

ORIGINAL ARTICLE

The Impacts of Gold Mining on the Farmer's Community

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ABSTRACT

This paper analyzes the impacts on a peasant community that occurred three years after the discovery of gold in Bombana District, South East Sulawesi, Indonesia. The mining activities indicated three significant types of impacts, namely social, economic and environment impacts which influenced the farmers and communities daily activities the area. The presence of the gold mines also changed the social structure of the farming society and affected their social interactions. There was a rise of local conflicts between the peasants and gold mining firms. It is expected that future studies should focus on factors contributing to conflict prevention and its solution due to potential gold mining activities in such area.

Key words: Social Impacts, economic impacts, environment impacts, peasant community, gold mining

Introduction

Impacts of mining have become an issue of public interest in the world because of its impacts on the local communities and the environment. The impacts of mining has been researched worldwide. Ogola *et al.* (2002) reported that the impact of tailing waste threatened health or even human life where the concentration of heavy metals, especially Hg, Pb and As are above acceptable levels. Lockie *et al.* (2009) investigated how impacts associated with one mine may vary over time due to changing economic and social conditions. It was found that the traditional coupling of local economic vitality and community development to the life cycle of resource projects—the resource community cycle—was mediated by labour recruitment and social infrastructure policies that reduced the emphasis on localised employment and investment strategies, and by the cumulative impacts of multiple mining projects within relative proximity to each other (Taylor *et al.*, 1995). The resource community cycle was accelerated. The impact of mining which caused the conflicts between mining companies with local communities has been reported by Kemp *et al.* (2011). The economic impact of mining activities on the local community has also been studied by Wilson (2004). In Indonesia, gold mining had caused some disparity, pollutions, and control of resources which lead to conflicts such as in Papua, West Nusa Tenggara and North Sulawesi.

The locus of this paper is gold area mining in Bombana District. The discovery of gold which was in mid-2008, there has been many changes occurred in society in many aspects such as social, economy, culture, politic and security. Ever since the opening of the mining site area, a lot of companies have been presence for the exploration and recently three companies have undergo production activities under local government permit. This activities brings forward multiplier effects on many aspects of life. Despite billions of money have been produced everyday out of Bombana for more than three years, the positive contribution on social economy development in the root level of local communities is almost unseen, especially the farmers who suffer from direct effect from the mining activities. The objective of this paper is therefore to overview the impacts of post-gold mining activities on the peasant community level four years after the discovery of gold in Bombana.

Social, Economic and Environmental Impacts of Mining Activities:

Mining industry has both the positive and negative impacts namely social, economic and environmental impacts. The impacts of mining has been investigated by several experts such as Armour (1990), Juslen (1995),

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Taylor *et al.* (1995), Momtaz (2005), Vanclay (2002), Sethi *et al.* (2011) and Hilson (2002). Vanclay (2002) revealed the importance of differentiating between social impacts and processes of social change. Many variables are measured in social impact assessment. Social impact assessment measure of social change will occur whether or not the impact of the situation. Furthermore, Armour (1990) classified three types of social impacts, namely (a) human way of life that is how they work, play, interact with each other in their everyday lives, (b) culture, which is shared beliefs, customs and values, and (c) the stability of the cohesion, stability, character, service and facilities. Vanclay (2002) had the opinion that the political system, environment, health, property and personal rights, concerns about the future of the community and their children. On the other hand, Juslen (1995) identified six general categories of social impacts such as the social impact standards that often fuss about the pollution and so on, psychosocial effects (such as community cohesion, social networks are disrupted), fear, the impact the assessment, the impact on state and private services, and the impact on mobility (transport, security and obstacles on the way).

