

## LOCAL GOVERNMENT'S ROLE AND POLICY ON ILLEGAL MINING (Case Study of Gold Mining in Banyumas Indonesia)

Muslihudin Muslihudin<sup>1\*</sup>, Imam Santosa<sup>1</sup>, Paulus Israwan Setyoko<sup>2</sup>,  
RaisAgil Bahtiar<sup>3</sup>.

<sup>1.</sup> Faculty of Social and Political Sciences, Jenderal Soedirman University, Purwokerto, Indonesia.

<sup>2.</sup> Department of Public Administration, Faculty of Social and Political Sciences, Universitas Jenderal Soedirman, Purwokerto, Indonesia.

<sup>3.</sup> Research Center of Expertise Agency, the House of Representatives, Jakarta, Indonesia.

**ABSTRACT:** Most of mining in Banyumas is traditional and illegal. Nevertheless, they continue to conduct mining activities even though the government actually forbids them. The existence of illegal mining becomes a form of vertical conflict between the people and local government. These conditions make the local government has a dilemma that is in an ambiguous position between prohibiting and controlling them. Prohibited indeed should be because of illegal, controlled because the reality of the people remains determined not to stop. The existence of mining, on the one hand, can provide the welfare of the people but on the other hand, it is very risky for both the miners and the environment. Finally, following the enactment of Law No. 23 of 2014 on local government, effectively since October 2016, it became clear the role and the policy of the local government. Before October 2, 2016, the Local Government had authority to prohibit and control mining activities. After the new law, the local government no longer has authority over mining activities in the area replaced by the provincial government. The reality is that mining is not becoming more organized, but rather is becoming less controlled, and tends to be increasing wildly. A concrete example is illegal gold mining in Banyumas which continues to run with all the negative impacts following it.

**Keywords:** local government, role and policy, mining, illegal.

### I. INTRODUCTION

One of the illegal mining in Indonesia is gold mining in Banyumas Regency, Central Java. The gold mining is located in Gumelar sub-district, located in the westernmost part of Banyumas Regency, about 40 km from Purwokerto City. The gold mine began in 2007. The gold mine in Gumelar did not appear suddenly, because in fact there have been previous explorative studies. In 1997 there was a mining company PT Harlan who officially obtained a mining license from Jakarta has conducted a study on the gold content in Banyumas district, especially in Gumelar sub-district. The study results from the PT concluded that the gold content in the region of Banyumas about 9.7 tons, means there are 9.7 million grams of gold. Assuming a gold price of 500 thousand per gram, then in the hills around Gumelar District contained gold worth 4.85 trillion rupiahs (ESDM Banyumas, 2015, Hutamadi et al, 2016).

Minerals Mining (2013), illustrates that people mining is a mining whose method is applied to underground mines with the Gophering method, an unsystematic mining method, no need for development works and the excavation only following the direction of the ore crops. Therefore the size of the hole is also indefinite, depending on the size of the ore deposit in that place and generally without good buffering. This mining method is generally without adequate buffers and excavation is generally done without mechanical tools. This method of gold mining is commonly applied in various areas of Indonesian mining operations, such as in Bogor, Sukabumi, Subang, Cianjur, Garut, Cikidang, Lebak, Tasikmalaya, Kulonprogo, Wonogiri, and Banyumas.

The illegal gold mining in Banyumas is only a small part of the gold mining in Indonesia. Understanding illegal is Mining Without Permission, which is often abbreviated as MWP (Refles, 2012). One of the problems that still homework for the Department of Energy Resources and Mineral (ERM) is the rampant illegal mining activities (MWP). Irna et al (2010) explained that one of the mining problems that is still a homework for the Department of Energy and Mineral Resources (DEMUR) is that there are many mining activities without permits (MWP). The term MWP was initially only used to refer to gold mining without

permission, but in its development the term was also used in other mining without permission. Mining business according to Law Number 4 of 2009 concerning Mineral and Coal Mining, there are two forms of mining business, namely mineral mining and coal mining. Mining of minerals other than gold is radioactive mining; non-metal mineral mining; and rock mining.

