



LEGAL PROTECTION ON RIVER ECOSYSTEM TOWARDS ENVIRONMENTAL SUSTAINABILITY IN SAND MINING ACTIVITIES

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Abstract: Earth's natural resources, such as minerals and coal, are natural resources that cannot be renewed, so they must be managed optimally to achieve benefits and prosperity for the people. Mineral and coal mining activities have been regulated and stipulated in Law Number 3 of 2020 concerning Amendments to Law Number 4 of 2009 concerning Mineral and Coal Mining and are based on legal principles. This journal discusses the protection of river ecosystems towards environmental sustainability in sand mining activities. The fact is that mining is still widespread, using an open-pit mining system, such as sand mining, which is mainly carried out by people's businesses and results in environmental damage. Most miners survive for their livelihood and hereditary business and ignore permits. This article aims to analyze the factors behind sand mining activities without permits. The impact of environmental damage and disruption of the river ecosystem due to sand mining and the efforts to overcome and protect the river ecosystem from a legal perspective will be analyzed. The method used is normative juridical, using legal materials in literature studies or secondary legal materials and related cases. The research results show various factors behind sand mining, positive and negative impacts, and mitigation efforts from a legal perspective with the critical role of the community.

Keywords: Environmental Law; Legal Protection; Sand Mining; Sustainability

1. Introduction

Article 33, paragraph (3) of the 1945 Constitution states that the state controls the earth, water, and natural resources. Earth's natural resources include minerals and coal. Since these cannot be renewed, they must be managed optimally to achieve maximum benefits and welfare for society. Mining activities are closely related to the environment, which is used as a forum for interaction, so good environmental management is needed for long-term development efforts for shared prosperity.

Globalization is a significant challenge for the mineral and coal mining industry. Mining development must adapt to strategic environmental changes, both nationally and internationally. Indonesia has enormous natural wealth potential. One of the potential natural resources is renewable and non-renewable resources. Non-renewable natural wealth includes oil, natural gas, coal, mining goods, and other minerals, significantly contributing to Indonesia's income. Utilizing natural resources involves carrying out activities ranging from searching, digging, processing, and marketing mining products.

Mineral and coal mining activities have been determined and regulated in Law Number 3 of 2020, relating Amendments to Law Number 4 of 2009 about Mineral and Coal Mining. These activities should be carried out based on the principles of mineral and coal mining in Article 2 of Law Number 3 of 2020 relating Amendments to Law Number 4 of 2009 about Mineral and Coal Mining, which contains four principles, namely: a) the principles of benefit, justice, and



balance; b) the principle of taking sides in the interests of the nation; c) principles of participation, accountability, and transparency; d) sustainable and environmentally sound principles.

However, the fact is that mining is still widespread using the open pit mining system (open pit mining), such as sand mining, which is mainly carried out by people's businesses; it cannot be denied that it results in environmental damage. Most miners survive because this is a livelihood and a hereditary business, and they ignore permits. As technology develops and thought patterns become more advanced, people who used to use traditional methods are now switching to mechanical equipment such as diesel and pipes used to suck up sand material.¹ If the sand material is taken using mechanical tools, it will cause environmental damage, harming the river ecosystem and the community. Also, there are other impacts, such as floods, landslides, and dirty river water.

2. Research Method

The research method used in writing this study is normative legal research, which is doctrinal or theoretical legal research to test a norm or applicable regulatory provisions. Normative legal research is conceptualized as written law contained in statutory regulations invitation (*law on the books*) or as norms or rules for the behavior of people considered suitable. It provides legal arguments in cases of omission, ambiguity, and conflict of norms.

The approaches used are the statutory approach and the conceptual approach. The legal materials used are primary legal materials, secondary legal materials, and tertiary legal materials. Primary legal materials are all legal rules formed or made officially by a state institution, state apparatus, or government agency. The materials in primary law consist of legislation, judge's decisions, legalized official records, or minutes in forming legislation. Secondary legal materials are legal materials that describe primary legal materials, such as draft laws, scientific works, research, legal journals, and relevant scientific literature. Tertiary legal materials contain definitions, explanations, and instructions of primary and secondary legal materials in the form of legal or general dictionaries and large Indonesian dictionaries.