The development of economics impacts by Bombana mining are very extensive. This is due to the amount of money generated from mining activities to make money becomes a symbol of social status in society as claimed by Simmel in Ritzer and Goodman (2009). In addition to the social and economic impacts, Hilson (2002) described the environmental impact on the case of gold mining in Ghana. He reported that the major problem caused by mining is the destruction of the environment by mercury pollution and soil degradation caused by mining waste production by five tons per year. Dredging using heavy equipment caused damage to the soil surface. This gave rise to the damage and pollution of the institutions of civil society representatives from the government and academic researchers called the Minerals Commission. Furthermore, the work of the collaboration between the university, the Environmental Protection Agency and government research technology is Cleaner Production (CP). This is an environmentally friendly technology to address contamination that can still protect the environment even if ongoing activities of the mining industry, especially in small industry. In addition, the government of Ghana entered into an environmental education and technology improvements. And this is one of the aspirations that gave birth to the absorption of the solution through the involvement of all elements.

In order to solve the mining impacts, each mining company should conduct a study on the impact of mining before exploration and production activities. In Indonesia, several studies like Social Impact Assessment (SIA) and Environmental Impact Assessment (EIA) are common and locally known as AMDAL. Although these studies do not guarantee the impacts of mining, it is really a priority for the company to implement such studies rather than just thinking about the money profits of mining. As an example, SIA studies have been carried out by mining companies in Queensland Coal Copabella Central Australia. According to Lockie *et al.* (2009), a SIA study was conducted in two distinct periods, namely in 2002-2003 and 2006-2007. The first study provides a reference point for the predictive assessment of resource extraction projects are proposed, while other elements are added by the second study describes how the mine-related impacts may vary from time to time due to changes in economic and social conditions. Highlights of this study was to secure the economic benefits (including employment of the public to guarantee their income) while keeping the erosion of social capital (the accumulative impact of the mine) so as to overcome the slump future through the mining sector.

The impact of mining on the Murray Darling Basin Australia had a negative impact to the farmers and local community around the catchment. The local agricultural industry are concerned about the coal mines that produce gas and can ruin the flow and water quality, damaging farmland threatens the livelihoods of farmers and rural industries. They are also worried about the treatment and disposal of salt produced during the process of coal seam gas extraction. The Committee acknowledges that although coal mining resulted in several benefits to society through the benefits of many production activities but also socially acceptable losses. To the committee issued several recommendations, among others, asked the government to support the study of the impact of mining and no further decisions in relation to mining and extractive industry license until the study is completed and released to the public. The Committee also recommends the Commonwealth Government to ensure the prevention of mining activities in the new mines in the Murray Darling Basin if the impact on water resources cannot be anticipated (The Senate, 2009).

Similar studies in Grasberg Mining Industry West Papua Indonesia and its effects had been reported by Sethi *et al.* (2011). Since its beginning in 1972, the Grasberg mine has become the largest mining venture FCX (Freeport-McMoRan Copper and Gold Company, Inc.). The Grasberg mine is the largest producer of gold in the world and second largest copper producer who also produces silver as a byproduct. Number of stones extracted through milling operations Freeport every day is about 250,000 tons, mostly into the tailings (waste land) are transported by rivers to the disposal area. Disposal of waste through the river has become the most controversial aspects of the operating Freeport. As of December 31st, 2009, the benefits are huge since its revenues totaled up to USD15,040,000,000. Freeport Inc. has to deal with issues of environmental degradation. In addition, these companies also have to deal with the human aspects of mining operations, which always involves a conflict between corporate interests and rights of indigenous peoples to land, water and air resources. Due to the company's negligence to sustain the economic, traditional culture and local values, the government instructed

the company to close down. Kemp *et al.* (2011) conducted a study which deals with conflicts between mining companies with the local community. Kemp saw that mining companies are always under pressure from local communities, civil society groups, NGOs, global institutions, social institutions funders, government agencies, and other stakeholders in the face of corporate and community conflict. They defined this as the interactions of a small opposition extend to violent conflict. They further concluded that global mining companies were charged into the causes of conflicts or aggravate apathy which is latent in the community. Conflicts motivated by economic or livelihood security; ownership of land, water access, environmental degradation; gender impact; impact on social cohesion and cultural beliefs; handling and claims about human rights violations and injustice, inequality in the distribution of dividends and risks; and development interests.