Factors that encourage increased MWP activities include:

1. Many mining activities provide relatively high material benefits, because some excavated materials do not need to be processed first, they can be sold directly to the market.
2. Community needs for minerals are relatively high, especially in areas where physical development is also high, such as in urban, suburban, and government projects.
3. Mining does not require difficult processing such as for rock mining.
4. Very short mining operations, some mining activities are shorter than the length of the licensing process, because most of them are small scale mining.

The gold mining seems to have extraordinary appeal compared to other mines. This is understandable because the price of gold is very high compared to the prices of other mining materials. Gold is also considered a reliable investment instrument, especially in the midst of a volatile global economic condition. Gold can be a safe haven for investment and liquid, unlike other instruments which have quite a lot of fluctuations and are not liquid. Property is also a strong asset for investment but not liquid like gold.

The study emphasizes the role, policy, and management aspects of assessing that the community's gold mining management only supports economic and social development in the region, but excludes its legal and environmental aspects. In addition, it concluded that the policy on the gold mining of the people has not been satisfactory because there are still many illegal mining cases. Even the mining sector in Asia is more visible as poverty management than environmental management. Even though the mining scale is large, what happens is mismanagement (Gill, 2006; Nuraina, 2012; Adwani, 2012; Hartowibowo, 2017). On the other hand, Shefa (2010) focuses on the poverty aspect, he argues that gold mining is a unique opportunity for a world of poverty that can raise 3 to 5 times as much. Therefore this policy should be pragmatic. Muslihudin et al (2018, 2019, 2019) concluded that the government is still needed to monitor the gold mining conditions of the people even though their status are illegal. However, these activities are very helpful to the community's economy, not only in the villages where there are mining activities but also to the wider community.

On the basis of existing reality in Banyumas Regency that there are gold mining activities that do not have permit and impact on society and environment, hence should local government have to be clear to the activity. For this reason, the purpose of this article is to know how the role and policy of Banyumas Regency government to the illegal gold mining.

## II. RESEARCH METHOD

The location of this study is in the Banyumas Regency. Banyumas Regency is one part of the Central Java Province region located between: -108 0 39 '17 " - 109 0 27 '15" East Longitude and -7 0 15 '05 " - 7 0 37 '10" South Latitude. Next is Banyumas Regency as the location in this study.



Fig. 1. Map of Central Java Province

This research method is with a qualitative method. The target of the research is the leader of the institution related to the gold mining activities conducted by the community in Gumelar sub-district of

Banyumas Regency. These institutions are the Regional Development Planning Board (RDPB), the Office of Energy Resources and Minerals (ERM), and the Environment Agency (EA). Data collection used by deep interview, observation and documentation.

Data analysis used is an interactive analysis method. Miles et al (2014), explains that interactive analysis essentially beginning from the accumulated data condensed in the form of research findings relevant to the writing material and then presented in a narrative. Condensation and data presentation are two components of analysis performed simultaneously with the data collection process. The next process is the conclusion, which is done after the data collection process, presented, described and then given a logical interpretation. The final goal of the analysis is to gain some understanding of the focus of this research.

### III. RESULT AND DISCUSSION

Role and policies of Banyumas District Government experienced two periods related to the existence of traditional gold mining activities in Paningkaban Village and Cihonje Village, Gumelar Subdistrict. These two periods are limited by the emergence of Law No. 23 of 2014 on Regional Government, which was enacted on October 2, 2014. The Act was enacted de facto two years later from the date of promulgation and became effective on 2 October 2016. Thus the first term is the period before October 2016, while the second period is after October 2016.

The substance of the change of authority of the central, provincial and district governments is in the third section of Law No.23 of 2014 starting from chapters 11 to 24, which deals with the affairs of concurrent governance. In addition, it is also contained in the explanation of the law on the distribution of concurrent governmental affairs between the central government, provincial and district/city. Mentioned that the regents and mayors are no longer authorized to determine the area of mining business and mining business permits to the company. That authority is now owned by the governor and the central government.