3. Discussion

The legal terms for mineral and coal mining come from the English translation, namely mineral and coal mining law, as well as Dutch, which is called mineral and coal mines law.² Mineral and coal mining activities have been legalized and have a permanent legal basis. The explanation of mining has been explained in Article 1 paragraph (1) of Law Number 3 of 2020 relating to Amendments to Law Number 4 of 2009 about Mineral and Coal Mining, which states, "Mining is any or all phases of operations in the management and exploitation of minerals or coal, including general investigation, exploration, feasibility studies, construction, mining, processing and/or refining or development and/or use, transportation and sale as well as post-mining activities." Meanwhile, sand is a granular material usually measured from

¹ Arief K. Syaifulloh, "Dampak Kerusakan Lingkungan Akibat Penambangan Pasir Merapi Di Klaten," *Jurnal Penegakan Hukum Dan Keadilan* 2, no. 2 (2021): 147–61, <https://doi.org/10.18196/jphk.v2i2.9990>. Hlm. 148-149.

² Salim HS, *Pengantar Hukum Sumber Daya Alam* (Depok: Rajawali Pers, 2018). Hlm. 125.

0.0625 to 2 millimeters. The forming material is silicon dioxide, but in some tropical and subtropical areas, it is often formed from limestone; sand has a color according to the origin of its formation³. Sand is an essential mineral that society needs on a broad scale, for example, for road construction, reinforced concrete cement aggregate mixtures for the modern construction sector, bridges, dams, housing, etc. Due to abundant sand and gravel resource reserves, it is easy.

Mining activities have the potential risk of pollution and environmental damage, which can result in reduced carrying capacity, productivity, and capacity of the environment and ultimately become a burden on society. This social burden leads to social conflict, which is triggered by differences in interests, especially between companies that tend to be profit-oriented and communities that feel disadvantaged. Differences between individuals, cultures, interests, and social and economic aspects cause social conflict.

One example of social conflict due to sand mining is the case of a sand mine located in Kenali Telanaipura Village, Jambi City. The community feels worried and restless that sand mining could damage their environment, especially since the sand mine is illegal or does not have an official permit from the authorities. Also, the Community and the mine are run by individuals. According to the community, the sand mining activity is very damaging to the surrounding environment, especially the river, which has the potential to pollute and cause soil erosion along the river.⁴ Based on one of these problems, it can be ascertained that the actions carried out by the perpetrator have violated the norms and principles of mineral and coal mining.

3. 1 Factors Behind Environmental Damage Due to Sand Mining

All the wealth in the bowels of the Indonesian earth is intended for the welfare of the Indonesian people. Article 33, paragraph 3 of the 1945 Constitution explains that the world, water, and all the wealth contained therein are controlled by the state and used as much as possible for the prosperity of the people. This law provides the basis for an explicit confirmation that the Indonesian people have a constitutional guarantee to utilize the earth's wealth. Indonesia's abundance of natural resources encourages people to change their livelihood patterns. Livelihoods are all activities that exploit and utilize existing resources in the environment to realize production, distribution, and consumption activities carried out by a group of people as daily activities to fulfill their livelihoods and become a basic income for their lives.⁵ In obtaining a decent standard of living, natural conditions continue to change gradually, so most people switch their livelihoods by utilizing existing natural resources to improve their economic status; some even justify various methods, such as opening illegal mining businesses.

³ Herianto Amalo, Rudepel Petrus Leo, and Dimas Yulius Kofi, "Faktor Penyebab Penambangan Pasir Ilegal Di Desa Poto Dan Implementasi Penegakan Hukum Pidana Terhadap Para Pelaku Penambangan Pasir Ilegal Di Desa Poto (Studi Kasus Desa Poto Kecamatan Fatuleu Barat, Kabupaten Kupang)," *Jurnal Hukum Online* 1, no. 3 (2023): 174–201, <https://jurnalhukumonline.com/index.php/JHO/article/view/47>. Hlm. 183.

⁴ JambiOne.com, 2023, <https://www.jambione.com/news/1363172398/tambang-pasir-ilegal-di-kota-jambi-digerebek-warga-satu-alat-berat-diamankan-oleh-polresta>. Diakses pada 22 April 2024.

