SEAT: Measuring socio-economic benefits of marine protected areas

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ABSTRACT

Marine Protected Areas (MPAs) are used as tools to increase marine biodiversity and their concomitant ecosystem services that benefit human wellbeing. It is important to assess whether they are in fact delivering socio-economic benefits to the surrounding communities beyond increasing fish biomass. The Socio-Economic Assessment Tool (SEAT) was developed to measure these benefits. While there are existing tools, most of them are difficult to accomplish and require extensive data gathering, thus are not utilized enough by MPA managers in the country. SEAT is designed to complement the MPA Effectiveness Assessment Tool (MEAT), the primary framework being used to assess MPA governance effectiveness in the Philippines. The tool builds on the Millennium Ecosystem Assessment Framework of the UN Convention on Biological Diversity, with a focus on whether MPAs increase financial, human and social capital of MPA management bodies and the surrounding communities. SEAT was pilot-tested in several MPAs across the country, and the results were used to develop incentive schemes, i.e. recognition awards, as a sustainability mechanism for MPA management. On an individual level, the results can provide guidelines on how MPAs can better be designed, managed or even expanded to increase socio-economic outcomes. At the national level, the SEAT results can further enrich the existing MPA database being maintained by the MPA Support Network of the Philippines, which will allow for a more comprehensive assessment on the effectiveness of MPAs in improving human wellbeing.

1. Introduction

Marine Protected Areas (MPAs) have been scientifically proven to enhance the earth's natural capital in the marine ecosystem, thus contributing to improved human wellbeing by providing healthy habitats for fisheries, sources of recreation, buffers for storms, and a host of other natural processes that make human life possible the way we know it [16,2,26]. From a human point of view, the ultimate goal of resource management is to strive for a balance between consuming now and leaving enough for future generations to continue to enjoy the benefits from natural ecosystems [6]. Thus, MPAs become socially acceptable if they are able to contribute to both present and future needs [22]. At the very least, their establishment should not be seen as costs that outweigh the intended benefits that the present generation should be enjoying [27,3].

The Philippine Socio-Economic Assessment Tool (SEAT) was thus developed primarily to assess the extent of how MPAs in the Philippines were delivering social and economic benefits to the surrounding communities beyond increasing fish biomass being measured by biophysical assessments. SEAT complements the existing Philippine MPA Effectiveness Assessment Tool (MEAT) [14], which assesses governance performance as a proxy to effectiveness in managing Philippine MPAs [11]. SEAT makes a determination if the social and economic benefits from MPAs are more than their costs to stakeholders that should benefit from them. While there are other tools that provide socio-economic assessments of MPAs [10,21,4] the SEAT methods are simple and user-friendly, and the results aim to serve as incentives for managers to continue or expand their MPAs, and as inputs to redesign MPAs towards enhanced social and economic benefits.

This paper outlines the framework of SEAT and presents initial results of attempts to measure socio-economic benefits emanating from MPAs, using different survey methods. It further documents the experiences of using SEAT as part of incentive schemes for effective MPA management, particularly through MPA recognition awards both at the Marine Key Biodiversity Area (MKBA) level and at the national level. Insights emanating from these initial applications are discussed.

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2. The Socio-Economic Assessment Tool (SEAT)

SEAT is a survey instrument designed to be implemented among MPA managers, specifically coastal local government units (LGUs) that have established MPAs in their municipal waters. The need for SEAT arose from the observation that although MPA governance in the Philippines was being properly assessed through the MEAT, there was no tool being used that could comprehensively measure whether MPAs were creating socio-economic benefits which at the same time did not require specialized and expensive studies to be conducted regularly. It started with the aim of expanding and improving the criteria used for the Para El Mar Awards, a bi-annual national event that showcases best managed MPAs across the country. But because of the enthusiastic feedback from the initial implementation of SEAT, there are plans to use the tool to expand the current MPA database of the country.

There are two sets of indicators that are being measured. The first set contains input indicators, which refer to financial inputs or resources that LGUs employ to set up and manage their MPAs. The second set contains output indicators, which refer to basic socio-economic indicators that contribute to building financial, human and social capital at the local level. Hence, while MPAs are primarily meant to build up natural capital, they are further being designed, or at least encouraged, to simultaneously impact other aspects of human well-being in order to be acceptable and sustainable.

The indicators selected were based on the availability of data at the local government level, in order to make it easy for MPA managers to implement the tool. Complicated surveys will only discourage managers as well as local government officials to measure socio-economic impacts, thus will not generally contribute to improving MPA design and acceptance by local communities.

