



ANTHROPOGENIC ACTIVITIES OF ILLEGAL MINE RESISTANCE TO THE ENVIRONMENT AND SOCIAL ECONOMIC DYNAMICS

by

A. Silvan Erusani¹, Ardian Chandra Aji²

¹Syarif Hidayatullah State Islamic University Jakarta

²Department of Industry, Trade, Energy And Mineral Resources West Kalimantan

Email: ¹sylvanerusani@uinjkt.ac.id, ²Ardian_sgu@yahoo.co.id

Article Info

Article history:

Received Nov 18, 2021

Revised Dec 25, 2021

Accepted Jan 29, 2022

Keywords:

PETI, Mining, Mercury

ABSTRACT

This study aims to assess the anthropogenic activities of illegal mining on the environment and socio-economic dynamics at the location of gold mining without a permit in Madong Raya Village, Tanah Pinoh District, Melawi Regency. The research approach is qualitative with the aim of producing a descriptive analysis related to the data collected based on the construction of existing theories and literature. Field findings reveal that anthropogenic activities are still carried out by local communities in the defense of illegal mining and have an impact on environmental degradation and meet daily needs in financing families and the strength of interaction between residents in utilizing natural resources. Research data analysis was carried out in a descriptive way, namely the impact of illegal mining and social impacts society from anthropogenic activities causing prolonged degradation. Anthropogenic activities cause the decline in environmental quality and local people's livelihoods in meeting daily needs as well as developing community capacity and empowerment in a participatory, equitable, and environmentally friendly manner so as to create social and economic resilience as well as resilience to the effects of external changes by not carrying out mining activities. gold is illegal considering that there are casualties due to the mining

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Corresponding Author:

A. Silvan Erusani

Syarif Hidayatullah State Islamic University Jakarta

Email: sylvanerusani@uinjkt.ac.id

1. INTRODUCTION

Tanah Pinoh Barat sub-district has an administrative area of 815.00 km² which is mostly dominated by hills and contains 56 gold mining locations (EMR Office of West Kalimantan, 2020). Tanah Pinoh Subdistrict is traversed by two rivers, namely: the Ke Luas River and the China River, where these rivers are commonly used by local people as a means of transportation between villages and to get to the sub-district capital, apart from using the road, there are 10 gold mining locations carried out by the people.

Judging from the texture of the soil, most of the area of Tanah Pinoh Barat District consists of Latosol soil which covers an area of about 815.00 Km² which spreads almost all over the village. Small-scale gold mining is the largest source of mercury (Hg) pollution on earth, contributing about 20-30 to a global issue of artisanal gold mining by using elemental mercury to extract gold from ore.

Mining is one of the main areas of exploitation of natural resources in tropical countries. Forest destruction, habitat loss and biodiversity, due to mining activities, have been widely reported (WWI, 1992; Majer, 2013). Illegal mining activities do not only occur in community-owned forest areas but also in protected forest areas. This poses a major threat to sustainable forest management and impacts people's livelihoods. Searching for food with illegal mining is a danger to the safety of mining workers because they do not carry out mining activities in accordance with standard service procedures which result in a decrease in body health and death due to work accidents. mine. Mining is illegal if done without a permit or in unapproved areas such as protected forests, nature reserves, or near water sources even with guaranteed permits (World Bank Group Department, 2002).

Illegal mining, known locally as “PETI” in West Kalimantan, has received a great deal of media publicity, and has raised public concern about the widespread damage it causes to environmental degradation. Poverty resulting in illegal mining is due to what happens in most developing countries where there are people with low education and few job opportunities (Yaro, 2010; Bagyina, 2012). Globally, an estimated 20 million people are involved in illegal mining with nearly a quarter of the world's gold production coming from it (Hilson, 2001). While illegal mining can help reduce poverty, it can have negative impacts on forest resources (Sachs & Warner, 2001). Gold mining without permits makes a positive contribution to the interests of the community and becomes an alternative to improve the local community's economy, but on the other hand there is environmental degradation due to mining activities. According to Law Number 11 of 1967, mining materials are divided into three groups, namely Group A (referred to as strategic materials), Group B (as vital materials) and Group C (non-strategic and non-vital materials). Wealth of natural resources can be utilized to the fullest for the needs of living things on this earth without damaging the quality of the environment, improving the economy of local communities and preserving nature with environmentally friendly actions and not damaging the earth.

