PREM
Poverty Reduction and Environmental Management

Policy Brief

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Financial Sustainability of the Marine Protected Area of Hon Mun: Lessons for other marine parks in Vietnam

Overview

Marine and coastal resources in SE Asia are under increasing threat from human activities. One way to manage these threats is through Marine Protected Areas (MPAs), which safeguard valuable ecosystems within their confines. Despite the ecological and socio-economic benefits they provide, the management of MPAs is often severely constrained by both a lack of funding and a poor relationship with communities living around (or within) them.

This study explores the relationship between coastal poverty, coral reef degradation and policy interventions in Vietnam, using the Hon Mun MPA as a case study. Hon Mun was set up in 2001, and is currently funded by a 4-year US$ 2 million programme (principally supported by international donors). This financial support has ensured sound management of its natural resources: it is recognized as a well-run MPA. In the long term, continued management would provide greater net benefits (particularly in terms of fisheries and tourism) than a 'no management' scenario. Yet to ensure future management, Hon Mun needs to develop its own sustainable and autonomous financing regime.

The best way to 'appropriate' Hon Mun's potential economic benefits would be through a user-fee for eco-tourists. Subsequent revenues could be ploughed back into management of the park and its buffer zone, and could also support much-needed alternative livelihood schemes in the region. This latter measure is essential given that, notwithstanding the park's success, around one third of local people in and around Hon Mun feel worse off since its creation. Local people need to be provided for, or else it will become increasingly difficult to enforce the park's no-take zones. Yet, if management is implemented successfully, a 'win-win-win' scenario can be realised, where ecological, economic and social needs are fulfilled.

This policy brief is based on Working Papers from the project 'Coral Reefs in Vietnam: Economic Value, Resource Dependency, Livelihoods and Coastal Poverty' by Pham Khanh Nam, Tran Vo Hung Son, Herman Cesar, Luke Brander, and Richard Pollnac. The papers are available online at: www.prem-online.org

Study Area

Vietnam has one of the longest coastlines in SE Asia (3,260 km), and a wealth of globally significant marine and coastal biodiversity. Deltas, lagoons, mangrove forests, coral reefs, sea grass beds, estuaries, tidal flats, up welling areas and coastal islands are all found on or adjacent to its shores. Coastal development, pollution and over-fishing represent growing threats to the country's ecological resources. In response to these pressures, the Vietnamese Government has established a series of Marine Protected Areas (MPAs). The Hon Mun MPA, in Southern Vietnam's Nha Trang Bay, comprises a group of nine islands and extends over 16,000 ha. This park contains the most diverse coral reef site in Vietnam, and also protects mangrove and seagrass ecosystems. Its management is currently jointly funded by the Global Environment Fund (GEF), World Bank, Government of Denmark, World Conservation Union (IUCN) and Government of Vietnam.

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Issues facing policy-makers:

- **What are the main economic activities associated with the Hon Mun MPA? Which stakeholders depend on these activities, and are they sustainable?**
- **How do local residents feel they have been affected by the establishment of the MPA?**
- **Will active management of Hon Mun provide greater net economic benefits in the long term (compared to a 'no management' scenario)?**
- **How can these benefits be 'captured', both to fund MPA management and provide socio-economic stability for local communities?**

Resource use in and around Hon Mun

Although now a Marine Protected Area, Hon Mun is also home to around 5,300 people. The majority of these residents depend directly on marine resources for their livelihoods.

Fishing: Most local people earn a living through fishing and/or aquaculture (either on a subsistence or commercial level): 79% of household heads are fishers. Fishing inside the 'core zone' of the reserve has been almost entirely prohibited. Vessels may operate in the park's 'buffer zone' and adjacent waters, though some trawling and anchoring restrictions still apply in these areas. On the whole, fisheries are traditional and small-scale in nature; however a rising number of modern vessels operate in the region and this has led to concerns about over-fishing.

Activity	1st	2nd	3rd	4th	Total
Fishing	47	10	-	-	**57**
Aquaculture	24	22	1	-	**47**
Crew member	20	10	1	-	**31**
Fish trading	5	11	8	-	**24**
Other	2	11	11	1	**25**
Total	**98**	**64**	**21**	**1**	

Box 1: Percent distribution of ranking of productive activities in Hon Mun

lobster and grouper) has been a growing source of income for resident communities over the last 10 years. Nearly 48% of households in Hon Mun MPA are involved in lobster and/or grouper culture. This is a result of both less productive capture fisheries, and the high market value of lobster and grouper products. Aquaculture has had some negative environmental impacts in areas adjacent to the park: corals have been damaged in the search for lobster seed, and some reef organisms have been over-exploited to feed lobsters.

Tourism: Due to its diverse natural resources,

Hon Mun is the most heavily visited marine park in Vietnam. By attracting over 300,000 visitors per year, the reserve almost entirely sustains the tourism industry in the nearby city of Nha Trang. Hon Mun is one of the most popular diving and snorkelling site in the country, although the majority of its visitors do not engage in underwater activities. Islanders themselves receive few benefits from tourism: only a few local people are engaged in this industry (for example providing boat services and supplying seafood) and, in general, income from tourism is low.

Changes in local livelihoods

Overall, the number of 'poor households' in the Hon Mun MPA is lower compared to other coastal areas, and access to basic services has improved since the park was established. Notwithstanding these developments, when asked how their lives had changed in the last five years (since the park's creation):

- **30% of heads of households felt they were better-off because** of lobster cage culture (31%) and more productive fisheries (21%).
- **36% of heads of households felt worse-off** due to less productive fisheries (61%) and restricted access to fishing areas (11%).

