacts of PES are clearly relevant in developing nations though conceptual models suggest PES can alleviate poverty under some conditions[50,51], the quantitative, empirical basis for attributing changes in poverty to PES remains limited."

The potential implications of the PES schemes on the poor vary from case to case. Based on the criteria of eligibility (correct location), disposability (payments received greater than cost incurred) and ability (property rights), it was identified that poor populations could turn out to be the best to participate in the PES programmes[50]. Also, the impact of PES on poor populations depends on the farm size, diversity of financial sources and other factors like price fluctuation of food and land as PES schemes may reduce the land availability for agricultural production[41,52]. It is also found that poor landowners are often reluctant to shift to new land-use practices if the payment for the same is not considerably higher[53]. PES schemes will be able to make a significant contribution to reduce the poverty provided the participants of the project are paid reasonable higher prices than they would naturally earn from their land or from the conservation of ecosystem services[53]. However, this also raises potential questions on the incorrect payments and possible tradeoffs between

poverty alleviation and efficacy of PES projects. Social equity is another potential concern of PES schemes in developing countries. Majority of the ecosystem services originates from the natural landscapes and rural areas where the masses are closely related and directly dependent on the natural ecosystems[37,54]. It is important that the PES schemes safeguard the participation of the beneficiaries and farmers that are dependent on subsistence agriculture and small land-holdings. It is evident to design appropriate policy and programmes as per the political, social and geographic context of every situation[53]. Thus, it is necessary that the potential trade-offs in the decision-making of such projects need to be analyzed carefully based on the contextual studies.

Discussion

The idea behind PES focuses on incentivizing the conservator of the ecosystem service. The payment is to be made by the direct or indirect beneficiaries of service to the providers of the same. It is important that for the PES to work properly, first the buyer of the service must be identified and the market conditions must be analyzed after which the seller of the service has to be legally recognized. For the PES market to be feasible, the financial structure must be sufficient as well as sustainable. It must benefit both the supplier as well as the buyer. However, there are many risks and challenges associated with the same. The market forces have failed to capture the environmental services adequately[55]. Most of the environmental services come under public goods and are thus characterized by non-excludability and indivisibility in consumption thereby making it quite difficult to function efficiently. Thus, for the markets to function efficiently, the property rights need to be defined efficiently.

In India, the concept of PES is relatively new. However, with the increasing insight about the conservation of biodiversity and sustainability, the Indian states are becoming more and more

serious about the environmental markets. Currently the focus is on the Himalayan biodiversity and about 10 Himalayan states in India voiced a unique demand for payment for the clean water that flows down from the hills to the plains, and for the forests that remain standing in the Himalayan valley.

Not only the Himalayan valley, but also with the increasing degradation of natural resources and rising demand for the ecosystem services in India, its high time to adopt market best approaches like PES to protect and conserve the environment. With the vast array of natural resource and diverse ecological conditions, India has a huge potential to adopt PES like schemes for both conservation of biodiversity and social security through livelihood promotion programmes. India is an agrarian economy. However, with the bulging buffer stocks of food hides, India has been seeing an increasing trend of farmer's suicides in almost all of its states. The income of the farmers has been dwindling and the debt is increasing[56]. The agrarian crisis is mushrooming and it has been in limelight due to the numerous protests by the farmers from various states of the country[57]. To mitigate this, the government of India planned the agenda of doubling the farmers' income by 2022. In this context, one need to understand the market as well as the non-market benefits from healthy agro ecosystems to support the farmers[58]. Farmers have always been paid the value for marketable agricultural goods however, there are a huge amount of non-market uses of agro-ecosystems that are generated from various agricultural practices and are invariably foregone. Kumar *et al.*[58] has generated the values for agro ecosystem services in the Indian context from the estimates of Ploeg and de Groot[59] and the TEEB database. They observed that as an institutional framework for PES already exists, it could be used to persuade the farmers to take up sustainable agriculture that could benefit the ecosystem. In comparison to the MSP approach for improving farm income, the PES strategy stands better in terms of its long-term effects of sustaining

