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# Assessing the Community Capacity for Environmental Stewardship (in Langkawi Malaysia)

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#### **Abstract**

The structure of tourism has the potential to create numerous opportunities, beneficial effects and conservation incentives for island communities. However, its negative impacts can gradually destroy the resources upon which it depends. Hence, it is essential for the local community to take responsibility, address problems, act effectively and lead the roles to protect their living area while exploiting tourism industry. The main purpose of this study is to assess the level of community capacity for environmental stewardship from tourism negative impacts in Langkawi Island, Malaysia. This study employed a quantitative method. The outcomes provide the current level of community capacity for environmental stewardship as well as general characteristics of Langkawi local community. The results may give a better insight toward achieving systematic change in local communities regarding conserving and protecting natural environment from tourism environmental costs. It may also help to obtain further tourism development while minimizing negative environmental impacts.

Keywords: community capacity; Island community; environmental stewardship; tourism development

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#### 1. Introduction

Several gaps have prompted this research including limited attention to the concept of community capacity in the tourism literature and negligence of community capacity role as an essential prerequisite for sustainable tourism development [1-3]. Whilst other areas such as health, education, management and agriculture have been widely exploited this concept, the negligence of community capacity in tourism literature as well as tourism sector has created some difficulties in eco-travel destinations, particularly in developing island destinations since various types of changes happen on fragile island ecosystem as tourism evolves. Consequently, to pursue sustainable tourism development, the capacity of local community for environmental stewardship as an effective strategy should receive extra attention and more support. Accordingly, tourism can directly maintain development process and conservation efforts. The importance of assessing community capacity is universally acknowledged, considering it as assessing the assets, abilities and opportunities within a community that enable them to take action and leading roles to improve their living condition and protect their living area [4-6]. Since the essential characteristic of this research line is its multidisciplinarity, hence there are many possible approaches to assess community capacity. In brief, the main objective of this study is to assess the current capacity of langkawi local community for environmental stewardship. The following section of this paper reviews the literature regarding the concepts of community, community capacity and its related topics. The proceeding sections describe the context and methodology used in the case-study site followed by presentation of results, discussion and conclusion.

#### 2. Community and Community Capacity

According to Williams and Lawson [7] community defined as a group of people who share common goals or interest. Hillery [8] described that the common components of community are area, common ties and social interaction. Meticulously, community is defined as a combination of people who live within a geographically defined area (physical location, workplace, suburb, neighborhood, geo-political space) with social and psychological ties (networks and connections, heterogeneous groups of people who share needs, tasks, occupations, and struggles) among each other and with the place where they live [9].

Smith, Littlejohns and Thomson [10] described community capacity as the "essence of development" whilst Paronen and Oja [11] defined it as an essential condition for improving the process of sustainable development and long term growth. Balint [12] explained that "community capacity refers to the levels of competence, ability and skills necessary to set and achieve relevant goals". Hence, community capacity is the ability of individuals, organizations and communities to manage their own tasks and responsibilities to foster and sustain changes [13, 14]. Community capacity is understood as the "qualities of a capable community" [15] that includes "the assets and attributes that a community is able to draw upon in order to improve their lives" [16]. According to McLeroy [17] characteristics of communities have a strong influence on individual's abilities to identify, mobilize, and address public problems. The promotion and use of these characteristics help both community and individual to change consistently with their desired public goals and objectives [18]. Moscardo [2] found "two key factors are common to all the definitions of community capacity: first that community capacity is about collective knowledge and ability within the community itself; and second that this knowledge and ability is used

to define problems and options from within the community". Consequently, understanding the level of community capacity is a prerequisite for any further tourism development.