#### 1. The period before October 2, 2016

Prior to the change of authority of local government especially in the field of energy and mineral, Banyumas Regency Government has an institution named Energy and Mineral Resources. The service has several times to prohibit the miners of gold miners in the District Gumelar perform activities. But the ban is ignored by the miners so that mining activities run as usual. Nevertheless, local governments do not necessarily prohibit or forcibly shut down mining activities. This is due to many residents who have been hanging their lives on gold mining. In addition, the mine land is owned by residents themselves as well as seen many positive impacts also for the community. It is acknowledged that mining activities are conducted in a traditional way and there are no standard operational procedures. On the basis of this kind of fact, the local government of Banyumas Regency actually does not only conduct supervision, but it may also be more appropriate to do coaching.

Such a condition is similar to what Meilantiana (2006) studied in Kalimantan. According to her finding that the phenomenon of much illegal gold mining is very dilemmatic. On the one hand, the community must maintain its survival by taking the resources available in nature, but in a bad way cause the environmental conditions to be damaged.

Regent of Banyumas, Ir Achmad Husein stated that related to gold mining, his side has made several efforts; 1) to write to the Ministry of Mines to review and process the permit, but so far there has been no confirmation from the center. 2) to communicate with several investors engaged in mining, but not produce results. The reason for investors of the region is considered less potent when compared with the capital construction of facilities and infrastructure. There are three investors who have conducted the survey, but all raised their hands.

The attempts by the regents to invite modern miners are unsuccessful on the grounds that they are less favorable. Not so with small-scale gold miners, where the potential of gold content that actually considered very promising for them. Without a long time has grown and developed very much like mushrooms in the rainy season. The growth of small-scale gold mining is actually not desired by the government because its existence is indeed without permission process first.

The local government also responds to the emergence of traditional gold mining activities in its area is quite realistic. The normative activity of the peoplegold mining in Gumelar area is illegal because it does not have permission. Therefore, the prohibition of the miners to do their activities has also been done. Even according to the village head Cihonje who received the letter more than once he received. This means that the local government at that time tried to carry out its function to enforce the law. However, the miners ignored the prohibition letter.

This is realized by the Regional Government of Banyumas Regency due to the constraints in the licensing process. Mining licensing process at least there are two possibilities namely; Permits as people's mining or Permits as modern mining. For people mining the requirement are:

- a. being on the river bank,
- b. the depth of the mine is not more than 25 meters,
- c. it has been mining for more than 15 years.

Gold mining in Gumelar does not meet the requirements of the people's mining agency (PMA) because; first; they are scattered in two villages relatively far from the river Tajum that passes through the area. Second; the depth of the existing mine in Gumelar, the majority of more than 25 meters is accumulative. If the depth of the vertical direction of the first stage may be below 25 meters, but if calculated with the next horizontal steps and vertical again, the majority more than that can even up to one hundred meters. Third; the existence of mining in Gumelar sub-district has not been 15 years, activities started from 2007 until 2017 this is only 9-10 years old. Thus, the expectation to obtain a permit as BPR is not eligible, because the area where the existing mining in Cihonje and Paningkaban villages is not classified as the People's Mining Agency (PMA).

To pursue the second possibility that the acquisition of permits for modern miners is actually very possible because the precondition is not the provisions of the people's mining. The applicable process is as permissions for other activities. The Environmental Impact Analysis(EIA) or Environmental Management Efforts / Environmental Monitoring Efforts requirements in accordance with the possible impacts will be a requirement. However, in the case of gold mining in Gumelar sub-district, investors who want to do mining do not exist. Actually, they ever do a study of the gold content in the area Gumelar. The grounds are less favorable if modern mining is done there. The results of that study are used by small-scale miners to be mined in traditional ways.

The local government mainly through the Office of Energy and Mineral Resources along with the Environment Agency is always trying to help gold mining activities to obtain permission from the government. The Energy and Mineral Resources Chairman stated that the requirements for obtaining permits must be Analysis of Environmental Impact (region) that cost hundreds of millions. Not to mention the process must also auction. This means that such requirements can be said to be impossible for traditional miners to take. Nevertheless, Banyumas local government keeps trying to help gold mining in Gumelar to obtain permission to become legal. Efforts are made to assist and facilitate the miners to make cooperatives. The minister has then formed a cooperative that is expected as a vehicle for interaction between fellow miners and the government. The existence of cooperative at that time quite exists in accordance with the expected.

