

MANAGING THE PROBLEMS OF ARTISANAL AND SMALL-SCALE GOLD MINING AT SEKOTONG AREA, WEST LOMBOK

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ABSTRACT

Artisanal and small-scale mining of gold at Sekotong area, West Lombok is conducted illegally. This gold mining is one of the examples of the mining in this country that retains the issue root of social, economic and cultural community. This paper tries to assess the issue and its solution based on the survey result of the current issues team from the R&D Centre of Mineral and Coal Technology.

Based on the assessment relating to the policy of regional spatial plan, the gold potential in the area should be allocated partly for the artisanal and small-scale mining (WPR) in accordance with Law Number 4 Year 2009. In the earlier growth, the mining needs guidance, education and training in either capital aspect, business or mining technique. That is why, the role of the regional government is absolutely required.

Keywords: management, artisanal and small-scale mining, gold, regional spatial plan

INTRODUCTION

Issues of artisanal and small-scale gold mining at Sekotong area, West Lombok become a dilemma for both Sekotong community and the regional government of West Lombok. Artisanal and small-scale gold mining concerns to their basic necessities of life. On the other hand, the mining is illegal as the activity is conducted without a legal permit. Nearly 1.4 million tons of potential gold deposits in the region are potential asset that attraction the miners.

In order to assist regional government to manage illegal mining at Kedaro, Pelangan and Mas Buwun, Sekotong District, West Lombok, this paper tries to find the root of these issues in order to formulate the solutions.

METHODOLOGY

This paper was appointed from the results of the survey carried out by Yunianto et al. (2009). Methodological approach applied is multidisciplinary with a major discipline of mining policy. Survey data are in the form of primary data directly from the field and secondary data were obtained from related offices at West Lombok Regency level, such as the Office of Public Works, Mining and Energy, regional government offices, Office of the Environment, and the Central Agency of Statistics or Badan Pusat Statistik (BPS). Primary data were derived direct interviews with the government (offices and related offices) and the miners at the site, while secondary data were obtainment from area data such as population, economic, spatial, and regional policy.

Processing and analysis the data were conducted by categorization, tabulation and comparison to support logical deduction analysis. Causal analysis was used to sort the source of the major problems-out, that will produce solutions based on state laws, from both national and regional regulations.

CONDITION OF THE GOLD MINES

Location

Geographically, West Lombok Regency lies between 115°46' -116°28' East Longitude and 8°12' -8°55' South Latitude. In the north is the region boundary the Java Sea and in the south is Indian Ocean. In the west, it is bounded by the Strait of Lombok and in the east is Central and East Lombok Regencies. This regency consists of 10 districts with an area of 862,62 km². The number of population in 2005 were 743,484 people and in 2008 rose to 814,071 people, but in 2009 decreased to 612,976 people due to the release of the region expansion in 2009 from 15 districts to 10 districts. The population at Sekotong District where artisanal mining operated in 2009 amounted to 52,379 inhabitants with a population density of 157 inhabitants per km² (BPS West Lombok regency, 2010).

Gold mining activities in the region growth fast in the first quarter of 2008 with the increasing number of miners came from outside West Lombok such as Java (Sukabumi, Tasikmalaya) and from around West Lombok (Sumbawa, Dompu). Many miners also came from Kalimantan. At present, composition between local miners and settlers reached the ratio of 4: 1. The data from Pelangan Village until the beginning of April 2009 shows that the number of migrants from outside Sekotong work in gold mining up to 348 people, not including illegal or unregistered migrants.

Thousands miners were scattered at several mining locations in resident properties or protected forest. Current government was overwhelmed to make the ban on such activities, although they already issued a decree to ban the activities on July 1, 2008. The banning of mining activities is for the reason that those mining are contrary to the local regulations and also endangering the miners, damaging the environment and endangering the health, due to the use of mercury.

