

Socioeconomic Impact of Tun Sakaran Marine Park: A Descriptive Study of the Perceptions of the Local Community

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The study was conducted to gauge the opinions of the local community of Semporna on the establishment of the Tun Sakaran Marine Park. Specifically, the study sought the perceptions of respondents with regard to: (1) socioeconomic impact, (2) development of surrounding areas, and (3) marine conservation and resources. Convenience sampling was employed and data were sourced using a structured questionnaire. Generally, it was concluded that the local community felt the establishment of the Tun Sakaran Marine Park has brought positive impact to the local economic activities. The place experienced good improvement in various economic aspects, particularly tourism related. Although the marine park was perceived as beneficial, its resources were thought to be ineffectively conserved and managed. Despite Semporna gained good reputation as place to enjoy the marine's beauty, the local community felt that the availability and maintenance of public facilities were somewhat neglected. Thus, study provided recommendations to preserve the sustainability of the area both economically and environmentally.

Keywords: Socioeconomic Impact, Marine Protected Area, Tun Sakaran Marine Park

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I. INTRODUCTION

The Tun Sakaran Marine Park (TSMP) was declared as Malaysia's seventh marine Park in 2004. Being the largest marine park in Malaysia, it has three specific objectives: (1) protecting and maintaining the biodiversity of the area; (2) promoting economic development by adapting ecological balanced utilization of the place and its reserves; and (3) safeguarding the involvement and benefit of the local community especially with regard to socioeconomic aspects. The TSMP is situated at the Darvel Bay, east coast of Sabah. It encompasses an area close to 350 km² and the closest township, Semporna, is approximately 45-minutes by boat. It covers six islands and two coral reefs, of which, the two largest islands, i.e., the Bodgaya island is mainly protected as a forest reserve and the Bohey Dulang as a bird refuge. The area is also home to several tribes. They are the early settlers of the *Bajau* and the *Suluk* tribes. Although many of the *Bajau Samal* (*Bajau Darat*) and the *Suluk* tribes have resettled to other nearby islands and the mainland, many *Orang Pelahu* (the sea-gypsies or boat people) and the *Bajau Laut* are still remained within the park. Their main occupational activities have a direct link to marine resources, such as fishing, sea-cucumber collecting, seaweed farming, boat construction and fish farming, among others.

From ecological viewpoints, the creation of marine protected areas (MPAs) will have positive impacts on floras and faunas, on land and the sea. Free from human intrusion and exploitation, it provides a natural sanctuary for sea creatures to grow and to multiply (Polacheck, 1990; Dugan, & Davis, 1993; Roberts, 1997; Palumbi, 1999). MPAs are also important for marine biologists to study sea creatures in natural habitats, thus, enhancing knowledge on them beside create catalyst for more social and economic activities (Bohnsack, 1993; Sobel, 1993). However, the conversion of sea area into a protected park is likely to have direct and immediate effects on its surrounding communities. The closure of sea area for fishing, for example, would immediately and adversely affect the income of many nearby residents. (Mangi, *et al.* 2011). It is worth to note that neglecting the socioeconomic aspect in connection to MPAs on the surrounding community may result in poor local consensus, if not aggression (Badalamenti 2000). Thus, the study is important and warranted.

II. LITERATURE REVIEW

MPAs are recognized as part of the remedy to preserve the marine ecosystem and to safeguard marine creatures (Jentoft, *et al.*, 2007). The marine biodiversity conservation can be

enhanced if a significant area of critical habitats of the ocean are set aside as protected areas (Sanchirico & Emerson, 2002; Sanchirico, 2000). On another perspective, MPAs conservation can generate significant economic benefits. It generates benefit financially through economic expansion (Saayman, *et al.*, 2012). The tourism sector benefit tremendously as MPAs provide leisure and recreational opportunities. Evidence has shown that MPAs are linked to increasing number of restaurants, accommodation facilities, business turnover, and appreciation of property values (Ferreira, 2008).

Most MPAs often have an apparent socioeconomic purpose to maintain or improve a resource base for human use (Jentoft, *et al.*, 2007; Ferreira, 2008). Based on South African data, it was found the MPAs have positive socioeconomic impact on the community, improved quality of life and social interaction (Oberholzer, *et al.* 2010; Saayman, *et al.*, 2012). The MPAs also improved the town's image, promoted better public facilities, and enriched entertainment opportunities, social and moral values (Ferreira, 2008). The existence of MPAs also enhanced the prides among community members beside provided an opportunity for the community and visitors to improve knowledge of plants and animals (Ferreira, 2008). It was suggested that

the local stakeholders of marine parks to be provided with a greater sense of ownership and their views are vital for the sustainable development of areas around MPAs (Saayman, *et al.*, 2012).

