

# Collaborative Governance Process in Preventing Beach Abrasion In Numana Village Wakatobi District

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## Abstract

This research was conducted to describe the Collaborative Governance process in preventing coastal abrasion in Numana Village, Wakatobi Regency, and the factors preventing coastal abrasion. This type of research is qualitative with a descriptive approach and uses 7 (seven) informants who can provide information related to the problem under study. The data was collected using observation, interview, and documentation techniques. The data analysis technique used in this research is data reduction, data presentation, and conclusion drawing. Validation of the data used in this study is source triangulation, technique triangulation, and time triangulation. The results of this study indicate that the collaborative governance process in preventing abrasion in Numana Village, Wakatobi Regency, namely: face to face dialogue in the form of discussions and socialization on how to prevent beach abrasion, building trust, includes planting 1000 mangrove trees/mangroves, commitment to the process in the form of providing standby services and providing strong motivation to participate in preventing coastal abrasion, shared understanding in the form of an attitude of understanding each other's duties regarding limitations so that collaboration goes well, and achievement of results (Intermediate Outcome) in the form of utilization of natural resources.

**Keywords:** collaborative governance; coastal abrasion; wakatobi district; prevent strategy

## Introduction

Seawater never stands still. The seawater is wavy on the surface, sometimes big, sometimes small, depending on the wind speed and seabed depth. The deeper the seabed, the more significant the waves. Waves can erode the shore. As a result of this erosion, many beaches have become steep and steep (Munandar & Kusumawati, 2017). However, the damage or loss caused by coastal abrasion can be minimized by maintaining sustainability around the coast, both mangrove forests, and beach sand.

Over time, the damage to the coastal environment is increasing. Humans have now cleared mangrove forests that used to adorn the coast because of their greed to enrich themselves by building tourism and recreational facilities, such as hotels. Likewise with the beach sand, which often happens to miners without a permit and do not think

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about the impact if they do not maintain the sustainability of the beach. Data from the Indonesian Ministry of Forestry, in 2006, about 70 percent were damaged from the 9.4 million hectares of mangroves in Indonesia (Hidayah, 2014).

Wakatobi Regency is located at the southeastern tip of Sulawesi. Its territory covers one of the areas on the outermost line of the island of Sulawesi. The district capital is located in Wangi-Wangi, established based on the Law of the Republic of Indonesia Number 29 of 2003, dated December 18th, 2003. The area of Wakatobi Regency is about 19,200 km<sup>2</sup>, consisting of a land area of ± 823 km<sup>2</sup> or only 3.00 percent and water area (sea) ± 18,377 km<sup>2</sup> or 97.00 percent of the area of Wakatobi Regency (Purbani, Ramdhan, Arifin, Salim, & Novianti, 2014). Based on these conditions, the potential of the fisheries and marine sector, as well as the tourism sector based on marine/marine tourism, are the mainstay sectors of the Wakatobi Regency. It is known that Wakatobi Regency is more dominant in the ocean than on land; it is unlikely that there will be coastal abrasion.

Wakatobi is a collection of islands consisting of Wangi-Wangi, Kaledupa, Tomia and Binongko islands. Wakatobi has the potential for resources and high marine biodiversity; one of them has coral reefs that are still preserved now, and marine biota is many and step by step. Wakatobi also includes the world's coral triangle. The community in Numana Island, Pulau Wangi, is enthusiastic about maintaining marine and coastal ecosystems with the Wakatobi National Park Office (Asmara, Dahlan, & Rani, 2013).

Therefore, if the sea and the coast are not preserved, it will impact the marine ecosystem and coastal abrasion because many fishers and communities are not responsible for preserving the coast (Barbier et al., 2011). For this reason, so that those marine ecosystems can be maintained, collaborative governance is needed. Therefore, the case that we often encounter lately is the problem of coastal abrasion, which is getting worse. Because this coastal abrasion occurs in almost all regions in Indonesia, this problem must be addressed immediately because it can result in enormous losses for living things, including humans.

