

# ECONOMIC IMPACT ANALYSIS IN GOVERNMENT REGULATION NUMBER 26 OF 2023 CONCERNING MANAGEMENT OF SEDIMENTATION PRODUCTS IN THE SEA

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## ABSTRACT

Based on Government Regulation no. 26 of 2023 concerning management of sedimentation results in the sea. This research aims to find out the economic and environmental impacts that occurred as a result of the passing of Government Regulation no. 26 of 2023 concerning management of sedimentation results in the sea. This research uses a qualitative approach using the desk study method, namely a way of collecting data and information through data examination and analysis, using secondary data in the form of internal/external documents, government regulations, statistical data, literature studies, maps and the internet, and the data analysis technique used in this research uses Milles and Hubberman's theory, namely the steps of data reduction, data presentation and finally drawing conclusions. The results of the research show that the economic and environmental impact due to the management of marine sedimentation as ratified by Government Regulation Number 26 of 2023 on coastal communities has quite a significant impact, as felt by the coastal communities of the Riau Islands, namely that they have to experience reduced fish catches, this is of course due to due to fish habitat (undersea ecosystem) which has been damaged due to sea sand dredging, apart from that, fishermen's operational costs for going to sea are increasingly expensive because they have to spend more money to buy diesel/ship fuel, because the fishing areas are increasingly far from This is the impact of sand dredging and marine sedimentation management that lacks supervision from the government, as well as minimal punishment for investors/business actors who violate management regulations.

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## 1. INTRODUCTION

As is known, previously the government had banned the export of sea sand through a Joint Decree (SKB) between the Minister of Industry and Trade, the Minister of Maritime Affairs and Fisheries, and the State Minister of the Environment with Number 89/MPP/Kep/2/2002, Number SKB.07/ MEN/2/2002, and Number 01/MENLH/2/2002 concerning Temporary Suspension of Sea Sand Exports. Now, after twenty years have passed, the government has finally reopened the sea sand export faucet which is considered to have a bad impact on the environment. It is not surprising that this policy has again received media attention. Previously, the Ministry of Industry and Trade had regulated the cessation of sea sand exports through Minister of Industry and Trade Decree (SK) No. 117/MPP/Kep/2/2003 concerning Temporary Suspension of Sea Sand Exports. The decree stated the reason for the export ban, namely to prevent environmental damage in the form of sinking of small islands and the unsettled maritime boundaries between Indonesia and Singapore. Another reason mentioned in the regulation is that because the maritime boundaries between Indonesia and Singapore have not yet been resolved, it is deemed necessary to temporarily stop the export of sea sand. In this case, a regulation is a step or method that can be taken to implement a program and policy based on the use of authority.

The reclamation project in Singapore at that time also obtained its sea sand raw materials from Riau waters, apart from Malaysia. It is feared that this will affect the territorial boundaries of the two countries. It is so important to reorganize the business of mining and exporting sea sand, the export ban which is confirmed in Article 2 of the Ministerial Decree which was stipulated by the Minister of Industry and Trade Rini M. Sumarno Soewandi on 28 February 2003 does not only apply to the Riau Islands region but also to the entire territory of Indonesia.(Reza Aditya, 2023)

Then, the government through Minister of Industry and Trade Regulation no. 02/M-DAG/PER/1/2007 reiterates the ban on sea sand exports, considering the increasing prevalence of illegal sand mining and exports. (Regulation of the Minister of Trade of the Republic of Indonesia Number: 02/M-DAG/PER/1/2007, 2007) Now President Joko Widodo has announced the decision to reopen sea sand exports after a period of 20 years. On May 15 2023 through PP no. 26 of 2023 concerning Management of Sedimentation Products in the Sea, the government has reopened the sea sand export tap. "The results of sedimentation in the sea that can be utilized are: a. sea sand; and/or b. other sedimentary material in the form of mud," reads Article 9 Paragraph 1 of Government Regulation No. 26 of 2023. (Government Regulation of the Republic of Indonesia Number 26 of 2023, 2023)

This decision was taken after going through a comprehensive evaluation and study regarding the potential economic and environmental benefits that could be obtained from this export activity. This then gave rise to pros and cons, the government also received harsh criticism, especially from various environmental watchdog organizations. Wahyu Muryadi when contacted by Tempo on Monday, May 29 2023. He argued that this decision was made by the government by considering ecological aspects for marine health. This policy is a responsible government effort to protect and preserve the marine environment. He claimed that the policy was in line with Article 56 of Law Number 32 of 2014 concerning Maritime Affairs. He said sedimentation is an oceanographic event, which occurs naturally every year. Wahyu said that environmental damage occurred as a result of unregulated extraction of sea sand in the past. He said that 20 years ago, sea sand was dredged using environmentally unfriendly tools. "So that through this PP the procedures or governance for the use of sedimentation in the sea and environmentally friendly tools are regulated." The KKP (Ministry of Maritime Affairs and Fisheries) also stated that it would ensure that parties exporting sea sand would prioritize ecology to maintain marine health. Therefore, he emphasized that the tools used must be environmentally friendly. (Generous, 2023)