The social change as a social impacts is defined by Rogers *et al.* (1988). It is the process by which alterations occurs in the structure and function of society. He defined society as a collection of individuals and social groups that perform different functions and that work together in joint problems solving toward common goals. Furthermore, Lauer (1991) defined change as significant alteration of social structure. Where the meaning of social structure is "patterns on action and social interaction". In his definition, Moore included various amount on structure, namely norms, values and cultural phenomenon. He divided levels of analysis on social change as global, civilization, culture, society, community, institution, organization, interaction and individual. Meanwhile, Juslen (1995) in Vanclay (2002) considered that a universal list of social impacts that would suit every case was not possible but argued that a checklist would be useful, especially in scoping. He identified several general impact categories such as the 'standard' social impacts concerning noise level, pollution, psychosocial impacts (such as community cohesion, disruption of social networks), anticipatory fear, impacts of carrying out the assessment, impacts on state and private services and impacts on mobility (such as transportation, safety, obstacles).

Shock in Agriculture Sector:

The majority of the local community (peasant society) in Bombana District is dependent on farming and fishing activities while others are traders and government employees (PNS). Agricultural sector always contribute to the PAD of Bombana ever since it became a district in 2003. Before the discovery of gold, more than of 50% PAD come from this sector. Based on this potential, the local government mainly focused on the development of agricultural sector. However, there was a recent development of gold mining activities in the south east of Sulawesi probably to improve the economic sector of the peasant society in Bombana.

The farmers of Bombana suffered from a cultural shock as the result of gold discovery. Since June 2008, almost all of the peasant community abandoned their original main source of income such as farming, fishing, and trading. Some government employees, security officers and others opted for traditional gold mining resulting with a new mining social life. Basic requirement became hard to find and prices increasing over one hundred percent. Farmers no longer planted rice paddies which Bombana was the rice bowl of Sulawesi at one time before. This phenomenon is in line with what Gold's (1985) observed as cited in Rogers (1988) that new industry usually led to a new competition on local government.

Gold mining also shifts the ownership structure of the peasants' farms and plantations under the mining land. This situation is disturbing the local community because there is no clear rule or profit-sharing with landowners. For example, an owner of a garden area of 10 ha of land under the gold mine complained that although the land is a private property, it cannot be processed for entry into the territory that has obtained the IUP for exploration. This is common in Bombana and usually lead to conflicts. Based from the obtained data from *Jaringan Advokasi Tambang (JATAM)*, the case of 'seizure' of land by the miners occurs throughout Indonesia. Of these, at least 40% of productive land (paddy fields, orchards and fields) were converted to the mining sector. Almost 26,000 ha of the aquaculture land has being taken over mining.

Mining has also shifted agricultural labor into gold mining. Working in mining sector is a promise of faster money compared to farming which requires some duration from planting the seed to harvest. The condition made the head of district to issue a regulation that only locals with ID are permitted to perform the traditional mining. This policy increased the income of local government from the issuing of IDs and traditional mining license. An interview with some locals even revealed that there was a company that performed production even that the license from the Head of District was for exploration. The vast amount of mining activities, both traditionally and through mining companies resulted in the dried out and severe damage on river dam. Moreover traditional mining is conducted without performing the Analysis of Environment Impacts (AMDAL) in advance. Physically, there are holes to be seen on where a mining activities has conducted, small hills of mine's waste are scattered all over the mining area, while on farming areas nearby, there was almost no more paddy rice field, with dried up lands due to water shortage. The mining activities along the river course caused the waste to block the water and worsen the drying condition. The impact of mining especially traditional mining performed by sudden miner with no AMDAL consideration, low level of mining knowledge, resulted in the environmental pollution.

