

THE MOVEMENT OF OUTERMOST SMALL ISLAND COMMUNITY GROUPS IN MANGROVE CONSERVATION IN THE NORTH RUPAT DISTRICT BENGKALIS REGENCY

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Abstract. Rupert Island is one of frontline islands in Riau Province. North Rupert district is one of islands that has a mangrove ecosystem covering 12,784 hectares. North Rupert's geography, bordering and directly facing the Malacca Strait, makes it subject to abrasion, which frequently harm the mangrove environment that defends it. The objective of this study was to use a qualitative approach and SWOT analysis to examine the actions, opportunities, and difficulties faced by the outermost small island settlements in North Rupert District in mangrove conservation. Data was collected through in-depth interviews, observations, and Focus Group Discussions (FGDs). Purposive sampling was used to identify informants. The findings showed that five groups of outermost small island villages in North Rupert District conserve mangroves through the following actions: 1) raising awareness of the importance of mangroves, 2) conducting mangrove rehabilitation activities, 3) monitoring, and 4) developing ecotourism opportunities. Opportunities to assist the operation of the outermost small island community group movement in North Rupert included the potential for ecotourism in mangrove environments, which was able to increase the community's economic level and have received BRGM support through nursery and planting programs. The obstacles faced included limited environmental knowledge and community participation, as well as the danger of abrasion disasters.

Keywords: movement; outermost small island community group; mangrove conservation; swot; frontliners area

I. INTRODUCTION

Mangroves are forest formations found on low, calm, muddy coastlines. They are impacted by tides [1]. The large mangrove region of Indonesia has not been managed adequately. Damage is still occurring continuously. A journal by [2] found that the damage to Indonesia's mangrove forests was divided into four categories: severe damage reached 42%, damaged condition reached 29%, good condition was less than 23%, and very good condition was only 6%. The Centre for International Forestry Research (CIFOR) also announced that Indonesia's mangrove ecosystems are under threat from significant degradation rates of up to 52,000 ha per year [2]. Over the last three decades, Indonesia has lost 40% of its mangrove forests. It is regarded as the quickest degrading in the world. Riau Province is stated as a mangrove-rich area, and its location on the eastern side of Sumatra Island, with a total shoreline of 2,080 kilometers, ensures that this region has a lot of mangroves. Ironically, this enormous mangrove region is currently shrinking. The Peat and Mangrove Restoration Agency (BRGM) noted that the remaining mangroves in Riau Province are 126,000 hectares, equivalent to 18.9% of those around the island of Sumatra. Meanwhile, Sumatra has the second-largest mangrove environment after Papua [3].

Rupert Island is one of the frontliners (outermost) island areas in Riau Province. In 2013, the Riau Provincial Embassy Office recorded 12,784 hectares of mangroves on Rupert Island, with a total damage area of 25.3 hectares divided between coastal and riverine mangrove ecosystems. The North Rupert sub-district is one of the regions of Rupert Island that borders

and directly faces the Strait of Melaka. It includes five settlements that are overgrown by mangrove ecosystems: Teluk Rhu, Puteri Sembilan, Tanjung Punak, Tanjung Medang, and Sukadamai. The mangrove ecosystem in the five villages is evenly distributed in a damaged state, which is caused by abrasion that reaches 5-6 metres per year, as well as company activities that pollute the environment and mangrove wood collection activities used in a charcoal kitchen. So, it is evident that the destruction to Rupert Island's mangrove environment has consequences for the livelihoods of coastal residents, the majority of which work as fishermen, rubber producers, and live near the coast. The reason is because for years, they have relied on coastal resources such as fish and sea snails to meet their family's consumption needs. Furthermore, they can generate money from rubber production that is not buried in seawater. And nowadays, the people there are unable to properly utilize the available resources. Based on the conditions described above, some communities became aware of the need to save the mangrove ecosystem. This growing awareness is known as collective consciousness because it stems from the same circumstances and fate in some of these communities. Emile Durkheim in the book [4] mentions that collective consciousness will result in collective action, which will give rise to a social movement. The action conducted was mangrove conservation through rehabilitation actions (nursery and replanting of api-api mangrove species along the coast). This movement affected not only one, but five other villages. Inevitably, carrying out this large, long-term, and sustainable action presented obstacles and challenges. This condition

