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Stakeholders analysis on criteria for protected areas management categories in Peninsular Malaysia

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Abstract. The establishment of protected areas has always been associated with a strategy to conserve biodiversity. A well-managed protected areas not only protect the ecosystem and threatened species but also provides benefits to the public. These indeed require sound management practices through the application of protected areas management categories which can be is seen as tools for planning, establishment and administration of protected areas as well as to regulate the activities in the protected areas. However, in Peninsular Malaysia the implementation of the protected areas management categories was carried out based on the *'ad-hoc'* basis without realising the important of the criteria based on the local values. Thus, an investigation has been sought to establish the criteria used in application to the protected areas management categories in Peninsular Malaysia. The outcomes revealed the significant of social, environment and economic criteria in establishing the protected area management categories in Peninsular Malaysia.

1. Introduction

Protected areas refer to an area which receives protection due to its natural, ecological and cultural values. Protected areas also involved marine areas involving boundaries of which will include some parts of the ocean [1] [2] [3]. Protected areas have often been associated its primary purpose of existence is to conserve biodiversity and providing habitat as well as safeguard the areas from hunting for threatened and endangered species. This kind of protection helps maintain the ecological processes that cannot survive in most intensely managed landscape and seascapes.

The International Union for Conservation of Nature (IUCN) defined protected areas as "land or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means". The Convention on Biological Diversity (CBD), however, uses a different definition "a geographically defined area which is designated and managed to achieve specific conservation objectives" [4]. Both the IUCN and the CBD agree that protected areas are used as environmental conservation units and use different

terminologies such as national parks, wildlife sanctuary, nature reserve, game reserve, game ranch and nature conservancy [5] [6].

2. Protected Area and Management Categories

The classical concept of protected area movement began with the establishment of Yellowstone National Park in the United States of America in 1872 [7] [8] [9]. It was considered as a pioneered to the protected areas in their classic form, as government owned, government run areas set aside for protection and enjoyment[4]. This model was and remains a simple but powerful expression of a peoples' concern to protect their heritage for all time. In the early1870s protected areas expanded and concerns of environmental conservation were enhanced with the emergence of the concept of managing protected areas [10]. Since then, the establishment of protected areas has witnessed various size, shape, management system, ownership and governance patterns employed to the protected areas [4] [11]. However, there is no uniform standard or understanding on the protected area. During this period protected area often referred to as an area with beautiful scenery, wildlife and recreation [11]. Thus, the introduction of protected areas management categories by IUCN in 1994 is seen as an important global standard for managing protected areas. The IUCN clarified the implication of different types of protected areas under six management categories as indicated in Table 1[12].

Table 1. Protected areas management categories

	Type	Primarily management objective
Ia	Strict Nature Reserve	Scientific purposes
Ib	Wilderness Area	Wilderness protection
II	National Park	Ecosystem protection and recreation
III	Natural Monument or feature	Conservation of specific natural feature
IV	Habitat/species Management Areas	Conservation through management intervention
V	Protected landscape/seascape	Landscape/seascape conservation or recreation
VI	Protected areas with sustainable use of natural resources	Sustainable use of natural resources

The first three of the protected areas management categories (1a, Ib, II and III) were designed mainly to protect biodiversity and natural features with strictly controlled human intervention whereas the last three of the management categories (IV, V and VI) allow the human intervention to the protected areas. Most countries have established protected areas without taking into account the purpose for which various terms are used to refer to protected areas such as the historic area, city parks, game reserves, wildlife sanctuaries, archaeological sites, landmarks and land for forestry use.

In most Asian countries including Malaysia, the protected areas were established during the colonial period with the main purpose of a game reserved mainly for hunting and recreation with less intention and consideration to the interest of local communities [13] [14] 15]. The negligence of the local communities participation has led to the problem on social, economic and environmental effects in many countries [10]. For instance, in Peninsular Malaysia overall protected areas coverage is 1,801,792ha (13.7%) of the total land of 13,189,061ha includes national parks, state parks, wildlife reserves and sanctuaries [16]. These led to the foundation of the Malaysian National Biodiversity Policy [17]. Principally, the conservation strategy is an integral part of sustainable development of the country in providing protection of sources for critical ecosystem services [18]. All of the protected areas gazetted were based on the various provision of the law, but it does not clearly spell out the definition and objectives on the designation of the management categories towards the protected areas [19]. Until now, protected areas in Peninsular Malaysia are classified as national parks, state parks, wildlife reserved and sanctuaries [19] and mostly being managed by the Department of Wildlife and National Parks (DWNP).

The application of protected areas management categories in Peninsular Malaysia began in 1996 however, the determination and the application do not have a definition and clear objectives. This is

because it only focused on the scientific evidence with less concern on the interest of the local communities surrounding the protected areas. Indirectly, this casts doubt on the suitability and appropriateness of the use of category management in existing protected areas. This situation coupled with the application of the management categories in Peninsular Malaysia was based on *'ad-hoc'* basis with the absence of details in respect to the criteria used in determining the management categories [16]. Due to at the earlier application of the categories were based on its needs at that moment without any detailed consideration were made in assigning the protected areas management category [20]. As a result, the country's immense biodiversity potential is underutilised due to lack of awareness, lack of integration between the local communities and the management.

