STATUS OF SUSTAINABILITY INSTITUTIONAL DIMENSIONS IN THE DEVELOPMENT OF MANGROVE TRACKING AREA, BUNGKUTOKO ISLAND NAMBO SUB-DISTRICT KENDARI CITY

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ABSTRACT

This study analyzes the sustainability status institutional dimension of mangrove ecosystems in the Bungkutoko mangroves tracking ecotourism area. The study was conducted in September 2019 – March 2020 in the mangrove tracking area of Bungkutoko Island, Nambo Sub-District, Kendari City. The method used in this study is a survey method with a purposive sample. The sample in this study amounted to 12 people, consisting of 5 people from the Department of Marine Affairs and Fisheries of Kendari City and seven people who manage the Bungkutoko mangrove tracking. Primary data collection is done through direct observation in the field and structured interviews with the help of questions. Secondary data collection was obtained through literature studies. Analysis of the data used includes quantitative research with the Rapid Appraisal for Fisheries (RAPFISH) method that has been modified to Rap_Mforest and qualitative analysis (descriptive). The result showed the status of sustainability management of mangrove ecosystems. The institutional dimension is in the quite sustainable category (53.67).

The attribute leverage analysis on the institutional extent shows that the most sensitive attribute to affect sustainability in the institutional dimension is the role of formal institutions that support mangrove ecosystem management. Even a slight change in this attribute will affect the institutional sustainability of the mangrove ecosystem. The legal institution, in this case, is the Kendari City Government through the Kendari City Marine and Fisheries Service

Keywords: mangrove ecosystems; RAPFISH; sustainability status

INTRODUCTION

Mangrove forest is a typical species and grows on the edge of the coast or river estuary, influenced by sea water tides. Mangroves are mostly found in coastal areas blocked from waves and temperate regions in the tropics and sub-tropics (Food & Nations, 2007). The existence of mangrove debt provides a very important contribution to human life, both for its physical, biological, and economic functions (Ambinari et al., 2016; Heriyanto & Subiandono, 2012; Qodrina et al., 2013).

Bungkutoko Island is one of the areas in Kendari City which has a mangrove area. Bungkutoko is an island located right in front of Kendari City, and this island has an area of ± 1.58 km2. The mangrove forest of Bungkutoko Island is located in an industrial and port area. The level of degradation in the mangrove area of Bungkutoko Island cannot be controlled properly because of the high complexity, both economically and ecologically (Gumilar, 2012). This has contributed to reducing the area of mangrove forest in Kendari City, which was originally 525 ha, to the remaining 367 ha (Ido et al., 2019). Therefore, the mangrove forest in Bungkutoko by the local government is used as a mangrove tracking ecotourism, hoping that the existence of the mangrove forest can be maintained.

The mangrove forest in Bungkutoko can be used as an ecotourism object; currently, only 2 ha are left (Salim et al., 2020). The potential in terms of the ecosystem contained in it, the beautiful scenery is the capital owned by the mangrove forest in Bungkoto to be used as an ecotourism location by the local government as an attraction to invite tourists to come to visit the mangrove tracking ecotourism (Muhtadi & Sitohang, 2016; Purnomo et al., 2013). As a result of mangrove
tracking ecotourism, it provides economic benefits for managers and the surrounding community (Lestari & Lawelle, 2017). However, currently, the existence of mangrove tracking ecotourism has not run optimally. The condition of ecotourism facilities and infrastructure has begun to experience damage.

Management of mangrove ecosystems in the Bungkutoko mangrove tracking ecotourism area based on the results of the initial survey experienced many challenges, one of which was due to institutional problems, such as the unavailability of policies and plans for mangrove ecosystem management from the local government, lack of coordination between management institutions (actors) and lack of supervision and monitoring. This is in line with several studies that have been carried out on sustainability based on institutional aspects, showing that institutional elements such as the involvement of related institutions, both formal and normal, rules and sanctions contribute to the sustainability of a management of a business. This can be seen from the results of research conducted by Santoso (2018), which states that the institutional aspects that influence the management mangrove ecosystem in coastal areas are community institutions' involvement in the management of mangrove ecosystems. In another study conducted by Suljahyo et al. (2018) stated that the institutional aspect that is sensitive to influence is the role of the Joint Farmer Group Institution which only plays a temporal role.

Based on the phenomena and previous studies, ongoing research is needed on the institutional aspects of the mangrove tracking mangrove ecotourism management to find out what institutional factors affect the sustainability of mangrove hunting ecotourism management in Bungkotoko.

MATERIALS AND METHODS

This research was carried out in the Bungkutoko Mangrove Tracking Ecotourism Area, Bungkutoko Island, Nambo Sub-District, Kendari City. This research was conducted from September 2019 to February 2020. The sample in this study amounted to 12 people, consisting of 5 people from the Kendari City Marine and Fisheries Service and seven people from the mangrove tracking manager on Bungkutoko Island. The analytical tool used is Rap_MForest which is a modification of Rapfish (Rapid Appraisal for Fisheries Status) (Pitcher & Preikshot, 2001; Schaduw, 2015; Theresia et al., 2015). Rapfish change was carried out considering that this study aims to analyze the sustainability status of the mangrove ecosystem and use sustainability attributes adapted to the research objectives. The sustainability category uses the criteria as shown in table 1 below.

