Utilization of post mining land towards sustainable development

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Abstract. To avoid the post-mining environmental impacts, the government has made regulations related to the exploitation of mining land. But in reality, there are many disregards to this regulation, so that a lot of post-mining land is left alone, as if it cannot be utilized anymore. But not so with the people in Cibeureum Village in Sumedang Regency, they are very concerned and have been able to take advantage of the post-mining land in their area well even with simple technology. This paper aims to identify the post-mining land reclamation practices above, especially the main driving factor of the local community in their willingness and ability to reclaim the post-mining land so that they can successfully utilize the post-mining land. The method used in this activity is literature study, participatory observation, in-depth interviews, and focus group discussions. The results show that the main thing behind them is the collective awareness of the community as the main social capital in utilizing land. Thus, it can be understood that if all life and livelihoods in society are based on shared virtue values as social capital, it can minimize disregard for natural resources.

1. Introduction

Damage to the natural environment due to various development activities has caused many problems including impacts on natural ecosystems and climate change. So that the international world agrees that in carrying out development, every country must do so within the framework of achieving sustainable development goals as enshrined in the global agenda of the Sustainable Development Goals. One of the goals of sustainable development is to "protect, renew and encourage the use of sustainable terrestrial ecosystems, manage forests sustainably, fight desertification, stop and restore land degradation, and stop biodiversity loss". Therefore, the achievement of sustainable development goals is an important mandate from people throughout the world, including Indonesia.

Indonesia is one of the countries bestowed with many mineral and metal mining natural resources, especially building material mining and is easily exploited by the public starting from using simple technology to sophisticated technology. To avoid the undesirable consequences of unmanageable mining, the Government of Indonesia has issued various regulations relating to the exploitation of mining land which must be followed by land reclamation activities both during and after mining, as stated in the Act Nr. 4 of 2009 [1], Government Regulation Nr. 78 of 2010 [2], and Ministerial Regulation Nr. 7 of 2014 [3]. However, in its implementation many parties who conduct mining do not heed these regulations. They (mining operators) for various reasons, tend to ignore it. The neglect is partly due to the lack of supervision from the authorities (the government), also because the exploitation
and post-mining activities do not involve the local community, although according to Ade Lutfi Prayogo [4] mining land reclamation obligations are the responsibility of mining operators. Meanwhile experts and academics from various scientific disciplines state that every dimension of development (including exploitation of mining land) must be carried out to lead to sustainable development, as expressed by Ai Dariah et al [5], Ciegis, Remigijus and Dalia G [6], Roughley [7]. However, in several regions in Indonesia many local people have been able to utilize post-mining land for various agricultural activities Achmad Reza Kurniawan [8], Nuswantoro [9], Adman, B. Hendrarto and D. Sasonko [10], which is carried out individually and in groups with capital facilitated by responsible mining companies and philanthropy through Non-Government Organizations.

Java Island is one of the islands in Indonesia in the form of volcanic plains and the Province of West Java, one of the provinces in Java, has a land under the foot of Mount Tampomas with a height of 1,683 meters above sea level, rich in mineral and metal mining resources. Mount Tampomas is listed in the United States Museum "Smithsonian National Museum of Natural History" as Mount Kabuyutan, Sanctuary Volcano (http://indahnesia.com). The last eruption during pre-history, the land under the foot of Mount Tampomas has the potential for sand excavation that is very high in quality. In general, in the context of the micro level in rural areas, economic sustainability will very much depend on its 'endowment factors'. Therefore, along with the rampant development of infrastructure and housing, the demand for stone and sand has increased, which has encouraged mining communities to sell stones and sand on their land. Although there are economic benefits in the form of expansion of employment opportunities in the excavation sector and related sectors, negative externalities from land exploitation have emerged, leaving critical land conditions after mining. For this reason, post-mining land use needs to be carried out so that the life and socio-economic life of the local community can continue.

In the area under the foot of Mount Tampomas there are post-mining land reclamation activities carried out by the local community without assistance from mining companies and the government. Started in 1985 pioneered by Mr. Uha Juhari (bandung.com/2017/), the local community using simple technology has been able to reclaim land and use it by planting horticultural crops and livestock such as fruits and goats and is successful, and can be a pilot to surrounding post-mining area. Thus, this paper aims to identify the post-mining land reclamation practices above, especially in relation to what are the main factors that encourage local communities to want and be able to reclaim these post-mining lands so that they can successfully utilize post-mining land.