However, the (fixed) closure plan of gold mining is not fully approved by the Provincial Legislative Council. West Lombok as the government cannot simply close the mining activities. They have to consider the positive side, namely the mining activities provide enormous benefits for society. Plan to creating the name should be followed up by alternative propesional for the miners.

Based on its characteristics, this district is divided into three areas of development, namely the northern part is dominated by mountains and hills with dry climate, the central part is dominated by lowland (technical irrigation fields) and the southern part is dominated by hills with mild climate and surface sources and underground water sources. Map of potential metallic mineral and Mining Authority can be seen in Figures 1 and 2.

Illegal gold mining at West Lombok occurs in three places that are located in two villages namely: Bumun Mas Village (Figure 3).

- 1) Kayu Putih Mountain at Pelangan Village, Sekotong with in 115°56' 25.68" East Longitude and 08°46' 43.04" South Latitude. The mine is located on the hills, around 100 meters from Sekotong-Pelangan road;
- 2) Batu Montor Mountain at Kedaro Village, Sekotong. It includes in 115° 59' 48.05" East Longitude and 08°50' 50.30" South Latitude and lies on the hills with elevation of \pm 600 meters above sea level. The area is located in the middle of Kedaro-Sekotong region (\pm 600 meters from the Belongas-Pelangan road);
- 3) Podok Ganjar Mountain at Kedaro Village, Sekotong. The mine is in 115°58' 56.46" East Longitude and 08°51' 25.65" South Latitude and lies on the hills with an elevation of \pm 600 meters above sea level. The area is in the middle of Kedaro-Sekotong (\pm 200 meters from the Belongas-Pelangan road).

Another location is available at Bumun Mas village (Figure 3). Location of artisanal and small-scale gold mining was originally an investigation area of PT. Newmont Nusa Tenggara (PT. NNT) and then continued by PT. Indotan with Preliminary Investigation Permit (SIPP) No. 540/146A/TAMBEN/2002 dated on December 4, 2002 and issued by the Government of West Nusa Tenggara Province.

