

# **PERCEPTION OF LOCAL COMMUNITIES ON THE INDICATORS OF GOVERNANCE IN TANJUNG PIAI NATIONAL PARK**

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## **ABSTRACT**

Concerned with the rapid depletion of mangrove and wetland ecosystems in Tanjung Piai National Park, a RAMSAR site, Johore, relevant government agencies are usually created and given the responsibilities to ensure that the establishment of these protected areas will achieve their objective of protecting the ecosystem, which are of national and perhaps, international interests. This paper discusses the perception of local community of Tanjung Piai, on role of good governance and community participation as tools to make environmental enforcement happen in Tanjung Piai National Park (TPNP). The findings of this research are based on structured questionnaires, measured using Likert scale. They are categorised into seven dimensions: Indicators of Governance, Management and Administration, Information and Knowledge, Policy and Plan, Environmental and Natural Resources, Facility and Infrastructure, and Finance and Budget. Factor Analysis is used in this study to regroup questions that are significant to this research, while Multiple Linear Regression Analysis is used to determine the factor affecting local community's perception on governance roles. By using Descriptive Analysis, the percentage and frequency of socio-demographics, and the mean for dependent and independent variables are laid out to display the overall distribution of data. With regard to a valid analysis reference, the study's outcome could be the deciding factor in choosing good governance guidelines for wetlands conservation that involves the participation of local community. Therefore, to achieve conservation of wetlands, proper governance is recommended and better enforcement of the law is needed.

**Keywords:** Wetlands; Policy; Nature Tourism; Protected Area; Administrative Index; Malaysia.

## **1. INTRODUCTION**

As mangrove management experience increases, planners and developers will recognize the potential for multipurpose use without sacrificing its ecosystem's integrity. This broader perception of the potential economic and social benefits that can derive from compatible, multipurpose utilization can

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only be developed by an accounting of benefits and costs, from the uses that are non-renewable because of their impact on critical ecosystem process. Tanjung Piai National Park (TPNP) is located to the south of Pulau Kukup, and it is known as the southern-most tip of continental Asia. This coastal mangroves and intertidal mudflats are important, especially for protection from sea-water intrusion and coastal erosion. On 31 January 2003, the TPNP was announced as a Ramsar site. The area covers 325 hectares and 526 hectares of Ramsar area.

There are two main problems that appear in TPNP. First, the coastal population growth and, secondly, the decadence of natural resources; local communities' incomes are highly dependent on the mangrove forest but as the population increases, it creates a demand for continuous supply of clean water, waste disposal, public health, food and protection from natural disasters, and this might create uncontrolled exploitation of the mangrove forest (Shuib, Yee & Edman, 2012). According to (Duxbury & Dickinson, 2007), managing mangrove resources is made more difficult by the fragmentary nature of the information available. This information is crucial to understanding the interaction between the land, ocean and atmosphere in the mangrove area.

Besides, the stakeholders' development plans for the mangrove area (e.g. development for business use vs. residential use) can lead to conflict over land-use, natural and environment, facility, institutional and financial resources (Ling, Ramachandran, Shuib & Afandi, 2014). Tourism, as an industry, is characterized by diversity and constitutes a number of sub-sectors that include transport, accommodation, food service, retail, attractions, events and facilitation (Baum et al., 2016). Furthermore, the problem of dividing responsibilities among various government agencies result in a lack of management integration, which leads to ineffective management.

Thus, the main objective of this study is to access local community's perception on the roles of governance, which affect the management of the mangrove protected areas and wetland in Tanjung Piai National Park, as well as to identify the socio-demographics of the local community that influence this perception.

## **2. LITERATURE REVIEW**

Governance is the most important tool to ensure management complies with guidelines (Nair, Ramachandran, Shuib, Syamsul & Nair, 2012; Siow, Ramachandran, Shuib, Afandi & Herman, 2013; Siow, Ramachandran, Shuib & Mohammad Afandi, 2015) that have been set. However, issues and problems often appear during the process of consideration, and when adopting laws on how to manage efficiently. Previous researchers found that there are many laws that are involved in resources management and it provides guidelines, under the respective departments, in accordance to their needs. This situation has led to management involving governance aspects that cannot be carried out thoroughly, effectively and take a long time.