Indonesia has issued two Government Regulations (PP) related to mercury. First, PP number 74 of 2001 concerning Management of Hazardous Toxic Materials (B3), which states that mercury is included in the category of B3 type and its use is limited. Second, PP Number 101 of 2014 concerning Hazardous Waste Management states that waste containing mercury must be managed.⁷⁰ After Indonesia ratified the

Minamata Convention on Mercury through Law no. 11 of 2017 now Indonesia is compiling further steps as the implementation of the ratification of the relevant convention. Alvarez-Berríos and Aide (2015) identify mining as an activity that causes significant changes to the environment but is often overlooked in deforestation analyses, as it mostly covers a small area compared to agriculture or timber extraction. The increase in demand and price of gold in the last two decades has triggered a wave of intense mining activity around the world (World Gold Council, 2012). Many of these mining activities were and are still carried out by small-scale miners including illegal miners (Creek, 2009; Alvarez-Berríos & Aide, 2015), particularly in developing countries where regulatory and institutional capacities are weak. Environmental problems are getting more and more frightening day by day along with industrial developments and uncontrolled population growth, especially in developing countries. Richard Steward and James E Krier classify environmental problems into three things: environmental pollution (pollution), wrong use or use of land (land misus), and excessive dredging (natural resource depletion).

In Government Regulation (PP) No. 74 of 2001 concerning Hazardous and Toxic Materials categorizes mercury as a Toxic Hazardous Material (B3) with the characteristics of being toxic, carcinogenic, and harmful to the environment. Toxic characteristics are B3 which is toxic to humans which will cause death or serious illness if it enters the body through inhalation, skin or mouth which can have a toxic effect as well as chronic or acute. These metals can accumulate in the body over time and are highly toxic, with effects including damage to the nervous system (lead and mercury) or kidneys and cancer-causing (cadmium). Aquatic systems are very sensitive to Hg input because the bioaccumulation rate of this heavy metal is higher than other heavy metals. Bioaccumulation of Hg can occur in the aquatic food chain so that the concentration of Hg can increase along with the levels of the food chain, causing pollution (Baker and Denyes, 2004).

Problems in mining-producing areas, both those faced by mining communities, non-mining communities (people who live in mining areas but don't do mining), the government and anti-mining activists, which in the end turned out to be a blessing from what should have been a disaster. The problem most often faced by mining-producing areas is the emergence of conflicts, ranging from latent conflicts (conflicts that do not surface or conflicts that do not lead to violence) to violent conflicts that result in victims (Aminah, 2017: 40). Mining cases that are often found in Indonesian territory often lead to prolonged conflicts in each region. This conflict can lead to violent conflict or even lead to war

2. RESEARCH METHOD

This research is a normative-empirical research, the data obtained are analyzed and presented in a qualitative descriptive manner, namely analyzing the data obtained from

field studies and literature by explaining and describing the reality of the research object obtained from the research results.

Types and Sources of Data The types of data used in this study are: 1. Primary Data, namely data obtained directly through interviews with relevant parties in the field who are authorized in their fields. 2. Secondary data, namely data obtained from literature studies on various kinds of reading materials related to the object of study in this thesis, including books, journals, articles, e-learning, and written works in the form of print media and internet media. .

The sources that will be used by the author in this research are: a) International conventions and laws and



regulations related to the title of this thesis

b) Books related to this research

c) Other literatures related to the title of this thesis . For example, journals, research results, as well as other sources of information, both in the form of hard copies and soft copies which are obtained directly as well as search results from the internet

3. FINDING AND DISCUSSION

Hg pollution is very worrying because its effects are not directly felt by the community, but after a long period of time and can result in prolonged acute power. Unlicensed gold mining (PETI) is a traditional gold mining activity. The mining results are processed using the amalgamation method, which is the process of binding gold metal from the ore using mercury. The amalgamation process in this PETI activity will result in environmental degradation caused by the washing and panning processes carried out in the river. As a result, the tailings that are thrown into the river make the river cloudy and polluted by mercury (Andrie et al., 2011). One of the gold mining activities without a permit (PETI) in the village of Madong Raya, Tanah Pinoh District, Melawi Regency, is an amalgamation technique using mercury to get gold. The waste from the gold mining activities is suspected of contaminating/contaminating the environment and rivers in the gold mining area.

