

Management Effectiveness Evaluation, METT-4

Tubbataha Reefs Natural Park

31 August 2022 and 2-3 March 2023

Introduction

Management effectiveness evaluation (MEE) is an assessment of how well-protected areas are being managed; the extent to which management is protecting the values and achieving goals and objectives. The Tubbataha Management Office (TMO) has implemented MEE since 2004 using different tools. 'How is your MPA doing?' which focuses on marine protected areas, was the main tool used in 2004, 2005, 2006, 2009, 2010, 2018, and 2020. The Management Effectiveness Assessment Tool (MEAT) was used in 2011, 2014, 2016, and 2019, while the Management Effectiveness Tracking Tool (METT) was used in 2014, 2016, and 2019.

This year, TMO implemented METT-4 as prescribed in the TRNP General Management Plan and in accordance with DENR Technical Bulletin 2018-05. METT is a self-assessment tool used to provide a quick overview of the progress in improving the effectiveness of management of protected areas. This framework was developed by the World Commission on Protected Areas, highlighting the six elements of effective protected area management - context, planning, inputs, processes, outputs, and outcomes. The latest version of the METT, METT-4, was presented in an Excel worksheet. The original 30 questions on planning, inputs, process, and outputs were retained and eight questions were added. An assessment of the values, ecosystem services, and threats was also included in the tool.

Methods

Twenty-nine TPAMB members, TMO staff, and partners participated in the first assessment on 31 August 2022. Eight new questions on staff security, climate change, carbon capture, ecosystem services, threats, connectivity, and conservation status of key indicator species and habitats included in the most recent METT tool were answered by TMO in 2-3 March 2023.

The team identified the values of the park from the list provided in the worksheet. From the 18 values on the list provided in the METT-4 tool, the following were determined as the main values of TRNP:

- biodiversity (threatened species and habitat),
- ecological processes, connectivity value,
- scenic values and outstanding natural beauty, and,
- tourism and recreational use

Of the 11 ecosystem services on the list, three were identified to be the most important for TRNP:

- education and research,
- recreation and tourism, and
- climate mitigation (carbon sequestration/storage)

METT-4 provided a detailed threats assessment; the extent and severity of the threats were rated as 'very high', 'high', 'medium', and 'low'. Apart from scoring each threat, the tool required the user to provide evidence to support responses, and actions to improve management. Each of the METT questions had four possible answers ranging from 0 to 3 points. The assessment was based on data and information generated in 2022.

Results

Assessment of Values

From the list provided in the tool, the following values were identified for TRNP: biodiversity (threatened species and habitat), ecological processes, connectivity value, scenic values and outstanding natural beauty, and tourism and recreational use. The condition of most values was 'very good', except for biodiversity which was rated as 'good'. Using the baseline data gathered in 1988 when the park was designated as a protected area, the trend in biodiversity is improving. Ecological processes remain undisturbed while the scenic values and outstanding natural beauty and tourism and recreational use are 'stable' based on feedback from dive operators and tourists. There was an increase in the number of tourists over the last 20 years.

Assessment of Threats

Among the 13 threat categories of threats listed in METT-4, seven are relevant to TRNP. Below is a summary of the threats assessment:

Transportation and service corridors. Sulu Sea is used as a passage of international vessels (right of innocent passage). The potential oil spill and grounding incidents posed by this activity significantly threaten biodiversity. To mitigate the threat, Tubbataha was declared as a Particularly Sensitive Sea Area (PSSA) with Area-to-be-Avoided (ATBA) as a protective measure by the International Maritime Organization in 2017. Automatic Identification System (AIS) and radar are used by rangers to monitor vessels entering the PSSA, which extends to the buffer zone of the park.

Biological resource use and harm. Fishing is an ever-present threat to the park. Although the number of violations decreased over the last 10 years, investment in law enforcement is maintained at a high level (e.g., personnel, equipment, supplies and materials, incentives).

Communication, education, participation, and awareness (CEPA) activities include information dissemination on the no-take status and conservation of the park. Regular biophysical monitoring informs managers of the health of the species and their habitats.

