

Research Paper

The Government Role in Managing Mangrove Damage: Case Study in Manokwari

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Abstract: Mangrove ecosystems are known as forests that are able to live adapt to extreme coastal environments such as changing salinity (2-22 ‰ to reach 38 ‰), but the existence of mangrove ecosystems is vulnerable to environmental changes, such as wind, erosion and abrasion. Changes in the environment are caused by ecological pressure that comes from nature and humans. Forms of ecological pressure originating from humans are generally associated with the use of mangroves such as land conversion for settlements, fishponds, and tourism. The development of mangrove forests in Kabupaten Manokwari requires the attention of the government and the community, because the lack of public awareness and coordination between agencies will greatly influence the preservation of mangrove forests, especially the damage to ecosystems in mangrove forest areas.

Keyword: Government Role, Kabupaten Manokwari, Mangrove Ecosystem.



1. Introduction

As one of the marine and coastal ecosystems, mangrove has various functions that are very important for environmental sustainability and community welfare. The mangrove has an ecological function as a food provider for marine biota, coastal abrasion barrier, tidal wave and tsunami barrier, waste absorber, prevention of sea water intrusion. For surrounding communities, mangrove has a variety of functions of one of them as a source of alternative food reserves. Mangrove fruit commodities can be a substitute for rice and sweet potatoes which will be used if at any time the harvest fails [1]. In addition, the use of ecotourism services in the mangrove area has also developed, which has helped to increase the people's income [2].

Mangrove ecosystems also contribute to reducing global warming and the impact of climate change. In one hectare of mangrove area can absorb between 600-1800 tons of carbon or if used on average then 1,200 tons of carbon can be maintained in one hectare of mangrove forest area [3]. With a total area of mangrove Indonesia reaching 3,489,140.68 hectares, placing Indonesia as a country with the widest area of mangrove area with a very high level of diversity [4]. Mathematically, the carbon stock of mangrove Indonesia reached 418,696,881,600 tonnes, but unfortunately the number of carbon stocks cannot be maximized because in fact, the existence of mangrove ecosystems are very vulnerable to environmental changes, such as the wind, erosion and abrasion, until this has implications for mangrove ecosystem degradation, even one of the results of research conducted by Syaiful Eddy et al, assesses that in these 2 to 3 decades nearly 50% of the total mangrove forests in Indonesia have been lost [5].

The Indonesian government has shown concern regarding the importance of undertaking efforts to protect, preserve and utilize mangrove ecosystems [6]. The enactment of the Presidential Regulation No. 73 of 2012 concerning the National Strategy for Mangrove Ecosystem Management is a proof of the Indonesian commitment. The existence of the Presidential Regulation is very important because it forms the basis for managing mangrove ecosystems nationally. This regulation also mandates the formation of a National Mangrove Ecosystem Management Coordination Team (TKNPEM), which has the task of implementing the National Strategy for Mangrove Ecosystem Management (SNPEM). To facilitate the technical work of this team, a National Mangrove Working Group (Pokja) was formed, in 2013 the Pokja issued a book on Strategy and Program, the National Strategy for Mangrove Ecosystem Management.

It is not enough just on a national scale, mangrove ecosystem management policies must be downgraded to the responsibilities of each local government at the local scale to be able to carry out its own management effort, by referring to SNPEM by taking into account the characteristics of each region, which may be different each area. One area of our concern is Manokwari Regency, West Papua.

West Papua, especially Manokwari Regency is one area that has a relatively wide mangrove ecosystem, West Papua has an area of mangrove ecosystems reaching 483,976 hectares spread across 11 districts. Manokwari itself has an extensive mangrove ecosystem reaching 1862 Ha [7]. However, not all of the ecosystems are in good condition, 44 % of the mangrove ecosystem in Manokwari is declared damaged.

Several factors have implications for mangrove damage, such as ecological pressures originating from humans are generally related to the use of mangroves such as land conversion for settlements, ponds, and tourism.

Then how is the effort of the Manokwari regency government to deal with mangrove damage that occurred, and then make efforts to restore it so that the function of the mangrove ecosystem is not disrupted. If the regional government has made maximum efforts, the community will voluntarily carry out government policies. Synergy between local government and surrounding communities will have a significant impact on the sustainability of mangrove ecosystems.