Generally, PETI and these illegal gold miners do not have the facilities to process and accommodate the waste from the mining. So that these wastes are directly disposed of into nature without going through any process, thus causing natural damage which is very dangerous for the population and also the ecosystem in the environment. Small-scale gold mining has developed in West Kalimantan from the 2020 recapitulation data reporting on PETI activities for the estimated 39,777 affected area (ha) spread over the districts/cities of West Kalimantan Province. Melawi Regency in the research location area for PETI location points, namely 56 locations.sector

employs approximately 16 million people worldwide (Seccatore et al., 2014, p. 666) and contributes to 12-20 percent of global gold production (IGF, 2018, p.3). Besides being productive, small-scale gold mining is also controversial. In many countries, its spread has sparked heated public debate about environmental conservation and law enforcement, with news reports and politicians often portraying miners as opportunistic criminals who make money at the expense of nature, law and morals.

From the results of this study, the equipment used in gold mining uses large capacity mechanics and shows that illegal mining in the community has had a positive impact on their livelihoods and has had a negative effect on environmental quality. This is a change in water quality from previously used for daily needs. This also resulted in changes from agricultural land, plantations to mining land. Findings, Hilson, Natalia, and Banchirigah (2007) show that, farmers who lose their land to such mining activities have very limited means of survival, and therefore turn to illegal mining, which provides the fastest way to secure income in the economy. informal. This complements the statement that the loss of traditional livelihood sources such as farming by illegal mining activities without alternative work can create social problems. This research reveals that the negative impacts of illegal mining activities are felt by community members more than the positive impacts. Illegal mining in protected forests has been reported to exacerbate already alarming levels of forest degradation in Madong Village. Thus, it can be projected that environmental degradation by illegal mining activities results from the combined effects of forest fires caused by logging, agricultural colonization, mining activities, illegal land fires and other development projects (Appiah et al., 2009; Thomas & Insaideo, 2012).).

Social Dynamics of Anthropogenic Activities Local Community Gold Mining Activities in Tanah Pinoh

District Madong Raya Village Tanah Pinoh District Melawi Regency where illegal mining works as gold miners, in illegal mining village this gold mine is private property of Madong Raya village community, where illegal mining works to distribute the results there are 3 first, the results are divided between people who have land as a place to mine gold, this division is called 10:2, i.e., for example, a gold miner gets 10 grams, which means that the owner of the land gets a share of 2 grams of the results from the same distribution as the owner of the land divided again by the owner of the machine. miners continue to be distributed to the workers of the gold miners. In the village of Madong, Tanah Pinoh where illegal mining works as a gold miner,

livelihood in the village of illegal mining 60% of the people work as gold miners because only the price of gold can help the economy. pergram and the rest of the community work as rubber farmers and work in oil palm companies.

PETA ADMINISTRATIF KECAMATAN TANAH PINOH BARAT



Where illegal mining works, there are 2 locations for gold miners, the first is in the brick river and the second is the Batang Pinoh River with an average soil depth of up to ten meters to tens of meters depth. People who work as gold miners in illegal mining villages are mostly aged from 17-35 years old, gold mines in illegal mining villages where all the jobs are men, every gold mine has a maximum of six workers and at least four workers, gold mines in illegal mining villages have been operating for a very long time, some have been operating for a dozen years and the income is not certain per week because the gold mine in the illegal mining village no one uses a tool that can track the gold point, the income varies per week, some get a dozen grams of gold, some can get up to tens of grams, it depends on the luck given god again.