Coordinating Minister for Maritime Affairs and Investment Luhut Binsar Pandjaitan believes the latest policy allowing dredging and exporting sea sand will not damage the environment. The latest policy is contained in Government Regulation (PP) Number 26 of 2023 concerning Management of Sedimentation Products in the Sea which was officially promulgated on May 15 2023. He said that sea sand exports will not damage the environment, because everything now has GPS (global positioning system), It will be ensured that it will not damage the work environment. Supporters of this decision argue that reopening sea sand exports could provide significant economic benefits for a country. Sea sand exports can be one of the most important sources of foreign exchange, increasing and developing state income, and encouraging the growth of related industrial sectors, such as the construction industry and cement production. Sea sand exports are considered to be able to create new jobs, both directly and indirectly, especially for people who live in coastal areas which have abundant sea sand resources. This is considered an opportunity to reduce unemployment and improve community welfare. (Generous, 2023)

The government will implement strict regulations in managing sea sand exports to ensure the sustainability of natural resources and protect the coastal environment. Strict monitoring and implementation of appropriate environmental policies are expected to minimize negative impacts. Regarding the use of sedimentation results at sea for export, President Jokowi requires entrepreneurs to obtain business permits. This aims to support business activities in the export sector of the minister who handles government affairs in the trade sector. Business permits to support business activities in the export sector are issued after receiving a recommendation from the minister and are subject to export duties in accordance with the provisions of statutory regulations Article 15 paragraph (4). However, business actors who will clean up sea sedimentation results and utilize sea sedimentation results are required to have a permit to use sea sand. Cleaning and utilization of sedimentation products at sea in the form of sea sand is carried out through collection, transportation, placement, use and/or sale of sedimentation products at sea. Sea sand sales can be carried out after the business actor obtains a mining business permit for sales. The issuance of this permit is guaranteed by the minister who handles government affairs in the mineral and coal sector or the governor, in accordance with the provisions of the applicable laws and regulations. Every permit granted must be announced, because the announcement of permits to carry out activities is an implementation of government openness. (Student Sunarso, 2005)

Indonesia itself is the largest archipelagic country in the world, with 17,504 islands. The coastline reaches 95,181 square kilometers, the longest in the world after Canada, the United States and Russia (Akhmad Fauzi, 2005). Sixty-five percent of the total 467 districts/cities in Indonesia are located on the coast. In 2010 Indonesia's population reached more than 237 million people, of which more than 80% lived in coastal areas (BPS, 2014). The Indonesian archipelago stretches between the Indian and Pacific

oceans. The area of coral reefs in Indonesia reaches 50,875 square kilometers, or around 18% of the world's total coral reef area. Most of these coral reefs are located in the eastern part of Indonesia, in an area commonly called the coral triangle.

Indonesia's coral reefs in the Coral Triangle region are among the richest in biodiversity in the world, home to around 590 species of hard coral. The reefs of the Raja Ampat Islands are recognized by scientists as the "center" of the world's coral reef biodiversity. Apart from bringing economic benefits, coral reef ecosystems protect beaches from waves, thereby reducing abrasion and damage. Coral reefs also contribute to the fishing sector by providing spawning and nurturing areas, providing food and shelter for various types of marine creatures. (Kumalasari, 2017)

According to the World Resources Institute, in 2011 there were 139,000 square kilometers of protected marine areas in Indonesia. The government is committed to increasing this to 200,000 square kilometers by 2010. However, managing the wealth of coastal biological resources and protected areas is still a serious challenge. The latest data (2012) from the Indonesian Coral Ocean Research Center is classified as very good. Meanwhile, 27.18% were classified as being in good condition, 37.25% were in fair condition, and 30.45% were in poor condition. In fact, Burke, et al. stated that in the last half century, coral reef degradation in Indonesia has increased from 10% to 50%. (Burke et al., 2011)

Causes of damage to coral reefs include development in coastal areas, waste disposal from various activities on land and at sea, sedimentation due to damage to upstream areas and river basins, mining, destructive fishing that uses cyanide and prohibited fishing gear, coral bleaching due to climate change, as well as coral reef mining. Indonesia has lost most of its mangroves. From 1982 to 2000, Indonesia lost more than half of its mangrove forests, from 4.2 million hectares to 2 million hectares (Hance Nasa Mangrove, n.d.). The problems faced by coral reefs and mangroves are also experienced by seagrass ecosystems. Indonesia's seagrass ecosystems are less studied than coral reefs and mangroves. However, based on various indications, seagrass beds are also vulnerable to natural disturbances and human activities. Such as dredging related to the development of seaside real estate, ports, industry, navigation channels, industrial waste, especially heavy metals and organochlorine compounds, disposal of organic waste, agricultural waste, oil pollution, and destruction of habitat at disposal sites resulting from dredging (Bengen, 2009).