This paper will analyze the extent of the role of the Manokwari local government in the rate of mangrove damage, and what policies have been made in restoring mangrove ecosystems that have been damaged.

This paper will consist of 2 parts, the first part in tackling will examine regulations related to efforts to deal with damage to mangrove ecosystems and their recovery nationally. The second part will examine specifically the efforts that have been made and will be carried out by local governments and alternative policy proposals that can be done to ensure sustainable management of mangrove ecosystems.

2. National Regulation of Mangrove Ecosystems

The government has realized the importance of the preservation of mangrove ecosystems by enacting the Presidential Regulation No. 73 of 2012. In its consideration, the government has realized that mangrove ecosystems are a coastal wetland resource and a life support system and natural wealth which is of very high value. Therefore, it becomes important to make efforts to protect, preserve and sustainably utilize it for the welfare of society. SNPEM is a concrete step aimed at synergizing policies and programs for managing mangrove ecosystems that cover ecology, socio-economic, institutional, and statutory regulations to guarantee the functions and benefits of mangrove ecosystems in a sustainable manner for the welfare of the community [8].

In the management of mangrove ecosystems, there are several main issues that are the center of government attention. These are categorized into 4 categories, namely: (1) Ecological Issues which emphasize the vulnerability of disasters that will result from damage to 50% of mangrove ecosystems; (2) Socio-economic issues that emphasize aspects of optimizing the use of mangrove ecosystems in an environmentally friendly manner, because most people around the mangrove ecosystem are still classified as poor; (3) Institutional issues which emphasizes strengthening government institutions and communities that are more synergistic in managing mangrove ecosystems; and (4) Legislation issue that emphasizes the optimal implementation of regulations and law enforcement so as to ensure the preservation of mangrove ecosystems [9].

Furthermore, to make this regulation effective, TKNPEM was formed, which was tasked with implementing SNPEM. Not only is the coordination team at the center, the Mangrove Presidential Regulation also mandates the formation of a coordination team in each region, starting from the provincial to district / municipalities level. Each region is also required to make a Provincial and Regency / City Mangrove Ecosystem Management Strategy, which is an elaboration of SNPEM and adapted to the conditions of each region [10].

Previously in 2007, Mangrove Ecosystem Management was under the coordination of the Mangrove Forest Management Center (BPHM) based on the Minister of Forestry Regulation Number: P.4 / Menhut-II / 2007 concerning the organization and work procedures of the Mangrove Forest Management Center, which only have 2 in Indonesia namely the Regional BPHM I domiciled in Denpasar, Bali with a working area of 19 provinces in Indonesia consisting of provinces in Java, Sulawesi, Bali, West Nusa Tenggara, East Nusa Tenggara, Sulawesi, all of Maluku and Papua [11]. Meanwhile, BPHM Region II is domiciled in Medan, North Sumatra, with work areas of 14 provinces spread across the islands of Sumatra and Kalimantan. BPHM is a technical implementer of the Directorate General of Watershed Management and Social Forestry [12].

However, there has been a change of authority since 2015, BPHM was later abolished based on Minister of Environment and Forestry Regulation No. P.10 / Menlhk / Setjen / OTL.0 / 1/2016. The authority of mangrove management is spread across various ministries. Within the Ministry of Environment the Directorate of Management of Essential Ecosystem Management (BPEE), which is an implementing element of the Directorate General of Natural Resources Conservation and Ecosystems (KSDAE), is given the authority to formulate policies, coordination, formulation of NSPKs, in general the conservation of natural resources and ecosystems that are generally specifically for mangrove conservation.

The existence of the Coordinating Minister Regulation on the Economy of the Republic of Indonesia as the Chairperson of TKNPEM 4 of 2017 concerning Policies, Strategies, Programs and Performance Indicators of National Mangrove Management (Permenko No 4 of 2017 concerning Mangrove Policy). This regulation was as implementing regulations in article 6 paragraph (1) letter b of the Presidential Regulation No. 73 of 2012. This regulation clarifies the authority of each relevant ministry, agency or institution, such as the Ministry of Fisheries and Maritime Affairs and the Ministry Forestry and Environment, as well as the Ministry of Internal Affairs, and Provincial and Regency/City Regional Governments. This regulation specifically requires each relevant ministry to make an action plan no later than 2 months since Permenko No. 4 of 2017 concerning Mangroves.