III. METHODOLOGY

Face-to-face survey method was implemented to gather primary data. Respondents were requested to provide their perceptions via the use of a structured questionnaire (adapted from Oberholzer, *et al.*, 2010). Perceptual items were measured using 11-point Likert's scales (0=strongly disagree; 10=strongly agree). A non-probability sampling, i.e. convenience sampling, was adopted. The intended respondents of the study were adult income-earners. The survey was conducted both in the township of Semporna (mainland) and the Bum Bum Island, the largest inhabited island off Semporna.

IV. RESULTS

There were 217 useable questionnaires after screening for missing values and outliers. Respondents were aged between 17 to 78

(mean=46.7, S.D.=12.7) with reported mean income of RM1,344. It is worth noting 96.3% of respondents were originally from the local area and the self-reported mean monthly income of approximately RM1,344 (min=RM250, max=RM6,000, S.D.=RM1,197). The following table (Table 1) provides the mean-test statistics, with midpoint of five (5) as the test value. The results are to distinguish whether the

respondents' perceptions significantly depart from the state of indifferent. Of the 29 items, Q29 was insignificant while Q20 and Q22 were marginal. The study found the respondents generally agreed Semporna has improved since having the TSMP (Q1). Economic aspect has improved (Q24) with more activities to be done (Q4) and more job opportunities (Q2).

Table 1. Residents' Perception Survey (n=217)

Survey Question	Mean	S.D.
Q1 The condition of the area has improved.	6.24 ^{**}	3.02
Q2 Job opportunities in Semporna has improved.	5.53 [*]	3.24
Q3 Marine resources in Semporna are conserved.	4.27 ^{**}	2.72
Q4 More activities can be done in Semporna.	6.63 ^{**}	2.94
Q5 People in the area has increased.	6.87 ^{**}	2.82
Q6 Property prices have increased.	6.43 ^{**}	2.92
Q7 Crime rate have increased.	5.60 ^{**}	3.16
Q8 Participation in local community has increased.	6.07 ^{**}	2.96
Q9 Prices of goods have increased.	7.13 ^{**}	3.03
Q10 The pride that residents have in Semporna has increased.	6.46 ^{**}	2.97
Q11 Cost of living has increased.	7.44 ^{**}	2.77
Q12 Litter in Semporna has increased.	7.33 ^{**}	3.13
Q13 Damage to sea area has increased.	6.50 ^{**}	2.82
Q14 Business opportunities for local residents have increased.	5.87 ^{**}	3.10
Q15 Tourists in Semporna have increased.	8.07 ^{**}	2.40
Q16 More people have moved to Semporna.	6.08 ^{**}	2.68
Q17 More people are buying property in Semporna.	6.01 ^{**}	2.79
Q18 Public fund for community activities has increased.	5.50 [*]	2.99
Q19 Roads are better maintained.	4.47 [*]	3.26

Q20 Public facilities have improved.	4.64 ⁺	3.02
Q21 Interactions between Semporna residents and tourists have improved.	7.19 ^{**}	2.45
Q22 Facilities for local residents have improved.	4.61 ⁺	3.35
Q23 Social values have improved.	5.72 ^{**}	2.71
Q24 Economic conditions of Semporna residents have improved.	5.89 ^{**}	2.90
Q25 Marine resources in Semporna are over used.	6.07 ^{**}	2.63
Q26 More investors are focusing on developing Semporna.	5.83 ^{**}	3.05
Q27 Marine resources are protected since the establishment of marine park.	4.39 ^{**}	3.08
Q28 The marine park is very beneficial.	7.27 ^{**}	2.96
Q29 The marine park is well maintained.	4.79	3.10
(** 0.01 level; ⁺ 0.05 level; ⁺ 0.10 level)		

The tourism sector has benefited tremendously. Leveraging on the marine park brand being the gateway to the famous the Sipadan Island, tourists' arrival is on the rise over the years (Q15). The increase of visitors provided catalysts for the growth, especially tourism related activities. Perhaps, this explain why the respondents concurred more activities are now possible, which subsequently, promote job and business opportunities. Improved involvement of the locals in the tourism sector was apparent as evidenced by more interactions between the local residents and tourists (Q21).