⁵ Irfan Ido, "Dampak Usaha Kegiatan Penambangan Pasir Terhadap Perubahan Mata Pencarian Di Kabupaten Muna Barat," *Journal Publicuho* 2, no. 1 (2019): 30, <https://doi.org/10.35817/jpu.v2i1.5941>. Hlm. 30

Mining activities without permits certainly have a detrimental impact on the surrounding environment and the community. The environment around the river flow should have great potential and benefits for fisheries, which can be utilized to improve them—The welfare of the surrounding community. However, specific elements, organized and individuals, still widely misused sand mining activities for personal gain. There are several stages in general for sand miners in carrying out sand mining, namely:

- a. Preparation phase. At this stage, we first transport various equipment used in the mining process. Tools used are boats, fuel, sand machines, water pumps, and pipes. Boats are used as a tool to transport mining equipment and vehicles and as a place to store sand from extraction. Sand vacuum machines lift sand from the bottom of the river. Water pumps or water siphons are used as tools for pumping water. The pipe functions as a medium for the sand to be sucked through.
- b. Sand Suction Stage. At this stage, it is carried out using a sand suction tool. Initially, most people used traditional sand mining methods by digging sand with simple tools such as hoes and shovels, putting it in sacks, and then moving it to a sand reservoir. Still, mining sand using this traditional method consumes a lot of energy. As technology develops, sand mining uses suction equipment, so energy and time are much more efficient. The technique is simply by lowering or placing the pipe to the bottom of the river; the sand that rises from the suction results goes into the machine to separate the sand material and other materials; the sand material will go into the reservoir while the different materials will be thrown back into the river. However, this tool has a weakness, namely that it sometimes gets clogged and causes the sand not to be sucked out, so it has to be repaired manually. Sometimes, they are even found using heavy equipment such as excavators.
- c. Transport Stage. At this stage, the sand that has been sucked up is then placed into a boat or car. When transporting sand, you need to pay attention to the ebb and flow conditions of the river water for the ship. If the ship's cargo contains quite a lot of sand, the transportation is carried out at high tide, whereas at low tide, it is still permissible to transport sand, but the ship's load is reduced. After being transported, the sand is delivered to a shelter as a marketing place for people who need sand.⁶

Sand mining is widespread in Indonesia, and many unlicensed mines have filled the rivers. The causes of mining activities operating without permits are very broad, ranging from one factor to another. This is because it consists of a variety of different conditions and problems; these factors include the following:

1. Internal Factors

a. Economic Factors

One of the factors causing sand mining activities is economic factors, such as financial pressure to meet the unavoidable needs for clothing, food, and shelter. With this increasing economic need, they have decided to become miners or sand workers who are expected to be able to restore the family's financial situation. Some originate from

⁶ Ido. Hlm. 32-34.

the family's economic factors, which operated the mine for generations until it changed from one heir to another.

b. Education Factors

The next factor causing sand mining activities is education. Most people who work as sand miners lack education, and some even fail to graduate from elementary school. So, they have little understanding and knowledge regarding the environment and permits. What is on their mind is only how to fulfill their daily living needs by earning money through work that can be expected to produce accurate results. However, some understand the environment and permits, but due to economic pressure and the difficulty of finding work, they are forced to decide to work in sand mining.

2. External Factors

a. Income Needs Factors

For individuals who own sand mining, the demand from the market or the community makes them survive even without a permit. Moreover, finding employment opportunities in this modern era isn't easy. It has become a driving force for individuals to make every effort and justify any means to make ends meet, to the point where some even feel that they have opened up employment opportunities.

b. Demand Factors for Building Materials

One factor in unlicensed or illegal mining in almost every region of Indonesia is the need for building materials. Market and community demand requires sand material to carry out construction such as houses, road construction, etc. Sometimes, it is tough for people in rural areas to find sand material because there is a long distance between the village and the place that provides sand, so it costs quite a lot. With this situation, individuals finally exploited it to mine sand on the coast of the local river without obtaining a mining business permit from the government or related mining services. Individuals buy and sell the sand illegally to people who need sand for building materials without paying attention to other communities affected.

c. Lack of Supervision and Socialization Factors

Another factor is that there is still less than optimal supervision from the local government, both directly and indirectly, which makes unscrupulous miners ignore the laws regarding mineral and coal mining and think that the existence of illegal mining will impact the environment of the mining location. There is still a lack of counseling and outreach for state administrators, even though state administrators are responsible and obliged to provide legal outreach as part of education and legal culture to ensure that local communities understand the law, the environment, and mineral and coal mining laws. In fact, with supervision and socialization, the community will be more careful in mining, then become more understanding and act in compliance with the provisions of applicable laws and regulations. It will be aware of the importance of permits.