This regulation contains various policies, strategies, programs and performance in the management of national mangrove ecosystems. The mangrove ecosystem in this regulation is set at 3.49 million hectares or 21% of the total mangroves in the world. But from that number, only 1.67 million hectares are in good condition, while another 1.82 million hectares are considered to be in damaged condition. Periodically every 5 years starting in 2017, the government is targeting mangrove ecosystem

recovery. All mangrove ecosystems in Indonesia are expected to be in good condition by 2045, while in 2024 the mangrove recovery target is 1.95 million hectares [13].

To realize targets as mentioned above, it then made targets, strategies, program activities, performance indicators and equipped with the responsible person in accordance with the authority of each relevant ministry or agency. For the local government, several programs are established, such as synchronization and harmonization of work mechanisms, methods and working relationships between units of the National Mangrove Working Group (KKMTN) and Provincial Level Mangrove Working Groups (KKMTP), and subsequently facilitating the availability of Norms, Standards, Procedures, Criteria (NSPK) / Regional regulations related to mangrove ecosystem management. In implementing this program, each region continues to coordinate with other relevant ministries / agencies [13].

3. The Regional Government Policy

Manokwari is administratively one of the districts located in West Papua Province, with an area of 3,168.28 Km², which is divided into 9 districts and it is one of the districts with the highest rainfall in West Papua, with an average temperature of 2018 ranged from 27.20 to 27.90 temperature C. It has a cool temperature in general and has a strategic geographic potential with 7 rivers, 3 lake, and 4 mountains scattered in several regions. This geographic condition makes this region to have the geographic potential strategic to be developed [14].

The people of Manokwari Regency have a special relationship in terms of the utilization of mangrove ecosystems. This is reflected in the management of the mangrove forest area on the Arfai coast. Mangrove ecosystem management has been carried out from generation to generation, since the surrounding communities have used mangroves in several ways, namely [15]:

- (1) firewood
- (2) finding food places
- (3) making house needs (house poles)
- (4) as a place of fisheries (aquaculture) and,
- (5) as carpentry (boat making).

Therefore, the utilization of mangrove continuously will result in the degradation of mangrove ecosystem functions.

Overall, West Papua has a Mangrove area of 483,976 Ha. Manokwari itself has an extensive mangrove ecosystem reaching 1862 Ha [16], but of this number only 56% of the mangrove ecosystem is in good condition. Recovery efforts from various parties are needed to restore the function of mangrove ecosystems in order to remain sustainable. Of course the local government as a key driving factor for preserving the mangrove ecosystem. The presence of the central and regional governments will give confidence to the community to take more positive actions in supporting government policies.

So far the restoration of the mangrove ecosystem has not been a top priority in the development of the Manokwari regional government. The article is that the Regional Government of the Manokwari Regency has not set Norms, Standards, Procedures, Criteria (NSPK) / Regional Regulations related to mangrove ecosystem management, which is the mandate of the Mangrove Policy Minister for 2017. Related to the Mangrove Ecosystem Management Strategy at Regency / City and the establishment of the Coordination team Mangrove Ecosystem Management Strategies at Regency / City, the Presidential mandate Mangrove 2012 was cancelled. Though the implementation of this policy is certainly very important to ensure the sustainability of the mangrove ecosystem in Manokwari.

The existence of the Manokwari Declaration of Sustainable Development Based on Indigenous Areas in the Land of Papua at least is a positive step to ensure sustainable development in the Land of Papua. In general, this declaration contains 14 commitments to fulfil the vision of "Papua Land of Peace, Sustainable and Dignity". Specifically on the tenth commitment, the two provincial governments in Papua, Papua and West Papua Provinces, are committed to establishing essential conservation areas, mangrove management, peat swamps, sago swamps, setting local strategic areas, protecting genetic resources and endemic species and endangered and protected karst areas and increase the effectiveness of the management of areas that have legality in order to provide benefits to the community [17].

Although the existence of this declaration is only soft law or not binding and has a forced power, ethically it has shown a wise step that needs to be immediately upgraded to a hard law in the form of

provincial / district regional regulations which have more binding legal force and have a forced power in its implementation.