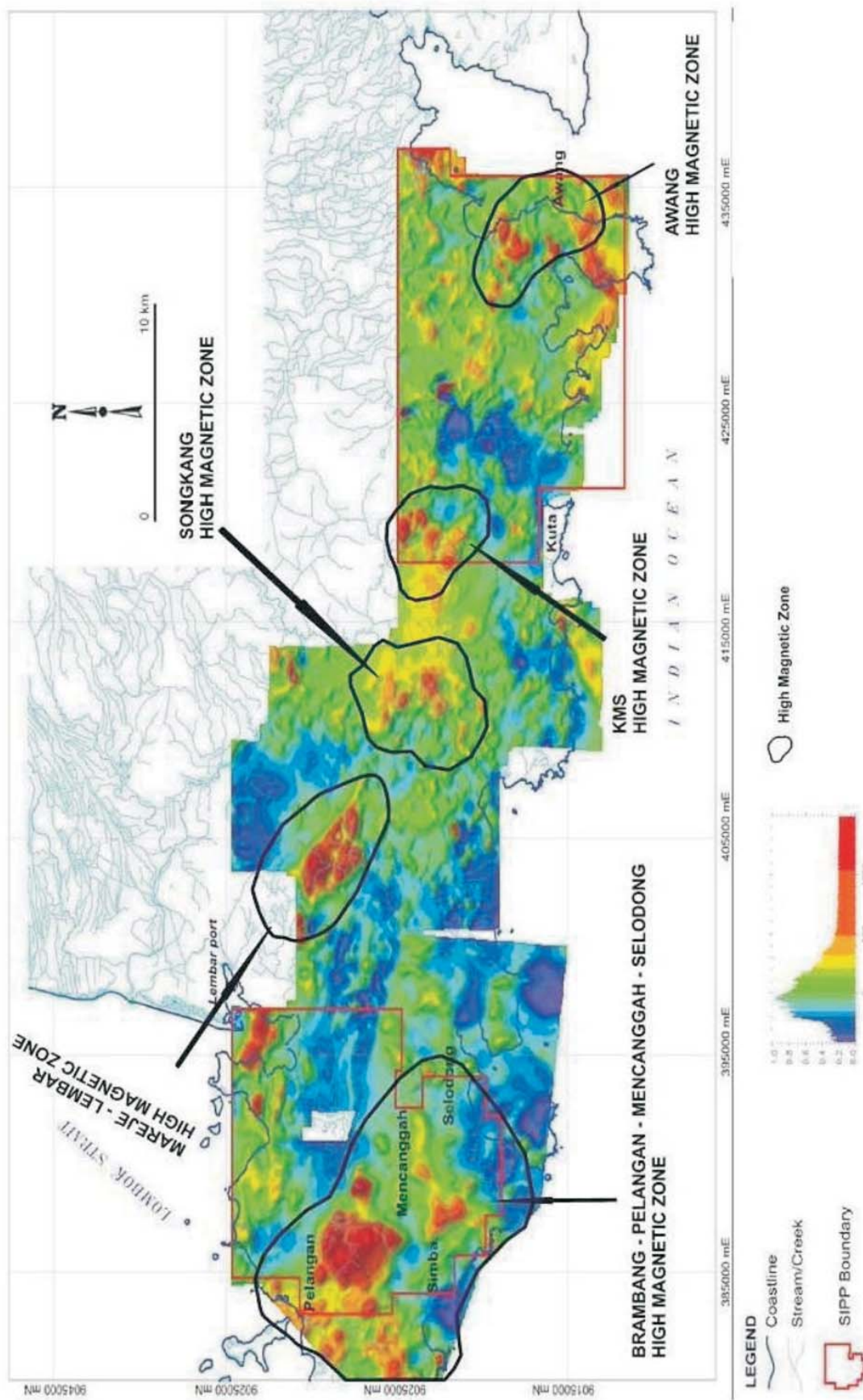


Figure 1. Potential map of metallic mineral at West Lombok Regency (Office of Public Works, Mining and Energy West Lombok Regency, 2009a)