2. Methods

To identify the post-mining land reclamation practices above, a case study has been used by taking a village located under the foot of Mount Tampomas, namely Cibeureum Village, Cimalaka District, Sumedang Regency, West Java Province. Since 1984 in this village mining and rock excavation activities have taken place and since 1985 has been successful in reclaiming post-mining land on its own initiative with the group. Data and information related to the implementation of the reclamation and post-mining land use, obtained by in-depth interview technique to the community of land reclamation farmers represented by the Head of the Farmer Group "Simpay Tampomas" and the Village Head as key informants, then equipped with field observation techniques to see factual data before and after the post-mining reclamation land use.

In order to understand how post-mining land exploitation and exploitation should be carried out, a literature review was conducted in relation to various laws and regulations and various post-mining land reclamation technologies. To find out the participation of local communities in post-mining land use activities and to consolidate data and information related to community views on the need for reclamation as well as their motivation in utilizing land resulting from post-mining reclamation, focus group discussions (FGD) were conducted at the Cibeureum Village Hall. The FGD participants were determined together with the Village Head and the Chairperson of the "Simpay Tampomas" Farmer Group. As stakeholder representatives, FGD participants were chosen consisting of: (1) Village Head, (2) Village Representative Body (BPD), (3) Community Empowerment Agency (LPM-Desa), (4) Village-Owned Enterprises (Bumdes), (5) Head of Community Protection, (6) Smart House, (7) Farmer
Group "Simpay Tampomas", (8) Head of Rukun Residents, (9) Youth Organization, and (10) Baitul Mal wa Tamwil (BMT) "Latifah" as partner of microfinance institutions in the village of Cibeureum Wetan. In the FGD several questions were asked to be discussed together. Through this discussion, a basic picture can be obtained relating to the factors that encourage their willingness, care, and ability to utilize post-mining land reclamation.

3. Result and discussion

Observations and interviews report that the land on Mount Tampomas was originally part of protected forests, conversion forests and plantation areas. As a conversion forest area in which Mining Resources are provided, the land can be utilized for cultivation activities. Exploitation can be done in accordance with Law Number 4 of 2009 concerning Mineral and Coal Mining [1], Republic of Indonesia Ministerial Regulation No. 78 of 2010 concerning Reclamation and Post-Mining [2] and Ministerial Regulation No. 7 of 2014 concerning Implementation of Reclamation and Post-Mining regarding Minerba Business Activities [3]. Before mining, the land area at the foot of Mount Tampomas as a cultivation area was utilized by the community for agricultural activities. The land here is very fertile for growing vegetables, rice, and fruits. In 1984, there was manual sand mining, from only 1 (one) ha later expanded to ± 350 ha. Exploitation of the C-mining mine has left a portion of the former mining area into an arid area leaving only rocks, steep earthen walls, and when the rainy season becomes a pond.

As a result of sand mining, the condition of the slope of the land is disturbed and the soil which acts as a planting medium changes its content. At that time there were no clear and strict regulations regarding post-mining land management both manual and heavy technology, so that the miners were free to exploit mining land in this area. Feeling concerned and aware of the possibility of ecological damage to the environment that can result in low levels of land's ability to retain water and bind nutrients, as well as giving rise to loose soil structures and prone to erosion, the local community is chaired by Mr. Uha Juhari (already died in 2018), his heart was touched to move to reclaim the post-mining land, even with a very simple technology (interview with Sujana Kosim, the son of Mr. Uha Juhari, May 2019). Then in 1985 the reclamation of the post-mining land was carried out by involving around 20 farmers who entered the Group Tani Simpay Tampomas, this awareness has paid off, with reclaimed land of around 20 hectares producing horticultural production (dragon fruit, guava, nana, banana, etc.) and Etawah Goat livestock.