Research suggests that the role of marine systems in supporting fisheries has been deteriorating due to over-fishing, degraded coral reefs, and poor management. The use of modernized fishing gear may have improved catches for certain fishermen, yet this is not a sustainable, long-term option. Conservation may provide some 'spill-over effects' in the form of an enhanced source of fry/feed for aquaculture and increased abundance of target fish stocks. However, these 'spill-over effects' are rarely instantaneous, and may take years to fully materialize.

Local livelihoods are in jeopardy due to unsustainable use of reef resources. If income levels and food security further decline, it may become increasingly difficult to protect reserve areas that have been historically used by fishermen.
Already, fishing (including some destructive practices) is occurring illegally within the MPA. Hon Mun must provide greater stability to the local economy if conservation is to succeed.

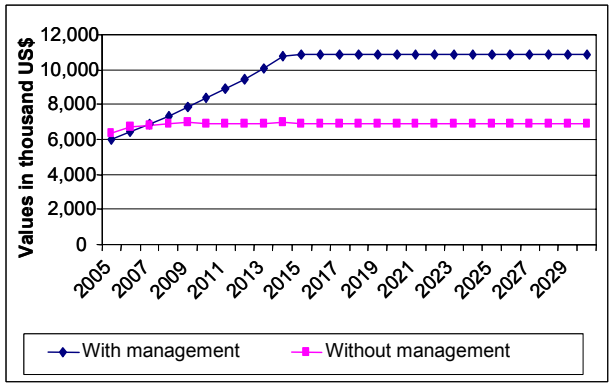
Policy recommendations

Threats to Vietnam's MPAs are largely a consequence of policy makers giving inadequate attention to the wider socio-economic context in which parks are set. MPA managers need to shift their focus to the inter-relationships between marine resource dependency, local livelihoods and coastal poverty. Consideration also needs to be given to the economic values of marine resources,

and how these can be 'captured' for the benefit of parks and their residents. Overall, achieving success is not only about raising park funds but also about spending these funds appropriately, and in line with local circumstances.

Hon Mun currently enjoys a US$ 2 million (largely international) funding programme, which is quite exceptional for a Vietnamese MPA. This external financing will soon come to an end, and alternative funding must be secured to guarantee the park's long-term future.

In this study, the economic outcomes of two different policy scenarios were computer simulated in order to evaluate the long-term gains of park management. Impacts on tourism, fisheries, and biodiversity were considered individually, and then combined to generate an overall economic value for the scenarios. The net benefits of park management compared to a 'no management' scenario, over the period 2005-2030, (Box 2).



Box 2. Net annual benefits 'With management' and 'Without management' of Hon Mun MPA.

The net benefits of the 'with management' scenario increase until 2015, after which they remain stable and considerably higher compared to the 'without management' scenario. This is a result of three main factors i) healthier marine ecosystems sustain more productive capture fisheries/ aquaculture ii) preserved marine life (particularly reefs) attract greater numbers of tourists and ii) Vietnam's coastal tourism increases regardless of marine conservation initiatives (at least during the period under consideration).

This study indicates that tourism will generate the greatest economic benefits for Hon Mun over the next two decades. Policy makers need to 'capture' a proportion of these benefits in order to fund operating costs and support communities who, as

yet, do not sufficiently gain from marine conservation. One way of doing this is through a 'user-fee' for park visitors. Based on current visitor numbers, a user fee of US$0.65 for non-divers and US$1.30 for divers would raise almost US$300,000: enough to adequately manage the MPA (Box 3). A proportion of these funds could be allocated to improving income generation programmes for affected fishermen. Residents could also be encouraged to become involved in the tourism industry directly, for example if they were given subsidized jobs or appropriate training.

Top down management is by no means made redundant by community involvement or by the development of tourism. Uncontrolled tourism development can itself cause ecological degradation. Equally, a community-based management approach will not deter illegal fishing in its entirety. As such, a regulatory approach to marine conservation still has a critical role to play.

A user-fee is one prevalent way of appropriating the benefits of MPAs, as visitors are typically willing to contribute to park management. However,

alternative revenue generating mechanisms might work more successfully in Vietnam's other MPAs, particularly those that are not popular tourist destinations. Funding opportunities include: government appropriations, levies, surcharges, leases and concessions, bio-prospecting, trust funds, donations, corporate sponsorship, debt-for-nature swaps and international donors. All of these options (individually, or preferably in combinatio) could be explored by MPA management authorities along the coast. Without the socio-economic stability that this funding could provide, the long-term conservation of Vietnam's marine ecosystems is uncertain.

Type of Tourists	Country of Origin	Number of Visitors	Service Charge	Conservation Fee	Combined Amount	Total Revenue
Snorkelers	Vietnam	36,400	$ 0.65	$ 0.65	**$ 1.30**	$ 47.273
Divers	Vietnam	15,600	$ 0.65	$ 1.30	**$ 1.95**	$ 30.390
Other Visitors	Vietnam	290,100	$ 0.00	$ 0.65	**$ 0.65**	$ 135,779
Snorkelers	Foreigners	4,500	$ 1.95	$ 0.65	**$ 2.60**	$ 11.688
Divers	Foreigners	13,500	$ 1.95	$ 1.30	**$ 3.25**	$ 43.831
Other Visitors	Foreigners	20,900	$ 0.00	$ 1.30	**$ 1.30**	$ 27.143
Total		**300,000**				**$ 296,104**

Box 3. A proposed user fee scheme for Hon Mun MPA

PREM: In brief

The Poverty Reduction and Environmental Management (PREM) programme aims to deepen and broaden the exposure of economic researchers and policy advisors in Africa and Asia to the theory and methods of natural resource management and environmental economics. It is anticipated that this will encourage policy changes that address both poverty reduction and sustainable environmental management.

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