Mining and sedimentation have a significant negative impact on marine ecosystems in Indonesia. For example, sedimentation of coastal waters and fringing coral reefs in Buyat-Ratototok Regency, North Sulawesi, is influenced by the disposal of underwater tailings from industrial and small-scale gold mining that uses mercury vortices (Blackwood & Edinger, 2007). A study in Juaraa, which is within the Wakatobi Islands National Park, Sulawesi, revealed that increased sedimentation and reduced levels of light penetration have changed the growth rate and morphology of Acropora corals. Coral communities are greatly affected by sedimentation, which can cause coral death, reduced growth and calcification levels due to reduced light penetration to the seabed (Greenpeace, 2012)

The unsustainable extraction of non-renewable resources has led to a conflict between environmental protection and economic growth. The oil and gas and mining industries have increased in the last 10 years. One of the most egregious examples is Freeport McMoRan's dumping of tailings at its gold-silver-copper mine in West Papua. Tailings waste flows into the Otomina and Ajkwa Rivers, leading to the Arafura Sea. The mine produces and disposes of more than 200,000 tons of tailings per day, more than 80 million tons per year. It is estimated that this mine has produced more than three billion tons of tailings, most of which end up in the ocean (Indonesian Forum for the Environment, 2006).

Sedimentation as explained above is sediment that lies on the seabed and forms the marine layer. The result of sedimentation in the sea is sediment in the sea in the form of natural material formed by weathering and erosion processes, which is distributed by oceanographic dynamics and deposited which can be taken to prevent ecosystem and shipping disturbances. The regulation explains that the results of marine sedimentation can be managed, both sand resulting from sedimentation and other materials in the form of mud, which can be used for domestic reclamation, namely government infrastructure development, development by business actors or exports as long as domestic needs are met.

Parid Ridwanuddin (Indonesian Forum for the Environment activist) rejects the government's policy of dredging sea sand for land reclamation. He believes that this policy will only damage the marine environment and harm the people who live around sand mining areas. The consequences of damage to marine ecosystems will impact the economy of local communities. A number of fishermen also complained that their income had fallen by up to 50 percent since sea sand mining activities began. Fishermen are worried that the new Government Regulation will attract more sea sand dredging vessels to their fishing areas (Lid/Asa, 2023).

According to the Secretary General of Kiara, Susan Herawati, this PP will only legalize sand mining in the sea under the pretext of controlling it to reduce sedimentation in the sea. The sanctions provided in this regulation are not a deterrent and actually benefit a handful of parties. If the PP is implemented without strict supervision by the government, there will be many negative impacts that will be felt by the community, especially those who live in coastal areas. (Suryarandika, 2023)

This article can provide opportunities for sand mining. Meanwhile, sand mining will have an impact on ecology and the economy. As research conducted by Agustina, Andi Utomo Muhammad Djafar, and Damis on Galaseong beach, Takalar district, South Sulawesi province, shows the impact of sand mining on beach erosion over the last 5 years (2016 to 2020). The impact of the image interpretation results shows that the area of change in the coastline due to abrasion at the first station in Aeng Batu Batu Village was 20.8 m, the second station in Tamalate Village was 18.1 m and the third station in Tamasaju Village was 27 m in the last 5 years. (2016 to 2020). (Agustina et al., 2023).

Likewise with research conducted by Zuleha Ernas<sup>1</sup>, M. Hasroel Thayib<sup>1</sup>)& and Widodo S. Pranowo, in Banten Bay in the waters of Lontar Village, Tirtayasa District, Serang Regency and Pulo Panjang Village, Pulo Ampel District, Serang Regency. Sea sand mining has increased the TSS of Banten Bay waters to beyond the environmental quality standard threshold (Ernas et al., 2018). This research shows that sea sand mining damages the marine ecosystem, resulting in a decrease in fishermen's income, higher operational costs for going to sea, and prohibitions on access to and passing through sea sand mining areas, resulting in the loss of fishing locations for certain fishermen.

Government Regulation Number 26 of 2023 concerning Management of Marine Sedimentation Products is a regulation to overcome the problem of marine sedimentation which can disrupt international shipping and meet the need for new domestic land reclamation. However, the next problem is the limited government supervision which has not been able to provide technology, supervision and strict feasibility studies so that if the government ignores this, it will have the potential to create misuse of policy implementation by investors and oligarchs, if this is left unchecked it will have an impact on ecological damage. sea which has an impact on the economic sector of coastal communities and fishermen, such as several problems that the author described at the beginning of this article.

Therefore, various alternative monitoring, environmental, social and economic impacts need to be carried out by the government, academics and environmental activists. The aim of this research is to focus on studying the economic impacts that will be felt by coastal communities due to the marine sedimentation processing process referring to Government Regulation Number 26 of 2023 concerning Management of Sedimentation Results in the Sea. This study is a new study because this research examines the economic impact analysis of the issuance of Government Regulation Number 26 of 2023 concerning Management of Sedimentation Products in the Sea.