Abrasion is one of the problems that threaten the condition of the coast and coastline so that it retreats backward, damages ponds and residential locations on the coast, and threatens buildings that are directly adjacent to seawater. Coastal abrasion is defined as the retreat of the coastline from its original position (Haryanto, Darlan, Isnaniawardhani, & Ilmi, 2018). The impact of coastal abrasion causes many problems for coastal residents because knowledge about coastal abrasion is minimal. Due to the lack of awareness and knowledge about coastal abrasion, residents cannot predict the occurrence and how to adapt to coastal abrasion, so it is necessary to increase knowledge of coastal abrasion. Knowledge of coastal abrasion is essential for coastal residents in determining the form of adaptation carried out to reduce the impact of coastal abrasion disaster risks (Haryanto et al., 2018).

Abrasion is caused by two factors, namely natural factors and human factors, and the most influential on coastal damage is the human factor. The cause of abrasion on the coast is mostly (estimated at more than 90%) caused by human intervention (Aziz, Lesmi, Pranoto, & P, 2016). Meanwhile, natural factors run naturally and will not cause too much damage if there is no human intervention in their activities. Often humans do something they think is good, but it turns out

that these actions can result in changes in the coastal ecosystem. For example, cutting down mangroves for fuel and building materials, continuous sand mining, making coastal wells for industrial purposes in excess, etc. Humans are too selfish in utilizing the coastal ecosystem, and they can only take without being able to give and leave the damage without wanting to fix it. Humans are not yet aware that the damage caused by them will have a significant impact on the survival of human life itself, both now and in the future (Navastara, 2017).

So that the impact of abrasion does not spread further, it must be handled immediately concerning the spatial planning of the coastal area. As one of the coastal ecosystems, mangrove forests are unique and vulnerable ecosystems. This ecosystem has ecological and economic functions. The ecological functions of mangrove forests include: protecting the coastline, preventing seawater intrusion, habitat (place to live), feeding ground, nursery ground, spawning ground for various aquatic biota, and as a microclimate regulator, while the economic function is for industrial purposes, and for producing seeds (Sukmawati et al., 2022).

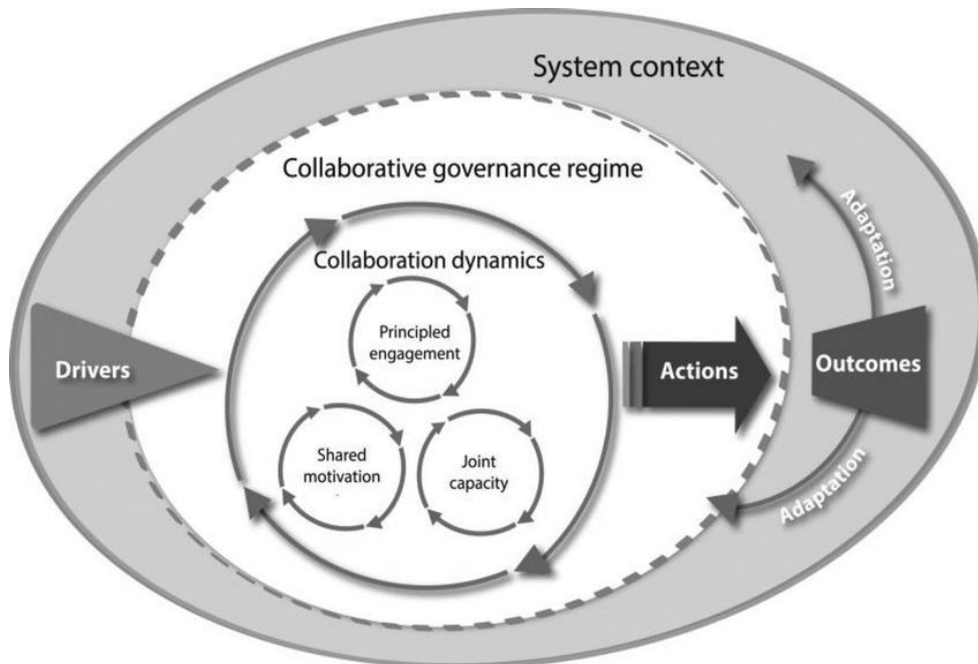
Wherever we live on the earth's surface, there is the potential for disasters to occur, but this can be anticipated if we know about disaster risks and also if we are wise about the environment we live in. Knowing the types of disasters and how they occur, and what actions to take is very important to avoid losses, both loss of life and property. The government of Wakatobi Regency involves stakeholders in planning and managing conservation areas, such as the development of conservation programs for mangrove forests, coral reefs, and sand beaches and the development of management plans up to the monitoring stage (Fisu, Ahmad, Hidayat, & Marzaman, 2020).

