SENJOp
http://senjop.ppj.unp.ac.id/index.php/senjop

Science and Environmental Journals for Postgraduate
Vol. 6 No. 1 (pp. 290-295) December 2023
p_ISSN 2655-5085
e_ISSN 2655-5239

Community Activity in Environmental Management Mangrove Forest in Pariaman City

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Received: 01 Oct. 2023, Revised: 12 Dec. 2023, Accepted: 15 Dec. 2023

ABSTRACT

The potential and unique natural resources in the Pariaman Mangrove Forest have a very significant role in the economic, social, cultural, and environmental development of coastal communities. Environmental management of the Pariaman Mangrove Forest is one of the efforts to support the development of coastal areas optimally, wisely, and responsibly, of course by involving community participation and various related parties and while still paying attention to the environmental carrying capacity of the Pariaman Mangrove Forest. This research aims to provide an overview of community activity in managing the Mangrove Forest environment in Pariaman City. Enthusiasm, desires, and hopes as well as the social concern of the local community are forms of community participation in efforts to manage the Mangrove Forest environment. Community participation is a supporting factor in efforts to develop the coastal area of Pariaman City. The description of community participation in the environmental management of Mangrove Forests is shown by the high level of community desire to protect and preserve them as well as their hope for efforts to protect or improve Mangrove Forests. The form of community participation is voluntary or self-directed participation.

KeyWords: Mangrove Forest, Environmental Management, Forest, Pariaman.

INTRODUCTION

The Pariaman Mangrove Forest has potential and unique natural resources that should be utilized optimally, wisely, and sustainably to achieve the welfare of the people of Pariaman City. The coastal communities of Pariaman City both for the present generation and for future generations, as well as ensuring the sustainability of natural resources in the coastal area itself. The use and preservation of the Pariaman Mangrove Forest to support the development of the coastal areas of Pariaman City must consider three habitat aspects, which include economic, social, and environmental or ecological aspects. Incompatibility in the management of these three final aspects can hurt one of the aspects, the environmental aspect is sometimes and often even the aspect that contributes to this incompatibility.

Wibowo & Handayani (2006) explained that the increasing development that focuses on economic aspects, such as the conversion of mangrove forests into organizational areas, fish pond activities, recreation, and so on has hurt the existence of the mangrove forest ecosystem. Dahuri et al (2001) added that several development activities in coastal areas that can have an impact on environmental sustainability include the development of organizational areas, industrial activities, recreation, and marine tourism as well as the conversion of forests into aquaculture areas.

The mangrove forest ecosystem is threatened by both natural and human factors, thereby posing a risk to the long-term survival of this ecosystem (Putra, 2023). Approximately 70% of Indonesia's mangrove forests are under threat due to lack of regulation. This regulation will involve various stakeholders because the ecosystem is located in different landscapes, namely land and sea (Kustanti et al., 2014). Mangroves are ecosystems close to rivers, tidal areas, bays, estuaries, and lagoons and their vegetation can adapt to high salt content (Onrizal, 2008; Feka, 2015). The root system of mangrove vegetation can bind sediment and stabilize the substrate. Mangroves are also able to maintain the balance of coastal and marine ecosystems and food chains (Armono, 2004). As one of the potentials in coastal areas, mangroves have various benefits for surrounding communities in the form of socio-economic and ecological (Faturrohmah & Marjuki, 2017). Most of Pariaman City's territory is along the coast. One of the resources this region has is mangrove forests which are found in three Sub-districts, namely Central Pariaman Sub-district, South Pariaman Sub-district, and North Pariaman Sub-district. However, the area of mangrove forests in Pariaman City has fluctuated due to increased development activities, especially in coastal areas. According to Putra et al (2023), the mangrove forest in Pariaman City only covers an area of 18 ha. North Pariaman Sub-district has the largest mangrove forest, namely 16.5 ha, spread across Apar Village (6.0 ha), Ampalu Village (3.5 ha), and Manggung Village (7.0 ha). According to Ramdhan & Abdillah (2012), the coastal area of Pariaman City has a very high level of physical vulnerability. There is a concentration of settlements along coastal areas, the gentle slope of the coast, and a fairly high level of abrasion are the triggers for this condition. The level of threat will be higher if the mangrove ecosystem which functions as a protector of coastal areas experiences degradation. One of the mangrove ecosystems that is experiencing degradation is breaking up the area around the mouth of the Batang Manggung River, North Pariaman Sub-district. Initial field surveys showed the fact that several locations at the mouth of the Batang Manggung River contained several mangrove trees that were dead and not growing well. Initial estimates were due to reduced freshwater flow from the upstream river. Disruption of air circulation in the mangrove ecosystem causes an imbalance in the physical-chemical conditions of the mangrove habitat.