Over the years, the management of protected areas involved in the discussion on the local empowerment, popular participation, democratisation and devolution of power [21]. These have led the *'paradigm shift'* in the protected areas management from an emphasis on the 'centralization' under the federal government governance to the interest of the local stakeholders [4] [22]. Although protected areas often been associated with the main purpose of biodiversity conservation, these areas also provide essential benefits particularly through recreation, tourism, agriculture and other natural resource product [9] [23] [24]. The conservation of resources in protected areas began to be evaluated regarding social, economic, environment [21].

3. Criteria for environment, economy and social

A set of criteria comprises of the environment, economy and social [25] [26] [27] [28] [29] were employed in determining the criteria associated with the application of protected areas management categories. All of these criteria were selected based on the literature search and had been confirmed by the expert from the locations chosen for this study. The selection of the criteria has been modified to reflect the aims of this research as illustrated in Table 2:

Table 2. Criteria for social, economy and environment

Criteria	Sub-criteria	Description
Environment	Biodiversity	Species and habitat conservation
	Landscape	Landscape protection
	Ecosystem	Water quality
Economy	Employment/Income	Provide job opportunity
	Business opportunity	Product branding
		Rural diversification (agriculture)
		Tourism value and e-business
Social	Social inclusion	Public participation
		Demographic trends/infrastructure
	Health and well-being	Recreation
	Learning and education	Research/volunteering/education

4. Stakeholders Analysis

Stakeholders refer to any individual, group or institution who has vested interest in the natural resources of the project areas and who potentially will be affected by the activities and have something to gain or lose if conditions change or stay the same [30]. The aims of stakeholder analysis are to develop a strategic view of the human and institutional landscape and the relationships between the different interested parties and the issues they care about most [31]. Protected areas often affected by stakeholders participation either directly or indirectly involved in the utilisation of the resources or management duties [9] [32]. Successful protected areas management depends on the interaction between practitioners, policy makers and various stakeholders including local communities [9] 33]. The lack of support from stakeholders, particularly from local communities together with the management make it elusive the goals of integrated management strategies for the sustainable utilisation of resources [34].

5. Methodology

The questionnaire survey was conducted to 728 respondents in 10 locations, i.e., RHL Wang Pinang; Pusat Konservasi Bukit Pinang; Taman Negara Pulau Pinang; RHL Sungkai; Pusat Konservasi Bota Kanan; Santuari Burung Batu Gajah; Taman Negara Pahang; Taman Negara Kelantan; Taman Negara Terengganu and Pusat Konservasi Bukit Paloh comprises of three main group of management, local community and visitors. All of the locations are in Peninsular Malaysia under the management of DWNP. The survey took over a period of more than six months. The main aim is to establish and understands the social, economic and environmental criteria's of protected areas management categories. An expert judgement has been sought before the survey comprises those who directly and indirectly involved in protected areas management. The survey questionnaire comprised of 55 questions that were divided into some sections focusing on basic socio-demographic information and issues on benefits of social, economic and environment from protected areas. Before beginning the potential survey respondents in the study were informed of the goals of the interviews through the statement read by the interviewer and assured the data were analysed anonymously. Interviews were conducted upon verbal consent of the potential respondents to participate.

6. Results

6.1 Respondents Demographics

Based on valid survey responses of 728, the respondents were 75% male and 25% female of Malay, Chinese, Indian and indigenous ethnic groups mostly (Semai, Semelai, Che Wong Jah Hut and Batek). The gender biased was caused by the readiness of the respondents to be part of the interview conducted. The age of the respondents comprises of 62% (25-39 years old); 27% (40-55 years old); 10%(18-24 years old and 1% (>55 years old). The compositions on a group of respondents were 20% management; 36% visitors and 44% local communities. The distribution of the respondents were Wang Pinang Wildlife Reserve 4.8%;Bukit Pinang Conservation Centre 4.9% ;Penang National Park 24.2%; Sungkai Wildlife Reserve 6.9%;Bota Kanan Conservation Centre 6.2%; Batu Gajah Birds Sanctuary 5.5%; Pahang National Park 24.6%;Kelantan National Park 8.0%; Terengganu National Park 7.7% and Bukit Paloh Conservation Centre 7.3%. Based on the survey conducted the location of the protected areas were located far from the city and surrounded by traditional Malay, Chinese and indigenous village.