The policies established by the central government act as vital instructions or guidance for local development plans (Ahmed Ezzat Othman & Sirbadhoo, 2009). To strengthen policies and actions, area-based implementation also needs additional assistance across all different sectors, with the participation of government, businesses, and society. The policies are used to solve critical problems and react to the local requirement and needs. The proper formulation and implementation of policies are needed to ensure the responsible use of natural resources. The success of policies depends on the genuine participation between various governmental entities and the institutional assistance (Siow et

al., 2015 and Kunasekaran et al., 2017). According to Lin, Shen, & Chou, (2010) suitable plans should meet both the area-based conditions and policy-based guidelines.

Previous studies have found that, trust is one of the most precious and vulnerable elements for sustainability and to solve the problem in Tanjung Piai National Park. Thus to build trust, stakeholders and project developers must create a good strong relationship (Hong, Chan & Chan, 2012). The project developers should endeavour to build trust in the local community.

The combination of indigenous and scientific knowledge, when simplified and used together, becomes easier for the community to understand governance (Ferguson, Huysman, & Soekijad, 2010). This applicable knowledge is accumulated from area-based conditions, and from officials or experts working in different areas. The information and knowledge centre can upgrade community-based initiatives and give services (Barish & Knoblock, 2008).

Previous studies have also found that community participation and collaboration can be established and secured within a short term that will provide enough knowledge in sharing commitments, resources and objectives for sustainable development (Fleeger & Becker, 2008). Moreover it can establish and develop a partnership among local community members, government agencies and private organizations. The management of environment and natural resources must take full advantage of this unique and authentic knowledge within the local community, to use limited natural resources economically and optimally for long-term profit (Geng & Doberstein, 2008).

For the most part, local governments give priority of basic infrastructure investment in rural areas (Fedderke, Perkins, & Luiz, 2006). This enables them to help facilitate and provide backing for the community. In addition, it increases production by promoting and contributing to economic growth. The adequate financial assistance from the government becomes the first concern when making new plans for sustaining the wetland area (Kamara et al., 2008). The negative consequences result in many projects to be neglected on account of insufficient financial support. In addition, only budget for public good and services for the urban area and big cities are prioritized. This unbalanced distribution of financial resources causes economic and development problems in rural communities (George & Prabhu, 2003).

### **3. METHODOLOGY**

In this study, a quantitative research strategy was adopted as a strategy for data collection. According to the district council of Pontian, the total population of local community at both villages in 2015 was 296. Thus the sample size that must be collected was 170, with a confidence level of 95 percent. The instrument which was used in this study was a survey questionnaire. There were seven factors which related to governance roles, i.e. indicator of governance; policy and planning; management and administration; information and knowledge; environment and natural resources; facility and infrastructure; finance and budget. Each of the factors has four questions.

Factor analysis, using SPSS software was selected to provide valid evidence concerning the structure of instruments and to reduce the scale of questionnaire. A regression analysis was used to focus more on the relationship between the dependent variable with other independent variables.

#### 4. RESULTS

Demographic profile: There were 57% male respondents, compared to 43% female respondents within the local community at TPNP. The difference in gender imbalance was due to the higher number of males in the community and the resistance of females within the community to be interviewed. Most respondents had mid to low levels of education. About half of the respondents completed their secondary school (48%), followed the respondents that had completed STPM and Certificate (17%). 15% of the respondents only completed their primary school or went to non-formal schools. The lowest percentage for education level was those with bachelor degrees, at 5%. In terms of occupation, fishermen and housewives were the highest number of professions; 15% were fisherman and 15% were housewives. The following professions were students, private workers and self-employed, which all averaged at 11%. 9% were farmers, followed by factory workers and government workers 8%. TPNP staff made up 5% of the respondents, while only 3% of the respondents were chalet workers.

In terms of income distribution, this study found that 41% of the respondents earned monthly incomes between RM 1100- RM 2100, followed by 39% of whom had incomes between RM 0- RM 1000. 17% of the respondents recorded their incomes between RM 2200- RM 3200. The lowest average income was RM4400, of whom consisted about 3% of the respondents.

