

Post Tin Mining Reclamation According to Law Number 3 of 2020 in Kutai Kartanegara Regency – East Kalimantan

Agung Basuki Prasetyo¹, Iga Gangga Santi Dewi², Yuli Prasetyo Adi³
{agungbasukifh@yahoo.com¹}

Universitas Diponegoro, Indonesia^{1,2,3}

Abstract. Environmentally friendly reclamation of ex-mining pits is essential for the preservation and socio-economic sustainability of the community. In conducting the reclamation, it is not merely to restore the ex-mining conditions to the maximum extent possible as it was. The reality of post-mining reclamation in Kutai Kartanegara raises its problems. This study aims at determining the reality of post-mining reclamation in Bukit Merdeka Village, Kutai Kartanegara Regency, and the post-mining reclamation policy in Bukit Merdeka Village after the issuance of Law Number 3 of 2020. The results show that the post-mining reclamation carried out by the local government of Kutai Kartanegara encountered many obstacles and was less than optimal. The policy that the local government of Kutai Kartanegara can implement is to establish local regulations in accordance with these conditions. Local regulations include: First, environmentally friendly and sustainable management of post-mining areas. Second, strengthen synergy in the form of monitoring groups for all stakeholders. Third, community participation in determining post-mining land management.

Keywords: Reclamation, Post-mining, Reality, Policy

1 Introduction

Based on Law Number 3 of 2020 concerning the Amendment to Act Number 4/2009 concerning Mineral and Coal Mining, mining is part or all of the stages of activities in the context of research, management, and exploitation of minerals or coal which includes general investigation, exploration, feasibility studies, construction, mining, processing and refining, transportation and sales, and post-mining activities. Meanwhile, the reclamation of ex-mining land is carried out to restore the land according to its initial use so that it can be used as agricultural land or other. Therefore, the mining industry should carefully consider and observe the efforts to save nature and the environment from the beginning, from the planning period long before mining is carried out.

In conducting the reclamation, it is not merely to restore the ex-mining conditions to the maximum extent possible as it was. It also should consider how the benefits can be maximized for the community and managed sustainably. Therefore, even though there is no mining operation, it can still benefit the community and the country.

The environmentally friendly reclamation of ex-mining pits is essential for the preservation and socio-economic sustainability of the community. According to the efforts

described above, it is hoped that it will benefit companies carrying out the reclamation of ex-mining land.

Based on Law Number 32 of 2009 concerning Environmental Protection and Management, it is stated that the use of natural resources is carried out based on the carrying capacity and capacity of the environment by considering the sustainability of environmental processes and functions, sustainability of environmental productivity and safety, quality of life, and public welfare.

Law Number 26 of 2007 on Spatial Planning states that spatial planning must take into account the physical condition of Indonesia territory which is prone to disasters, the potential for natural resources, human resources, and artificial resources, economic, social, cultural, politics, law condition, security defense, environment, as well as science and technology as a unit; and geostrategy, geopolitics, and geoeconomics.

The mining carried out in Kutai Kartanegara Regency has encountered problems. One of the main factors is coordination problems and the lack of a sense of responsibility from the relevant local government in general.

Mining activities are an integral part of the development program, and it is hoped that the mining business will promote regional development. Suyartono [1] stated that three groups are interested in creating harmony between mining business activities and sustainable development: the central and local government, the mining companies, and the local community.

The post-mining reclamation business activities in Kutai Kartanegara Regency, especially in Bukit Merdeka, have provided real added value for national economic growth and sustainable regional development while maintaining environmental sustainability. One of the essential points in the regulation that has been refined is post-mining reclamation. The objectives of this paper are to explain the reality of post-mining reclamation in Bukit Merdeka Village and elaborate the post-mining reclamation policy in Bukit Merdeka Village after the issuance of Law Number 3 of 2020?