The Pariaman City Government has now transformed a mangrove forest area that was almost dead into an attractive tourist attraction. Pariaman Mangrove Forest Tourism Park is located in Apa Village, North Pariaman Sub-district. This mangrove forest tour has an area of around 8 hectares. Where an area of 1.5 hectares is known to have long been dead due to drought. Meanwhile, the rest are still growing and developing well until now. The mangrove forest was once threatened with extinction because many residents took wood here to make firewood. However, after being made a tourist attraction, it is hoped that residents will no longer harvest wood here illegally. Those who previously cut down trees, maybe in the future will protect and preserve mangrove forests. Mangroves are a global issue that has extraordinary appeal for environmental conservation, and the Pariaman City Government started this several years ago.

METHODS

This research is a case study type using qualitative methods and descriptive methods. Sugiyono (2009) explains that based on the level of natural ness (natural setting),

qualitative methods are also called naturalistic methods, namely research is carried out in natural places and does not involve treatment. The descriptive method in this research aims to provide an overview of community perceptions and participation in the environmental management of the Pariaman Mangrove Forest. The scope of the material in this research is the perception and participation of the community regarding environmental management of the Pariaman Mangrove Forest as well as the characteristics of the Apar Village Community which includes the level of education and livelihood. Meanwhile, the area scope of this research is the Pariaman Mangrove Forest which is administratively located in Apar Village, North Pariaman Sub-district, Pariaman City, West Sumatra with the consideration that this location has the potential to support efforts to manage the Pariaman Mangrove Forest environment.

The data used includes primary data and secondary data based on the scope of the research. Primary data is in the form of community perceptions and participation in the environmental management of the Pariaman Mangrove Forest and secondary data is a description of the general condition of the Pariaman Mangrove Forest which includes flora, fauna and landscape, as well as the characteristics of the Apar Village community which includes population number and density, livelihoods, level of education, livelihoods, and the institutional system for managing the Pariaman Mangrove Forest. The selection of sources used a non-probability sampling technique with a purposive sampling method. Sources for this research included the community, agencies, and experts/academics totaling 15 sources. Determining the number of sources is not based on statistical calculations (Lincoln & Guba, 1985; Sugiyono, 2009), but the number of sources is considered adequate if the data has reached the level of redundancy (the data is saturated and the sources do not provide new information), meaning that using further sources is permissible. it is said that no meaningful new information can be obtained.

Primary data was obtained directly using observation, documentation, interviews, and triangulation from several research objects. Secondary data was obtained indirectly by studying literature on documents related to research objects at several related agencies. Data analysis is carried out by searching and compiling research data systematically, including organizing data into categories, elaborating into units, carrying out synthesis, arranging into patterns, choosing what is important and will be studied, and making conclusions, so that it is easily understood by oneself and others (Sugiyono, 2009).

RESULTS

3.1 Socio-Economic and Cultural Conditions of the Apar Village Community

The Pariaman Mangrove Forest is geographically located in the coastal area of Apar Village, North Pariaman Sub-district, Pariaman City. The population of Apar Village in 2022 will reach 1,072 people, with a percentage of the total population of Pariaman City being 4.46%. Meanwhile, the population of Apar Village in 2020 reached 1,060 people, with a percentage of the total population of Pariaman City being 4.55%. With the trend of increasing population in Pariaman City, this will have an impact on increasing land requirements for housing, business activities, agriculture, fisheries, etc. There are several impacts from the increase in population which are factors that can directly or indirectly influence the sustainability of the Pariaman Mangrove Forest.

Based on research data, it can be seen that the population who work as fishermen is very

small, namely 10 people. Various types of activities carried out by fishermen include catching fish and shrimp in the waters around the mangrove forest area using various fishing methods and equipment, such as using crab nets, bag nets, cangapan (shrimp traps), and fishing nets, using boats as a means of transportation. In terms of quantity, the small number of people who work as fishermen is an obstacle for the Pariaman Mangrove Forest environmental management program. The level of education can influence the form of community perception and the form of community participation in the environmental management of the Pariaman Mangrove Forest. This fairly good level of education can be a supporting factor in the planning, implementation, and even evaluation processes of the Pariaman Mangrove Forest environmental management program.