6.2 Criteria for Protected Areas Management Categories

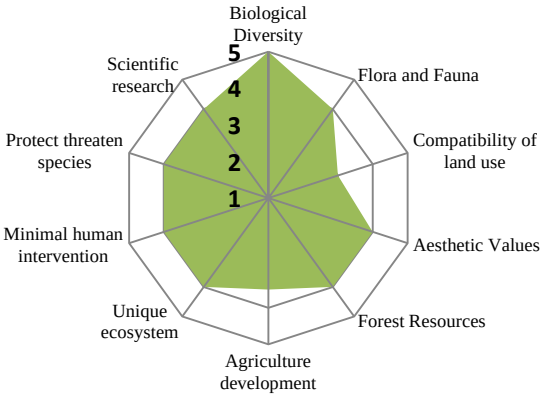

Figure 1. Criteria for Environment

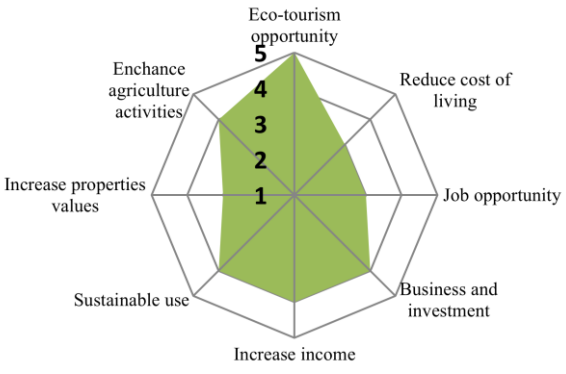

Figure 2. Criteria for Economy

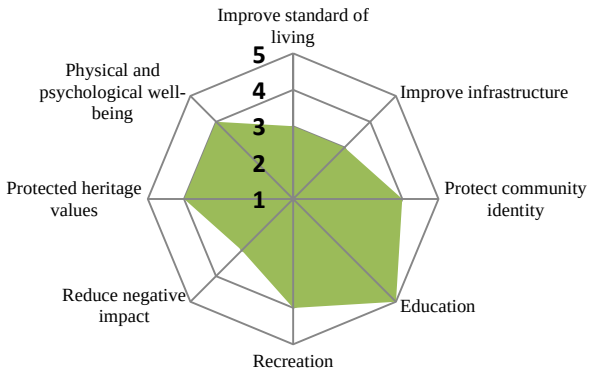

Figure 3. Criteria for Social

In light with the aim of this research and the literature search, a set of criteria has been identified based on three elements, i.e., environment, economy and social as indicated above. The criteria were developed from the general set used in establishing the protected areas [9] [35] [36]. All of the criteria's have been modified to reflect on this study and the policies of National Policy on Biodiversity [17]. A total of 26 criteria has been tested to the respondents comprises of 10 criteria for the environment, eight criteria for the economy and eight criteria for social. The 'like types' questions by using 1= Strongly agree; 2= Disagree; 3=Neither agree or disagree;4= Agree and 5= Strongly agree been used to measure a different kind of variables. Because of this observation the median (*Md*) was used as the measure of a central tendency [37] [38].

Figure 1, shows most of the respondents 'strongly agree' on the environmental criteria associated with the protected areas should possess biological diversity, 'agree' on unique eco-system, biological diversity, flora and fauna, minimal human intervention, protect threaten species, scientific research, enhance agriculture development and protect aesthetic value. Whereas, the respondents 'neither agree or disagree' towards the compatibility of the land use. It indicates, protected areas should maintain its main purpose for the protection and conservation of the biological diversity of the areas. This should be translated as the prime function for the establishment of the protected management categories.

Meanwhile, as illustrated in Figure 2 respondents were asked on the importance of protected areas to economic wellbeing. It seems that they 'strongly agree' on the opportunity for eco-tourism, 'agree' on enhancing the agriculture activities, business and investment, increase income and sustainable use of natural resources but 'neither agree or disagree' to the increase in properties value, reduce cost of living and providing job opportunities. The mix responses among the respondents were due to the facts that not all of the protected areas provides opportunities to generate income or job opportunities as some of the location was established mainly for conservation and education.

Figure 3, indicates the response by the respondents to the importance of social criteria. Most of the respondents suggested 'strongly agree' towards opportunity for education, 'agree' on protecting the culture, protect heritage values, physical and psychological well-being and opportunity for recreation. These shows the dependency of the stakeholders to the protected areas is high. This pattern suggests that the important of protected areas should be extended to the needs of the stakeholders. Meanwhile, they were 'neither agree or disagree' towards reducing negative impact, improve the standard of living and improve the infrastructure.

7. Conclusion

To our knowledge, this is the study that describes the criteria that influence stakeholders towards values of protected areas in Peninsular Malaysia. The design of this research allowed us to address a range of protected areas values and stakeholders that were often omitted in the process of determining the protected areas management categories. Interestingly this survey suggests that most of the stakeholders surrounding the protected areas are willing to involve and participate in the process of

designing the protected areas management. This indicates the importance of their views in line with the *'paradigm shift'* which emphasis on the stakeholders surrounding the protected areas.

On the other hand, the implication on the primary objectives of protected remains as the main agenda, while at the same time the function of economic and social has become importance in managing protected areas increasingly and it should be translated as secondary objectives to the existence and future of protected areas establishment. This study should further facilitate the government agency particularly DWNP in reviewing their protected areas management categories to the protected areas under their jurisdiction which until now due to be made. Further studies such as this are importance if we firmly believe that the people, particularly the local communities, have a voice in the future development of protected areas in Peninsular Malaysia.

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