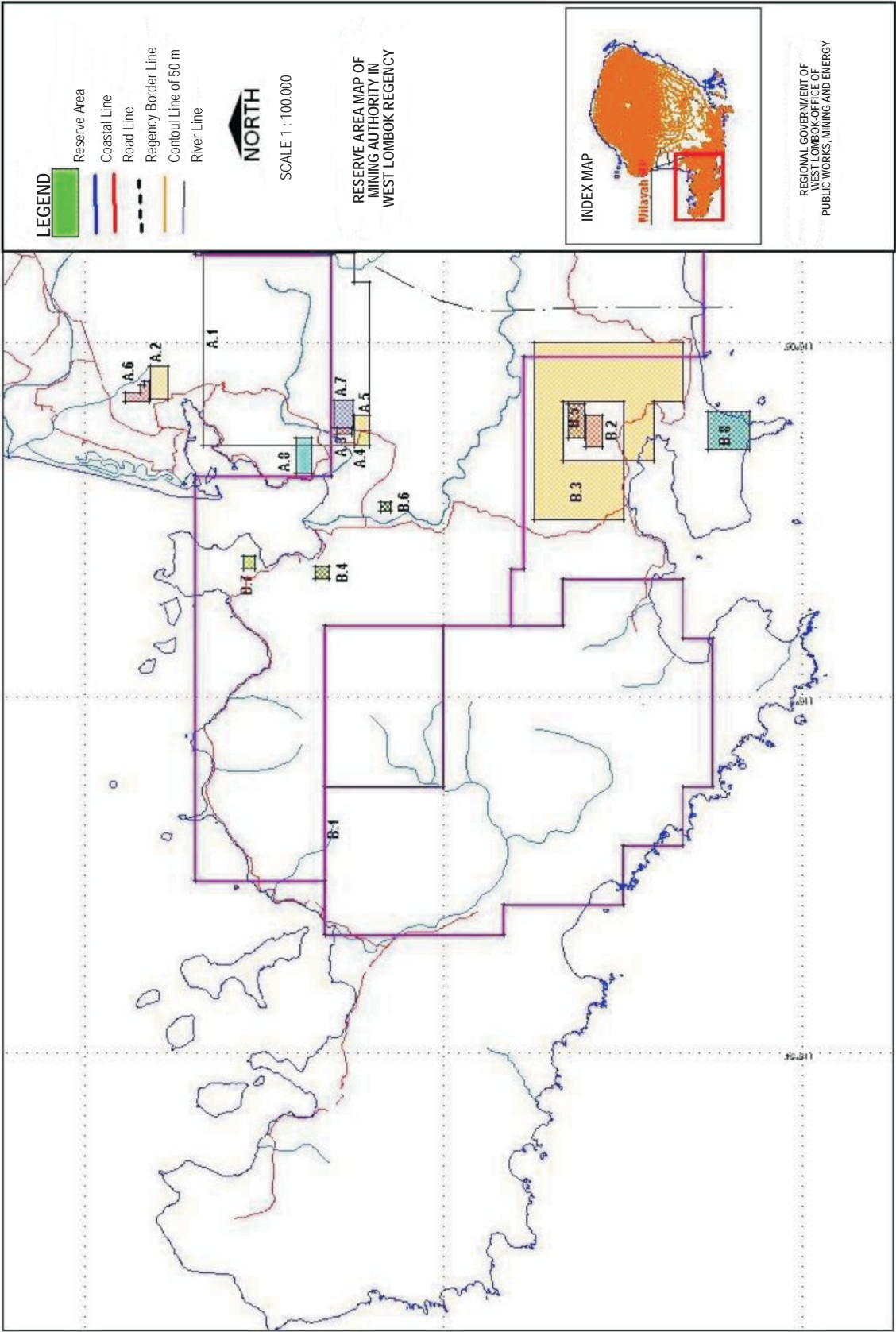


Figure 2. Mining authority map at West Lombok Regency (Office of Public Works, Mining and Energy West Lombok Regency, 2009b)