## 2. METHODS

This research uses a qualitative approach using the desk study method, namely a way of collecting data and information through examination and data analysis using secondary data in the form of internal/external documents, government regulations, statistical data, literature studies, maps and the internet. (Hague, C., & Payton, 2010)

This study contains the basic policies, pros and cons, environmental impacts and economic impacts on society with the issuance of Government Regulation No. 26 of 2003 concerning Management of Sedimentation Results in the Sea. Some of the sources accessed to obtain data include journals, books, law, theses and other related sources. This research reviews several existing models related to PP. No. 26 of 2003 concerning Management of Marine Sedimentation Results.

The data collection technique used by researchers is the library research method, namely library study. The library method is research carried out by reading books or scientific works with other data sources related to the title in the research. This research activity is carried out by collecting data from various literature, which is used not only for books, but can also be in the form of scientific works, theses, theses, journals, documentation materials, magazines, newspapers, etc. (Sunggono, 2016)

After all the data from various sources as mentioned above has been collected, the next step is to carry out data analysis. The data analysis used in this research uses Milles and Hubberman's theory (Mely Novasari Harahap, 2021), namely the steps of data reduction, data presentation and the following. The last one is drawing conclusions.



### 3. RESULT AND DISCUSSION

#### **Pros and Cons of Government Regulation Number 26 of 2023 concerning Management of Sedimentation Products in the Sea in Indonesia**

Mining and sea sand export activities from Indonesia (Riau Islands) to Singapore have been going on for decades. Data from the Department of Maritime Affairs and Fisheries states that sea sand mining was carried out from the 1970s to the 2000s. The Singapore government needs sea sand exports to meet the needs of the reclamation project to expand its coastal area, which is estimated to reach 1.8 billion cubic meters in the next ten years. As of mid-2002, the Singapore coastal area reclamation project had succeeded in completing the addition of 100 square kilometers of coastal area and this project still required the addition of another 160 square kilometers of coastal area. So it is estimated that to add 260 square kilometers of coastal land, 1.8 billion cubic meters are needed.

Exports of sea sand from all regions of the Republic of Indonesia were temporarily stopped by the government by issuing a Joint Decree of the Minister of Industry and Trade Number 89/MPP/Kep/2/2002, the Minister of Maritime Affairs and Fisheries Number SKB.07/MEN/2002 and the Minister of the Environment Number 01/MENLH/2/2002 which was later replaced by Decree of the Minister of Industry and Trade Number 117/MPP/Kep/2/2003 concerning Temporary Suspension of Sea Sand Exports from All Indonesian Territories. The reason for the temporary suspension of sea sand exports is the unresolved maritime boundary issue between Indonesia and Singapore, the problem of damage to the coastal environment and small islands as a result of sea sand mining which has an impact on the preservation of biodiversity in Riau Islands waters and the destruction of the Export Benchmark Price (HPE). which was determined by the government due to the actions of the "sea sand mafia." The temporary words stated in the Decree of the Minister of Industry and Trade give hope that sea sand exports will be reopened. (Regulation of the Minister of Trade of the Republic of Indonesia Number: 02/M-DAG/PER/1/2007, 2007)

The sea sand mining and export marketing business began in 1970 and ended with temporary closure in 2002. Export proceeds estimated at IDR 50.35 trillion per year stopped. There are three reasons for stopping sea sand exports to Singapore, namely the unresolved issue of the Indonesia-Singapore maritime boundary, the problem of damage to the marine environment, and the problem of not achieving the benchmark price for sea sand exports which causes the country to suffer losses (Purwaka, 2014). Many reclamation projects at home and abroad have triggered a surge in sea sand. The high demand for sea sand is thought to be the basis for the issuance of Government Regulation no. 26 of 2023 concerning Management of Sedimentation Products in the Sea.

Minister of Maritime Affairs and Fisheries (KP) Sakti Wahyu Trenggono emphasized that the issuance of regulations for managing sedimentation results in the sea will protect coastal ecosystems and small islands from the threat of illegal sea sand extraction activities. In Government Regulation Number 26 of 2023, it is stated that the results of sedimentation in the sea are natural materials formed by weathering and erosion processes, which are distributed by oceanographic dynamics and deposited which can be taken to prevent ecosystem and shipping disturbances. Sedimentation results that can be utilized can be mud or sea sand. "Because reclamation requires sea sand, now it has been regulated that all reclamation for which we approve permits, the reclamation must be from sedimentation. But also the sedimentation results contain a lot of content, there is mud, sand or other materials," he added. He admitted that the results of sedimentation if left unchecked could also disrupt the sustainability of marine ecosystems. For this reason, sedimentation management policies consisting of planning, control, utilization and supervision in accordance with PP 26/2023 are important to maintain ecosystem sustainability and bring economic benefits to society and the state.