## 3. Theory of Community Capacity Building

The term 'community' in terms of community capacity building, usually is referred to (i) a specific geographical (spatial) community, (ii) a community of identity, and (iii) groups of people with a common interest or issue (non-spatial) [19-21]. Theory of community capacity building describes a process aimed at strengthening the capacity of individuals and organizations to develop and sustain conditions that support all aspects of community life [22]. Simmons, Reynolds [23] stated that, the theory of community capacity building have a common formula with three features: (1) community capacity building is a process/an approach; (2) capacity building is a collection of domains often referred to as characteristics, aspects, capabilities or dimensions; and (3) definitions incorporate an outcome or the rationale for building capacity. Moreover, Goodman et al. [4] described this theory "as a process as well as an outcome; it includes supportive organizational structures and processes; it is multi-dimensional and ecological in operating at the individual, group, organizational, community and policy levels; and it is context specific". It has been argued that, the community can undertake changes with independence by focus on leading the community to self-awareness and attention to the potential assets of a community [24, 25]. In tourism context, understanding and building community capacity is a necessary condition for development [3]. Indeed, it is a complex task that requires a coordinated, well-planned and long-term effort which leads to empowering local people to take advantage of the opportunities provided by tourism development while minimizing its costs [6, 26].

#### 4. Assessments of Community Capacity

Based on the reviewed literature, a very large number of different concepts have been used to evaluate the capacity of communities. These include measuring different community's attributes such as positive attitudes, knowledge, skills, education and training, resource mobilization, positive partnerships and collaborative arrangements between NGOs, the private sector, coordination, participation, leadership, awareness, infrastructure, local cultural heritage and capital assets [24, 26-34]. However, some scholars suggest different sets of community capacity domains for assessing the capacity of communities. Table 1 briefly shows some selection of community capacity domains.

As mentioned, a variety of dimensions have been identified and introduced in attempts to assess community capacity. Some authors have suggested a flexible approach in order to assessing community capacity. They also mentioned that some dimensions will have different meanings for particular communities and the various levels within communities [38]. The focus of this study is to measure the level of community capacity for environment stewardship based on the established community capacity dimensions. Thus, engaging with predefined dimensions from the literature is an appropriate approach. Certain community capacity dimensions were employed for this study based on the aim of the research, the reviewed literature on community capacity's measurement models and the selected sample population from langkawi local community. Hence, the most relevant dimensions found for this study are: shared vision, sense of community, participation, skills and

knowledge and lifelong learning. These dimensions were selected to avoid using terms that might require respondents to have an expert knowledge of their community and to employ concepts that could be applied in other community which have the similar contexts or settings. Each dimension of community capacity selected for this study is described in the following section.

Table 1: Selection of Community Capacity Domains

Author	Factors	Dimensions
[4]	9	Citizen participation, leadership, skills, resources, social and inter-organizational networks, sense of community, understanding of community history, community power, community values and critical reflection
[35]	4	A sense of community, a level of commitment among community members, the ability to solve problems, and access to resources
[36]	7	shared vision, sense of community, community participation, community leadership, resources, skill and knowledge, communication and ongoing learning
[15]	9	Participation, leadership, organizational structure, problem assessment, resource mobilization, asking why, link with others, role of external agents and program management
[37]	5	Participation, leadership, community resources, social network and community power
[16]	9	Participation, problem assessment capacities, equitable relationship with external agents, organizational stature, resource mobilization, links to other resources and people, leadership, asking why, and control over program management
[29]	9	Community participation, community leadership, community structures, asking why, resource mobilization, link with others, external support, skill and knowledge and sense of community

## 4.1. Shared vision

Allen and Allen [39] stated that, shared vision emerges when people have a chance to integrate their own personal goals and approaches with those of the community, organization, or project. Bopp et al. [36] defined a shared vision as a picture of the community at some time in the future, painted in enough detail that people can imagine it. The primary reason of choosing shared vision is its significance for tourism development and

planning [40, 41]. Huffman [42] explained that, having a shared vision based on shared values and goals is a crucial step that must be considered when communities experience reform efforts. Shared vision has been claimed as one of the dimensions of community capacity [34, 36]. Despite the given merits of applying shared vision, this research also noted on the possibility of shared vision as being an influential factor of community capacity for environmental stewardship [43-47].

#### 4.2. Sense of Community

Sense of community is another dimension of community capacity for environmental stewardship that is selected for the purpose of this study. According to Sarason [48], sense of community is defined as the interdependence between an individual and community. In other words, sense of community is a sense of belonging to a place and people in which it entails interaction with other members of the community [49]. One of the most important reasons of opting this factor is that developing sense of community motivates high level of concern for sustainability issues among community members [2, 36]. Based on previous studies, sense of community is presented as a dimension of community capacity [4, 28, 29, 36, 50]. This study also noted on the possibility of sense of community as an influential factor of community capacity for environmental stewardship [51, 52].