The efforts of the local government of Banyumas Regency to help gold mining are actually quite serious both in order to obtain licensing and technical assistance. Forms of government assistance include;

- a. Local governments through ERM and EA have been trying to help obtain mining permits there but failed. In fact from the center often go down to the field take samples. It's already cross-ministries involved such as ERM, EA, Health, Agency for Assessment and Application of Technology (A3T) and Non-Government Organizations (NGOs) like Black Smith, NGO from Palangkaraya. Leading ERM to accommodate to legalize but constrained rules that are not possible.
- b. The local government formally prohibits gold mining activities in Gumelar.
- c. In real terms, the government conducts supervision and guidance. This is supported by (A3T) Jakarta which also intensively visits mining sites.
- d. The government informally nurtures so they can reduce the risks, especially the impact of mercury use.
- e. We have cooperated with NGO Black Smith from Palangkaraya who introduced the process of processing minerals without mercury, but with the media fibers. It's just that this way is less effective than using mercury so it has not been used until now.
- f. A3T has actually been working on alternative technology to reduce mercury use.

Head of Energy Resources and Mineral Banyumas told that A3T had for 1 month in Gumelar have introduced the technique applied in West Kalimantan. Gumelar has been given 2 sets of technical equipment such as those in West Kalimantan, but until now the equipment is not used. The equipment provided is that using a gravity system with the tray.

The inefficiency of the equipment provided by A3T to the miners was found to be ineffective in capturing the gold beans processed by the miners. Already familiar with mercury that is considered very effective to catch gold. Miners do not think far, the only practical thought. Why gravity technology is considered very environmentally friendly is not accepted by the miners. Apparently according to geologists from the University of General Soedirman who had been well aware of the types of rocks and mining materials in Gumelar stated that:

The use of mechanical technology can't be as successful as using a palm fiber for example or anything else. Because the gold character in Gumelar can't be captured mechanically, it is too small in size. The percentage is small /the content/grade/ton volume, 1 gram/ton/ppm. He merges with other elements that can't be separated physically. For example 1 ton of material there is 1 gram of gold. Like fishing net must be in accordance with the fish. Large fishnet also wear a large, small fish whose nets

are adjusted. Mechanical technology is only suitable for large gold content. Small gold content can only be caught with chemicals.

On the basis of such arguments should be the search for alternative technologies must be theoretically correct but also practically correct. This means that the middle path is not ecologically dangerous, but also economically profitable. Thus the policy that needs to be taken is that not only rely on one aspect only but the ecological, economic and social aspects into factors that can't be ignored.

## 2. The period after October 2, 2016

Since the enactment of Law Number 23, the Year 2014 on Regional Government that replaced the old Law Number 32 the Year 2004, which became effective on October 2, 2016, the authority in the mining sector was withdrawn to the provincial level. The centralistic directing authority made the ERM Department in the District to be withdrawn to the Province, while the provincial level was withdrawn to the Central level, so that, the District government only was given the authority of Spatial Plans (SP) and environmental permit. Therefore, the ERM Service in all districts/cities since the end of 2016 changed at the provincial level.

In implementing the program of ERM Service of Central Java Province divide its working area into 8 (eight) regions. Each region has established a hall. In Purwokerto there is a hall which is representative of ERM Central Java province. The existing hall in Banyumas Regency is the center of South Slamet Region which oversees 4 (four) districts of Banyumas, Purbalingga, Banjarnegara, and Cilacap regency. The hall is named CCSRERM which stands for the Center to Control Supervision Review of Energy Resources and Mineral.

The local government of Banyumas Regency responds to the existence of traditional gold mining in Gumelar sub-district is actually ambiguous. Banyumas Regent Ir. Achmad Husein states: that solving the gold mining problem in Gumelar is still a dilemma. On the one hand, local governments do not have the authority to grant licenses because mining licensing is the authority of the central government. Mining licensing provisions can only be granted by the Mining Ministry, along with the requirements for the management of a private professional company. District governments can only supervise. On the other hand, some private companies that have visited the mining area assess the mining area to assess the area can't be developed for mining business, because the gold content is not considered ideal enough to be developed. For that we are still a dilemma, so far we can only reprimand to the miners because we also can't give permission to the miners. The central government should directly intervene.