According to the Decree of the Minister of Marine Affairs and Fisheries No. 38 of 2004 concerning general management guidelines, stakeholders are individuals or groups, or elements of society who have an interest in an area or the resources contained in an area (Mansyur, Somba, Awat, Ali Ahmadi, & Hasliana, 2021). A collaborative system has occurred among stakeholders, such as conservation area planning to conservation area management. Stakeholders consist of government and non-government. The government, as the owner of natural resources also called an agent. At the same time, people who use natural resources are referred to as actors or actors such as the community.

The government realizes that Wakatobi National Park can be managed by the government and requires cooperation with the community to support government programs in conserving resources and the environment so that government programs can run well. One of the collaborations carried out between stakeholders is through communication forums. The communication forum in Numana Village, Pulau Wangi-wangi. Collaboration between the government and the community has been going on. However, there are similarities and differences between government (agents) and non-government (actors), so research needs to be done. This study aimed to identify agents and actors in Wakatobi Regency.

Collaborative governance, institutions encourage interaction between actors of government organizations and non-governmental organizations without any dominance in defining problems, determining goals, and implementing methods. The central government and local governments can collaborate to solve a public problem by collaborating with other parties involved in solving the problem see Figure 1 (Mclsaac, Kelly, Turner, & Kirk, 2020). Collaboration is

defined as cooperation, interaction, and compromise of several related elements, both individuals, institutions, or parties involved directly and indirectly who receive the consequences and benefits (Emerson, Nabatchi, & Balogh, 2012). Various collaborations between stakeholders. This is very important for the role of the Wakatobi Regency government in providing knowledge about the sustainability of coastal areas to the community so that they have a mangrove conservation perspective to avoid coastal abrasion.



**Figure 1.** Integrative Framework for Collaborative Governance, re-printed with permission.

Source: Mclsaac, Kelly, Turner, & Kirk (2020)

The community owns knowledge before the damage occurs. An ecosystem is maintained in its originality because the response and participation in collaboration between the government and the private sector have an enormous contribution to implementing the conservation and conservation mangroves and beach sand. The community response and participation in conservation will impact the damage handling during the last decade. Interest in government administration is also carried out as an effort and government response in handling public problems (Getha-Taylor, Grayer, Kempf, & O’Leary, 2019). Collaboration between stakeholders involving the government, the private sector, and the community can be interpreted as collaborative governance (Mukhlis, 2022).

In collaboration with the government, the Head of the Wangi-wangi Resort, Mr. Sofian from the Ministry of Environment and Forestry, with the Numana Village government in dealing with the problem of ecosystem damage, especially the environmental part on the coast. This is still not effective indirect supervision of excessive use of natural resources so that the damage in the vicinity that feels the harmful impact of the pollution in the community. Moreover, the problem now is how to deal with or overcome when the abrasion occurs, which is something that actually should be a particular concern for the government and even become one of the things that also deserves mutual attention (Sjafrie, Rahmadi, Kurniawan, Triyono, & Supriyadi, 2021).