President Joko Widodo on Friday 15 May 2022 issued Government Regulation in Lieu of Law (Perppu) Number 26 of 2023 concerning Management of Sedimentation Products in the Sea. Jokowi said that sedimentation could actually disrupt international shipping, therefore it was necessary to deepen shipping channels. He said that sea conditions in Indonesia have sedimentation points that need to be taken into account. On this basis, the government argued that it had issued a perppu which was previously declared unconstitutional by the Constitutional Court (MK). The following are nine ideas from President Joko Widodo regarding the issuance of this Perppu:

The state must make various efforts to protect and preserve the marine environment and the government is responsible for protecting and preserving the marine environment as intended in Article 56 of Law Number 32 of 2014 concerning Maritime Affairs. The results of sedimentation in the sea that can be utilized are sediment in the sea in the form of natural material formed by weathering and erosion processes, which is distributed by oceanographic dynamics and deposited which can be taken to prevent

disruption to ecosystems and shipping. Business Actors are individuals or business entities that carry out business and/or activities in certain fields. Efforts to issue related regulations include, among others, article 9 which states that sea sedimentation in the form of sea sand as referred to in paragraph 1 letter a, is used for domestic reclamation, b for infrastructure development by the government. Infrastructure development by business actors, and/or exports as long as domestic needs are met, and in accordance with statutory provisions.

Based on considerations and to provide a strong legal basis for the government and related agencies to take it. In a very short time, policies and actions are needed to issue government regulation Number 26 of 2023 concerning Management of Sedimentation Products in the Sea.

### **Pros And Cons Of Government Regulation Number 26 Of 2023 Concerning Management Of Sedimentation Products In The Sea In The Sea In Indonesia**

PP Rules. No. 26 of 2023 concerning Management of Sedimentation Results at Sea, the main aim of which is to overcome the problem of sedimentation in shipping lanes. Globally, based on UNCLOS 1982, we must be responsible for ensuring safety and freedom of navigation in ALKI (Indonesian Archipelagic Sea Lanes) I, II and III so that we must ensure that the depth in ALKI complies with global standards. Sea sand as a result of sedimentation dredging also has economic potential that must be exploited and has been regulated in PP Number 26 of 2023. The results of this sedimentation can be used as a side product in the form of sea sand which can be used primarily for domestic needs and may be exported as long as the need arises. domestically fulfilled.

As stated in Article 2 in PP Number 26 of 2023, management is carried out to overcome sedimentation which can reduce the carrying capacity and capacity of coastal and marine ecosystems as well as marine health. Then, to optimize sedimentation results in the sea for the benefit of development and rehabilitation of coastal and marine ecosystems. So its use is not limited to development purposes, but also to protect the ecosystem and mandate the use of sedimentation results for the rehabilitation of the ecosystem there.

Meanwhile, the Special Staff of the Minister of Maritime Affairs and Fisheries for Foreign Relations, Edy Putra Irawady, explained several things behind the government issuing a policy on managing sedimentation in the sea. Starting from the state's obligation to ensure that the sea is healthy and clean to ensure ecological sustainability, supporting national interests and the existence of international mandates regarding marine health, as well as the absence of reclamation standards so far which has resulted in damage to the ecosystem. So far, we have been absent from reclamation standardization. Batam really understands how hills are dredged for reclamation because there is no supply (material). I have been to Busan, Korea several times, they already have reclamation standards, what materials, what sizes, because every material used has its own standards.

Meanwhile, those who oppose government policy through PP Number 26 of 2023 also raised their voices, as expressed by environmental activists, that sedimentation management activities do not only have an impact on economic activities in order to increase APBN revenues, especially non-tax state revenues (PNBP). ). But there are also environmental and social impacts to consider. This activity will also trigger the accelerated sinking of small islands around the mined area because it changes the contour of the seabed which affects the pattern of ocean currents and waves. In addition, there are losses that will be experienced by coastal communities as a group that will be directly affected by ecological changes due to sea sand mining.

Also, environmental organizations Greenpeace Indonesia and the Indonesian Forum for the Environment (Walhi) also refuse to be involved and urge the revocation of Government Regulation Number 26 of 2023 concerning Management of Sedimentation Products in the Sea. This regulation is considered controversial because it has the potential to cause massive damage to the sea and can rob people of their living space. An online discussion entitled "Calls from Coastal Communities Urging Indonesian President Joko Widodo to Revoke PP 26 of 2023", held by the People's Coalition for Fisheries Justice (Kiara), Wednesday (31/5/23), which was attended by representatives of traditional fishermen and coastal communities from 16 These regions in Indonesia expressed their concerns about the environmental impacts caused by the suction of marine sedimentation, as regulated in the PP. Meanwhile, fishermen and coastal communities in many places are trying to maintain ocean health (Doaly, 2023)

Fishermen also voiced concerns. The environmental crisis due to development that is not balanced with proper environmental impact analysis, such as reclamation and mining, has caused fish to become increasingly difficult to catch, unpredictable weather and coastal erosion. When their husbands cannot carry out their profession, fishing women must continue to work to support their families. This PP risks reducing the small islands in Indonesia. Dredged sand sedimentation can damage coastal ecosystems and

cause abrasion. There are already around 20 small islands around Riau, Maluku and other islands that have sunk. This number has the potential to increase with new regulations issued by the government.