#### 4.3. Participation

Participation selected as the other dimension of community capacity for environmental stewardship. It has been argued that, considering participation is essential when measuring or building community capacity [4, 6, 29]. On the other hand, Tosun [53] stated that getting communities involved in tourism could be one of the best ways to ensure that they benefit from tourism development and their available natural resources. Participation is crucial condition for sustainable tourism development and planning as it results in more appropriate decisions, and greater motivation among local people [54] and strong support for the protection of the environment [55]. Similarly, Tosun [56] revealed that lack of local participations in tourism development process causes and consequences un-sustainability.

# 4.4. Knowledge and skills

Knowledge and skills is another dimension of community capacity that is selected for measuring community capacity for environmental stewardship. The most important reason for selecting this dimension is that developing knowledge and skills motivates high level of concern for sustainability issues among community members and enable them to take decisions and actions for themselves [6]. Aref and Marof [57] claimed that to build and develop the capacity of a community, individuals need to obtain knowledge and skills. Knowledge and skill help people to think and act in new ways. According to [58] analyzed results of 392 case studies of tourism development showed that the most basic barrier to reach effective tourism development was inadequate knowledge about tourism. Hence, the level of community capacity may be lower in the absence of skills and knowledge to produce and implement quality plans [59].

#### 4.5. Lifelong learning

Lifelong learning is a process of reflecting upon what is happening within a community and then systematically exploring what is discovered in order to learn how to be more effective [36]. Lifelong learning also leads to greater self-awareness and community understanding. It is widely perceived as "a vital ingredient of capacity building for a sustainable future" [60]. Scott and Gough [60] argued that such learning is essential to help people build the 'personal and social capacity' to grapple with sustainability issues in their own lives and work. The most important reason of choosing lifelong learning in current study is its importance for tourism development and planning [61]. Moreover, this research also noted on the possibility of lifelong learning as being an influential factor of community capacity for environmental stewardship [61].

#### 5. Site Description

Langkawi Island is located in the north of peninsular Malaysia. The island has diverse forms of geology which is composed of the great variety of coastal types and coastal morphology. The cliffs are the most dominant types, followed by beaches and mangroves. Langkawi is regarded as a developed rural destination of Malaysia, which is one of the favorite tourist destinations for both domestic and international tourists in the northern part of Malaysia. Tourism focuses on its geological and natural heritage that exhibits one of the oldest primary rainforests in the world. An extensive amount of resources have been invested in tourism by governments, development agencies and local people of Langkawi believing it will bring a range of benefits to their communities and improves the living conditions of local people. In turn, tourism industry in Langkawi changed the employment pattern from agriculture to tourism and hospitality services and has become one of the most important sources of employment that keep Islanders from moving to other cities. It has provided Malaysian governments with substantial tax revenues as well as a much needed enhance for many local communities. However, it has brought various negative consequences to natural environment of the Island as well. The lack of an adequate community capacity for environmental stewardship could be one of the most important issues that resulted in creation of negative impacts of tourism. Figure 1 shows the map of Langkawi Island.