required extensive and thorough investigation. More interestingly, this environmental movement was a relatively new type of social movement, and it has been initiated by the people of the outermost islands of North Rupat. Referring to this, the researcher developed the following research objectives: 1) Analyze the actions of the outermost small island community in mangrove conservation in North Rupat District; 2) Describe the opportunities and challenges of the outermost small island community movement in mangrove conservation in North Rupat District through SWOT analysis;

II. RESEARCH METHOD

The research was carried out in North Rupat District, Bengkalis Regency. The informants in this study were divided into two groups: actors from the mangrove area conservation group and key informants from the village government who provided information about mangrove management actions of the outermost island community. To determine the research informants, the researcher used purposive sampling, namely informants who met the selected criteria or certain considerations [5] Data was collected through in-depth interviews, observations, and Focus Group Discussions (FGDs). The research method was descriptive qualitative, which carefully describes certain individuals or groups related to the conditions and symptoms that occur [6]. Researchers used descriptive qualitative methods to describe, explain, extract information, and analyze the actions, opportunities, and challenges that outermost small island communities faced when preserving coastal mangrove areas in North Rupat District. The research used four stages of data analysis, beginning with data collection continued with data reduction, presentation, and conclusion. Meanwhile, data collection methods included in-depth interviews, participatory observation, and documentation.

III. RESULT AND DISCUSSION

Territory and Mangrove Condition of North Rupat District

North Rupat District's topography is flat, with coastal areas, seaside, and beaches dominated by slopes ranging from 0-3%. The Kadur and Titi Akar rivers divide the North Rupat District. This area has peat soil with a thickness of more than 30 cm, as well as fine-textured clay and medium-textured loam. Meanwhile, the North Rupat District's river water has a low color, taste, and clarity, as well as a high acidity (PH). Demographically, the North Rupat District has a population of 15,979 people with a composition of 8,170 men and 7,809 women. While the level of education in the North Rupat area remains relatively low, as evidenced by the community's most recent education, which is dominated by elementary school graduates. The numbers include 7,814 elementary school graduates, 3,598 junior high school graduates, 3,211 high school graduates, 118 academy graduates, 361 S1 college graduates, and 10 master's degree graduates.

When considering its geography, North Rupat District is classified as an outer island that shares a direct border with Malaysia. North Rupat covers an area of 628.50 km2 and has an elevation of 0-6 meters above sea level. According to [7],

small outer islands are islands with an area of less than or equal to 2,000 Km2 and basic points of geographical coordinates that connect the baseline of the archipelago in accordance with international and national law. This area is frequently mentioned in the news due to damage to coastal areas, particularly mangrove ecosystems. The following table shows the area of mangrove distribution in North Rupat District.

Table 1. Mangrove Distribution Area in North Rupat District

No	Village	Distribution Area (Ha)	Length of Coastline (m)	Mangrove area (Ha)	Length of Mangrove Coastline (m)
1	Teluk Rhu	1.883	4.339	638	-
2	Puteri Sembilan	1.378	4.136	307	2.068
3	Tanjung Punak	1.420	4.179	195	2.358
4	Tanjung Medang	3.463	8.255	1.334	5.992
5	Suka Damai	1.462	7.159	695	3.726

Source: Final Report of Social Mapping in Mangrove Rehabilitation Acceleration Sites in Riau Province, 2021

Profile of the Outermost Small Island Community Group Movement

The results showed that the mangrove conservation movement in North Rupat District is run by five (5) community groups. The following describe the profile of each group.