At the time of working in gold mining, many obstacles occur which greatly affect the weather, if the weather is not supportive, for example it is raining, it is very difficult because it makes the hole that has been dug by the machine full of rainwater so that it hinders the work, the second obstacle is the gold mining machine which suddenly damaged while mining it also slows down work too and the last obstacle that occurs is the location of the gold mine, namely the texture of the soil which is usually very hard not easily destroyed by machines and the large rocks also greatly affect when mining gold, In the village of illegal mining or in places where illegal mining works, no one uses heavy equipment for mining, everything is done with manual tools, all only to suck rocks and soil using machines, as a

gold miner worker has a very big risk, namely his own life time it's in the district Sokan Sijau village there was an accident while mining for gold there were four gold miner workers who fell on the ground with a height of approximately nine meters making the four people have an accident one person died on the way to the hospital, one person died in the gold mining place and two people suffered serious injuries but survived, therefore gold miners must be careful at work.

Although it is still in a small stage to process gold, namely mercury amalgamation and cyanidation washing processes. Amalgamation is a technique for binding gold metal from ore using mercury (Hg), which is a simple technique that miners can use to obtain amalgam. The use of mercury is not balanced with public knowledge on how to manage waste so that it is not harmful to health and the environment. The people's gold miners make direct contact with mercury without using any protection. Miners do not stay working on the same point or hole. They continue to look for rock sources containing gold. After digging a hole, the miners go into the hole without being equipped with helmets or safety shoes, to look for rocks that contain gold.

The Role of the Central Government in the Implementation of Small-Scale Gold Mining

Increasing the capacity and coordination of law enforcement officers and related parties in handling the prevention and eradication of forest destruction and ensuring the existence of forests in a sustainable manner while maintaining sustainability and not damaging the environment and surrounding ecosystems. In several countries in the world such as Indonesia, Malaysia and the Philippines, the use of mercury has been banned. For this reason, countries that have banned the use of mercury in mining activities have created a legal umbrella to strengthen and reinforce their commitment to prohibiting trading in mercury for its use. Regulations guarantee the effectiveness and benefits of mining, as well as guarantee legal certainty in the implementation of mineral and coal mining business activities. Make an agreement between the government and an Indonesian legal entity company to carry out Mineral Mining Business activities.

Business license or legality granted to business actors to start and run a business and its activities or activities. Carry out community empowerment which aims to improve the ability of the community, both individually and collectively, in order to have a better standard of living. To avoid environmental damage in forest areas due to gold



mining, the role must be carried out appropriately and sustainably by taking into account the ecological, social and economic functions as well as to maintain sustainability for present life and the lives of future generations. Illegal use of forest areas is an organized activity carried out in forest areas for plantations and/or mining

with all efforts made to eliminate opportunities for forest destruction. In the management of strategic programs, it is carried out based on the principles of togetherness, tolerance and benefit for the community (Fitriasari et.al., 2019)

Regional Regulation of West Kalimantan Province Number 3 of 2014 concerning Environmental Protection and Management. West Kalimantan Provincial Regulation No. 9 of 2019 concerning Mineral and Coal Mining Management. Carry out development and empowerment of local communities. Participation and cultural values of the community as well as environmental conditions in the context of more intensive environmental management to obtain more optimal and sustainable benefits. Optimizing various forest functions which include conservation functions, protection functions, production functions, and forests outside the area to achieve balanced and sustainable environmental, social, cultural and economic benefits. Involving local entrepreneurs in the area when carrying out production operations. The community is involved in environmental management and takes part in preserving the environment as well as skills training for the community to be able to compete for work in mining area companies. The realization of increased capacity to develop community capacity and empowerment in a participatory, equitable, and environmentally friendly manner so as to be able to create social and economic resilience as well as resilience to the effects of external changes.

4. CONCLUSION

1. There is no Government Regulation and Presidential Regulation as the elaboration of Law no. 3 of 2020.
2. The Regency/City Government to immediately re-propose the application for the determination of the location of the People's Mining Area
3. Carry out integrated supervision of mining actors and mining mechanical equipment.
4. The Government of Indonesia is currently preparing the National Action Plan, Elimination of the Use of Mercury (RAN PPM). With effective steps and have not provided significant changes because there are still many activities that can be found and use mercury.