DATA AGREGAT KEPENDUDUKAN SEMESTER I
TAHUN 2022
KECAMATAN PARIAMAN UTARA

DESA APAR

Tabel 1. PENDUDUK BERDASARKAN JENIS KELAMIN

KODE	NAMA WILAYAH	LAKI-LAKI	PEREMPUAN	JUMLAH	PERSENTASE
1377022006	APAR	516	556	1.072	4,46

Tabel 2. KEPALA KELUARGA JENIS KELAMIN

KODE	NAMA DESA	LAKI-LAKI	PEREMPUAN	JUMLAH
1377022006	APAR	233	94	327

Tabel 3. PENDUDUK BERDASARKAN AGAMA

KODE	NAMA DESA	ISLAM		
		LAKI-LAKI	PEREMPUAN	JUMLAH
1377022006	APAR	516	556	1.072

Tabel 4. PENDUDUK BERDASRKAN STATUS PERKAWINAN

KODE	DESA/KELURAHAN	BELUM KAWIN	KAWIN	CERAI HIDUP	CERAI MATI	JUMLAH
1377022006	APAR	538	441	27	66	1.072

Tabel 8. PENDUDUK BERDASARKAN PENDIDIKAN

NOMOR	PENDIDIKAN	LAKI-LAKI	PEREMPUAN	JUMLAH
1	TIDAK/BELUM SEKOLAH	115	114	229
2	BELUM TAMAT SD/SEDERAJAT	51	64	115
3	TAMAT SD/SEDERAJAT	77	88	165
4	SLTP/SEDERAJAT	86	75	161
5	SLTA/SEDERAJAT	151	140	291
6	DIPLOMA I/II	2	5	7
7	AKADEMI/DIPLOMA III/S.MUDA	6	15	21
8	DIPLOMA IV/STRATA I	27	53	80
9	STRATA II	1	2	3
10	STRATA III	0	0	0
TOTAL		516	556	1.072

Tabel 9. PENDUDUK BERDASARKAN PEKERJAAN

NO	PEKERJAAN	LAKI-LAKI	PEREMPUAN	JUMLAH
1	BELUM/TIDAK BEKERJA	141	125	266
2	APARATUR/PEJABAT NEGARA	16	31	47
3	TENAGA PENGAJAR	1	4	5
4	WIRASWASTA	211	26	237
5	PERTANIAN/PETERNAKAN	11	0	11
6	NELAYAN	10	0	10
7	AGAMA DAN KEPERCAYAAN	0	0	0
8	PELAJAR/MAHASISWA	119	119	238
9	TENAGA KESEHATAN	1	3	4
10	PENSIUNAN	6	8	14
11	LAINNYA	0	240	240
TOTAL		516	556	1.072

Figure 1. Apar Village population data (In Indonesia)

3.2 Community perception and participation

In general, it is said that the community knows about the existence of the Pariaman Mangrove Forest at the study location and says that the condition of the Pariaman Mangrove Forest is now getting better. The public's perception of the condition of the Pariaman Mangrove Forest is directed at environmental changes in the Mangrove Forest Area over the last few years. All local people said that the condition of the Pariaman Mangrove Forest during that period became better. Apart from the environmental awareness of the local community, such as not being allowed to cut down branches, trunks, and living mangrove trees and the need to protect and preserve the Pariaman Mangrove Forest, which can affect the income of fishermen and pond farmers, all interviewees hope that there will be efforts to protect and improve Pariaman Mangrove Forest.

The basis for a positive perception of the Pariaman Mangrove Forest was formed because the local community had carried out outreach or counseling activities by one of the related parties, such as government agencies, environmental non-governmental organizations (NGOs), and/or other parties regarding the management of the area. With the

condition of the Pariaman Mangrove Forest Ecosystem Area getting better and with the various benefits it has, many people are starting to care more about this area by carrying out various activities around this area responsibly.

3.3 Management institutional system

Administratively institutionally, the existence of the Pariaman Mangrove Forest is under the management of the Pariaman City Maritime Affairs and Fisheries Service. In its implementation, there are still several obstacles related to program planning, implementation, and evaluation, such as overlap between several program implementations in the coastal areas of Pariaman City, especially about mangrove management. The existence of these obstacles gave rise to initiatives from several Pariaman City Government agencies related to mangrove management, such as the Marine Service, Agriculture Service, Environmental Agency, and the Pariaman City Regional Development Planning Agency to form a special institution to handle mangrove management issues in Pariaman City, namely The West Sumatra Regional Mangrove Working Group with the Pariaman City Government (KKMD), an institution that is expected to accommodate the responsibilities of these various agencies in preserving the coastal areas of Pariaman City.

There are several community groups and/or environmental non-governmental organizations (NGOs) that are integrated and synergistic in implementing Pariaman Mangrove Forest management activities. Meanwhile, socialization or counseling activities regarding the management of the Pariaman Mangrove Forest for the local community have often been carried out by all parties, but these activities have not been properly programmed and scheduled. As an area that directly borders sea waters, this area requires security measures from all related parties to prevent disturbance or even damage to the surrounding environment. Overall, security efforts in this area have been carried out by all parties, but these activities have not been properly programmed and scheduled.

CONCLUSIONS

A fairly good level of education and the formation of a positive public perception of the Pariaman Mangrove Forest has influenced community participation in environmental management of the Pariaman Mangrove Forest, which is shown by the high level of community desire to maintain, preserve, and hope for efforts to protect and improve the Pariaman Mangrove Forest. The form of community participation is voluntary, namely through routine activities such as carrying out pond repairs. With the local community's environmental concern for the Pariaman Mangrove Forest, it can be said that the form of community participation is self-management because it is formed automatically based on the local community's environmental awareness.

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