1) Coastal Environment Conservation Group

The Putri Sembilan Village community formed the Coastal Environmental Conservation Group as part of an action movement to manage and conserve mangrove areas in North Rupat. This group was formed in response to the community's concern that the mangrove area was under threat due to its use as residential land, exploitation of mangroves for non-oil and gas materials, and other needs that force people to harm the mangrove ecosystem. This group of 12 people, led by Mr Anuardi, has carried out numerous conservation actions, one of which was in 2021, when they obtained 150,000 mangrove seedlings from BRGM and planted them on 50 hectares of land along Bestari Beach.

2) Mekar Sari Jaya Cooperative

Mekar Sari Jaya Cooperative was established in 2015 in based on the awareness of panglong entrepreneurs who believed they were constantly exploiting mangroves on an excessive scale while making no effort to replant them. Based on this, the panglong entrepreneurs established a group with the target of panglong entrepreneurs as well by setting several conditions including: 1) selective logging for timber collection; 2) timber taken must be 3 inches or larger; 3) no cutting on the river bank; and 4) charcoal panglong entrepreneurs must conducting re-seeding.

3) Medang Harapan Group

Medang Harapan is the third mangrove conservation action movement group in North Rupat District, this group is chaired by Mr Taufik. This group was formed as part of the Peat and Mangrove Restoration Agency's program, which provided 150,000 mangrove seedlings and a 50-hectare planting area along Tanjung Medang Beach. Medang Harapan's primary

activities included searching for mangrove seedlings, seeding mangroves, and monitoring them.

4) Sukadamai Mangrove Forest Group

The mangrove conservation group, chaired by Mr Abdul Aris, was formed as a result of a DLH Bengkalis Regency program requiring the submission of a mangrove seedling assistance proposal, which needed the formation of a 30-member group. Although the proposal submitted to DLHK has not yet been approved, the group continued to carry out conservation actions such as monitoring existing mangrove plants and enforcing a ban on illegal logging.

5) Harapan Baru Group

The Harapan Baru Group has been established for a long time, specifically since 2010, in collaboration with the Fisheries Department, and was able to obtain assistance after the group in Tanjung Punak Village won the best mangrove award in North Rupat District. In addition to assistance from the Fisheries Department, the Harapan Baru Group received 150,000 seedlings from BRGM.

Outermost Small Island Community Action in Mangrove Conservation

Five villages with mangrove ecosystems on the frontline in North Rupat were currently evenly distributed in a damaged state, and their area was decreasing. The trigger was annual abrasion of 5-6 metres, followed by polluting company activities and mangrove wood collection for use in a charcoal kitchen business. It was undeniable that the destruction of Rupat Island's mangrove ecosystem had consequences for the lives of coastal communities, the majority of which work as fishermen, rubber farmers, and live on the coast. For years, they have relied on coastal resources like fish and sea snails to meet their family's nutritional needs. For years, they have relied on coastal resources like fish and sea snails to meet their family's nutritional needs. However, the current situation means that the community was no longer able to fully utilize the available resources. Even those who lived on the coast believed they were losing assets as a result of the increasing use of land as shrimp ponds. Given that mangroves in North Rupat were highly potential and still natural, the outermost island community took the following actions to preserve coastal mangrove areas:

1) Socialisation on the Importance of Mangroves

Mangrove conservation efforts will be ineffective if they are carried out solely by a group without the involvement of all levels of society. As a result, outermost small island community groups routinely conducted socialization with people who were not members of the group to ensure that they understood the importance of mangrove ecosystems and their preservation. Field findings showed that socialisation activities were carried out by the group through informal discussions.