With the issuance of laws and regulations beginning in 2009 as mentioned above, every mining land exploitation activity, especially with extensive land coverage and risk of environmental damage, every miner is required to reclaim land, both during and after mining. However, in reality the existence of these regulations is still not effective, while mining activities continue. Concerned about environmental damage and the impact caused by mining that does not follow the rules as revealed in Syekhfani research, in Fenny Aulia Putri [11], local communities are very aware that in order to preserve the environment and sustain life and livelihood in a sustainable manner, the utilization efforts land through their reclamation technology has become a necessity. This was revealed from the results of the FGD that all participants stated "if there is neglect of the present degraded land post mining conditions, they are worried that environmental conditions will be increasingly alarming. Post-mining land damage that has exceeded the level of damage will have an impact on social, economic and environmental conditions. Therefore, the FGD participants were fully aware that they all had the desire to take part in the reclamation of degraded land; and support efforts to preserve the environment as a form of gratitude for God's gift. In the future, they will want to include the degradation of land reclamation program in the Village Medium Term Development Plan (RPJMDes). A sense of togetherness as citizens who rely on and obtain life and livelihood on the post-mining land, their preparation has become social capital to jointly carry out reclamation of post-mining land, and transform it to future generations. To deal with widespread degraded land, they realize there needs to be collaboration between stakeholders, namely the government (sub-district, district and province); forestry company; local excavation entrepreneur; the business world (investors) in agriculture, plantations, animal husbandry, and attractions; environmental observer; and tertiary education. The FGD results also state that BMT microfinance
institutions at the local level are ready to facilitate the management of financial administration in the context of the use of critical land for the socio-economic activities of rural communities. Efforts realized by the community to utilize land through post-mining critical land reclamation are very much in line with the policy of the central government set forth in Presidential Decree No. Republic of Indonesia. 29 of 2017 [12] and the territory of the Province of West Java in line with the Regional Regulation of the Province of West Java Number 8 of 2019[13] and the Regulation of the Governor of West Java Number 18 of 2018 concerning the Regional Action Plan for the Province of West Java 2018-2023 [14].

4. Conclusion
In accordance with the purpose of the writing, which is to identify the main factors as driving the local community in the will and ability to reclaim the post-mining land so that they can successfully utilize the post-mining land are: Firstly, the existence of community awareness both individually and collectively (as social capital) to carry out reclamation is quite high, built on the values of religious orders (Islam), that is, the nature of God's grace must be utilized; Secondly, so that they can continue to make a living and livelihood, then they together feel the need to utilize and work on post-mining land, as long as it can still be done with simple technology. If sophisticated technology is needed, they realize that to be able to handle it, collaboration with all stakeholders is needed.

References
[1] Government of Republic of Indonesia 2009 Law Number 4 of 2009 concerning Mineral and Coal Mining (State Gazette of The Republic of Indonesia Number 4 of 2009 Supplement to the State Gazette of The Republic of Indonesia Number 4959).
[2] Government of Republic of Indonesia 2010 Republic of Indonesia Government Regulation Number 78 of 2010 concerning Reclamation and Post-Mining.
[3] Ministry of Energy and Mineral Resources of The Republic of Indonesia 2014 Ministerial Regulation No. 7 of 2014 concerning The Implementation of Reclamation and Post-Mining in Mining Business Activities.
[4] Ade L P 2018 Tanggung Jawab Pelaku Usaha Pertambangan Rakyat dalam Reklamasi Gumuk Setelah Kegiatan Tambang Lentera Hukum 5 3 pp 424-436
[5] Ai D 2010 Reclamation of Ex-Mining Land to Expand Agricultural Reclamation of Ex-Mining Land for Agricultural Extensification Soil Research Institute Journal of Land Resources 4
[6] Ciegis R and Dalia G 2008 Participatory Aspects of Strategic Sustainable Development Planning in Local Communities: Experience of Lithuania Ukio Technologinis ir Economist Vystymas 14 2 pp 107-117
[7] Roughley A 1999 Ecologically Sustainable Local Area Planning: A Framework for Enhance Integration of Community Workers and Enviromental Planner Urban Policy and Reasearch 17 4 pp 27-286
[8] Achma R K 2018 Reclamation Plan on Sand and Stone Former Mining Land in Nglumut Village, Srumbung District, Magelang District, Cenral Java Province National Seminar on Applied Science and Technology VI 2018 Adhi Tama Institute of Technology Surabaya
[9] Nuswantoro N 2017 Restoring the Former Land of the Sand Mine in the Village Around Merapi
[10] Adman B H and Sasongko D 2012 Utilization of Fast-Growing Local Tree Species for Coal Mining Post Recovery Journal of Environmental Sciences 10 1 pp 19-25
[11] Fenny A P 2015 Reclamation Land of Sand Pieces with Dragon Fruit Cultivation (Hylocereuspolyrhizus) in Cibeureum Wetan Village, Cimalaka District, Sumedang Regency, Indonesian University of Education
[12] Presidential Regulation Number 59 of 2017 Implementation of Achieving Sustainable Development Goals
[13] Regional Regulation of West Java Province Number 8 of 2019 RPJMD of West Java Province of 2018-2023
[14] West Java Governor Regulation No. 18 of 2018 The Regional Action Plan For The Province Of
West Java 2018-2023