### **The Impact of the Issuance of Government Regulation Number 26 of 2023 concerning the Processing of Sedimentation Results in the Sea on the Environment**

The process of sedimentation occurs in which weathering rocks are gradually transported to other places by water, wind and glacier energy. Water flowing on the surface of land or rivers carries fine rocks either suspended or shifted on the riverbed to lower areas. Gusts of wind can also lift sand and even larger materials. The stronger the wind gusts, the greater the carrying capacity. The deposition of biospheric material that has been transported by hydropower or wind causes sedimentation. Sedimentation not only comes from natural processes, but most of it comes from land.

According to Rifardi, most of the sedimentation comes from land, namely 84% of sedimentation comes from river flow transport and 1% comes from coastal erosion. There are three impact factors of sea sand mining. First, physically and chemically there will be a decrease in water quality, abrasion/erosion, sinking islands, changes in seabed geomorphology (bathymetry), changes in wave patterns, changes in current patterns and speeds, and changes in coastlines. Second, biologically, coastal vegetation will be disturbed, coral reefs, seagrass beds and marine ecosystems will be damaged. Third, on the Socio-Economic-Cultural side, there is noise from sand dredging boats, reduced fishermen's income, decreased fishermen's catches, rising fish prices, and fishermen changing professions resulting in increased unemployment.

Development, power and the environment are three broad but interrelated phenomena in society. So if we ignore the health of the natural environment, it will be the community who will feel the impact. As time goes by, society will be eliminated by nature due to the minimal supply of natural resources to support life. Various kinds of humanitarian disasters such as poverty, hunger and natural disasters are part of disasters. According to Dietrich G. Bengen, DE, a professor of Coastal Ecology from the Bogor Agricultural Institute (IPB) in a seminar on Opportunities & Challenges for Future Management of Marine Sedimentation Products. Sedimentation is a process of deposition of material carried by water, wind and glaciers. The ecological impacts that can occur as a result of dredging sedimentation in the sea are causing habitat damage, causing disruption to the ecological system, changing the composition of natural sediment particles and disturbing various species in the estuary/sea (Muttaqin, 2023).

Dredging sea sand to extract sedimentation results will not only move particles in the sea but also damage habitat and various other important species in the sea. Biogenic ecosystems exist in every part or side of the ocean and they develop there freely. Mining resulting from sedimentation will certainly affect the biota that builds the ecosystem, which may later move and leave behind sediment particles that affect the quality of the water, making it more turbid, thereby reducing the percentage of biota abundance. When dredging occurs, the composition of natural sediment particles will definitely change, this will result in disruption to sediment transport patterns and beach dynamics and become the reason for erosion.

The heaviest ecological impact is death or physical damage to important benthic communities such as coral and others. Noise generated by operational equipment can also affect the behavior and movement patterns of marine biota, so that what was once abundant may cause its existence to decline. The social impacts that occur as a result of sedimentation in the sea are, social community disruption to people's lives and habits, coastal erosion which eliminates land and infrastructure around the coast, water quality and public health which will increasingly decline and the cultural impact on nature reserve areas is experiencing damage and then disappear. Dredging of sedimentation on the seabed will disrupt people's lives and habits, the water quality will decrease, becoming more turbid and the fish will move away, so fishermen will experience difficulty in getting fish. Dredged seabed sand not only releases sediment but also pollutants that were previously deposited, thereby disrupting the health of coastal residents who live around coastal waters.

Sediment collection, stockpiling and transportation activities will have several negative impacts on increasing TTS (Total Suspended Solid), namely increasing water turbidity, reduced penetration of sunlight to the bottom of the water, disturbed seagrass and coral reefs. Coastal accretion and abrasion will result in shallowing of fishing and passenger boat channels (national), changes in coastal vegetation/mangroves, changes in sediment characteristics, changes in coastline and bathymetry. Degradation of coastal ecosystems (mangroves, seagrasses and coral reefs) will also result in a decrease in the area of coastal ecosystems, changes in the status and condition of coastal ecosystems, loss of types of biota from coastal ecosystems, reduced coastal biodiversity, decreased fish resources. Not only that, marine tourism will experience a decline and even become dangerous because murky water will prevent

diving and snorkeling, coral reefs are colorless for diving tourism, changes in beaches due to sedimentation, pollution can disrupt the health of tourists, overlapping use of coastal areas and small islands. This results in conflicts over space use. And the consequences that are very detrimental to society are sea water pollution, damage to fishing grounds, a decrease in the number of catches, and the further away the fishing areas are.