Figure 1: Langkawi Islands, Malaysia

#### 6. Methodology

A questionnaire survey was employed to 200 respondents from the local community of Langkawi Island in order to identify current level of community capacity for environmental stewardship in this Island. The questionnaire measured the level of community capacity for environmental stewardship. It was divided into two sections including respondents' background and indicators of community capacity domains. Respondents were given 26 questions on community capacity domains based on a 5-point Likert scale where 1 represented "strongly disagree" and 5 represented "strongly agree". The Statistical Package for Social Science (SPSS) version 18.0 was employed to analyse collected data in this study. The 26 items of the community capacity domains were subjected to an exploratory factor analysis (EFA) using principal component method of extraction. Factor analysis is a statistical method used to describe variability among observed correlated variables and to examine the underlying patterns or relationships for a large number of variables [62]. It also determines whether the information can be conducted or summarized in a smaller set of factors or components [62]. Anti-image correlation matrix, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Barlett's test of sphericity are verified prior to conduct factor analysis. The present study was conducted based on the assumption on the minimum acceptable values of 0.50 for anti image correlation: KMO is greater than 0.70 and Barlett's test of sphericity is significant at 0.05 levels [63]. Factors were extracted by using principal components analysis with Eigen-value equal or greater than 1.00 [62]. After conducting validity analysis, reliability analysis was performed on data to test the consistency of the measurement scale. The reliability test was undertaken (once factor analysis was performed) by computing Cronbach's coefficient alphas for each identified factor. The reliability of the multiple scales is considered acceptable when alpha is greater than 0.50 depending on research condition [62]. However, the minimum acceptable reliability coefficient (alpha) is 0.60 and an alpha value more than 0.70 would indicate that the instruments are homogenous and measuring the same constructs [64]. The closer the alpha value is to 1, the more reliable and stable is measure. In the context of the present study, alpha value more than 0.70 is considered as criterion of assessing level of reliability. Descriptive analysis was conducted on demographic information in order to describe socio-demographic characteristics of the respondents (frequency and percentage) as well as mean analysis for the each dimension of community capacity.

# 7. Results and Discussions

Descriptive analysis was conducted on demographic information in order to describe socio-demographic characteristics of the respondents (Table 2). The results show the majority of the respondents which represent the local community of Langkawi Island were young Malay females from Mukim Kuah. This information helps tourism government and tourism planners in designing activities and providing facilities suitable for building the capacity of young adult workforce for environmental stewardship. For instance, government and tourism local authority needs to provide more training programs to enhance their knowledge about daily environmentally supportive actions and skills like saving energy, reducing waste, recycling, etc. The findings also indicated that most of respondents have tourism related jobs such as hospitality and tourism service industry employees or hospitality and travel industry employees. However, due to low level of education; they mostly do jobs like shop-keepers, drivers, hotel boys, and other derivative jobs.

The result of descriptive analysis for shared vision has demonstrated by the mean value of 3.25 assessed on a 5-point Likert scale. Shared vision exhibits the lowest mean value compared to the corresponding values of sense of community, participation, knowledge and skills, and lifelong learning. The mean value of shared vision specifies that most respondents did not have a clear shared vision for the future of the island's natural environment. It shows that the community's environmental vision is not highly achievable, not created through consensus decision making with community members, and not widely shared throughout the community. It is also clarifies that the protection of nature is not encouraged by the community's environmental vision.

**Table 2:** Demographic Characteristics of the Respondents (N=200)

Characteristics		Frequency	Percentage
Gender	Male	76	38.0
Gender	Female	124	62.0
	Malay	185	92.5
Ethnic	Chinese	9	4.5
	Indian	2	1.0
	Kedawang	37	18.5
	Ayer Hangut	32	16.0
District	Bohor	8	4.0
District	Kuah	66	33.0
	Padang Matsirat	28	14.0
	Ulu Melaka	29	14.5
Job Relevancy to	Somewhat related	32	16.0
Tourism	Related	168	84.0
	No formal education	26	13.0
	Diploma	72	36.0
Education level	Bachelor degree	38	19.0
	Postgraduate	3	1.5
	Other (SPM)	61	30.5
	Less than 1 year	1	0.7
	1 to 3years	13	6.5
Length of residency	4 to 6years	12	6.0
	7 to 9years	12	6.0
	Above 10years	162	81.0
	20 – 29 years old	118	59.0
A	30 - 39 years old	59	29.5
Age	40 – 49 years old	17	8.5
	50 years old and above	6	3.0

The results obtained from KMO and Bartlett's test shows that KMO is 0.761 as presented in Table 3. It also indicates a sufficient number of significant inter-correlation for factor analysis based on statistically significant by 0%.