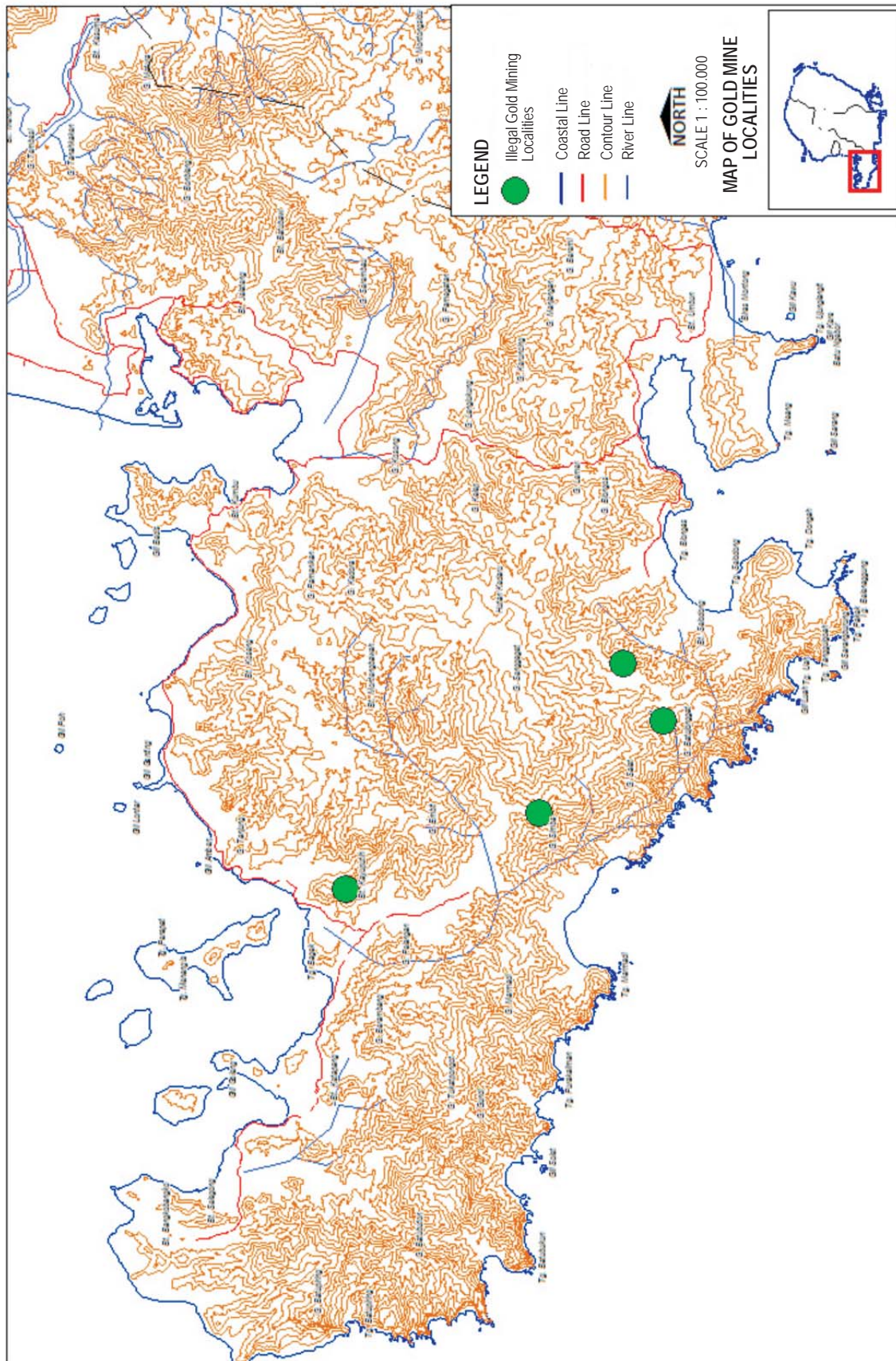


Figure 3. Illegal gold mining sites at West Lombok (Office of Public Works, Mining and Energy West Lombok Regency, 2009c)

Total operation area at PT. NTT covers 58,483 ha (Figure 4) which is then continued by PT. Indotan for Pelangan, Mencanggah and Selodong (Office of Public Works, Mining and Energy of West Lombok, 2009d). Its Preliminary Investigation Permit (SIPP) stands on June 25, 2005 and ending on February 16, 2006. Such a permission does not grant an extension. Based on the existing data from the exploration that has been conducted by PT. Indotan, it is indicated that the area contains 1.0 to 71 g/ton Au and 2-217 g/ton Ag.

Illegal gold mining activities at Sekotong occurs due to the implications of the extension and improvement of KP and SIPP licences that cannot be excluded since the enactment of NTB Regional Regulation Number 11 Year 2006 on NTB Spatial Planning. The policy causes legal uncertainty in mining sector, especially in West Lombok Regency. These conditions lead to the emergence of illegal gold mining activities by the people who used to be licensed-company workers, but then experienced layoffs. Layoffs are imposed since permissions cannot be extended as it has to wait for the renegotiation results of regional spatial policy.

Illegal gold mining worker at three locations at Sekotong is estimated about 4,000 people. They

come from various areas, such as Sekotong and other areas in West Lombok Regency; Sekarbela and Kamasan and other areas in Mataram; Pringgarata, Praya and other areas in Central Lombok Regency, East Lombok, Sumbawa, Java, Sulawesi and Kalimantan. Their activity includes field excavation, transportation, funders and brokers, as well as the business of transporting mineral to the processing location.