2 Literature Review

3.1 Policy

Harold D. Lasswell and Abraham Kaplan defined policy as a projected program of goals, values, and practices. Meanwhile, Carl J. Friedrich defined a policy as follows:

“... a proposed course of a action of a person, group, or government within a given environment providing obstacles and opportunities which the policy was proposed to utilize and overcome in an effort to reach a goal or realize an objective or a purpose.

R. Dye [2] explained that policy is a choice of any kind of action that the government does or does not do. According to the definition, it can be interpreted that policy related to what the government does includes the decision of the government officials not to act or not act at all in matters where their intervention is precisely needed.

In line with the definition by Dye, Edwards-Sharkansky in Sunggono stated that policy is: what the government says and does or what it does not do. The policy is the goals and purposes of government programs and essential materials for implementing programs and regulations [3].

Chief J.O. Udoji defined policy as a sanctioned action that leads to a specific goal-directed at a particular problem or group of interrelated problems that affect most of society. Based on this definition, it means that policy is an action to solve problems that arise in society.

The implementation process of policy always adjusts the environment and conditions in each place because they have different characteristics of social structures. In this case, the involvement of institutions in the implementation process will always work in a certain social context so that a reciprocal relationship can influence each other.

The implementation process is mostly handed over to the government institution at various levels, both at the provincial and regency level. Each level of implementation still requires further policy formation in various legislation forms to provide further elaboration. Therefore, in order to be able to respond to a policy more effectively, it is necessary to have stages that must be passed, both regarding the planning stage and implementation stages. In addition, to realize a program's plan, the role of resources is the main decisive element.

3.2 Mining and Post-Mining

In order to implement the constitutional mandate, the government issued The Minerba Law (The Mineral and Coal Mining Law) in 2009 as a replacement for the KPP Law (The Basic Provisions of Mining Law) of 1967. The Minerba Law regulates the national mining business with several Izin Usaha Pertambangan or Mining Business Licenses (IUP). As for Islam, the unlimited mining materials are public property and managed by the state, the results of which are returned to the people in the form of cheap goods in the form of subsidies for the community's primary needs, such as education, health, and public facilities.

Act No. 4/2009 concerning mineral resources and coal mining, coal mining consists of activities related to exploration, management and exploitation of minerals or coal, including general research, exploration, analysis and includes feasibility studies, construction, coal mining, processing and management. , travel and arms sales and activities.

The reclamation and post-mining activities are a series of events that cannot be separated from mining activities. Post-mining is a planned, systematic, and continuing activity after the end of part or all of the mining business activities. It is carried out to restore the natural environment and social functions according to local conditions throughout the mining area. Some of the environmentally friendly reclamation efforts that can be carried out are as follows.

3.2.1 Revegetation of Local Plants

The post-mining land is generally arid, and the plants are difficult to grow, so it becomes critical land. Therefore, it is necessary to carry out revegetation efforts to overcome the problem. In certain areas, the local plants have the advantage as they can adapt to the environment easily. The selection of plant species is adjusted to soil conditions and microclimate. Using local plants is also an effort to preserve biodiversity. There are about 45 (forty-five) types of local plants that can grow in ex-mining areas, such as Laban (*Vitex pinnata*), Kerumbi (*Homalanthus populous*), Merambung (*Vernonia Arborea*), etc. Meanwhile, the types of trees often used for revegetation are acacia and eucalyptus, as applied by PT Bukit Asam. In addition to planting trees, adding other elements, such as compost, is necessary to accelerate tree growth.

3.2.2 Synergize with Nature

The post-mining rehabilitation combined with human efforts and natural forces is an excellent synergized for post-mining land recovery, said Ishak Yasir from the Samboja

Natural Resources Conservation Technology Research Institute. The main reason for this concept is the mining land, a forest area in the form of a borrow-to-use area. The degraded land, such as the loss of material from wood from land clearing, can be processed to improve soil quality. Another way of this concept can be by planting fruit to invite the presence of birds and bats, which are expected to bring seeds from the remaining forests around the mining area so that the seeds brought by birds and bats can grow in the ex-mining area.