d. Difficult factor in obtaining a community mining business permit (IPR)

The following trigger factor is the difficulty of obtaining a People's Mining Business Permit (IPR) because obtaining a permit is tricky and takes a long time. The administrative process of processing mining business permits (IPR) is complicated and lengthy by making an application to the Minister. The enactment of Law Number 3 of

2020 relating Amendments to Law Number 4 of 2009 about Mineral and Coal Mining, article 67 paragraph (1) states that the Minister gives the IPR to: a. natural persons who are residents; or b. cooperative whose members are residents. Paragraph (2) reads: The applicant must apply to the Minister to obtain the IPR as intended in paragraph (1). This is also the basis for this factor; initially, the authority for mineral and coal mining at the district or city regional government level was taken over to become authority at the central government level.⁷

There are still many people who are not used to managing this administration, so they take shortcuts when carrying out mining without permits. Due to a lack of familiarity and practical thinking, people do not care about the applicable laws and regulations correlated to mineral and coal mining legal regulations, especially the issue of processing mining business permits, which is complicated and has many requirements that must be completed and takes quite a long time.

There are not only internal and external factors related to sand mining. Apart from the causal factors behind it, another factor in the existence of this sand mining activity is a local community conflict. Behind this, people participate in buying and becoming consumers and workers. Some people feel disadvantaged by the sand mining business activities. The causes of community conflict are, among other things, motivated by differences between individuals, basically in responding to the problem of sand mining.⁸

Then there are differences in interests, which are the leading cause of conflict, where the interests of one individual or group and another individual or group have different interests; there are those who feel that the mining business brings benefits because there are job opportunities, as well as easy access to obtain sand mineral material. Some think that the mining business brings harm to the surrounding environment, rivers, and human health, especially if the river water is river water that is used for daily needs. Community interests demand compensation for environmental damage and a decrease in fishing yields in the river, which impacts decreasing income. Meanwhile, sand miners have business interests that benefit the company.

3. 2 Impact of Sand Mining Activities on the Environment

Sand mining activities are usually found in remote areas that intersect with Community Areas. These activities must be appropriately managed so that they do not cause damage to the ecosystem or cause environmental damage, especially in residential areas. The hope is that apart from preserving the mining environment, it will also provide economic and social benefits to the community. It can be used as a business opportunity by opening up employment opportunities, infrastructure development, and income for local and national revenues from the fiscal sector. However, improper mining management will cause

⁷ Herianto Amalo, Rudepel Petrus Leo, and Dimas Yulius Kofi, "Faktor Penyebab Penambangan Pasir Ilegal Di Desa Poto Dan Implementasi Penegakan Hukum Pidana Terhadap Para Pelaku Penambangan Pasir Ilegal Di Desa Poto (Studi Kasus Desa Poto Kecamatan Fatuleu Barat, Kabupaten Kupang)." Hlm. 189-191.

⁸ Miswar Budi Mulya, Badaruddin, and Fajriharish Nur Awan, "Faktor Penyebab Konflik Sosial Masyarakat Pesisir Penambangan Pasir Laut Di Pantai Labu Kabupaten Deli Serdang," *Jurnal Niara* 13, no. 1 (2020): 252–59, <https://doi.org/10.31849/niara.v13i1.4294>. Hlm. 244-255.

environmental damage. It will create ex-mining holes with the acid water used and create conflicts with the community, resulting in reporting the mining business. The state and its citizens should also enjoy mining wealth, but this is just wishful thinking because many corruption cases have occurred.

