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Mitigation of Mangrove Forest Vegetative Disaster to Prevent Beach Abration and Rob Flood in Bekasi District

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***Abstract*: The coast of Muaragembong, Bekasi Regency, has experienced mangrove degradation in most of the coast of Muaragembong, causing tidal flooding every year. The cause of flooding in Muaragembong District is abrasion caused by natural factors such as the phenomenon of global warming and human (anthropogenic) factors. The human factor is a factor that can be measured. The purpose of this study was to analyze mangrove damage causing tidal flooding and abrasion along the coast in Muaragembong including Bakti Beach, Happy Beach, Simple Beach. This research method uses a qualitative method with a descriptive design. Collecting data on subjects using interviews, observation and documentation. The results of this study are suggestions to the government to further intensify the expansion of mangrove planting as a mitigation effort against tidal floods and abrasion along the coast in Muaragembong district.**

***Keywords*: Mangrove, Abrasi, Banjir, Muaragembong.**

1. Introduction

The Muaragembong Coastal Area is geographically directly adjacent to the Java Sea. This position causes the entire coast of Muaragembong to be very vulnerable to coastal abrasion which will cause tidal flooding. Conditions on the coast, under normal circumstances, sea level will experience high tides when there is a full moon. Under current conditions, the phenomenon of sea level rise caused by global warming (climate change), conversion of mangrove plantations on the coast, and the influence of regional topography, will result in large seawater inundations on the coast. Large puddles of sea water and coupled with the arrival of the wind from the sea to the beach, the sea water enters the land causing flooding that occurs in the surrounding area. This event is known as the tidal flood.

In general, tidal flooding on the coast is caused by excessive sea level rise, land subsidence, beach reclamation for development, sedimentation caused by accumulation of garbage or other things, and the breakdown of the boundary embankment. Disaster risks caused by tidal floods can be in the form of injuries, injuries, feeling unsafe, displacement, disruption of community life activities, damage or loss of property, and rarely death. However, the most important thing to note is the impact of tidal floods is disrupting the wheels of economic and social life.

According to Hidayatullah et al (2016), the cause of flooding in Muarageombong District is abrasion caused by natural factors such as the phenomenon of global warming and human (anthropogenic) factors. The human factor is a factor that can be measured. This is evidenced by the findings showing that by using overlapping Landsat imagery from 2012 to 2020, it can be seen that there has been abrasion on the coast of Muaragembong covering an area of 252,071.71 square meters. While the average sea level is 0.60 m, with the lowest ebb level is 0.49 m and the highest sea level is 0.62 m. Other evidence that shows the human factor is the cause of coastal abrasion of the Muaragembong coast is research from: Putera et al (20) and Oktaviani et al (2019), which shows the clearing of mangrove forests on the coast of Muaragembong to become aquaculture locations for the purpose of increasing income community (economy), resulting in an increase in tidal flooding.

Besides that, the human factor as the cause was the policy of the Indonesian Ministry of Forestry at that time, which issued Decree No. 475/Menhut-II/2005 concerning the Change of Status of the Protected Forest Area of Ujung Karawang (Muara Gembong) covering an area of 5,170 hectares to become permanent production forest (HPT). Armed with this policy, the Bekasi Regency Government issued Regional Regulation Number 2 of 2007 which contained the creation of a new Spatial Planning for the Muara Gembong area as an area that could be developed according to the needs of the Bekasi Regency Government or it was no longer a protected forest. With this Perda, at the same time replacing Letters Decree of the Minister of Agriculture of the Republic of Indonesia Number 92/UM/54 which made the Muara Gembong area a Protected Forest. Since then, there has been damage to the mangrove ecosystem resulting in a decrease in mangrove diversity (Supriadi, et al, 2015).

According to Antaranews.com (2021), since December 7, 2021, tidal floods have hit and conditions have improved. Tidal floods hit 5 out of 6 villages in Muara Gembong District, namely Mekar Beach, Simple Beach, Happy Beach, Harapan Jaya Beach and Bhakti Beach. However, Jayasakti Village, which is on the coast, was not even hit by tidal flooding. Tidal

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floods are like an additional season for the people of Muara Gembong District besides the dry season and the rainy season. It happens every year that the water gets bigger, it comes suddenly, especially in recent years. Tidal floods usually occur for at least 7 days, sometimes they seem to recede, but suddenly the water is high again. In the end, people could not work and school activities or other economic activities stopped. When there are strong winds from the sea, they usually bring sea water so that the floods increase. The condition must immediately get a solution so that the economic and social downturn of the people of Muara Gembong District will recover soon. One of the solutions offered by the Bekasi local government is synergizing with related parties.