Table 3: KMO and Bartlett's Test

		KMC	and Bartlett's Test		
	Kaiser-Me	yer-Olkin Mea	asure of Sampling Adequa	cy.	0.761
Bartlett's Test of Spher	icity		App	rox. Chi-Sq	uare 1267.263
				df	325
				Sig.	0.000
Communalities					
	Initial	Extraction		Initial	Extraction
Shared vision 1	1.000	0.713	Participation 2	1.000	0.765
Shared vision 2	1.000	0.711	Participation 3	1.000	0.751
Shared vision 3	1.000	0.679	Participation 4	1.000	0.697
Shared vision 4	1.000	0.674	Participation 5	1.000	0.644
Shared vision 5	1.000	0.663	Knowledge and skill 1	1.000	0.739
Sense of community 1	1.000	0.754	Knowledge and skill4	1.000	0.701
Sense of community 2	1.000	0.751	Knowledge and skill 5	1.000	0.699
Sense of community 3	1.000	0.713	Lifelong learning 1	1.000	0.793
Sense of community 4	1.000	0.694	Lifelong learning 2	1.000	0.752
Sense of community 5	1.000	0.674	Lifelong learning 3	1.000	0.693
Sense of community 6	1.000	0.654	Lifelong learning 4	1.000	.652
Participation 1	1.000	0.779	Lifelong learning 5	1.000	.643

The result of descriptive analysis for sense of community has shown by the mean value of 3.64 assessed on a 5-point Likert scale. Sense of community demonstrates the highest mean compared to the corresponding values of shared vision, participation, knowledge and skills, and lifelong learning. The mean value of sense of community clarifies that the relationship among local community members of Langkawi Island is built upon trust, cooperation and shared values. Most respondents feel as a member of their community who care about what happens in the Island and they can contribute to making their home an even better place to live. However, they don't feel capable of handling negative environmental impacts of tourism. This might be due to the fact that the local community members of Langkawi Island especially those with low educational level are not much aware about environmental preservation, tourism growth issues and perhaps they heavily rely on government.

The result of descriptive analysis for participation has demonstrated by the mean value of 3.52 assessed on a 5-point Likert scale. The mean value of participation shows that, there are barriers to local community members'

participation in tourism for solving natural environmental issues as they do not highly feel capable of participating in identifying tourism's natural environmental issues as well as addressing them. Moreover, they do not highly feel that their contribution in tourism matters for the future of the natural environment since they think their opinion about tourism development is not much valued. The lack of participation in Langkawi Island can be due to the fact that the less community members are involved in a decision-making process, the less likely they will develop feelings of teamwork, cooperation and sense of ownership for the decision taken, thereby decreasing their motivation, commitment, and contribution to the process and the community.

Table 4: Factor Analysis on Community Capacity Domains

	Items		Components
	My community has a vision for the future of the	0.713	
	natural environment		
	My community's environmental vision is created	0.711	
	through consensus decision making with		
sion	community members		
Shared vision	My community's environmental vision is	0.679	
hare	achievable		
<i>O</i> 1	My community's environmental vision is widely	0.674	
	shared throughout our community		
	My community's environmental vision encourages	0.663	
	the protection of nature		
	I feel, I am a member of my community		0.754
	I feel, I can contribute to making Langkawi an		0.751
	even better place to live		
nity	I feel the relationship among community members		0.713
ımırı	is built upon trust, cooperation and shared values		
Sense of community	I feel I have the ability to handle negative		0.694
e of	environmental impacts of tourism		
Sens	When I handle the negative environmental impacts		0.674
	of tourism, I feel I can do so flexibly.		
	I care about what happens to the natural		0.654
	environment of Langkawi		
	My opinion about tourism development is valued		0.779
	I am able to participate in identifying tourism's		0.765
tion	natural environmental issues		
ipat	When I identify tourism's natural environmental		0.751
Participation	issues, I feel I can address them.		
-	I feel my contribution in tourism matters for the		0.697
	future of the natural environment		

-	There are barriers to my participation in tourism	0.644
	for solving natural environmental issues	
	I know what skills and knowledge exist in my	0.739
	community that can help to reduce the negative	
cills	natural environmental impacts of tourism	
Knowledge and skills	I use existing skills and knowledge in tourism to	0.701
ge aı	protect the natural environment	
vled	All members of my community have equal access	0.699
Knov	to opportunities for developing new skills and	
_	knowledge to handle the natural environmental	
	issues of tourism	
	I tried to address the natural environmental issues	0.793
	of tourism and I learned from my experience	
	I am open to new ideas and ways of doing things	0.752
	to minimize negative natural environmental	
ing	impacts of tourism	
learr	The things I learned by responding to natural	0.693
ong	environmental issues of tourism help me to address	
Lifelong learning	other related issues	
П	There are programs for learning about how to	0.652
	address the natural environmental issues of tourism	
	I attended such programs and learn how to address	0.643
	the natural environmental issues of tourism	

Table 5 presents the summary of all variables of interest with their respective Cronbache's alpha coefficients. The results show that all variables of interest scored acceptable Cronbach Alpha value based on  $\alpha$  greater than 0.70. It indicates that the measurement scale have satisfactory reliability.