Mining

Artisanal and small-scale gold mining in Sekotong area is a subsurface mine, in contrast to such placer gold mine in Bombana (Hadi, 2009). Subsurface mines typologically do not have much difference from the gold mines in other regions in Indonesia. However, it is different with placer gold mines on the surface that have a lot typology (Augustine, 2009). Regarding the impact of environmental damage, subsurface mines do not cover an impact area as much as the gold mining on the surface that always move when the results are diminishing.

Based on the data from Yunianto et al. (2009), artisanal mining begins with making shafts to reach the gold-containing veins. After reaching the veins gold, it was continued with tunnel making,



Figure 4. Gold mining areas at Kayu Putih Mountain, West Lombok

following vein direction. Dimension of the opening hole is around 80 to 90 cm and its depth from several to more than 20 meters (Figure 5). The excavated veins was then withdrawn (winding) to the top using a bucket and rope.

To maintain shaft stability, some miners use wood or bamboo. Experienced miners automatically recognize whether hole needs a support. Natural ventilation and blower are employed for ventilation system shile flashlight and other electric equipment are need during excavation. As no coordination among the groups of miners, the distance of shaft between one group to another sometimes is too close (less than 15 meters). They will meet at a certain level result in potentially leading a conflict among them. Lack of knowledge and less experience among the miners will also cause a mine accident.

Processing

Processing the gold-containing ore is conducted by amalgamation in a trommel that retains dimension 60-8- cm in length, 25-40 cm diameter. The trommel is normally located near resident settlement and each prcessing unit has 4-9 trommels,

that are moved by a diesel motor.

Rocks-containing gold were crushed by a hammer until 1-2 cm in size. After washing the ore to clean the impurities, it was placed in a trommel (about 10 kg) that containing the amount of three iron rod as a grinding media and mercury (100-500 g even more). The ball-mill was then rotated for 3-5 hours. After removing the mud, the new rock were added (Figure 6).

Pulp from amalgamation process is filtered using a cloth and squeezed to get the amalgam. The amalgam is then burned at 400°C in the open air to evaporate the mercury to obtain the bullion, a metal alloy of gold (Au) and silver (Ag). Bullion is what ultimately sold to a gold merchant. Amalgamation with ball-mill will be able to extract gold about 60%. The rest of the gold in tailings can be traded to be further processed to take the gold content. Based on data from Pelangan Village until April 6th, 2009, the number of trommel owners reached to 77 people with a capacity of 3,130 m³. The number of trommel and the owner increase from time to time. It expected to reach 5% per month.



Figure 5. A shaft as a mine mouth



Figure 6. The processing of gold by using ball-mill at Sekotong, West Lombok

RESULTS AND DISCUSSION

Result

There are two options regarding the issue of illegal gold mines at Sekotong District (Office of Public Works, Mining and Energy, 2009c). The first option is closing the illegal gold mines permanently with all the consequences and the second is legalizing the mine.

If the mines is closed, then:

- 1) There will be very complex social problems related to the culture of the people that have been formed at this time;
- 2) The transfer of occupations from miner to other occupation is not simple and easy;
- 3) There needs to be an intensive supervision and control of post-closure;
- 4) Security will be prone to post-closure; due to economic conditions which will certainly be worse.

If the mines is legalized, then:

- 1) The occurrence of conflict of interest with those who have legally authorized permission;
- 2) Damage and environmental pollution is difficult to control, because of the limitations of technology and capital of the miners;
- 3) Development problems of the technical aspects of mining and processing will be more difficult and require supervision and constant monitoring;
- 4) Reduction in the number of Indonesian labour and urbanization (submission of passport reduced from 250 to 4-50 people per day);

Artisanal mining is predicted to make the welfare of the community will be less evenly and thoroughly and will occur social envy. This results in social conditions surround mine site are relatively sensitive and have a tendency to erase the value of tolerance and awareness for others. Thus, the potential for clash between them and the community around the site is relatively large.