Statistical Analysis: A factor analysis test was carried out to develop the scale of the perception by the local community, on the roles of governance in managing TPNP. Items were rearranged according to accurate groupings (factors). Before starting this factor analysis, the ascertaining the Kaiser-Meyer-Olkin value and Bartlett's Test were conducted to assess the suitability of the data collected. Apart from that, the Bartlett's Test of Sphericity needed to be significant ( $p < .05$ ) for the factor analysis to be considered suitable. The results showed that the significance level was 0.000. It was also suggested

**Table 1:** Factor Analysis on Perception of Local Community on the Indicators of Governance.

Variables <sup>1</sup>	Factor					
	1	2	3	4	5	6
1) Response to the sources of problem or requirements	.723					
2) Combination of top-down and bottom-up approaches	.722					
3) Man-made island	.674					
4) Physical infrastructures support	.710					
5) Information from top	.620					
6) Partnership arrangement	.627					
7) Budget allocation		.727				
8) Community involving the preparation of budget plan		.780				
9) Correlation between cost and effectiveness			.677			
10) Corporation of local or indigenous knowledge			.633			
11) Community ownership of resource				.663		
12) Effectiveness of legal regulation				.780		
13) Awareness of pollution					.756	
14) Community meeting with leader					.659	
15) Public-community participation						.622
16) Continuity of performance improvement						.718
% of variance	16.481	7.314	6.748	6.266	5.968	5.628

Notes: Factor Loading = 0.60, Cumulative % of Total Variance Explained = 48.405%, Kaiser-Meyer-Olkin (KMO), Measure of Sampling Adequacy. = 0.7, Rotation Method: Varimax with Kaiser Normalization.

that the Kaiser-Meyer-Olkin (KMO) value needed to be more than 0.7 to be considered able, to produce a good factor analysis. Similarly, as shown in the table, the KMO value of 0.769 can be considered adequate to conduct the factor analysis.

Table 1 demonstrates that out of 28 variables, 12 variables were eliminated, leaving the output with 16 variables which were distributed according to six components. All the six components were later named as particular factors (policy and plan, finance and budget, information and knowledge, environment and natural resource, awareness of pollution, future quality of work and law) and these items were developed as questions for the particular factor.

Factor 1 shows all the variables loaded in are directly related to Policy and Plan problems. Since the variables clearly describe the perception of local community towards the roles of governance in term of policy and plan, this factor is titled 'Policy and Plan'.

Factor 2 represents variables related to Finance and Budget. Variables like budget allocation and community involvement in the preparation of budget plans contribute to this factor.

The variables loaded in Factor 3 explain the level of Information and Knowledge within local community, towards governance roles. This variable summarizes whether the local community has clear understanding of governance, management of the TPNP within the planned budget and how TPNP uses local community expertise.

Factor 4 represents the items that contribute to Environment and Natural Resources, for the local community. Two variables are listed, which are community ownership of resources of their own land and the effectiveness of law.

Factor 5 represents two variables that relate to Awareness of Pollution. This factor mentions the main contribution of pollution in TPNP, caused by the passage of ships to the main port and how often the leader meets with villagers to solve problems.

Factor 6 represents the variables that relate to the Future Improvement of Law and Work Quality. This factor highlights how Johor National Park Corporation and the Department of Drainage and Irrigation should improve the quality of work and their management in the future, as well as should increase the involvement of local community.

Factor affecting perception on governance roles: Social-demographic variables chosen in this study included gender, age, education level, occupation and monthly income. A multiple linear regression analysis was used to test whether there were significant differences between selected socio-demographic characteristics and perception on different factors of governance roles, and indicators of governance in TPNP.

Based on the analysis, the  $R^2$  value was 0.447 while F value was 25.288. The  $R^2$  of 0.447 shows that 44.7% of the relationship between the local community perception on indicator of governance is explained by the independent variables in the function, while other 55.3% are explained by the factors which are not covered in this research. Table shows the variables that influence the perception on roles of governance affecting the local community in TPNP.

**Table 2:** Multiple Linear Regression Analysis between Independent Variables and the Perception of Local Community Towards the Indicator of Governance in TPNP.