2) Mangrove Rehabilitation Activity

To achieve sustainable mangrove conservation, it was necessary to obtain seedlings so that planting activities could continue. Following socialisation, several outermost small island community groups in North Rupat District worked on mangrove rehabilitation, from seedling to planting. They included the Puteri Sembilan Village Coastal Environmental Conservation Group, the Medang Harapan Group Tanjung

Medang Village, and Mekar Sari Jaya Cooperative Puteri Sembilan Village. The nursery practice started by building bamboo poles with a woven bamboo roof to provide shade for the seedlings. The ground floor was made of muddy soil that was easily accessible to water sources. The next stage of rehabilitation was the planting of mangroves. This stage was carried out at the location agreed upon by each group. The planting action used 1mx1m bamboo pieces to keep mangrove seedlings resistant to waves. Then, made a hole near the bamboo pieces that was larger than the size of the polybag and twice as deep as the polybag. According to the results of data collection in the field, planting activities were not only carried out by group members, but also by non-group members. This condition was in a line with the New Social Movement concept, which states that a movement's success is determined by actors' ability to convert the majority of sympathisers into active participants in the movement [8].

3) Monitoring

There are rules that govern what people can and cannot do in order to limit their behavior. These are, of course, included in commands and prohibitions. A commanded behaviour contains conformist values and norms. Whereas prohibitions contain restrictions on deviant values and norms. Orders and prohibitions on human behavior are known as social control [9]. In other words, social control is a method and process of planned or unplanned supervision that seeks to invite, educate, and even force citizens to follow the social norms and values that apply to their group. In accordance with the concept above, the conservation movement carried out by the small outer island community group in North Rupat district will inevitably face challenges. In order to minimise the obstacles that arise, the conservation movement they carry out various forms of supervision. The conservation area is routinely monitored to prevent illegal logging in the ecosystem of mangrove Timber Forest Products (HHK). The next step is to establish an unwritten rule prohibiting the cutting of mangrove timber forest products along the shoreline and riverbank, as well as the cutting of small wood. The next unwritten norm requires charcoal kitchen entrepreneurs to replant when cutting mangrove timber forest products.

4) Ecotourism Development

One alternative strategy for preserving mangroves is to convert them into ecotourism [10]. Ecotourism is a type of tourist travel to natural areas that aims to protect the environment while also preserving the lives and welfare of local residents [11]. Quoting from [12] managing mangroves to be a tourist object has shown its functions in terms of the economy and the environment, although in some areas, this effort requires a relatively long time. In line with this statement the next step for the outermost small island community group in North Rupat District was to convert the mangrove forest area into ecotourism with economic value. Based on observations, the mangrove forest area in North Rupat District, particularly in Puteri Sembilan Village, had the potential to be developed into ecotourism, which had economic value and could provide a source of income for the community.

Opportunities and Challenges of the Outermost Small Island Community Group Movement in Mangrove Conservation

All social movements seek to change or maintain the status quo, so there will be those who oppose the movement's efforts [4]. According to Locher's statement, the mangrove conservation movement led by the outer small island community group in North Rupert District faced two things that cannot be separated, namely challenges and opportunities. The researcher described it using a Strength, Weakness, Opportunity, and Threat (SWOT) analysis. The following presents the SWOT pattern found in the movement of outermost small island community group in North Rupert District to preserve mangroves.



Figure 1. SWOT Analysis of the Outermost Small Island Community Movement in Mangrove Conservation

1) *Strength*

According to the findings of field data collection, there were several strengths that could assist the outermost small island community in North Rupert succeeded in its mangrove conservation movements. First, there was the action movement itself, which took the form of nursery and replanting mangroves of both mangrove and api-api species. The next source of strength was district government assistance, which was provided through the Peat and Mangrove Restoration Agency (BRGM) for mangrove and api-api seedlings. The final strength was the potential for ecotourism, which had a high chance of increasing the economic status of the outermost small island community. The three types of strength above were strong capital already owned by outermost small island community group, which, if everything went well and continued to develop allowed conservation efforts to continue and succeed.