Along with the authority handled by the central government, CCSRERM and the Environment Agency of Banyumas Regency are waiting for more and accompanying monitoring, monitoring and even programs from the central government. The central government that often handles traditional gold mining is the Agency for Assessment and Application of Technology (A3T) of the Technology Center for Energy Resources and Mineral (TCERM) and the Ministry of Forestry and Environment (MFE).

The program being drafted by A3T and Ministry of Environment and Forest lately is an alternative gold mine processing technology that does not use mercury, as the mercury issue has been increasingly loudly voiced not only by the Indonesian government but by the world. Moreover, Indonesia also signed a Minamata Convention on mercury in 2013 in Kumamoto, Japan. The Convention aims to protect human health and environmental safety from emissions and release of mercury and mercury compounds caused by human activities.

The Minamata Convention regulates the procurement and trade of mercury and mercury compounds, including mercury mines, their use as additives in production products and processes, mercury management in Small-Scale Gold Mining (SSGM), emissions control and mercury release from industry to air, water and soil, stock storage of mercury reserves and mercury compounds as raw materials / additional production, mercury waste management and mercury-contaminated land, as well as international cooperation in the management of technical assistance, funding and information exchange.

On the basis of Indonesia's involvement in the Minamata Convention, Law No. 11 of 2017 on the Minamata Convention on Mercury (Legal Minamata Convention on Mercury) was adopted on September 20, 2017. When the positive law has been enacted, of course, the regulation shall be graduated by law enforcement officers. Law enforcement is sometimes ineffective if not accompanied by knowledge, insight, and awareness of the community, especially the people affected by the rule of law.

Actually, the central government has started to introduce the spirit of the Law on Minamata Convention, especially which seeks to eliminate the use of mercury by society let alone for the mining of the people. No matter what Minamata's convention signed in 2013 in Japan has not become a law in Indonesia, efforts to eliminate the use of mercury already exist. His efforts are like socializing about the dangers of mercury for human health, the searching and introduction of processing technologies without mercury, and even the discourse of reinjection of miners into other sectors. The chairman of the gold mining cooperative Bu Nuriya in Gumelar narrates that;

The socialization of mercury and its danger is no less. From Environment Agency and EMR have often socialized about it, at that time in the cooperative they play a movie about it. We have also been taken to the gold mining area in Banten, Pongkor west Java there we meet the former miners gold who have grandparents. They have seen the impact of mercury because there gold mining began since the 1960s. The former miners are his hands if he holds a shaking cigarette, it's the impact of mercury, tremors. They come into contact with using mercury for about 20 years.

The efforts made by the government seem to have not produced significant results because the miners are still mercifully using mercury as the main tool in mining. Even their understanding still thinks that mercury is not harmful to them. In addition, the government's efforts are also still not comprehensive. This means that efforts to eliminate mercury use only from one side while the other sides are not considered, example, on the trade side or mercury circulation remains unrestricted, where miners are still easily and cheaply to get mercury. Even mercury sales are so freely sold in stores that are not competent to sell chemical drugs.

The local government's role and policy of Banyumas Regency against illegal mining in GumelarBanyumas can be configured as follows.