If mining activities are not carried out properly, it will have a negative impact, causing severe environmental damage due to mining and other effects. This happened in the case of the Brantas River in East Java. The Brantas River is the second longest river on Java island and is the people's life source. However, the sustainability of the river was disrupted due to illegal sand mining in the Tulungagung area, where this activity caused damage to the river's aquatic ecosystem. Based on the results of monitoring by PPLH Mangkubumi together with Perum Jasa Tirta from December 2021 to January 2022, it was found that three excavators, 41 diesel engines for mining sand, and 49 trucks were operating, this mining activity has been going on since 2006 and increased after 2019. As a result, the Brantas River bed in the Tulungagung area decreased by around 4 to 7 meters before 2019 and 5 to 10 meters after 2019.⁹

As a result, the condition of the river has been damaged due to mining, which has been conducted continuously for a long time, both in terms of the condition of the river banks, settlements, and the quality of the river water, but this continues to be done because it makes a significant profit worth IDR. 500-600 Million every day. Based on this, mining activity has negative and positive impacts. The negative effect is that the level of erosion in the sand mining area and the surrounding area increases. The cliffs of the hills become prone to landslides because mining does not use a terraced system, so the slope angle becomes steep and prone to landslides, reduced surface water discharge/springs, and high traffic. Vehicle traffic on village roads makes roads easily damaged; then air pollution occurs; there is fear for the community because sand mining activities certainly have the potential for landslides so that at any time, they can hit people's land and settlements if the rainfall is high.¹⁰

The affected river ecosystem is damaged, and the water becomes cloudy, which can cause poisoning and threaten human health. However, behind the dominant negative impact that occurs, there is another side, such as the positive impact, namely the existence of employment opportunities, which can reduce the number of unemployed because some people work as workers in sand mining, such as supervisors, mining workers, food or drink sellers. Then, the income increases for land owners who sell or rent out their sand at high prices; previously, unproductive land becomes valuable because it is used to mine sand.¹¹

Apart from that, because of the opportunities and economic benefits obtained by community members who participate in carrying out illegal mining activities without permits, because several community elements consider that environmental damage cannot be avoided, both

⁹ Petrus Riski, Mongabay, 2022, <https://www.mongabay.co.id/2022/03/24/ekosistem-sungai-brantas-terancam-rusak-akibat-tambang-pasir-ilegal/>. Diakses pada 22 April 2024.

¹⁰ Syaifulloh, "Dampak Kerusakan Lingkungan Akibat Penambangan Pasir Merapi Di Klaten." Hlm. 152-153.

¹¹ Didiek Wahyu Indarta, "Dampak Kegiatan Penambangan Pasir Secara Mekanik Terhadap Lingkungan Di Kabupaten Bojonegoro," *Justitiable* 2, no. 2 (2020): 47, <https://doi.org/10.56071/justitiable.v2i2.228>. Hlm. 48-49.

parties should benefit and enjoy the results of exploitation by Because of that, this person also opened a sand mine without a permit. As a result of sand mining, there has been a lot of environmental damage to land and roads, and the interests of residents around the mine who are affected by pollution have been ignored.

Even though sand mining activities have a positive impact, they are certainly not permitted if the business is carried out illegally or without a permit. Even though we live in Indonesia, a country of law, there must be a legal basis or umbrella accompanying its regulations. Laws are made, of course, to maintain the community's security, comfort, and welfare.

3.3 Efforts to Mitigate and Protect River Ecosystems from a Legal Perspective

Apart from a legal perspective, efforts to overcome and protect the river ecosystem can be made in another way, namely by restoring the river, by the community working together to utilize former sand mining holes as a fishing tourist attraction, or by spreading fish seeds and planting trees on the edge of the river. These trees are planted to beautify the environment and create clean and fresh air.

The enactment of Law Number 3 of 2020 resulted in changes to the authority in the role of Regional Governments; the authority to manage mineral and coal mining was taken over by the central government through the Ministry of Energy and Mineral Resources, as can be seen in article 8 replaced by article 8A. The authority of regional governments is obliged to carry out mining investigations and research to prepare mining area WPs. It is also drawn into the authority of the minister in the central government, as stated in Article 11. This means that all the powers of regional governments have been transferred and withdrawn into the powers of the central government, even though this is the case. This relates to determining mining business areas or WUP, where the regional government owns the area and technically knows and controls the area better.¹²

As we know, a permit is required if a business is built. This permit not only functions as a door to the operation of a business but also functions as a legal umbrella. Article 1, paragraph 6 of Law Number 3 of 2020, relating to Amendments to Law Number 4 of 2009 about Mineral and Coal Mining, defines "a business license is a legality given to business actors to start and run their business and/or activities." Article 7 states, "Mining business permit, hereinafter referred to as IUP, is a permit to carry out mining business."