<table>
<thead>
<tr>
<th>Index Value</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>0≤ x 25</td>
<td>Bad</td>
</tr>
<tr>
<td>25≤ x 50</td>
<td>Less</td>
</tr>
<tr>
<td>50≤ x 75</td>
<td>Enough</td>
</tr>
<tr>
<td>75≤ x 100</td>
<td>Good</td>
</tr>
</tbody>
</table>

Source: Fauzi & Anna (2002)

RESULTS AND DISCUSSION

The institutional dimensions referred to in this study are several rules that apply in the management of mangrove ecotourism to regulate the interactions that occur between the community and certain groups or institutions that are involved or play a role in the management of mangrove tracking ecotourism. Institutions in question are formal and informal institutions, including local involved. Based on the research that has been done, it is known that the indicators or attributes on the institutional dimension consist of 5 attributes, namely, (1) Availability of formal and informal regulations for mangrove ecosystem management, (2) Availability of law enforcement personnel at the location, (3) The role of formal institutions that support the management of mangrove ecosystems. Mangrove ecosystem, (4) The role of local (informal) institutions that support the management of mangrove ecosystems, and (5) Local Government (Pemda) commitment to conservation. Analysis of the sustainability of mangrove ecotourism based on institutional aspects using RAP_MForest analysis can be seen in Figure 1 below.

Based on the analysis of the institutional dimension of the sustainability index, it shows the category is quite sustainable. This is because the index value obtained is 53.67, where this value is in the range of 51-75. This condition is quite tolerable because, based on interviews with respondents,
the elements in mangrove ecotourism institutions in the research location show a fairly good value. The local government's commitment to conservation has a considerable influence on the sustainability of mangrove ecotourism. The active role of both formal and non-formal organizations in the management of mangrove ecotourism also contributes to better mangrove ecotourism management. Cooperation between the community and institutions or organizations both legal (Muhtadi & Sitohang, 2016).

![Figure 1. Sustainability index of the Bungkutoko Mangrove Tracking institutional dimension](image)

Meanwhile, when viewed from the attributes used as a measure to determine the most sensitive institutional aspect that influences the sustainability of mangrove tracking, ecotourism is the aspect of the role of formal institutions. This can be seen in the analysis of the institutional dimension of leverage, as shown in Figure 2 below.

![Figure 2. Analysis of attribute leverage on the institutional dimension](image)

The results of the analysis of leverage attributes on the institutional dimension (Figure 2) show that the sensitive feature affecting sustainability on the institutional extent is the role of formal institutions that support mangrove ecosystem management with a value of 10.74. The legal institution, in this case, is the Kendari City Marine and Fisheries Service. Mangrove forests under state control have characteristics as shared resources and tend to be damaged over time, vulnerable to exploitation problems resulting in their sustainability. Therefore, it is necessary to have an effective institution to regulate and control the activities of the local community and existing institutions with the authority they have (Syahputra, 2018). This formal institution, namely the Kendari City Marine and Fisheries Office, allows sustainable ecotourism management by establishing good relationships and communication between existing communities and non-formal and local institutions to work together in managing ecotourism. Formulation of policies that follow the rules of the game that ensure efficient and sustainable use to improve the management of mangrove forests so that they remain sustainable.
The Kendari City Marine and Fisheries Service, as a formal institution authorized to manage the area, needs improvements to reorganize space and policies in the Bungkutoko Mangrove Tracking area. The need for a proper institutional role in this case for managing mangrove areas needs to be done with the consistency of spatial plans, conservation policies with policies on spatial use, facilitating and enforcing the law on conservation of conservation areas. The character of formal institutions needs to be maintained so that the management of the mangrove ecosystem in the Bungkutoko Mangrove Tracking Ecotourism Area can be sustainable. Therefore, this attribute needs attention and improvement from the government so that the management of the mangrove ecosystem in the ecotourism area can be sustainable.

Testing the feasibility and accuracy of the data and analysis used with all the institutional attributes used in this study was carried out by looking at the results of the stress values in the RAP-MForest analysis, where the values obtained are presented in the following table.

<table>
<thead>
<tr>
<th>Statistical Value</th>
<th>Institutional Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress</td>
<td>0.14</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.93</td>
</tr>
</tbody>
</table>

Source: Primary data (processed) 2020

The data in Table 2 shows that the stress value obtained from the institutional dimension is only 14%, and the coefficient of determination ($R^2$) is 93%. This indicates that the model used in this study is good because the stress value is less than 0.25 ($S < 0.25$ and the coefficient of determination ($R^2$) are greater than $> 90\%$). This statement is following research by (Fauzi & Anna, 2002; Mawarsari & Noor, 2020; Pitcher & Preikshot, 2001; Tesfamichael & Pitcher, 2006) which states that if the $R^2$ value is greater than 90% and the stress value is less than 25%, the model used is good.

CONCLUSIONS

The sustainability status of the institutional dimension in the Bungkutoko Tracking Mangrove Ecotourism management is in the moderately sustainable category with the resulting index value of 53.67. The most sensitive attribute affecting sustainability on the institutional dimension based on leverage analysis is formal institutions that support the management of mangrove ecosystems.

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REFERENCES