Human intrusions and disturbance. Only two activities are allowed in the park – tourism and research. Some impacts of tourism include coral damage, disturbance to wildlife (modification of animal behavior), degrading water quality, marine pollution, and ship grounding. Research activities may also lead to coral damage and disturbance of wildlife. The construction of the new ranger station may also cause some damage. Terrorism and piracy are threats that park authorities consider, especially during the tourist season.

Invasive and other problematic species and genes. Fishermen who used to fish in Tubbataha planted the invasive ipil-ipil trees (*Leucaena leucocephala*) to serve as a navigational aid, firewood, and shade in the islets. The ipil-ipil trees were eradicated in 2007 which allowed native beach forest trees to regenerate.

Invasive non-native/alien animals and pathogens may be transported by rafting organisms from marine debris and by migratory birds and other animals. However, no study has been conducted in the park to investigate the presence of invasive species.

Pollution entering or generated. Marine debris in the park comes from outside its boundaries. Marine park rangers and dive operators transport their solid waste to Puerto Princesa for proper disposal. Untreated wastewater from dive boats and the ranger station may have an impact on the water quality and marine life.

Geological events. Bird and South Islets have lost their vegetation due to overfertilization with seabird guano coupled with several years of drought. Without trees to hold the soil, strong winds and waves cause erosion, specifically in Bird Islet.

Climate change and severe weather. Possible habitat shifts and alterations are now observed in the reefs of Tubbataha, where algae, sponges, and other non-coral organisms proliferate. The recent bleaching and extreme weather events which damaged and weakened the corals may have provided space for other quicker-growing organisms, like algae and sponges, to thrive. Temperature extremes cause coral bleaching, while storms and flooding on the islets impact seabird reproductive success. Ocean acidification can harm life forms that rely on calcium carbonate-based shells and skeletons (e.g., corals, mollusks, crustaceans), while sea level rise causes coral drowning and coastal erosion. TMO monitors bleaching warnings in the Sulu Sea and maintains partnerships in monitoring ocean acidification.

Governance problems. Currently, the institutional standing of TMO is undefined, which hinders it from receiving regular government funding and its staff from benefiting from a secure tenure. TMO is applying to be a government entity to qualify for plantilla positions and regular funding from the government.

METT-4 Scores

TRNP scored 103 out of 114 points (90%) in the METT-4. It scored 21/21 (100%) in **planning** which includes questions on legislation, protected area size, and presence and implementation of a management plan and regular work plan. Republic Act 10067 (TRNP Act of 2009) is the blueprint for managing the park. Park boundaries are demarcated in navigational charts. TRNP has an approved General Management Plan for 2022-2031, which is translated to work and financial plans annually.

The park scored 13/18 (72%) in **inputs**. The low score in this element was attributed to the absence of a CEPA and Tourism Officer, the need for training to further improve staff knowledge and skills, and the absence of regular funding. An IEC and Tourism Officer was hired in 2023 and relevant trainings were identified for TMO staff. The budget remains insecure since the tourism revenues generated in 2022 only covered 25% of management costs, and the park is highly reliant on outside funding to accomplish its management goals.

TRNP scored 48/51 (94%) in questions pertaining to **process**. Marine park rangers are able to enforce the rules and regulations. MEE is regularly conducted as part of management activities. There is a CEPA and research and monitoring program being implemented. The local community in Cagayancillo participates in decision-making through their representation in the Tubbataha Protected Area Management Board (TPAMB). TMO conducts annual dive operators' consultations to discuss tourism-related issues and concerns. An open

line of communication is also maintained with the diving community. Park management prioritizes the safety of marine park rangers and staff while performing their duties. Some improvements are necessary, e.g., oxygen in-water recompression training for park staff and dive professionals, first aid and basic life support training for TMO staff, and provision of life raft at the ranger station. Active resource management is being undertaken e.g., reforestation of islets and extraction of Crown-of-thorns starfish. Climate change is considered a threat and adaptation measures are implemented by management, e.g., the ranger station is designed to adapt to sea level rise, and carbon loss from damages to the reef is prevented.