4. Alternative Policy Offered

The Directorate of BPEE has the authority to formulate policies, coordination, and preparation of NSPK. The conservation of natural resources in general and ecosystems specifically for mangrove conservation do not yet have policies related to specifically the management of Mangrove ecosystems in Manokwari district. So that, this can prioritize some areas of Papua to become essential ecosystem areas. Based on the results of a presentation from the Directorate of BPEE, of the 37 Essential Ecosystem Areas (KEE) determined by BPEE, of which 5 are mangroves, none of the KEEs were determined on Papua Island [18]. This certainly becomes a critical note for the central government in the future to pay more attention to KEE on Papua Island especially Manokwari Regency in West Papua Province, especially after the Manokwari declaration which is a commitment of sustainable development from the regional government.

It is possible for the regional government to be more active in this matter to form a coordinating team for the management of mangrove ecosystems, as has been done by the Province of East Java in 2019 by setting East Java Governor Decree Number 188/134 / Kpts / 013/2019 Concerning the Strategy Coordination Team Management of the Mangrove Ecosystem of the Province of East Java. The government of West Papua Province, indeed, can also first issue this policy, before the Manokwari district government will follow up at the district scale.

The Manokwari regional government can also form a Mangrove Conservation Forum which is the first step to establish the mangrove ecosystem in its area as an essential ecosystem area. This policy has been carried out by the West Lombok Regency Government by issuing a Decree of the Regent of West Lombok No.793 / 14 / DLH / 2017 dated 11 December 2017 concerning the Establishment of the West Lombok Regency Mangrove Conservation Forum [19]. Step forward like this requires a great attention from the government Manokwari district to ensure the conservation of mangrove ecosystems in Manokwari.

On a local scale, the village government can even explore local wisdom in its area. This step forward by establishing village regulations related to mangrove management in each of their villages located in Tanakeke Island, Takalar Regency [20]. This is in line with the principle of managing mangrove ecosystems, it is necessary to pay attention to the condition of the surrounding community, so that efforts to restore mangrove ecosystems can provide economic benefits to the community, which is still in the corridor of environmental sustainability. This step is positively proven to be able to increase the awareness of the surrounding community to protect and manage the mangrove ecosystem wisely [20], which of course can reduce the rate of damage to mangrove ecosystems in Takalar district.

Each region has a local wisdom in managing the natural resources around it in harmony, not through massive exploitation that results in the degradation of the carrying capacity and the carrying capacity of the environment. This practice can be seen in Luwu Regency, South Sulawesi, succeeded in digging local wisdom in the community, then legitimized by the government by making village regulations to impose force on these rules, so that it can positively not only reduce damage to mangrove ecosystems, but also succeeded in repairing mangrove ecosystems that have been damaged [6].

5. Conclusion

Mangrove ecosystems have a variety of functions either directly of economic value to humans, or indirectly in a variety of ecological functions with environmental services that support the harmony of life between humans and the natural surroundings.

However, mangrove ecosystem degradation cannot be sustained, out of 3.49 million hectares of Indonesia's mangrove forests or 21% of the total mangroves in the world, only 1.67 million hectares are in good condition, while another 1.82 million hectares are considered to be in Bad condition. West Papua Province has 483,976 Ha mangrove forests, while Manokwari district itself has an area of mangrove ecosystems reaching 1862 hectares. 44% of the mangrove forest area in Manokwari was assessed in a damaged condition.

The government has various policies in protecting mangrove ecosystems, starting from the Presidential Regulation on Mangroves, to the Permenko on mangrove policies, which have

specifically regulated efforts that can be carried out by relevant ministries and agencies / institutions, such as KLHK, KKP, and Ministry of Home Affairs, and Provincial Governments, and Regency / City.

Synergic active steps are needed between the government, district, province, and related ministries to ensure the preservation of mangrove ecosystems. In addition to that, digging into the local wisdom of the surrounding communities is then legitimized through village regulations, as was done in the Takalar district as an alternative step that can be taken. The presence of central and local governments as a key factor will increase public confidence in taking more positive actions in supporting government policies in preserving mangrove ecosystems.

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