The issue of natural destruction is not a localized issue but it is a global issue that is now starting to be felt by all people in the world. In research, several foreign countries also stated that removing sea sand would have a negative impact on the marine ecosystem. Like research conducted by Tae Goun Kim in 2007 in Korea, they stated that the extraction of sea sand had a significant impact on the environment and fisheries economy. Mining is a disruptive activity and causes environmental problems. Sea sand mining can cause major die-offs of seafloor species (e.g. crabs, clams, and other species), and smoke concentrations from overflowing water mud can harm exposed fish eggs and larvae. In addition, the loss of large amounts of material from the seabed will disrupt seabed habitats and cause changes in seabed morphology, which can ultimately lead to coastline erosion, including the loss of beaches, as happened in Dukjeo.

According to research conducted by Wasisto Raharjo Jati, it provides an understanding that society has the potential power to manage natural resources. Resource management currently tends to be controlled by the state and the market, which actually leads to destructive exploitation and exploration of nature which has implications for disasters affecting human survival. Hegemonic discourses such as global warming and climate change are contemporary issues that have become global issues. The community needs to receive structural and institutional strengthening so that it is able to have strong advocacy power to continue to maintain its existence as a guardian of natural resources (Oloan, 2015). Theologians realize that the ecological crisis must be responded to constructively. The ecological crisis means that the environment is threatened with destruction. by developing a kind of green theology (environmental theology) aspects starting from the destruction of the environment due to the exploitation of natural resources (forests, marine and water biota/watersheds, mining etc. (Borrong, 2019). Therefore, it reminds of the existence of disasters that need to be watched out for in the absence of awareness from the government to participate in the management of natural resources, so the impact of environmental damage will have a very negative impact on society.

#### **The impact of the issuance of Government Regulation Number 26 of 2023 concerning the Management of Sedimentation Products in the Sea on th economy.**

Sedimentation management in the PP is economically beneficial for the State and can increase State income in the short term. However, in the long term, it is the community who will feel the impact of sedimentation management. According to Economist and Public Policy Expert at UPN Veteran Jakarta and CEO of the Narasi Institute Achmad Nur Hidayat (PP) Number 26 of 2023 concerning Management of Sedimentation Results in the Sea is only for the interests of foreign countries and benefits the exporting oligarchy. According to him, the PP will endanger marine ecology, because the results and location of sedimentation are absurd or unclear. From an implementation perspective, it will be prone to manipulation and violations (Kuswandi, 2023). So those who will suffer the most from the issuance of this PP are fishermen or coastal communities. With the large amount of damage resulting from the activities of taking, stockpiling and transporting sediment, it will result in damage to the sea, the impact of which will be felt by many fishermen and local residents, namely reduced fishermen's income, decreased fishermen's catch, increased fish prices, as well as fishermen changing professions, resulting in an increase unemployment.

According to Walhi, the PP does not explain in detail the causes of sedimentation, that the cause of the damage comes from land. So the PP can be used to legalize the mining and sale of sea sand for the reason of sedimentation extraction. If this PP is implemented, the people who will really benefit will be business actors, while this policy could disrupt the lives of fishermen. Apart from that, the export issues that will benefit the most from this PP are Singapore which is expanding its reach until 2030 and China which is building artificial islands. With this supply, demand will arise.

Indonesia is facing the threat of decline due to the dual crisis of marine ecosystem degradation and overfishing. Indonesia is classified as most at risk of experiencing a decline. According to research in 2012, compared to 27 other fish producing countries, Indonesia's fisheries are most vulnerable to destruction based on indicators of coral reef management, fisheries situation and food security.

Several fisheries management areas in Indonesia are already facing symptoms of overexploitation of fish for several important commodity groups, such as large pelagics, small pelagics, shrimp and



demersal fish. Ironically, it is small fishermen who feel the impact of the threat of fisheries shortages. Why not, they have to spend more on fuel components (fuel oil), because the fishing location is far away.

This scarcity can also be seen from the decreasing size of fish, the decline in the number of catches, and the disappearance of several species that used to be the main catch, such as what happened to squid in Jukung Bay, East Lombok. Even worse, Indonesian fisheries also experience the classic threats of illegal fishing, illegal equipment and foreign fishermen with large fishing vessels. Another threat is mining in coastal areas and small islands. Mining activities ranging from excavation to processing cause damage and pollution to coastal ecosystems and surrounding biological resources.

With the impact of damage caused by the issuance of this PP, it will also result in a bad climate crisis due to changes in ocean currents and wave direction, the impact of sea depths that have been dug too deep by sophisticated sea sand digging machines imported from abroad can damage the structure of the seabed. Every year, an average of 100 fishermen disappear or die at sea due to going to sea during bad weather. Of course, with the many impacts that are mostly felt by fishermen, it will worsen the economic situation of fishermen. As BPS data shows, there is a decrease in the number of fishermen, namely there were 2.16 million fishermen, whereas in 2019 there were only 1.83 million fishermen. This means that in the last decade, 330,000 fishermen in Indonesia have decreased.