2. Research Methodology

This research uses a qualitative method with a descriptive design, which is expected to be able to provide answers to a problem and/or obtain more in-depth and broader information about a phenomenon so as to get meaning from a number of individuals or groups that are occurring as a result of social or humanitarian problems. Based on the problems that occurred, the researcher used descriptive qualitative to describe and analyze how Mitigasi Bencana Vegetatif Hutan Mangrove. To prevent beach abrasion and rob floods in Bekasi Regency, qualitative research procedures do not have a standard pattern. Qualitative research collects and records data in detail from various problems related to the object of research. The implementation of data collection was directly carried out by the researchers themselves by making observations and directly participating actively in the process.

3. Result and Discussion

Muaragembong District, Bekasi Regency, West Java Province. Muaragembong District is about 100 km from the Capital of Bekasi Regency, while the distance from the Capital of West Java Province is about 225 km. From a geographical perspective, Muara Gembong District is located at 107 o 00' 00" E to 107 o 06' 00" E and 5 o 55' 00" South Latitude to 6 o 05' 30" South Latitude. The Muaragembong District is part of the administrative area of Bekasi Regency with the following boundaries:

a. To the north it is bordered by the Java Sea.
b. To the south, Branchbungin District, Bekasi City, Tambun District.
c. To the west it is bordered by Babelan District and DKI Jakarta.
d. In the east it is bordered by Karawang Regency.

Muaragembong sub-district is the largest sub-district in Bekasi. The area of this area in 2022 is 13,310 hectares with 60% being the coastal area. In this area there are 5 (five) villages with definitive status (the Minister of Home Affairs), namely Pantai Harapan Jaya Village, Happy Beach, Bakti Beach, Simple Beach and Mekar Beach Village. Subdistrict which is under quite heavy pressure on land use Pressure on land use in Muaragembong District is caused by the many development activities in the area, causing the rate of growth and changes in land use to occur very quickly. This condition is related to the resources of the coastal area which are multiresources and multiple uses. The Muaragembong Forest Area has an area of 5,311.15 Ha. This forest area stretches along the coast of Ujung Krawang Muara Gembong which is located in Muara Gembong District, Bekasi Regency, West Java Province. In terms of forestry administration, this area is included in BKPH Ujung Krawang, KPH Bogor, Perum Perhutani Unit III West Java and Banten. The village area in Muaragembong District is 160.54 hectares, which is divided into 6 villages.

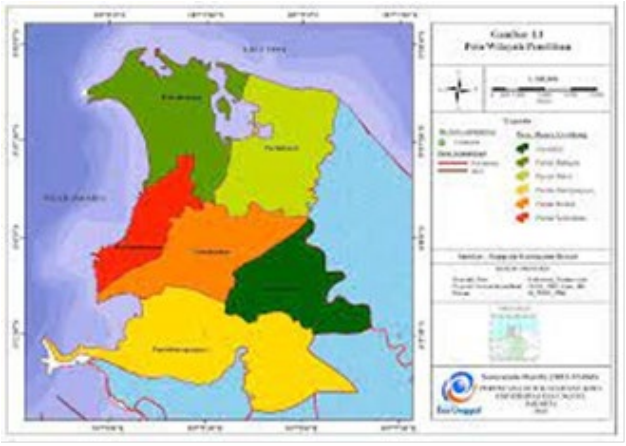

Fig. 1. Map of Muara Gembong District

The land use that is commonly seen in Muara Gembong District is pond fishery land, which is 8,914 hectares or around 66.97% of the total area of Muaragembong District. The land use that also received the largest portion was the use of irrigated paddy fields, amounting to 15.7% of the total area. The amount of unused land such as mangrove forests, which used to be the majority land in the Muara Gembong area, is now only 398 hectares.

Fig. 2. Planting Mangrove at Happy Beach

All the beaches in Muaragembong are included in the forestry area or known as arable land. Inauguration as forestry-owned land was officially carried out in 2014. development in Muaragembong is dominated by the community itself, including the development of mangrove forests. In this case,

this study shows that statistically it is stated that in 2020, the area of mangrove forest in Muaragembong District is 398 hectares. From the data in the field, it shows that there is an increase in the number of mangroves, especially in Pantai Bahagia Village. However, mangrove planting in other villages tends to be static and decreases due to abrasion and tidal flooding.

Mitigation of vegetation with the development of mangrove forests from the previous explanation there are 5 types. Everything is intended so that the resilience of the Muaragembong Subdistrict area is able to deal with coastal abrasion and tidal flooding optimally, so that people's lives run normally. Resilience is generally seen as a broader concept than capacity because it goes beyond the specific behaviors, strategies and actions for risk reduction and management that are usually understood as capacities. In everyday usage, 'capacity' and 'handling capacity' often mean the same as 'endurance' (Twigg, 2009).

4. Conclusion

The obstacles in controlling coastal abrasion and tidal flooding with the development of mangrove forests are:

There is a struggle for authority to manage progress to support the resilience of the Muaragembong Subdistrict area because the Ministry of Forestry feels it has more authority than other government parties so that it disrupts the construction of facilities and infrastructure to support coastal conditions that experience abrasion and tidal flooding resulting in adverse impacts on the livelihoods and social life of the people living in the area. along the coast in Muara Gembong district.

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