agriculture, increasing the natural capital and also fighting the ecological crisis coming from various agricultural practices. This approach was also previously put forward by Indira Devi *et al.*[60] where they proposed that paying for the ecosystem services in agriculture could provide a novel way to reduce the gaps between the rural and urban thereby decreasing the migration of the rural youth to the cities and also ensuring the goal of doubling the farm income. According to them, PES was one of the strategies to incentivize sustainable agricultural practices in India and could make agriculture a more profitable and attractive sector as the farmers would be paid for those services that have no direct market mechanism but are however reaping benefits to the entire society.

But the factors that are highly essential for the successful implementation of the strategy are not easily available in Indian context. The most important and crucial challenge is the ill-defined property rights in India. Another important aspect is that most of the ecosystem management institutions of India work under state sponsorship with lack of proper participation by the local people. With the complex socio-economic and political set up in India, the reforms in terms of property rights might give rise to both winners and losers creating conflict in interests. The agents with greater access to information and institutions may benefit in a better way by seeking rent. But it is important to note that defined and secure property rights may become disincentives for the owners of the land to use their natural resources that might lead to social inequality[61]. Thus, to restrict this asymmetry in information, proper institutional framework needs to be developed along with some combination of incentive structures that can promote equitable use of the natural resources by the landowners. Another challenge in India is that majority of the Indian farmers are marginal and landless ones, thus, depending on the state-owned natural resources or village common properties for their subsistence. Therefore, initiating the PES programmes in such areas

requires tenure-based rights over lands for getting long-term benefits and use of land resources and developing markets for the ecosystem services. If the schemes of PES are made location specific with extended policy support, then it can help in efficiently allocating the land rights in India. Nevertheless, a greater amount of support can come from the informal institutions at the community level that can help in conservation of the environment to a great deal. However, one of the biggest challenges in India is the consolidation of the fragmented lands of the small and marginal farmers and alternating their land-use patterns. Again, here arise two major issues- one, it takes more effort in communicating and coordinating among the larger number of small landholders than with a fewer number of large landholders. Second, more time and capital required in organizing and implementing capacity building measures makes it a costly affair. Another issue in Indian context is the failure of adoption of technology in the right way particularly under the imperfect market conditions[45]. Also lack of proper credit facilities for the rural make the technology adoption a difficult process due to the high cost. In addition, it also requires adequate skills and knowledge that may be imparted by appropriate training programs. However, since majority of the farmers in India are unskilled and illiterate, good extension and educative services to the farmers are a pre-requisite for successful implementation of the PES projects in India.

Conclusion

The industrial revolution has already covered a major part of the globe in grime but the worst of its effects seem to be localized. However, humans are unaware that how their own activities affect the environment tremendously giving rise to anthropogenic changes like the deforestation, pollution and overuse. It is important to realize that our economies are vitally dependent on various ecosystem services and are nested within ecosystems. Thus, creating programmes on the payment for ecosystem services aim to provide economic incentives to conserve the depleting natural

resources especially in a developing country like India. They aim to generate a continuous flow of the ecosystem services along with maintenance of their quality in the long run. However, for in a country like India, its success highly depends on the participation of the larger section of the society including the marginal farmers, especially the women for adopting the market-based technology. Nevertheless, extension programmes and other systems need to be emphasized to combat the social heterogeneity that arises due to diverse caste system, gender inequality and existing religious and political differences. Strengthening technology transfer and extension services, integration of ES services using a system-wide approach in decision-making and in national agricultural policies, comprehensive research work is required on designing context-specific tools to identify and measure ESs and designing appropriate policy mix by including synergies and trade-offs among different ES are some of the policy suggestions that can be implemented for the for improvement of PES within the country and across the globe as well.

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