The collaboration will not always go as expected. The difficulty of determining the right time because of the many stakeholders involved, establishing communication between agencies is not easy. Usually, there are communication

problems between program implementation units due to unequal commitments in meetings. Therefore, the selection of actors is also important in the collaboration process; expressing the interests of actors and their involvement in collaboration is crucial to seeing the impact and whether differences in interests will affect the collaboration process.

### Research Methods

This study uses a qualitative approach with a case study. Furthermore, using as many as 7 (seven) informants who can provide information related to the problem under study. The research location was conducted in Numana Village, Wakatobi District. This research collects data using the technique of observation, interviews, and documentation. Data analysis techniques used in this research are data reduction, presentation, and conclusion drawing. Validation of the data used in this study is source triangulation, technique triangulation, and time triangulation (Miles, Huberman, & Saldaña, 2014).

### Results and Discussions

The findings in the field related to the collaborative governance process in preventing coastal abrasion in Numana Village, Wakatobi Regency, will not work if the activities are still interdependent. Therefore, it is essential to collaborate in minimizing the damage caused by coastal abrasion based on the results of observations and interviews conducted (Mutiarawati & Sudarmo, 2021).

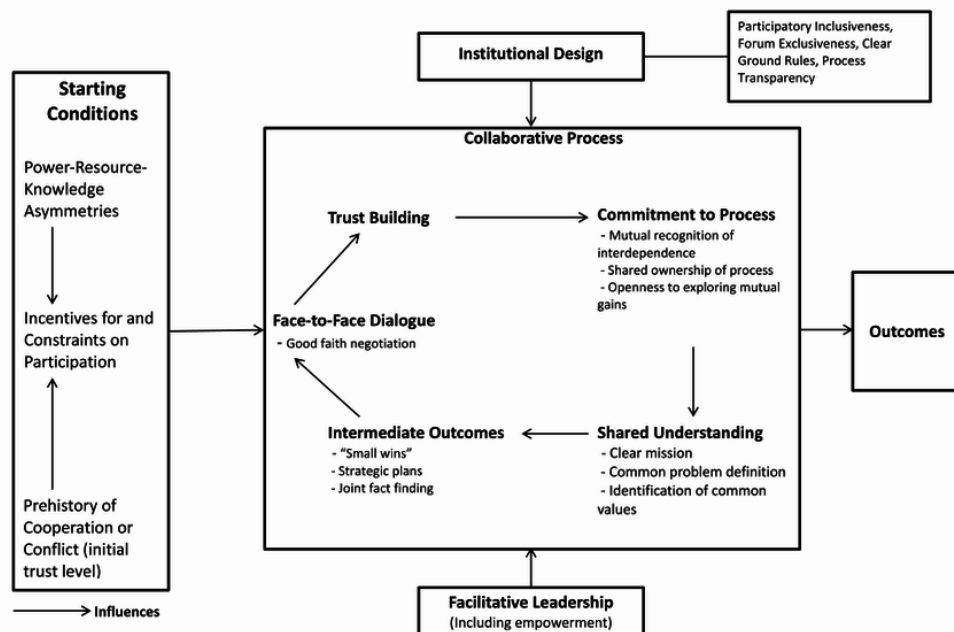


Figure 2. A Model of Collaborative Governance

Source: Ansell & Gash (2008)

The collaborative governance process in preventing coastal abrasion in Numana Village has indicators that have been applied (see figure 2.) by Ansell & Gash (2008), namely: face-to-face dialogue, trust-building, commitment to the process, and the achievement of the results (intermediate outcome), and shared understanding. As well as factors preventing coastal abrasion, namely: preservation of coral reefs, conserving mangroves, prohibiting sand excavation, and building breakwaters.