These business permits are divided into several forms: IPR, IUPK, and SIPB, as well as transportation and sales permits. People's Mining Permit (IPR) is a license to conduct mining activities in people's areas with limited area and investments. A Special Mining Business Permit (IUPK) is a permit to conduct mining activities in areas included in a special permit. A Rock Mining Permit (SIPB) is a license issued to carry out certain commercial mining activities or for specific purposes. A transport and sales permit is a business permit given to a company to sell, transport, and buy coal mining or mining products.

¹² Syaifulloh, "Dampak Kerusakan Lingkungan Akibat Penambangan Pasir Merapi Di Klaten." Hlm.156.

Obtaining permits for businesses that want to operate is undoubtedly mandatory and necessary. Otherwise, they will receive sanctions, both administrative sanctions and criminal sanctions. Applying these sanctions is a repressive action or effort from the law. Repressive efforts are efforts carried out after a criminal act or by providing appropriate punishment for what has been done. Based on article 151, paragraph (2) of Law Number 3 of 2020, relating to Amendments to Law Number 4 of 2009 about Mineral and Coal Mining, explained administrative sanctions as stated in paragraph (1), including a. written warning; b. fine; c. temporary suspension of all exploration activities or production operations; d. revocation of IUP, IUPK, IPR, SIPB, or Sales IUP. However, if the business owner does not heed the administrative sanctions, criminal sanctions will be applied as the ultimum remedium.¹³

Apart from that, other efforts can be made, such as preventive efforts, namely efforts made to prevent crime from occurring. Alternative steps can also be taken, namely by law enforcement agencies through related agencies collaborating by giving written and verbal advice to the community not to carry out sand mining illegally or without permission. Then, regular outreach to the community is carried out to increase the community's environmental awareness, increasing knowledge and understanding of protecting and protecting the river, then aiming to make the community aware not to carry out illegal sand mining and providing support for continuing illicit mining sand. Furthermore, the establishment of a Community Empowerment Program (for people who work as unlawful sand miners, community empowerment is needed because people may only have the skills to mine sand and not have other skills, or they may also choose to become sand miners because, in their eyes the sand in the river, if mined, has potential. big ones to sell and make a lot of profit.

The government needs to pay attention to this by providing and improving skills to the community so that they can look for other, better jobs. However, for people who still insist on sticking with the sand mining profession, the government must provide stricter supervision and monitoring.

However, the problem is that sometimes law enforcement officers still lack human resources, especially in monitoring illegal mining and supervising the community. Therefore, there is a need for cooperation between the government and the community, especially in terms of monitoring and supervision, such as the government sending a community member who can be trusted to supervise and monitor sand mining activities and report periodically on the impacts of sand mining. With this collaboration, it is hoped that it will not only create good relations between the government and the community but also towards humans and the environment, which is expected to minimize damage to the river ecosystem, disruption of daily activities for local communities, and threats to human health.

¹³ Astina, "TINDAK PIDANA PENAMBANGAN PASIR TANPA IZIN PRODUKSI (Suatu Penelitian Di Wilayah Hukum Pengadilan Negeri Sigli) Criminal Acts of Sand Mining Without a Production Permit (A Study in The Sigli District Court) PENDAHULUAN Penambangan Pasir lalah Pengalia" 4, no. November (2020): 784–94, <https://jim.usk.ac.id/pidana/article/view/16866>. Hlm. 790-791.

4. Conclusion

Article 33, paragraph (3) of the 1945 Constitution states that the state controls the earth, water, and natural resources. Earth's natural resources, such as minerals and coal, are non-renewable natural resources, so they must be managed optimally to achieve maximum benefits and great prosperity for society. The existence of sand mining activities significantly impacts the surrounding environment and the community, and the impacts can be positive or negative. Negative impacts include environmental pollution around the river in the form of floods and landslides, disrupting people's daily activities and threatening health. The positive impact is in the form of increasing economic income for mine owners and indirectly opening up employment opportunities. The underlying factors include economic factors, education, income needs, demand for building raw materials, lack of supervision, and difficulty obtaining permits. The author found that this problem can be overcome if the community has an awareness of protecting the environment and is aware of the law, even though the government has formed regulations for the welfare of the community, but this is just a shadow if there is no legal awareness from the community. There is a need for cooperation between the government and the community, especially in terms of monitoring and supervision, such as the government sending a trusted community member to supervise and monitor sand mining activities and report periodically on the impact of sand mining.

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