<b>Variables</b>	<b>B</b>	<b>t-value</b>	<b>p-value</b>
Constant	0.683	2.416	0.018
Policy and plan	0.549	6.595	0.000
Information and knowledge	0.228	2.802	0.006
Bachelor degree	0.385	2.363	0.020

The t-values in the regression analysis could be used to explain the relative importance of the independent variables (socio-demographic and factors on governance roles) in contributing to the variance in the dependent variable (indicators of governance). As far as the relative impacts of the three patterns and characteristics were concerned, interested to policy and plan ( $t = 6.595$ ,  $p = 0.000$ ) carried the strongest predictors, followed by information and knowledge ( $t = 2.802$ ,  $p = 0.006$ ), and bachelor degree ( $t = 2.363$ ,  $p = 0.020$ ). Higher t-value of a variable implies greater significance relative to other variables.

From the multiple linear regression analysis, there were positively significant relationships between factors of governance on policy and plan, information and knowledge and level of education, i.e. bachelor degree.

In the finding, policy and plan showed positive significance towards the governance indicator ( $\beta = 0.549$ ,  $p < 0.05$ ) because this factor dealt with how to manage policies and plans. Policies commonly developed by the central government were crucial guidelines for local development plans that act as instruments to solve critical problems and respond to the local needs productively. The proper plans should meet both the area-based conditions and policy-based rules. Their contributions can fulfil community requirements and use appropriate mechanisms for TPNP to obtain conservation development. The participation of the local community through interviews, discussions and brainstorming can bring about constructive decision-making suited for perfect requirements of local community (Zoppi & Lai, 2010).

From the beta coefficient, the factor of information and knowledge at 0.228,  $p < 0.05$  showed a positive significance to the dependent variable. Knowledge should be made easier to understand, especially through simplified and applied indigenous and scientific knowledge. The appropriate knowledge was gathered from area-based conditions in the local area and also from officials or experts working in different areas. The information and knowledge centre could support productive improvements of community-based projects and provide services at the area-based level. According to the utilisation of knowledge and technology, the method of information delivery should be simple, inexpensive and applicable for villagers (Jabareen & Carmon, 2010).

Education plays a major role in conservation because it positively influences the conservation of wetland. In this research, degree holders showed a positive significance ( $\beta = 0.385$ ,  $p < 0.05$ ). This opinion has also been addressed by a previous study (Siow et al., 2015).

## 5. CONCLUSION AND RECOMMENDATIONS

These findings indicate factors that lead to good governance roles in managing wetlands, through data collected in Tanjung Piai. These critical factors can be utilised as a typical example so as to

illustrate how to implement efficient governance to conserve wetlands in a long term. The finding conveys six dimensions of 24 authentic key factors that have significant influences on governance's indicators.

These issues are proven to be valid, reliable and suitable enough to be maintained and expanded, in a flow of sustainability and long-term conservation benefits, after the immediate reparations of the wetlands problems and pollution. Moreover, following a sound understanding of all these significant factors, project managers, researchers and local authorities can recommend constructive solutions to planning, managing, approving and implementing any new projects in TPNP that involve the community.

This study provides important factors for planning and managing to achieve affective governance in TPNP without neglecting local community. This research provides a very clear description of strategies, through research methods and techniques, needed to identify and highlight critical factors for accomplishing effective project sustainability. The cooperation from all stakeholders, government agencies, officials and the local community is also needed in decision-making, while developing wetlands conservation. Local participation in this strategy can be extended to include locals' capabilities, to also enhance social relations (Lei and Herder, 2011).

Governance should also engage in skill and professional development for the local community, so as to broaden residents' expertise and experience to become more independent and also to deal with immediate issues like pollution concerns. To fulfill this goal, it is important to keep the public up-to-date with useful information, related to the area through a study centre. This centre can also provide valuable information of successful works by academic researchers and specialists; proper information dissemination is a definite advantage for the public to gain more proficiency on knowledge of the area.

Another strategy is to present a variety of training programs and classes for locals and the public. Local specialists should be encouraged to join, provide supplementary resources and even lead some special programs when asked. On completion of each training program, the participants would be equipped with the suitable knowledge, experience and analytical ability to continue improving their livelihoods and addressing concerns progressively.

Project managers should be hospitable and friendly, generous and welcoming to new participants of the community projects. Spirited members of the public should be encouraged to cooperate closely and regularly in the proceedings to achieve efficient strategies. When local residents propose their ideas, opinions and suggestions, the project manager and staff should be helpful, to feel accepted and included as part of the projects; only then would they voluntarily take part in conservation. Crucial support from local governments and government agencies can help to develop this cohesive community.

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