## **Collaborative Governance Process in Preventing Beach Abrasion in Numana Village, Wakatobi Regency**

Collaborative governance is a process or method of cooperation involving several elements related to government or non-government who are involved directly or indirectly to achieve common goals (Torfing, 2019). Then one of the critical foundations in preventing beach abrasion. Koebele (2019) suggests that in collaborative governance, there are institutions that encourage interaction between actors of government organizations and actors of non-governmental organizations without any dominance in defining problems, determining goals, and implementing methods. Collaboration is needed to enable governance to be structured to effectively meet the increasing demands arising from management across government, organizational, and sectoral boundaries.

In this collaboration, it is hoped that the role of the regional government and the community can synergize with each other in preventing coastal abrasion (Shaw, 2006). Therefore the process of collaboration is carried out in several stages. In a stage of the collaboration model, it is vital to consider a strategy in the management aspect of a public affair. However, the collaborative process is challenging to implement because the characters of each stakeholder are different from one another. Law Number 24 of 2007 concerning Disaster Management came into force after being promulgated in the State Gazette of the Republic of Indonesia of 2007 Number 66 and the Elucidation of Law Number 24 of 2007 concerning Disaster Management in the Supplement to the State Gazette of the Republic of Indonesia Number 4723 on April 26th, 2007, at Jakarta by the Minister of Law and Human Rights.

First, face-to-face dialogue; this indicator is one of the stages of collaboration, namely dialogue/face-to-face, which is a critical stage for sustainability in achieving the goals. The process of direct face-to-face dialogue means a meeting or holding a meeting by the government, the community, and the private sector by discussing or discussing a problem individually or in groups in order to get the best solution following the common goals that will be carried out in the collaborative governance process. In a face-to-face dialogue regarding the dangers of the impact of coastal abrasion, we can know from the indicators contained in the statement from the Village Head Ruimu in a face-to-face dialogue, one of the things that are often done in meetings.

Discussed the dangers of coastal abrasion with the agency that deals with coastal abrasion issues, namely the Ministry of Environment and Forestry, so that public awareness is maintained, and several community leaders also attended this face-to-face dialogue meeting. This is one of the appropriate actions to gather stakeholders to be aware of the dangers of coastal abrasion, which aims to establish cooperation between the Numana Village government and agencies dealing with coastal abrasion. This is also supported by a Head of the Village Government's statement, stating that it is vital to hold face-to-face meetings related to cooperative relations, and the community role is also essential. Especially this location is in a residential area adjacent to the beach, raising awareness and increasing knowledge in the community to make the best use of natural resources.

Second, trust-building; collaborative in building trust can be said to implement the management function, namely the executive function. This implementation function emphasizes more on activities that are directly related to the people involved. What has been made in a planning process can become

a reality through various efforts that are carried out optimally so that the goals of an organization can be achieved. In building cooperation, all parties in collaborative governance trust each stakeholder to provide input to go as desired. In building trust, they must know how to build trust between stakeholders by guiding abrasion and its impact.

This trust builds between the parties doing relevant cooperation to have good trust from everyone who collaborates because it should not be taken lightly because this also means a disaster whose impact is very concerning, causing very severe damage. In the collaborative governance process, to build trust, often communicating with all parties so that the trust of all parties is established and there is no doubt in it. In building cooperation, it is vital to protect the environment prone to abrasion. It is necessary to plant 1000 mangrove trees and involve the community. Because the benefits of mangroves are very good for the coast and the function of mangroves is to reduce the rate of ocean currents and function as a spawner for marine animals.

Third, the commitment to process; commitment to the process means that everything issued within the scope of Collaborative Governance in the form of suggestions and the achievement of joint results must be agreed upon and adhered to until the desired results are achieved. There is a solid motivation to participate and have a responsible attitude in working together to prevent the risk of coastal abrasion, which can directly affect the lives of coastal communities. It can be seen that building commitment must be embedded in the collaborative governance principle, both from the beginning and up to the stage. It ensures that the program's goals can be achieved following the preparation, planning, and implementation become the central principle so that every stakeholder is committed seriously and achieves the goal, which is desired so that the impact of coastal abrasion can be minimized.