SUGGESTIONS

1. The central government in general and local governments pay special attention to the needs of miners by providing access to effective and appropriate technologies and seeking alternative materials and technologies for processing gold as a substitute for mercury and managing its waste.
2. Regions with activities in their territory, such as in West Kalimantan Province, must have a regional regulation that clearly regulates Small-Scale Gold Mining in view of the loss of life due to the gold mining.
3. The existence of an Action Plan to strengthen coordination and cooperation between relevant ministries or non-ministerial government agencies, as well as strengthening coordination and cooperation between central and regional governments.

REFERENCES

- [1] Aminah, 2017. Tambang Rakyat, Berkah atau Musibah? (Studi Tentang Tambang Emas Rakyat Di Gunong Ujeun Kabupaten Aceh Jaya). *Jurnal Public Policy*. 3 (1): 41
- [2] Appiah et al., 2009, Dependence on forest resources and tropical deforestation in Ghana. *Environ Dev Sustain*, 11:471–487
- [3] Baker, L. & Denyes, M. J. 2004. Prediktor Perawatan Diri Pada Remaja Dengan Cystic Fibrosis: Tes Orem Tentang perawatan Diri Dan Defisit Perawatan Diri. *Jurnal keperawatan Anak*. Vol. 23. Hal. 37-48. 2004.
- [4] Ersa, Fitriasari. et.al. (2019) Policy Strategy Beyond Eco Tourism Development, *Economics Development Analysis Journal* 8 264-278, 2019
- [5] Hilson, G. (2001) A Contextual Review of the Ghanaian Small-Scale Mining Industry. International Institute of Environment and Development, London Internasional Gamelan Festival, 2018
- [6] N. Alvarez-Berríos, M. Aide. Global demand for gold is another threat for tropical forests. *Environ. Res. Lett.*, 10 (2015), pp. 1-11

-
- [7] O.A Bagyina. 2012. Assessment of the Impact of Mining on Land Use Systems and Livelihoods in the Obuasi Municipality. Master of Science Thesis. Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
- [8] Peraturan Daerah Provinsi Kalimantan Barat No 9 Tahun 2019 tentang Pengelolaan Pertambangan Mineral dan Batubara
- [9] Peraturan Daerah Provinsi Kalimantan Barat Nomor 3 Tahun 2014 Tentang Perlindungan Dan Pengelolaan Lingkungan Hidup
- [10] Peraturan Daerah Provinsi Kalimantan Barat Nomor 8 Tahun 2019 Tentang Pengelolaan Kehutanan
- [11] Peraturan Pemerintah Republik Indonesia No. 101 tahun 2014 Tentang Pengelolaan Limbah Bahan Berbahaya Dan Beracun
- [12] Peraturan Pemerintah Republik Indonesia No. 74 Tahun 2001 tentang Pengelolaan Bahan Berbahaya dan Beracun
- [13] S. Creek, 2009. Moving frontiers in the Amazon: Brazilian small-scale gold miners in Suriname. *Eur. Rev. Lat. Am. Caribb. Stud.*, pp. 5-25
- [14] Sachs, J.D. dan A. Warner, 2001, The Curse of Natural Resources. *European Economic Review* 45: 827-38
- [15] Seccatore, J. et al. (2014) 'An estimation of the artisanal small-scale production of gold in the world', *Science of the Total Environment*. Elsevier B.V., 496, pp. 662-667
- [16] Thomas F.G. Insaadoo, 2012, Addressing forest degradation and timber deficits: Reforestation programmes in Ghana.
- [17] Undang-undang Nomor 11 Tahun 1967 tentang Ketentuan-ketentuan Pokok Pertambangan
- [18] Yaro, J.A. (2010) The Social Dimensions of Adaptation to Climate Change in Ghana. The World Bank Discussion
- [19] Sastra, A. I., Anwar, Od. M., & Ibrahim, M. N. (2017). THE CONCEPT OF PANGAWINAN IN THE MUSIC PERFORMANCE OF TALEMPONG RENJEANG ANAM SALABUHANIN LUHAK NAN TIGO MINANGKABAU. *Journal of Nusantara Studies (JONUS)*, 2(2), 333. <https://doi.org/10.24200/jonus.vol2iss2pp333-347>