Table 5: Reliability Test Results

Items	Cronbach's Alpha
Shared vision 1	0.855
Shared vision 2	0.860
Shared vision 3	0.858
Shared vision 4	0.859
Shared vision 5	0.864
Sense of Community 1	0.860
Sense of Community 2	0.856

Sense of Community 3	0.861
Sense of Community 4	0.860
Sense of Community 5	0.858
Sense of Community 6	0.857
Participation 1	0.859
Participation 2	0.856
Participation 3	0.859
Participation 4	0.857
Participation 5	0.874
Knowledge and skills1	0.919
Knowledge and skills 4	0.858
Knowledge and skills 5	0.857
Lifelong Learning 1	0.859
Lifelong Learning 2	0.861
Lifelong Learning 3	0.863
Lifelong Learning 4	0.861
Lifelong Learning 5	0.860
Total	0.866

Descriptive statistics of five variables in this study are shown in Table 6. The means and standard deviations for each factor were computed.

Table 6: Descriptive Statistics of Variables

Variables	Mean	Std. deviation
Shared vision	3.25	0.83
Sense of community	3.64	0.63
Participation	3.52	0.56
Knowledge and skills	3.45	0.85
Lifelong learning	3.31	0.60

The total number of items measuring skills and knowledge was 5. However, two items were removed from 'knowledge and skills' dimension ("KS2=I know how to access the knowledge and skills inside of my community to protect the natural environment from tourism activities", and "KS3=I know how to access the knowledge and skills outside of my community to protect the natural environment from tourism activities"). Consequently, these two items were not included in the descriptive analysis results. The omission of these two items in the current research might be due to the fact that although Langkawi Island has been ranked as one of the highest visiting tourist destinations in the country and practicing ecotourism since 1996 [65], the initiatives

that involves LADA, various Langkawi-based business associations, universities and government should more encourage and educate local communities by conducting workshops and programmes to practice conservation-led methods in developing the island. The result of descriptive analysis for knowledge and skills showed that the mean value for this dimension is 3.45 assessed on a 5-point Likert scale. It reveals that not all members of langkawi local community are aware of existing knowledge and skills in their community to reduce the environmental costs of tourism and have no equal access to opportunities for developing new knowledge and skills to handle those costs.

Lastly, the result of descriptive analysis for lifelong learning revealed by the mean value of 3.31 assessed on a 5-point Likert. The mean value of lifelong learning specifies that most respondents are open to new ideas and new ways of doing things to minimize negative natural environmental impacts of tourism. However, they do not have the intention for trying to address the natural environmental issues of tourism or learning from their experience. This might be due to the reason that there are not many programs for learning about how to address and handle the natural environmental issues of tourism.

#### 8. Conclusion

Although alternative tourism offers local people of langkawi some economic benefit from the natural resources around them, most people living in these circumstances do not have the capacity and ability to conserve these resources. This situation has resulted in severe degradation of natural environment of Langkawi Island. Community capacity assessment for environmental stewardship from tourism costs may help tourism planners and government agencies to identify weaknesses of the community. Alternatively, strengthening community capacity may also give local people of langkawi a better insight to be more aware of their strengths and weaknesses to manage alternative tourism while conserving and protecting natural environment. Moreover, it helps government to build the capacity by which locals can gain the ability they need, overcome the sustainability challenges they face and establish strong organizational structures and linkages that enable them to operate a viable tourism industry. Hence measuring community capacity for environmental stewardship is a vital action in order to plan accordingly and then gradually empower local people to take advantage of the opportunities provided by tourism development while conserving their natural resources. It is also could be seen as an important tourism development strategy as it helps communities to exploit their most potential to participate in tourism activities as well as to conserve their natural environment.

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