For the input indicators, SEAT focused on financial planning tools and economic instruments that are not yet included in MEAT, but have been introduced in natural resources management (NRM) in the Philippines. Similar to all public programs and projects, allocating local government budgets for MPA management is fundamental in carrying their plans out. Increasing local governments’ financial capacity through other revenue-generating schemes is needed given that domestic funding for biodiversity conservation is almost always never enough [8]. Trust Funds, as recognized by Philippine law [24], aim to ensure that whatever revenues are raised for MPA management are, in fact, used for MPA management. Business plans, considered as a best practice in protected area management [9], are now being drafted as accompanying documents of NRM Plans such as NIPAS-Protected Area Management Plans [7] Integrated Fisheries Resources Management Plans (USAID-ECOFISH 2017), and the Coral Triangle Initiative Action Plan [23], to name a few. Finally, incentive and disincentive schemes are recognized as significant components of environmental and natural resource policy globally [28].

On the other hand, output indicators build on the 2005 Millennium Ecosystem Assessment (MEA) framework that emanated from the United Nations Convention on Biological Diversity (CBD). The MEA provides decision-makers with the framework on how to link healthy ecosystems with improved human well-being [17]. The list of human well-being indicators in SEAT is by no means exhaustive, and there are still a number of controversies surrounding the linkages of improved ecosystems with improved social and economic indicators. Nevertheless, the basic macroeconomic indicators (income and employment), health indicator (increased seafood intake), and social capital indicators strive to represent most of the components of human well-being listed in the MEA framework.

2.1. Input indicators

Input indicators refer to the interventions made by MPA managers, i.e. the LGUs where the MPAs are located, that establish and sustain the MPAs. They are classified as follows:

2.1.1. Budgets allocated for MPA management

The indicator attempts to demonstrate the LGU’s determination to sustain MPAs by allocating regular funds for management. The budget may come from various sources, but if the LGU puts priority on MPA management, then the funds will be sourced from their regular allocation from the national government even if MPA revenues are not realized.

An implicit prerequisite is that the LGU has an MPA Management Plan drafted, in order to claim that budgets are indeed allocated towards MPA management. This prerequisite is consistent with MEAT wherein MPAs are said to have reached Level 1 if a management plan has been drafted and adopted.

At the onset, it would be difficult to expect most LGUs to fund all requirements of their MPA management plan solely from their regular budget allocations. Competing programs on infrastructure, education, health and poverty alleviation have always dominated public investment plans, especially in lower class municipalities where many of MPAs are located. The scoring scheme of SEAT recognizes this thus LGUs get a positive score if they are able to fund even just a third of their MPA’s budget requirements. Higher scores are provided with enhanced LGU ability to fund more programs in their MPA Management Plan. The highest score is accorded to LGUs who are able to provide 75% and above of their MPA budget requirements. The scoring scheme may be considered arbitrary, given that there is no hard-based evidence on the appropriate numbers to use. They may be refined later on when feedback is generated through more widespread application of SEAT.

2.1.2. Revenues generated from MPA management

Part of the benefits of sustaining MPAs is the potential of earning revenues from its users. In some successful case studies, MPAs have become favorite destinations of snorkeling and scuba diving enthusiasts, and have provided an opportunity for LGUs to earn revenues through the establishment of entrance fees. In other cases, LGUs have successfully raised revenues from the issuance of auxiliary invoices, based on taxes imposed on the transport of fish and other marine products outside of a fish port or fish landing site. With an increase in fish biomass due to the presence of MPAs, fish landed and transported may also increase, thereby allowing an LGU to earn more from the tax. The key is to properly identify who the major users are, and impose fees that are acceptable to them, ideally based on willingness-to-pay (WTP) principles of environmental economics. Needless to say, the scheme/s should be consistent with the allowable uses identified in the MPA management plan. Endowment funds can qualify as revenue generating schemes, as well as other regular donations made for the upkeep of the MPA.

LGUs who are able to establish a revenue-generating scheme, legally through a local ordinance, are accorded a score of 1. Those who are able to start collecting revenues are given a higher score of 2, while those who use the revenues to fund most of their MPA budget requirements are given the highest score.

2.1.3. Trust Fund created

Raising revenues from MPAs is a good indicator, as shown above. Ensuring that the revenues are used to fund MPA management activities exclusively is even better. If the WTP principle in economics is used as basis to determine revenue-generating schemes, then it necessarily follows that users are willing to pay only if their payment is used to enhance the resource or ecosystem service they are paying for. It can be assumed that current users of MPAs would want to continue using the MPA in perpetuity, thus sustainable management would be their top priority in supporting the revenue generating scheme.

The creation of the Trust Fund is the sole sub-indicator for this category. The amount of revenues and their sufficiency to fund the MPA management plan has been captured by the previous indicator. The Trust Fund intends to measure the earnestness of the LGU in using the revenues exclusively (or at least mostly) for MPA management. The
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