3.2.3 Utilizing Microorganisms

One of the dominant microorganisms in the soil ecosystem that can improve land function is fungi. Some fungi can also form ectotrophic associations in the root system of forest trees. They can help to move phosphorus and nitrogen deep into the body of plants that grow above the soil. Three groups of soil fungi that can help improve soil balance are *Aspergillus*, *Euphenicillium*, and *Penicillium*. This effort is worth trying because fungi have special features, namely adaptive to various soil conditions and can decompose organic matter and help the process of mineral formation in the soil.

3 Method

These studies can be broadly classified within the field of socio-legal method [4]. In this case there are two aspects of research, namely research on legal aspects, where the research object remains in the form of law in the sense of "norms", and social research, namely the use of social science methods. and legal theory to help researchers make analyses [5]. This approach is carried out to understand the law in the context of its society. Brian Z Tamanaha stated that between law and society, there is a frame called "The Law-Society Framework," which has certain relationship characteristics. Two basic components represent this relationship. The first component consists of two main themes, namely, the idea that law is a mirror of society and the idea that the function of law is to maintain the social order. The second component consists of three elements: custom/consent, morality/reason, and positive law [6]. Custom/consent and morality/reason can be understood as culture in Donald Black's thinking [7].

4.1 Post-mining Reality in Bukit Merdeka Village, Bangka Regency

Some land reclamation efforts have been carried out in Bukit Merdeka Village, and they are carried out to restore the fertility of the former pumice mining land. The efforts include planting some plants, such as neem, tamarind, elephant grass, coconut, bamboo, and sengon (*Albizia Chinensis*). Generally, the ex-mining land is used to grow corn, cassava, and bananas, although the plant growth is not as good as in general soil. The land reclamation is conducted by planting coconuts intercropped with peanuts. Trees such as mango, neem, and jatropha grow quite well on the ex-mining land. The plants that grow on degraded lands include symbiosis with mycorrhizae which help absorb nutrients and water for their host plants.

The results show that the reclamation that the local government of Kutai Kartanegara has carried out has encountered many obstacles and is less than optimal. One of the main factors is coordination problems and the lack of a sense of responsibility from the relevant local government. Another factor is that the reclamation program that has been carried out so far does not encourage local community participation. However, the small-scale mining activities by the community have caused impacts. The positive impact is on the economy, which is the

availability of jobs and sources of income for rural residents. Nevertheless, the small-scale mining activities by the community also bring a negative impact, which triggers the environmental problems related to land degradation, especially in areas where mining pits are not reclaimed and can cause erosion.

In order to reduce the negative impact of small-scale mining activities on the environment, it is necessary to carry out reclamation activities of ex-mining land. Mining business actors must carry out the reclamation of ex-mining land following Law No. 3 of 2020. It should be carried out holistically and include physical environmental improvements and community development activities.

Tin mining in Bukit Merdeka Village is a natural resource exploitation activity that has been going on since 1980. The tin mining activities in Kutai Kartanegara Regency are generally categorized as small-scale mining activities because the community does not follow good mining practices based on the rules, as shown by how their activities merely use traditional equipment or even the mining is carried out manually [8].

One of the problems in the mining area of Bukit Merdeka Village, Kutai Kartanegara Regency, is the reclamation of ex-mining land that has not been able to obtain optimal results. The tin mining community directly sells the collected results without being processed first.

The topsoil stripping is carried out in this system. The problem is that the soil fertility level will be lower and the damage to the soil structure causes it to be easily eroded [9].

The reclamation process is carried out by returning the topsoil layer from the stockpiling area to the land area after mining, where revegetation is carried out. Spreading topsoil is essential because it functions as a source of nutrients and also the element that can improve the soil structure, so root development is stimulated in the early stages of growth. Revegetation is an effort to repair and restore damaged vegetation through planting and maintenance activities on former land. Used of forest areas. Plant preservation and monitoring activities aim to protect and observe the plants and identify problems that may occur during the plants' growth for a certain period [10].

The revegetation activity aims to replant the plants in the ex-mining land. The reclamation activities include soil quality analysis, selection of types and number of plants, planting, and plant care.