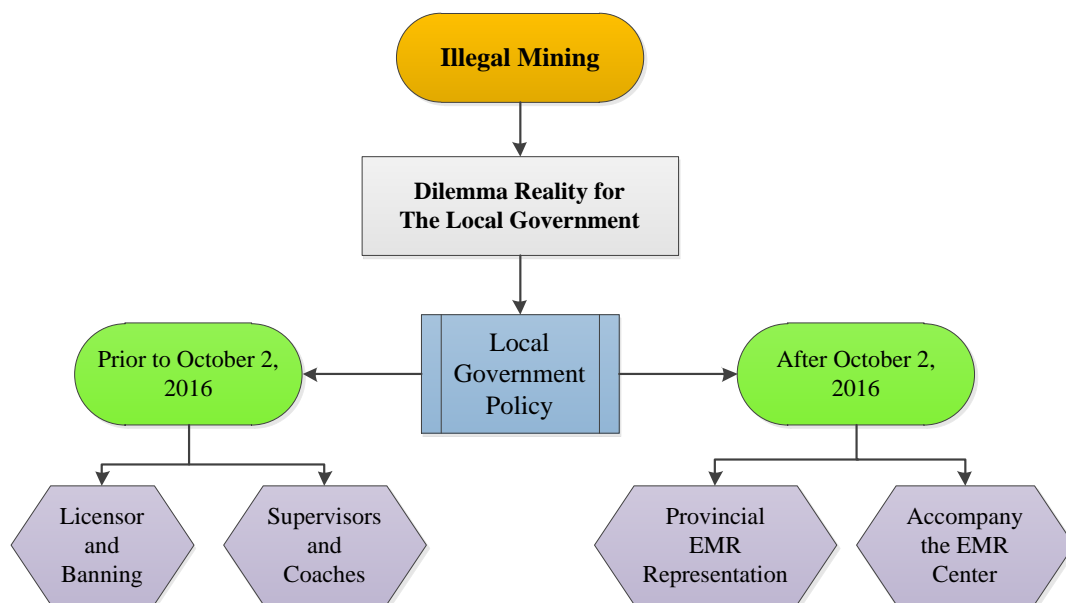


Fig. 2 Banyumas Local Government's Role and Policy

One interesting thing is that the Paningkaban Village Government whose territory is a gold mining location shows that it cares so much about environmental issues. This is indicated by the making of a Village Regulation concerning the environment. The objectives of the regulation (2017) are:

- Protecting village areas from environmental damage;
- Ensure the survival of living things and the preservation of ecosystems;
- Maintaining the preservation of environmental functions to achieve harmony, harmony and environmental balance;
- Ensure the fulfillment of the justice of current and future generations;
- Control the use of natural resources wisely.

Then in Article 7 there are also actual bans that clearly lead to gold mining. Here's the prohibition, that everyone is prohibited:

- Perform actions that cause environmental pollution and / or damage in the village area;
- Spread or use chemicals, toxic materials, explosives and electrical structures in public places with the aim of damaging the ecosystem of the environment;
- Throw garbage. Carcasses, toxic materials, hazardous materials, and water pollutants into rivers, rivers and waterways;
- Conduct business activities that cause environmental pollution before obtaining environmental permits from the competent agency; and
- Mining rocks and / or sand in the river.

The actions of Paningkaban Village made village regulations to protect their environment, in fact contrary to the policies of the government of the Republic of Indonesia. The central government through legislation on local government actually attracts the authority of the District Government to be the authority of the Provincial Government. This fact is an object that needs the attention of all parties that the government that has the most direct contact should be given the authority to manage, give permission, control and evaluate the activities of the people in their jurisdiction. Thus the merger will be more effective than the authority of being in the government that is too far from the location of mining activities by the people.

#### IV. CONCLUSION

Local Government of Banyumas Regency in facing gold mining activity in Gumelar Sub-district became a separate phenomenon. The existence of illegal gold mining becomes a form of vertical conflict between the people and local government. These conditions make the local government a dilemma that is in an ambiguous position between prohibiting and controlling it. Prohibited indeed should be because of illegal, controlled because the reality of the people remains determined not to stop. The existence of gold mining, on the one hand, can provide the welfare of the people but on the other hand is very risky for both the miners and the environment.

Finally, following the enactment of Law No. 23 of 2014 on local government, effectively effective since October 2016, it became clear the attitude of the local government. Before October 2, 2016, the Local Government of duplicity of gold mining activities that prohibit and control and even built. After October 2, 2016, the local government has become an extension of the provincial and central government. The central and provincial governments, especially the Energy and Mineral Resources Ministry and the Environment and Forestry Ministry are now thinking about the existence of illegal gold mining in Banyumas. Mining is not becoming more organized, but rather is becoming less controlled, and tends to be increasing wildly. A concrete example is illegal gold mining in Banyumas which continues to run with all the negative impacts following it.