Land and water pollution and noise had become a major concern of local people especially farmers as the land owner who suffered from the direct impact. They were worried that the Buyat Bay's case and the tragedy of Minamata would reoccur here in Bombana. The Buyat case is the conflict between PT. Newmont Minahasa Raya (PT NMR) with local people due to mine waste pollution. According to the Indonesian Forum for Environment, every day PT NMR dispose of approximately 2,000 metric tons of mine waste into Buyat Bays. The impact of mining destroys marine life that became the backbone of the local community. While the Minamata tragedy is a strange disease that was discovered by Kumamoto Prefecture due to consumption of fish contaminated with methyl mercury dumped in Minamata Bay. Pollution impacts are felt for years after eating fish from Minamata Bay, even many people who are born carrying the disease. On the urge of local people and media and provincial government, the head of district decided to shut down and terminated all the traditional mining activities one year of its operation. This action triggered reactions of miners from outside of Bombana. They lost money because they had paid for local ID and mining license.

The gold mining had also shifted the structure of farming areas property into mine authority. The agrarian regulation that admit the land property of people become meaningless with the recent regulation with Lex Specialist that gives authority to local government (head of district) to issue IUP (Mining License) which often claimed local's land property. This condition worried local people for the absence of clear regulation regarding the share profit with the property owner. Industry activity like mining made a contribution to function shift of land included change the land structure which made the agriculture land became limited. The condition occur in whole the world in several last century. These trend was recorded by Latorre *et al.* (2001) which they developed a historical analysis of the relationships between human activities and the environment from the end of the Islamic period (16th century) until the 20th century, focusing especially on agriculture, mining and demography. The starting point is a sparsely populated territory, inhabited by Muslim peasant communities. Their agriculture was based on the irrigation of small areas and on a system of agroforestry. The results of their research shown that in AMDAL mining and the accompanying large consumption of wood, agricultural expansion, and a demographic explosion destroyed the forests and totally altered the ecosystems. It was discovered that the agricultural sector suffered shock as a result of gold mining is shown by the shift of farmers to miners, drought and damage on productif fields, pollution of soil and water mainly due to the traditional mining, and change on the ownership of property structure.

Social Structure and Interaction:

Structure is an organization of elements and the most important thing of a structure is the relation of those elements, instead of the elements itself (Wilson, 1983). The presence of the gold mine established a new structure within society of Bombana. The society structure before the gold mine consisted of landlord farmer, worker farmer, trader, PNS, TNI, POLRI and local elites (governmental officers and members of DPRD). While the new established structure is the Owners of Property within the Mine Fields, Mining Elites, big money (gold traders), local elites (governmental officers and members of DPRD), trader (basic needs, household, building materials) service providers (cars for rent, motorcycle, prostitution), farmer, PNS, TNI, POLRI. This newly formed structure affects the social interaction among societies. This shift of structure is a part of social changes caused by the presence of a new industry including mining written by Warren and Uphoff (1969) that the social change is directly related to new discoveries that lead to population migration or immigration, such as opening and exploitation of new resources and new enterprises. The discovery of gold in Bombana is the cause of migration into Bombana as well as the presence of mining companies which provides employment opportunities for the immigrants.

Interaction occurred by the existence of human beings within an area. Social interaction is a dynamic social relationships including among individuals, human groups, or between an individual and a group of human (Gillin and Gillin, 1954). An interaction can only occurred if there is a reaction from the interacted parties. According to Soekanto (2010) interaction process is based on factors of imitation, suggestion, identification, and sympathy which can function both separated and joined together. Interaction occurred when two conditions are met, namely (a) there is a social contact that can take place in three from which are between individuals, between individuals and group and among groups. Other than that, a contact can be both in direct and indirect form, (b) there is communication, which is someone gives meaning to other's attitude, feelings to convey. The interaction being discussed here is society, mining corporates and government as civil society.