4.2 Mining Reclamation Policy in Bukit Merdeka Village

Reclamation of ex-mining land in tin mining in Bukit Merdeka Village aims to reduce the environmental impacts and improve the local community's quality of life. The success of pumice reclamation can be measured based on the parameters of the quality of the biogeophysical environment, which includes the quality of soil, water, and air, as well as the empowerment level of the local community potential. The soil fertility level based on soil chemistry tests (macro and micronutrients) on ex-mining land that has been reclaimed shows a better fertility level than land that has not been reclaimed.

Flora and fauna in the reclamation area seem to have a more diverse level that is growing following the improvement of environmental quality. The community's desire for measurable reclamation activities is strong, and the social forestry reclamation model dominates.

Mining activities can cause erosion, sedimentation, and increased heavy metal content in the soil that has the potential to enter the aquatic environment, decrease the quantity and quality of water and cause loss of animal habitat and biodiversity. Therefore, the policy is needed to improve and rehabilitate the ex-tin mining land so there will be no sustainable damage. The efforts aim to restore and optimize the damaged land.

One policy that the Kutai Kartanegara provincial government may pursue is to issue local regulations that meet the conditions. The national ordinance provides for: first mining, then environmentally friendly and sustainable land management; Second, strengthen synergy teams in the form of monitoring teams for all stakeholders; Third, community involvement in post-mining land management decisions.

The post-mining land rehabilitation policy was successfully influenced by several factors, such as poor soil conditions and extreme microclimate conditions. Therefore, the stages of maintenance, land improvement, land stabilization, and erosion and sedimentation control before planting efforts are needed.

Plant species also need to be considered during the planting process. It aims to select plant species that can adapt to soil conditions and microclimate at ex-mining sites. The reason is that some plants can and cannot adapt to climate and soil conditions.

Plants that are often chosen in carrying out soil revegetation on ex-mining land are usually carried out by planting acacia (*Acacia mangium* and *Acacia auriculiformis*), Gamal (*Gliricidia sepium*), and sengon (*Albizia Sinensis*).

After the enactment of Law Number 3 of 2020 on June 10, 2020, the management of the mineral and coal mining sector has entered a new era, one of which is that entrepreneurs are required to carry out post-mining reclamation. The mining policy in Kutai Kartanegara Regency, East Kalimantan Province, also follows the new mining regulations.

The government's role is so broad and balanced with the roles and functions of all existing stakeholders. In addition to the government and mining companies, Non-Governmental Organizations (NGOs), universities/research institutions, and the community also have complementary roles. A monitoring team was formed from the stakeholders above, a new institution that balances the various interests following their respective roles and functions. Strengthening the monitoring team is also focused on strengthening, developing, and empowering communities around mining businesses.

After the enactment of Law No. 3 of 2020, the policy of all authorities related to mining in Kutai Kartanegara Regency was transferred to the center. The authority transferred to the center is the authority to issue permits, supervision, and guidance.

Based on Article 35 of the Minerba Law No. 3 of 2020 section 4 (four), the central government can delegate licensing authority and authority for guidance and supervision. The delegation of authority to the area is in the form of IUP for non-metallic minerals, certain types of non-metallic minerals, and rocks in the area, as well as 12 (twelve) miles from the coastline

5. Conclusion

The post-mining reclamation carried out by the local government of Kutai Kartanegara encountered many obstacles and was less than optimal. The policy that the local government of Kutai Kartanegara can take is to make local regulations that follow the conditions. The Regional Regulation contains: first, environmental and sustainable post-mining land management; second, strengthening the synergized team in the form of a monitoring team for all stakeholders; third, the community participation in determining post-mining land management.

6. Suggestion

1. Improve communication and cooperation between the government and the community. In addition, the government needs to be more proactive in involving various community components, such as NGOs, academics, and researchers, to assist the mining community and monitor the quality of the environment around the mine.
2. It is necessary to study further and diversify the variety of reclamation following the socio-economic conditions of the community and the local environment

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