#### REFERENCES

- [1] Abdul, W.S., 2008. Policy Analysis: From Formulation to State Policy Implementation, Second Edition, Earth Script, Jakarta.
- [2] Abidin, S.Z., 2012. Public Policy, Salemba Humanika, Jakarta.
- [3] Abraham, K., 2006, Sustainability and Gold Mining in The Developing World, Journal of Cleaner Production 14: pp. 315-323.
- [4] Adwani, E.H., 2014. Government Policy of Aceh Jaya, Gold Mining Case Study in Krueng Sabee Sub-district, Faculty of Social and Political Sciences, Syiah Kuala University, Aceh.
- [5] Agustino, L., 2008. Fundamentals of Public Policy, Alfabeta, Bandung.
- [6] ESDM, Banyumas, 2015. Small Scale Gold Mining Condition In Banyumas', in an Environmentally Friendly Mining Workshop in Indonesia, BPPT -PTSDM, December 2nd, Purwokerto.
- [7] Gill, B., 200. Opportunities for Environmental Management in the Mining Sector in Asia, The Journal of Environment & Development Volume 15 Number 2, pp.224-235.
- [8] Hartowibowo, A., Hadi S.P., Purnaweni, H., 2017. The Physical and Social Impacts of Mining Policies on Environments In Bantarbolang Sub-District of Pemalang Regency, Indonesia Asian Journal of Microbiology, Biotechnology & Environmental Sciences Paper Vol 19, Issue 4, 2017; pp. 806-811.
- [9] Hutamadi, R. and Mulyana, 2016. Evaluation of Resources and Mineral Reserves For Small Scale Mining In Banyumas, [online] [http://psdg.bgl.esdm.go.id/index.php?option=com\\_content&id=444&Itemid=449](http://psdg.bgl.esdm.go.id/index.php?option=com_content&id=444&Itemid=449). [accessed August 6, 2016].
- [10] Irna F., Ismadi, Dewi H.S., 2010. Gold Mining Without Permission, Public Health. Andalas University. Padang.
- [11] Meilantina, 2006. Integration of Land Use Rights of Dayak Communities In the Spatial Plan of Regency, Center for International Forestry Research (CIFOR), Bogor.
- [12] Miles, B.M., Huberman, M. and Saldana, J., 2014. Qualitative Data Analysis: A Methods Sourcebook. Third Edition Copyright SAGE Publications, Inc., Washington.
- [13] Minerals Miner, 2013. Eco-Friendly Gold Processing, April 17, 2013 edition, Jakarta, <http://www.tambang-penambang-emas>, [accessed on April 15, 2015].
- [14] Muslihudin, M., Bambang, AN., Hendarto, E. and Putranto, TT., 2018, The Process of People Gold Mining in Paningkaban Village Banyumas Indonesia, E3S Web of Conferences 31, 09003
- [15] Muslihudin, M., Rosyadi, S., Santoso, J., 2019, Sustainable Traditional Gold-Mining Management in Banyumas Central Java Indonesia, International Journal of Conservation Science, Volume 10 issue 1, pp.147-156

- [16] Muslihudin, M., Siswandi S., Iqbal, A., and Bahtiar, RA., 2019, Zone Engineering of People's Mining Areas as a Limitation on Environmental Destruction in Banyumas Indonesia, *International Journal of Mechanical Engineering and Technology*, Volume 10, Issue 06, June 2019, pp. 278-284
- [17] Nuraina, 2012. Gold Mining People's Management Policy Viewed from the Sustainability Aspects of Natural Resources and Environment in Aceh Province, paper Seminar on Environmental Health, Bali.
- [18] Refles, 2012. Gold Mining People's Activities and Its Implications to Socio-Economic Conditions of People in Kenagarian Mundam Sakti Sub-district Nagari, Sijunjung District, Andalas University.
- [19] Shefa, S., Marcello M. and Veiga, 2010. The myth of alternative livelihoods: artisanal mining, gold, and poverty, *International Journal of Environment and Pollution (IJEP)*, 41: 3.
- [20] The Republic of Indonesia, 2014. Law No. 23 on Regional Government, Ministry of State Secretariat, Jakarta.
- [21] Republic of Indonesia, Paningkaban Village Regulation Number 02 of 2017 concerning Environmental Conservation, Banyumas.