Discussion

Artisanal mining at Sekotong involves many labour as many as 4 thousand people. This does not include indirect labour in it. The mine brings prosperity to the community. Therefore, the artisanal mining in this area needs to be managed by a proper artisanal mining system, with regulation or legalization. Mine Cessation without proper solutions will cause a serious vulnerability to the community.

An article in Kompasiana (April 15th, 2011) is appropriate to be used as a starting point to reconsider the role of artisanal mining in the development of this country. Artisanal mining has a large risk in mining activities. Nevertheless, it does not change the location of mining, mines always attract many miners throughout the country. They do not care about risks such as of the rock collapse, poisonous gas and criminality.

There is no counseling to improve the safety standards or the organization of artisanal mining to be more orderly except prohibitions by the authorities. However, the benefit of this artisanal mining

can be more perceived directly by the people, even if the obtaining gold is only a few grams. Open-pit mining by the company that transforms the mountain into crater, is still not able to change the situation of this country, where people can feel the advantages of natural resources in this country. This is evidence that the equity division of profits made by mining companies merely has to be questioned.

Law No.4 Year 2009 has implicitly given absolute authority to the local district or city to manage the artisanal mining. Artisanal mining management authority is shown in Article 20 to 26 on the Artisanal Mining Area (WPR) and Article 66 to 73 on the Artisanal Mining Permit (IPR). Governmental Regulation No. 23 Year 2010 as a guide for the implementation of Law No. 4 Year 2009, in Article 47 and 48, regulates the artisanal mining. Article 47 of the IPR is given by the regent or mayor and is provided after the WPR is set. Each WPR can be issued in one or more IPRs. Meanwhile, Article 48 which regulates each artisanal mining business can be conducted when the mine has the IPR and fulfils technical requirements, administrative and financial. The management of mining in West Lombok Regency, particularly in the Mining Area Zone (ZWT) should be established in an effort to make the mining business efficient and succesful order to support the arrangement of the region and sustainable expansion of economic and development, the basic concept of the Mining District of West Lombok, the Office of Public Works, Mining and Energy, West Lombok, 2009b).

The policy of the public mining management at the district becomes strategic and important consideration regarding factual environmental conditions in the development region supported by the potential of mineral resources in a large number (Office of Public Works, Mining and Energy West Lombok, 2009e). Mining management should provide benefits for a better welfare to the community and regional development with the principles of good mining practices, sustainable and environmentally friendly.

According to Pria (2010), problems for the next regional government are the aspiration to regulate artisanal mining policy. Such an aspiration should be able to actualize justice, order, and benefits for the miners. As a result social welfare may increase. However, the responsibility of regional government is not easy, especially for associated regional work units. Among the responsibilities

of the local government are safety and health, environmental management and post-mining. Regional government should also conduct training and supervision in the field regarding work safety and health, environmental, technical, mining and management as well as provide capital assistance.

There are four important aspects in managing artisanal mining, namely: policy, funding, institutional/organizational, also technological and environmental (Zulkarnain et al., 2008). As the owner of the artisanal mining authority, West Lombok Regency needs to be concerned about those four aspects. Determination of policies needed to regulate and manage the upstream (upper) to the downstream (lower) of the artisanal mining. Capital aspects are the objective to eliminate the dependency of artisanal miners towards the brokers, in order to be able to make its business sustainable and secure. Artisanal mining is accommodated by local organization that developed in the area. It is not necessary to cope with the cooperative. The important aspect is that the management can be inherent with the local culture. While the technological aspects and environmental matters have to adjust to the level of competence and ability of miners. Therefor from the process of mining activities to the processing print of view, the miners can gradually develop their appropriate skills. In its development, the artisanal mining needs supervision, education and training from the local government through the relevant technical department.

