

Evaluating alternatives for designing a Payment for Ecosystem Services (PES) structure for mangrove ecosystems in Mui Ca Mau National Park, Vietnam

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Background

The Government of Vietnam is pursuing market-based approaches to environmental protection, with a strategic focus on Ecosystem Services (ES), including biodiversity, carbon sequestration, food provision, recreation, etc. Specifically, the country’s vision is to identify the benefits of environmental services and to seek a system where beneficiaries of such services pay service providers.

Vietnam’s unique Biodiversity Conservation Law adopted in 2008 requires that users of environmental services pay charges to service providers (see Article 74).

Vietnam is also interested in combining economic development with two additional goals: (1) climate change mitigation – in particular rising sea levels – and (2) alleviation of rural poverty. Both of these goals require an improved flow of ecosystem services from coastal wetlands, among others.

The Mui Ca Mau National Park (MCMNP) PES pilot project on mangrove forests and coastal wetlands is supported by a Partner-Driven Cooperation Grant from the Swedish International Development Agency (SIDA) and the Vietnam Environment Administration (VEA).



Figure 1: Mangrove forest in Mui Ca Mau National Park. Ca Mau province supports almost half of the remaining mangrove forest in Vietnam.

The motivation for the project is to establish a mechanism for low-income households within the Park’s Zone of Ecological Rehabilitation (ZER) to earn income through livelihood models while also improving the supply of ecosystem services from coastal wetlands and mangrove forests.

Method

- In order to to conduct our analysis we address several issues:
- Assess the suitability of applying PES schemes in different contexts;
 - Summarize the key phases in designing a PES scheme; and
 - Develop general evaluation criteria to evaluate our proposed PES alternatives



Figure 2: Field work in Mui Ca Mau National Park with households

Purpose and Scope

The purpose of this report is to investigate alternative PES structures. If PES for coastal wetlands and mangrove forests is found effective within MCMNP, there are myriad opportunities for “scaling up” this approach to improve management of similar mangrove habitat in Vietnam, which currently covers 160,000 ha (down from a peak of 300,000 in the 1940s, see National Statistics on forest land 2008).

Suitability Criteria	Assessing suitability of a PES mechanism in MCMNP	Suitability Conclusion
Political context	Government structures provide the basic infrastructure needed for implementing a PES program. For example, the area benefits from: <ul style="list-style-type: none">Strong government support from high levels of government in Vietnam, thanks in part to previous success with PES elsewhere in the country.Support by local residents. An effective and gradual consensus-building approach has resulted in support by local residents, who recognize the private benefits of the livelihood model underpinning the PES system.Conflict reducing. The pilot model has led to a reduction in the historic conflict between the national park and local residents in the area.Stable governance. Although room for improvement exists, the foundations for a trusted and accepted governance system exist.	Meets this criteria, but some additional work is required to build trust and support for governing infrastructure
Potential ecosystem services	The coastal wetlands and mangrove ecosystems that are in focus in the proposed PES scheme have been shown to provide significant value on a global, national, and local level. Furthermore, they are at risk from population growth, climate change, etc..	Meets this criteria
Community	The support and competence of local participants is particularly strong. For example: <ul style="list-style-type: none">Competence and organizational capacity of local participants. Successful livelihood model implementation proves that local stakeholders have the skills and interest in continual learning to provide the necessary input for a successful PES.Strong engagement of other stakeholders. The use of PES in Vietnam ensures that there are intermediaries available to help facilitate transactions (e.g. WWF) and knowledge providers/experts that can assist in PES design (e.g., FORWET, ISPONRE, MONRE, BCA, SEI, FORES etc...)Local funding networks (e.g., SIDA)	Meets this criteria
Legal context	Although the clear identification of property rights in Vietnam provides a challenge for PES implementation, existing land use contracts between the MCMNP and the local land-users may provide the type of legal infrastructure needed for successful PES. For example, these existing contracts could be modified to reflect new PES agreements between buyers and sellers.	Partial meets this criteria, but may pose some challenges

Table 1: Assessing suitability of a PES mechanism in MCMNP

Criteria	Extent to which proposed PES meets criteria				
	PES #1 Agriculture	PES #2 Eco-tourism	PES #3 State buyer	PES #4 Carbon	PES #5 Eco-labeling
Measurability	+/-	+/-	+/-	+	-
Existence of a buyer(s)	-	+/-	+/-	+/-	+
Existence of a seller(s)	+	+/-	+/-	+/-	+/-
Technically feasible interventions	+	+/-	+/-	+	+
Defined property rights					
Voluntary participation	-	+/-	+/-	+/-	+/-
Direct payment to providers	+/-	+	+	+/-	+
Additionality	-	-	+/-	+	+
Conditionality	+	+	+/-	+	+
Ensuring permanence	+	+	+/-	+/-	+
Beneficiary pays	-	-	+/-	+	+
Avoiding leakage	+/-	+	-	+/-	+/-
Economic efficiency	-	+	-	+	+
Social acceptance	+	+	+	+	+
Transaction costs	-(+)	-(+)	-(+)	-	-
Poverty reduction	+/-	+	+	+/-	+
Government revenue	-	+	-	+	+