A rating of 93% (14/15 points) was achieved under **outputs**. Visitor facilities in Tubbataha include the moorings for dive boats, however, additional moorings need to be installed to cater

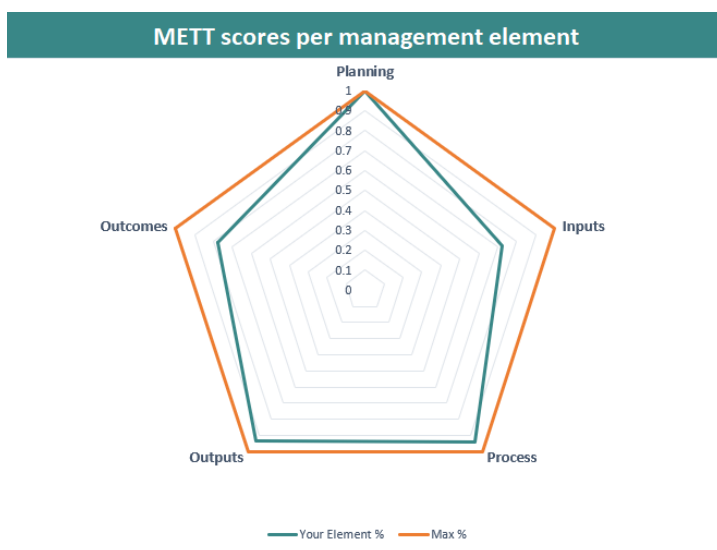


Figure 1. Diagram showing the scores obtained in METT 2023 versus the maximum points for each management element.

to larger vessels. Threats to the main values of the park are being addressed by park management through improved research capacity and collaboration with external researchers and other agencies. The park supports the local community in Cagayancillo by providing it with 10% of the revenues from tourism for livelihood activities. Other livelihood interventions in Cagayancillo are being undertaken by WWF-Philippines on behalf of the TPAMB (e.g., sale of plushies in TRNP).

TRNP scored 7/9 (77%) in **outcomes**. The low score was due to the deteriorating condition of Bird Islet and coral reefs in the monitoring areas in the last five years. Management interventions to address these concerns include reforestation of Bird and South Islets, planned installation of palisades to restore the sand, continue coral reef monitoring, and educating divers to minimize their impacts on the corals. In the last five years, the key indicator species, e.g., coral and fish populations have improved but threats persist. Nevertheless, the values of TRNP when it was first designated as a marine protected area and a World Heritage Site in 1988 and 1993 respectively, are predominantly intact.

Actions to improve management

Below are the actions to improve the management of the park:

Actions to improve management	Target year
1. Update enforcement, tourism, and CEPA plans	2023/2024
2. Improve communication equipment (e.g., calibrate radar, purchase Starlink)	2023
3. Streamline survey methods, and expand the network with the academe and other institutions to implement species-specific research (e.g., fish, corals)	2024
4. Conduct MPR training, training in government accounting and other procedures, advanced data analysis, effective communication, social media, library science, spreadsheet, and word	2023
5. Follow TPAMB budget according to Work and Financial Plan	2023
6. Apply for plantilla positions and GAA funding, continue to apply for grants, implement finance solutions	2023
7. Develop Strategic Asset Management Plan	2024
8. Conduct tabletop exercises for apprehension procedures (vis a vis new court requirements)	2023
9. Conduct safety trainings (e.g., OIWR, first aid, BLS) and purchase equipment (e.g., life raft, first aid kit for SCUBA)	2024
10. Update the research plan	2024
11. Conduct post-season dive operators' consultation	2023

12. Install additional moorings, for larger vessels	2024
13. Support women of Cagayancillo for Tubbataha (e.g., nursery for beach forest, plushies, conduct of surveys)	2023
14. Enhance participation in networks, and support fish connectivity study in TRNP	2023
15. Install palisades/restore sand (sand pump) in Bird Islet	2024