Fourth, how to share the understanding; sharing understanding is a process of sharing understanding in collaborating cooperation about what they can achieve as a joint mission and common goals. All parties involved or within the scope of the collaborative governance system must understand each other between one institution or organization and another, mutually fulfill the needs of one party and another because the results to be achieved have been mutually agreed upon in preventing something from happening. The thing that is not desired is beach abrasion. Therefore, to prevent this from happening, it impacts the quality of the environment and impacts people's lives.

In this mutual understanding, one must have mutual understanding in the collaboration system. In every institution within the scope of the collaboration system, it can be necessary to understand the limitations possessed by the government. Therefore it is hoped that all parties involved in this collaboration will be able to understand that The collaboration went well. Therefore, all parties must understand the limitations of the government itself so that the government involved is understood to be able to run well so that the goal can be achieved properly. Mutual understanding is necessary in order to be able to cover limitations and shortcomings.

Fifth, intermediate outcome; is the application of collaboration indicators regarding the achievement of results. This means restoring environmental conditions that have been polluted and damaged so that they can return to their original conditions, and specific actions can take, one of which is cleaning so that the impact of coastal abrasion can be minimized the impact of damage to coastal

communities.

In achieving results in collaborative governance in preventing coastal abrasion, take action to protect the environment to avoid the impact of abrasion. It is an obligation for people who are usually negligent in utilizing the natural resources themselves, so we return them to the coastal communities in our task of only directing and providing an overview of the impact of abrasion if it occurs. In protecting the environment, the most influential people are the people who are usually negligent in utilizing natural resources. The Ministry of Environment and Forestry directs and provides insight that the impact of abrasion is hazardous and can damage settlements permanently.

In responding to and minimizing environmental damage that can trigger abrasion, we must restore the ecosystem to its original state by replanting mangroves; if mangroves are damaged, most people take firewood for firewood, but in Numana Village, it is still safe. This is in response to before the occurrence of abrasion, the community can be aware and utilize natural resources well, and in Numana Village, it is still safe to use natural resources.

### **Factors in Preventing Abrasion**

The influencing factors in preventing coastal abrasion are the preservation of coral reefs, which can reduce the occurrence of abrasion, conserving mangroves to strengthen the coastal land from sea waves, prohibiting the excavation of sand which will reduce the strength of the beach and will be at risk of coastal abrasion, and build breakwaters to reduce the impact of waves crashing (Tawil, Tawil, Rahmarini, & Salmon, 2021).

First, coral reef conservation, the preservation of coral reefs, can also reduce the occurrence of coastal abrasion, and coral reefs function to reduce the strength of ocean waves that reach the coast. Therefore it is necessary to conserve coral reefs. The preservation of coral reefs is imperative in marine ecosystems. Moreover, the advantages of coral reefs are very potential. Why is it that they are also places for marine biota in addition to inhibiting the movement of ocean waves and coral reefs? Therefore, it is essential to maintain and preserve coral reefs because it is one of the barriers to sea waves from coastal abrasion. Protecting the environment, especially in the marine sector, is essential because if we neglect to maintain and protect coral reefs, then believe and trust that the children and grandchildren will not miss the beauty of coral reefs and the difficulty of finding fish again.

In this case, the preservation of coral reefs is essential in collaboration, so it is necessary to be reminded that if coral reefs are not protected from irresponsible elements which continually ignore the risk the coral reefs are damaged, the impact will be very worrying. Because it can trigger coastal abrasion, if the coral reefs are destroyed, the waves from the sea will quickly settle down because there are no obstacles, so in the preservation of coral reefs, it is imperative to see the benefits of coral reefs themselves, which are very beneficial. In the attitude of maintaining and conserving the coral reef ecosystem, we must protect each other. Because it is one of the destinations and pride in Wakatobi Regency, the world has recognized that Wakatobi is the heart of the world's coral triangle, so we need to protect it as our proud asset.