Table 3: Summary of five PES alternatives against the general evaluation criteria

PES attribute	PES #1 Agriculture	PES #2 Eco-tourism	PES #3 State buyer	PES #4 Carbon	PES #5 Eco-labeling
Ecosystem Service	Food, habitat	Recreation	Shoreline stabilization	Climate regulation	Food provisioning; supporting services nutrient cycling, habitat provisions, water purification, etc
Buyer	Local HHs	Tourists & tourist businesses	State government (or environmental NGOs)	Private companies, environmental NGOs, etc	Final consumers
Seller	MCM National Park	Local HHs	Local HHs	Local HHs	Local HHs
Geographical scale	Local	MCM National Park	National (affects all citizens)	International or national	National and international
Interventions by seller	Contribute money/materials for mangrove restoration	Constructs homestay building, improves scenery	Protecting, enhancing, or planting mangrove trees	Protecting, enhancing, or planting mangrove trees	Eco farming practices (e.g., re-forestation)
Payment by buyer	In-kind “labor hours” to protect forest	Cash payment too HHs	Input-based cash payments (based on actions taken)	Cash payments based on actual carbon stored (output-based) or actions taken (input-based)	Direct payment to the local HH from buyer through higher price
Intermediaries or knowledge providers	NGOs and research institutes	NGOs and research institutes	Gov’t authorities, NGOs, academics	NGOs and government authorities	Certified middleman, processor, certification agency, Government agency, Government authorities

Table 2: Summary of the five alternative PES structures



PES#1: Agriculture PES#2: Eco-tourism PES#3: State buyer PES#4: Carbon markets PES#5: Eco-labeling

Key conclusions

- Given Vietnam’s interest in protecting biodiversity and generally improving the cost-efficiency of environmental protection, **market based instruments show particular promise**. By using policies that establish a price for environmental resources, actors are given incentives to choose production methods and consumption that are more environmentally friendly.
- MCMNP represents a suitable area to implement PES**. Based on suitability criteria developed in the literature that focuses on the key attributes needed for developing PES at a particular site (**table 1**).
- Coastal wetlands and mangrove forests deliver Ecosystem Services (ES) that are compatible with a PES model**. The ES delivered by coastal wetlands and mangroves in MCMNP include food provisioning, carbon sequestration, shoreline stabilisation, protection of freshwater supplies from saltwater intrusion, provision of biodiversity, and aesthetic quality/ landscapes and these provide valuable inputs to a host of valuable goods and services, including seafood, wood, fruit, climate regulation, protection of drinking water, protection of real estate, and tourism. By viewing these ES as “natural capital” inputs, it is possible to develop market-based approaches aimed at improving the quality and quantity of these valuable services.

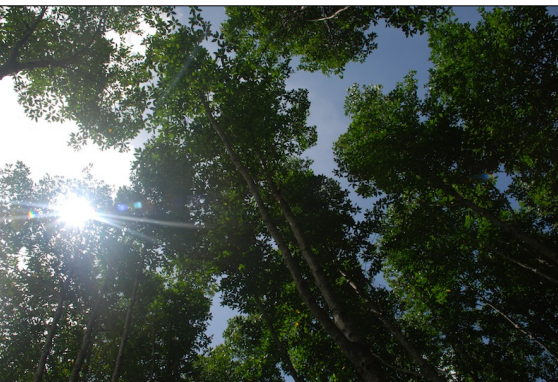


Figure 3: Carbon sequestration



Figure 4: Food provisioning

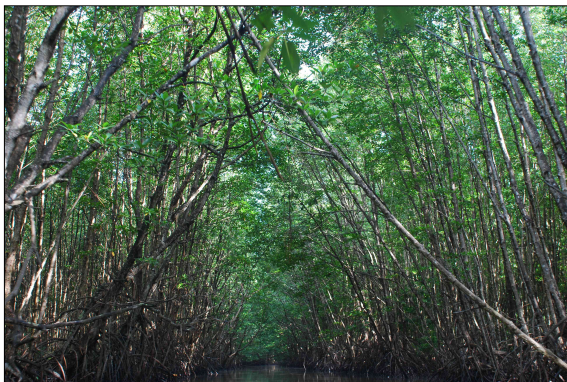


Figure 5: quality landscapes

- Several PES structures are possible within MCMNP**. We identify 5 alternative PES structures (**table 2**).
- To assess the alternative PES structures we apply a set of general economic criteria (table 3)**. These criteria help to identify which PES structures are more likely to succeed.
- Some PES structures may be stronger than others**. We find that some PES structures may be preferable to others (**table 3**). For example, we find that eco-labeling is promising since it provides opportunities for global beneficiaries to pay for ES provision while alleviating poverty and improving ES provision in MCMNP.

Main References

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