Improved prosperity has made Semporna on the radar among inventors (Q26). Inward migration has increased (Q5, Q16). Despite this, the local residents did not feel sidelined as they also benefited from the

available business opportunities (Q14). The population growth had caused an increase demand for real estate property, including housings (Q17), and that pushes prices upward (Q6). Soaring of prices also affected other goods (Q9). The respondents felt living costs have gone up (Q11) ever since.

Although social values had generally improved (Q23), the crime rate was thought to have increased (Q7). Perhaps, this point could be verified with relevant authority. The respondents strongly viewed cleanliness as a serious issue (Q12). Being the gateway to renowned tropical islands and diving sites, the presence of rubbish is causing eyes displeasures and exposing the area to outbreak of diseases. The survey also revealed respondents disapproved on the availability of public facilities (Q20, Q22).

Even the roads condition was viewed improperly maintain (Q19). If true, it would disrupt inward investments potential and subsequently retard its growth potential.

The survey had four survey items to assess respondents' opinions on conservation effectiveness (Q3, Q25, Q27 and Q29). Except for Q29, all other items significantly deviated from the test value. It is worrying to note respondents generally opined marine resources were not well conserved, but also overutilized. Their opinions may shed light to few possible causes, such as over fishing and unsustainable fishing methods, possibly carried out outside the TSMP. Depleting marine resources may also be caused by prohibited fishing methods (fish bombing and usage of plant poisons) by some of the *Orang Pelahu* and the *Bajau Laut.*, which lead to severe damage to sea corals and death of juvenile sea creatures.

Overall, the respondents generally felt having a marine park nearby the vicinity of Semporna was something to be proud of (Q10). This may be the yardstick that the local residents are in favor of having the marine park. This claim is justifiable as evidenced by the fact that they soundly agreed that the TSMP is very beneficial to the people and its surrounding areas.

V. DISCUSSION AND CONCLUSION

Two key objectives of TSMP include maximizing economic development in a sustainable way, while focusing on involvement by the local community. More than 96 percent respondents of the study were local, therefore, opinions garnered herein can be deemed valid representing the opinions of the local community. Economically and socially, the study found the local community generally agreed conditions have improved since the establishment of the TSMP. More importantly, it was confirmed the locals have benefited from the business opportunities have benefited the local residents. These findings lend further support to existing evidence Saayman, *et al.*, 2012; Oberholzer, *et al.*, 2010), and confirm the argument that protected area has huge potential to impact its surrounding communities (Strickland-Munro, 2010).

The benefits brought by the TSMP to the local residents are not without costs. Although the local residents commented positively on economic aspects, their opinions on social aspects did not fare well.

In view of the poor opinion on cleanliness, for example, multiple strategies, especially by the local authority are to call for, including: improve resource allocation and planning for waste collections and disposals; inculcating litter-free mindset among the residents; and law tougher enforcement against the litterbugs. Such strategies are workable as the costs-benefits nature of protected areas also depends largely on how they are governed (Coad, *et al.*, 2008). Moving forward, provisions for infrastructure development that boost social values may be effective to tackle the anxiety of local residents. After all, better road condition and public facilities would definitely alleviate the livability rating of Semporna and its surrounding.

Like most MPAs, the main aim of TSMP is to conserve and enrich the marine biodiversity of the area. Various measures to control illegal encroachment are in place. Some examples of such measures include

disallowing the building of permanent structures and limiting visitations by tourists only during the day time. Despite these measures, the local residents felt marine resources were not well protected and they were overused. Drawing from the experiences of MPAs in the Mediterranean (Badalamenti, *et al.* 2000) and two SANParks of South Africa (Oberholzer, *et al.*, 2010), the flexibility of park management and good community relationships are important components toward good conservation practices. As such, the authority of the TSMP could engage and encourage the locals, especially the islanders, to involve actively in conservation efforts. Their participant may inculcate positive attitude and stronger sense of ownership that lead to a more sustainable protected area.

It is inspiring that the local residents were having favourable thoughts to have an MPA close to their township, which by default making the town of Semporna as the

major gateway to the TSMP and its surrounding islands. They were pleased that the TSMP has brought economic prosperity and the local residents are engaging actively in the sector. This is indeed a very good sign as tourism and conservation have been proven to coexist harmoniously. Despite yielding good rating in many aspects, there were some grouses such as higher living

costs. Identifying the causes for higher prices of goods and services require a much more comprehensive research as inflationary effect is an outcome of the economic system as a whole. Other research possibilities in the future include examining the economic opportunity costs in lieu of the establishment of TSMP.

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