2) *Weakness*

Indicators of weakness in the mangrove conservation movement by outermost small island community group came from internal aspects. According to the findings of interviews, the first weakness identified was the community's lack of knowledge about the importance of mangrove ecosystems for coastal areas. This first weakness led to the development of the next weakness, which was a lack of community participation in mangrove conservation movements. Community involvement in the conservation movement was still materialistic, so people

would only move if there was a reward. To attract the public, outermost small island community group involved family members in mangrove conservation activities. The third weakness was a lack of assistance for the group. As an independent group formed solely out of concern for environmental conditions, they needed assistance to assist in the movement's operations. The group stated that their knowledge of mangrove conservation still limited, particularly in mangrove nursery and planting activities. Fourth, there were an increasing number of land conversion activities. Mangrove ecotourism areas that should be protected were now being used by people from outside the region as shrimp ponds. This condition has also caused the damage to the mangrove ecosystem in Rupert Island. The last weakness was the limited knowledge and experience of the outermost small island community with mangrove non-timber forest product ecosystem. So far, they only knew about the nursery and planting stages, not the processing of mangrove non-timber forest product. Even though this was an asset that had the potential to raise the standard of living in the outermost small island community.

3) *Opportunity*

The opportunity indicator in this study was based on external factors that had positive implications for outermost small island community group in carrying out mangrove conservation efforts. The results of observations supported by interviews stated that there were several opportunities that could be utilised by the group. The first was the potential for ecotourism within the mangrove ecosystem. Visitors could get a sense of calm from its beautiful and natural surroundings. If it is further developed, it has the potential to make mangroves more sustainable. As stated by [10] that the development of ecotourism can result in sustainable conservation. In addition to preservation, ecotourism had the potential to create new business opportunities for the local community. The next opportunity came from Non-Governmental Organisations (NGOs), which always supported the group. This was showed by the involvement of several NGOs in group activities. The NGOs then made an effort to educate the group on conservation actions.

4) *Threats*

Threats in this study were external factors that had a negative impact on the sustainability of the mangrove conservation movements. According to the findings of field observations, several threats faced by outermost small island community group in their efforts to preserve mangroves were found. First, the natural disaster of abrasion. According to the RPJMD of Bengkalis Regency for 2021-2026, the abrasion-prone area in Bengkalis Regency was on the northern coast of Rupert Island, directly across the Strait of Melaka. Second, there were mangrove logging operations for the charcoal panglong industry. Third, the creation of ponds on mangrove ecosystem land. The three threats above had an impact on the destruction of mangrove ecosystems. So, while the conservation movement continued, the damage also continued.

Following a description of the SWOT analysis included in the movement of the outermost small island community group in mangrove conservation, the researcher then conducted

a strategy analysis of the existing SWOT. The following is the SWOT strategy for the movement of the outermost small island community group in North Rupert.



Figure 2. SWOT Strategy on the Outermost Small Island Community Movement in Mangrove Conservation.

IV. CONCLUSIONS

Based on the research findings, it can be concluded that the outermost small island community groups in North Rupert District have taken a number of actions to preserve mangroves. The first action is to raise awareness about the importance of mangroves. This action is being taken due to the community's lack of knowledge and awareness about the importance of mangroves in a coastal area. The second action involves mangrove rehabilitation through nursery and planting activities. In this activity, the group worked with BRGM to obtain seeds and attempted to engage the community in all activities. The next action is to conduct supervision by routinely controlling the mangrove area and establishing unwritten rules that prohibit cutting the mangrove timber forest products in the shoreline and river area, as well as cutting small wood, and requiring charcoal kitchen entrepreneurs to replant after cutting the mangrove timber forest products. The final step is to develop the mangrove area for ecotourism. The results of SWOT-based research show that outermost small island community groups face both opportunities and challenges in preserving mangroves. The opportunity is that the North Rupert District has the potential for mangrove ecotourism, which is considered capable of improving the community's economic situation. Furthermore, the Peat and Mangrove Restoration Agency has provided support to the outer small island community groups in North Rupert, as evidenced by the nursery

and planting assistance program. Meanwhile, the community's awareness of the importance of mangroves remains low, resulting in minimal participation in the conservation movement. As a result, facilitators are needed to educate the community about the importance of mangroves in coastal areas. The next challenge is the ongoing abrasion disaster, which is causing increasing damage to mangroves.

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