In one of the planned mining locations, namely the Riau Islands. Fishermen in various regions are worried about the environmental impact after the government reopened sea sand exports. This is because they suffered losses due to environmental damage when sea sand mining became widespread in the area in the early 2000s. According to them, their catch is disappearing due to sand mining. This is because the sand mines often intersect with local fishing locations. Not only that, in 2022 the coastal landscape in the Karimun Islands region will be seriously damaged due to sand mining. This activity made the sea water very murky and the once lush mangrove trees were completely submerged by sea water. So fishermen have to go to sea further because the fish habitat on coral reefs 0-5 miles from the coast has been destroyed. In fact, the Indonesian Fishermen's Union (SNI) has firmly rejected the lifting of the ban on sand exports. Fishermen in the Riau Islands, for example, are very worried about environmental damage because they have felt the environmental impact of sand mining decades ago.

In the midst of the noisy national economic political scene, Indonesia's territory continues to decrease. a number of areas are losing increasingly significant land areas, not due to invasion, but due to abrasion. With the removal of sand resulting from sedimentation, it will worsen the environment, many coastal villages are threatened with drowning. As the largest archipelagic country in the world with 17,504 islands, a coastline of up to 108 thousand km, and a water area of 6.4 million square km, Indonesia is vulnerable to the threat of global warming and rising sea levels. In 2020, of around 84 thousand village-level administrative areas, more than 15 percent were geographically located by the sea. Thus, rising sea levels directly threaten the lives of 12,879 seaside villages throughout the country (Padua, 2020)

One of the impacts that is also felt is worsening climate damage. So it can increase the occurrence of natural disasters, such as those that are very detrimental to fishermen economically, namely tidal floods. Tidal floods can damage fishing gear, houses and boats. Which of course requires high costs to repair. Tidal floods reduce the intensity of fishermen's fish harvest. If previously they could harvest fish three times a year, after the tidal floods it was reduced to once a year, and the harvest often failed. Not only that, their husbands are unemployed and their children even have to drop out of school.

Lack of supervision and sophisticated technology can increase the risk of violations and damage to nature. Management of land and natural resources in Indonesia is hampered by regulations that are not synchronized and consistent. The management administration is hampered by various institutions making it inefficient. Furthermore, there is a need for understanding in natural resource management regulations, agrarian reform and natural resource management as well as codification and unification of natural resource regulations. It is hoped that the reference description of natural resource regulation as a comparison in other countries will be able to provide additional strength to analyze natural resource problems more precisely. With this, the government should prepare very strict supervision and sanctions commensurate with the natural damage that will occur if technology is not environmentally friendly and violations are committed by irresponsible business actors. Looking at the PP, the sanctions given are only in the form of administrative sanctions.

The Indonesian Forum for the Environment (Walhi) said that by 2023, at least 13 thousand villages in coastal areas and hundreds of small islands are at risk of sinking. Seven small islands, including those in the waters of the Seribu Islands, DKI Jakarta Province, have sunk. Nearly 90 percent of seaside villages in Indonesia rely on food crops (rice), plantations, capture fisheries, aquaculture, livestock and forestry as the main source of income for their residents. They consider that the 2005-2025 National Long Term

Development Plan (RPJPN) does not prioritize protecting coastal areas and small islands from the impacts of the climate crisis (Mughis, 2023).

Instead of maximizing the management potential of sedimentation results, it is detrimental to society in the long term. The government can encourage a variety of alternative sources of livelihood which is also important to reduce the risk of economic impacts from sand dredging. This can be done through training programs, capital assistance, and policy support that supports coastal communities in seeking and developing livelihood options that do not only depend on sand mining. With these methods, Indonesia can take concrete steps to maintain a balance between economic growth and environmental preservation, while ensuring that vulnerable communities in coastal areas receive fair benefits and have minimal negative impacts.

#### 4. CONCLUSION

The economic and environmental impact of marine sedimentation management as ratified by Government Regulation Number 26 of 2023 on coastal communities has quite a significant impact, as felt by coastal communities in the Riau Islands, namely the decline in their fish catch after sand dredging, the fish catch decreased due to due to fish habitat (undersea ecosystem) which has been damaged, apart from that, operational costs for going to sea are increasingly expensive because fishermen have to dig deeper into their pockets to buy diesel/ship fuel, because now the fishing areas are increasingly far from the shoreline due to from sand dredging and marine sedimentation management which lacks government supervision and minimal punishment for investors/business actors who violate management regulations. Seeing that the negative impacts in the economic and environmental sectors are greater than the economic benefits of using marine sedimentation obtained by regions or countries through sales or operational permits, it is necessary for the government to make strict regulations regarding marine sedimentation management planning for companies or investors who wish to utilize marine sedimentation. , so that it does not have fatal consequences for damage to marine ecosystems in the future.

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