Gold mine at Sekotong should not be closed but the mining should be made in ideal regulation or rule interms of providing welfare to the community and regional governments. The Maluku Regional People's Representatives Council's opinion (ABC News, 2012) states that the people should be given the opportunity. The investors are important but they are only required for transferring capital and technology. Overall activities should be handled by the artisanal miners themselves. Meanwhile, Susanto (2009) emphasizes the role of the state to put forward the meaning of controlled by the State in Article 33 of The 1945 Constitution; (1) The rights (of the State) should be seen as the antithesis of domains principle that authorizes the State to perform acts of ownership contrary to belonging principle according to customs. The right of possession is based on the principle of communal and the authority is merely a regulator; (2) The right to control by the State should be in

accordance with the aim to maximize prosperity for the people. The State must give proper rights to the people who significantly have a good purpose to make use of the land.

Fadillah (2011) states there the artisanal mine has a big role to raise the degree of the people's economic in the district. They could be the miners themselves, processors, or even the seller of the commodity. Land-related issues in the development of artisanal mining are very important. According to Spiegel and Hoeung (2011), government policies are necessary to allocate the land for artisanal mining. The people will have an access to the mine site and conflicts between miners and the mining company within the area will be minimized.

Understanding the social, economic and environmental aspects of the artisanal mining is a fundamental factor to the government, private sector, the operating mining company and researchers in order to be able to contribute to solve the complex issues positively. The complex issues consists of a variety of economic and social background even gender. According Eftimie et al. (2012), it is required a design that comprises analysis framework and instruction modules as the instrument guide to understand the gender issues that are very sensitive in artisanal mining activities.

The issues regarding Regional Spatial Plan of NTB do not allow any metallic mineral mining in Lombok. However, such a regulation is aimed to large-scale mining. The artisanal mining at Sekotong should be legalized and continue to perform its mining with some provisions that must be fulfilled. This is in consistent with the plan of the district government plan that will set Sekotong area that was originally intended for tourism but the revised and for gold mining activities. Sekotong area will be composed of two zones, namely artisanal mining zone and mining zones with the use of public mining technology plan of gold mining in West Lombok Regency (Office of Public Works, Mining and Energy West Lombok, 2009f). By conducting the arrangement, about 9,000 hectares of the zone will be provided for the artisanal mining and about 7,000 acres for public mining. At present, regional government still waits the revision the of Local Regulation (Perda) number 11 Year 2006 on Regional Spatial Plan, which became the basis legal ban on mining in the region. This is in accordance with the mandate of Law No. 4 Year 2009 on Mineral and

Coal Mining that all areas which have reserves of mining resources would be defined as the mining area (WP). For this reason, it needs to be taken steps as follow:

- 1) Determination of Artisanal Mining Area (WPR). WPR is a region for a particular commodity with an area of 25 hectares;
- 2) Miners who already have a mining permits certificate were gathered in village cooperatives system (KUD). The cooperative serves to provide funds for mining operation. On the other hand, the miners sell their gold in the form of bullion to the cooperative. Thus, the miners can avoid the game price by brokers;
- 3) The cooperative can collaborate with the Cooperatives Agencies/UKM (Medium-Small Enterprise) in West Lombok Regency to provide the necessary funds;
- 4) To achieve good and proper mining practices, they need guidance, counseling and supervision by relevant agencies such a guidance relate to technical problems of mining, processing, environmental management and post-mining in order to secure the safety and health as well as to minimize the impact from mining and gold processing;
- 5) Tge study of the gold distribution, open pit mining and gold processing is needed in order to obtain the maximum results for the miners.

Artisanal mining management policy in West Lombok Regency became important and strategic of refers to the fact that the environmental conditions exist in the region are supported by the potential of sufficient mineral resources. Mining management should also provide benefits for a better welfare of the community and regional development with the principles of good mining practices, sustainable and environmentally friendly.

CONCLUSION

Artisanal and small scale gold mining at Sekotong, arise an issue root of social and economic to the society in general. Managing the mine property based on existing regulation is required in artisanal mining system. The artisanal mining should be accommodated in the institutional form such as cooperatives with guidance, education and training in mining. The role of local government is necessary since the earlier growth to the development. Private sector or Regional Owned

Enterprises can take a role in venture capital, and product marketing.

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