Second, preserving mangrove plants; as well as conserving coral reefs, it is also essential to conserve mangroves, namely to reduce the effects of disasters from the sea such as abrasion, tsunamis, and mangroves helping to withstand



and absorb strong sea breezes and as a source of oxygen for living creatures and also function as a breeding ground for fish and crabs.

In this case, preserving mangrove forests is the same as preserving coral reefs, but this is on the land side of the coast where in the preservation of mangrove forests, many benefits can be used as medicine, where marine and land animals live, especially the community can be used as firewood, etc. Besides that, preserving mangrove forests is also essential where many benefits for the community are also one as inhibiting the wave's speed currents from the sea. If the coral reefs are damaged, for example, then the function of mangroves can withstand abrasion. Therefore, it is also essential for us to protect the mangrove forest, people can only take it arbitrarily, but they can not maintain and protect the environmental ecosystem.

Third, prohibit the sand digging; the occurrence of beach abrasion is also due to excessive taking of sand because it can damage marine ecosystems and impact coral reefs. Therefore, it is crucial to maintain and reduce sand extraction so that the impact of excessive sand excavation does not harm coastal communities. In this collaboration process, we from the Ministry of Environment and Forestry hope to the community that if excessive sand extraction is at risk of damaging the coral reef structure, the community will feel it themselves. For example, there will be much seagrass rising. The seawater is cloudy, which causes difficulties—in looking for fish when the seawater is cloudy.

Building public awareness of the dangers of excessive sand mining is not very easy. It also takes an objective approach and is given insight into the impact of damage when taking sand. On the other hand, it is also one of the livelihoods for their lives, but in taking sand, the district people do not want to. Digging sand, mostly from other villages where sand mining often occurs. In addition, the people's livelihood here is at sea and farming to meet their daily needs, for example, planting sweet potatoes, green onions, coconuts, etc., to be sold in the market, and some are inserted for their needs.

It is tough to ban sand because some people depend on it, it means sand, for example, if we want to build a house, it is not far from the name sand, and indeed the essential material to build a house is sand, so where else do we as a community want to look, but that is all depending on the level of public awareness of how to deal with the problem. Because many people are close to their homes by the sea, sometimes it is difficult to find fish if the sea conditions are cloudy. Even though people need sand, they always buy and do not take sand from the sea, but most villages do it.

Fourth, building the breakwater; can also be beneficial for coastal communities, this is because building a breakwater is one form of reducing the rate of ocean waves and inhibiting the rate of settlement so that the impact of damage is not severe. In handling the breakwater construction, PU is working on it, and the people who want to take part in the work are fine, but the work will be faster if PU does the work because it uses heavy equipment. In building the social quality of the community in Numana Village, please participate in contributing to cooperation in handling the construction of breakwaters to minimize the impact of coastal abrasion.

In terms of building a breakwater from the community side, there is no doubt that the community is pleased to help significantly in cooperation activities because the people there uphold social attitudes with the community or to the government and lightening the work of the government as well.

## Conclusion

The collaborative governance process in preventing abrasion in Numana Village, Wakatobi Regency, namely: face-to-face dialogue in the form of discussions and socialization on how to prevent coastal abrasion, building trust includes planting 1000 mangrove trees, commitment to the process in the form of providing ready-to-use services and providing strong motivation to participate in preventing coastal abrasion, shared understanding in the form of understanding each other's duties regarding the limitations so that collaboration goes well, and achieving intermediate outcomes in the form of natural resource utilization.

By looking at the research results, several suggestions can be made by the government and the various stakeholders involved. First, in the implementation, it is necessary to improve the pattern of communication and coordination with stakeholders intensively by providing guidance and coaching activities to the community and inviting the community to participate in reporting complaints and caring about environmental problems. Then, the government needs to pay special attention to increasing monitoring activities by forming a monitoring group that directly involves the community and community organizations.

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