The new established structure affected the social interaction where there are roles within it, values and norms. The role of farmer is shifted into miner or traders making the norms and values are also change. Money became highly valued. The status of people was judged from how much money they own. In fact, Ritzer and Goodman (2009) saw that monetary economic has reduced human's value into monetary expression, money also bring forward ignorance. This is relevant to the condition of people in Bombana that no longer care and less familiar one another with the presence of mine. Certain groups became richer. Social interaction only

occurred on necessity basis. Resiprositas in social interaction is no longer based on familiarity but more to certain importance.

The presence of gold attracted thousands of people from all over the place to Bombana in search for gold. Consequently, people of Bombana become very heterogen. Local people who originally close to each others, intensively interact became individual people, no longer care one another and interact on interest basis only. This condition is relevant to work done by Mayo (1962) where the developing industry is responsible for the high mobility of the workers from other places with their respective culture and therefore disturb local community culture.

In general there are three forms of interaction which are cooperation, conflict and differentiation. This was explained by Gillin and Gillin (1954) that forms of interaction as an associative process (accommodation, assimilation and acculturation) and dissociative processes (competition, conflict). Young and Mack (1959) divide the three forms of interactions, namely opposition, cooperation and differentiation. The form of interaction occurred on people in mining area of Bombana is differentiation, which means each individuals has right and obligation according to the age, sex and job. Obviously there are differences among land owner farmers and tenant farmers, food traders, service providers, government officials and others. On the organization level (mining companies or presence institution), the interactions are cooperation and competition. Cooperation could be seen on the interactions between the corporate and government (DPRD), which supported each other for their own cause. The cooperation between the society and organization was in the form of peasants being hired by the companies to work in their gold mines. However, there were less harmonic interactions observed where conflicts arise between them, especially the relationships between the society and companies regarding the authority of property and the form of Corporate Social Responsibility (CSR) for the locals. Besides, some other triggering factors arise such as disparity, profit and pollution leading to the needs of cooperative interaction among the three stakeholders (society, mining corporate and government). For that matter, it has been reported by the Australian Senate that the prevention of extractive activities in the new mining site at Murray Darling Basin must be stopped if the impact of gold mining on the spring had yet to be anticipated. In Ghana, Hilson (2002) explained that the major problem due to the destruction of the environment by mercury pollution and soil degradation caused by mining waste production by 5 tons per year. Under these conditions, the Ggovernment, university researchers and EPA (Environmental Protection Agency) forming minerals commission then do some research and found Cleaner Production (CP). It is an environmentally sound technologies to address contamination that can still protect the environment despite going on activities of the mining industry, especially in small industry. Furthermore, the unwanted interaction is that in the form of disosiatif (clash, conflict) like what happened in other mining areas such as Papua. Sethi et.al (2011) reported that the interaction between mining corporate and indigenous peoples in conflict caused by environmental degradation and mining industries, the impact of pollution on water resources, air and soil, firm control over the regulations, customary land tenure, treat the worker injustice, violations of human rights, bribery and corruption involving local officials and political leaders (HuMa, 2004)

Conclusion:

It can be concluded that the local farmers, community structure and agricultural sector in the study area suffered a shock in social, economic and environmental impacts from the gold mining activities. The shock is due to the shift of farmers becoming miners, drought and damage on agricultural fields, soil and water pollution and change on the ownership of property structure. The mines have also gave birth to a more complex new social structure, consisted of land owner on mining area, Mining Companies Elites, Traders With Big Capital (gold purchaser), Local Elite (government officials and members of DPRD) Traders (basic needs, household equipments, building materials), Service Providers (hotel, homestead, car rent, motorcycle, prostitution) Farmer, PNS, TNI, POLRI. These established companies have led to the social interaction amongst individuals within society, cooperation between mining companies and government, and competition among mining companies. Despite that there is cooperation between the mining companies and the local societies; it seems that there is also a tendency to the rise of conflicts between them. It is expected that future studies should be focused on factors contributing to conflict prevention and conflict solution.

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