



Modeling Community Empowerment and Development Around the Mining Area

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Abstract. Mining activities not only have an impact on the environment, but also on social life around the mining area. Houses damaged by bomb activity in mining areas are one example. Communities around the mining area are the most affected by the mining activities. Not only the impact of mining activities, but also the gaps that cause conflict between mining companies and communities around mining areas. Understanding of the relationship between mining company and communities around it, and also stakeholders involved need to be clearly known. That understanding is used to model how community empowerment and development around the mining area is built. The study uses a qualitative approach to model it. The causes of mining conflicts were collected to draw the mining conflicts mapping in Lampung Province. Observations and in-depth interviews were conducted with 17 research informants, 4 location observations, and two focus group discussions to model the suitable community empowerment and development for areas around the mining project. Related regulations were also analyzed as material to construct the model. The result found that the model shapes a loop diagram where it should be started from regulation as a legal standing and foundation. The next steps in the sequence are building community empowerment and development patterns/forms, implementing coordination, funding, object targeting, transparency and supervising, evaluation, sanctions and success promotion, and then it feeds back to regulation. This loop diagram as a community empowerment and development model can be used by government and mining companies to develop social aspects in the mining sector.

Keywords: Mining activities, Community empowerment and development, Modeling, Public policy.

1 Introduction

1.1 Background

Mining is like two sides of a coin, on the one hand mining commodities are a necessity, on the other hand some consequences that must be received as a result of the ex-

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A. Hidayat et al. (eds.), *Proceedings of the International Conference on Multidisciplinary Studies (ICoMSi 2023)*, Advances in Social Science, Education and Humanities Research 829,

https://doi.org/10.2991/978-2-38476-228-6_44

exploitation of mining materials in nature. Various forms of mining commodities are products that have primary benefits for the sustainability of human civilization. Various mining materials are in one vehicle called a car. Starting from iron that forms the frame to quartz sand that forms car windows, almost all of it comes from mining materials. However, in addition to the positive side of mining, the process of exploiting mining materials has a negative impact on several fronts, such as in the environmental and social sectors of society.

The impact of mining on the environmental sector cannot be denied that the process of exploiting mining materials has more or less an impact as well as impact on the social life of the community around the mine. Communities around the mine are the ones most affected by the mining process. This impact can also be viewed from two sides, it can be positive when the life of the community around the mine changes to become more prosperous, or it can become negative when the condition of the community becomes disrupted by the presence of the mine. The disrupted social conditions caused by the presence of mining have created a great potential for mining conflicts with the community, this is what needs to be anticipated from both sides of the coin in the mining sector.

Community empowerment around the mine is one of the concepts that can be used to maintain the social condition of the community around the mine so that it can sustainably run on both sides, both in the economic and social sectors of society. Regulation of the Minister of Energy and Mineral Resources (ESDM) Number 25 of 2018 describes the existence of communities who live and carry out their lives around mining business operations areas to be defined as communities around mines. Community empowerment is an effort to improve and implement development independently and better life by the community [1].

According to the regulation above, community development and empowerment in mineral and coal mining business activities can be interpreted as an effort to improve the standard of living of the community around the mine in all fields. Active community involvement in efforts to improve their lives also requires development in the sustainability of community empowerment efforts [1].

One of the goals of community empowerment around the mine is to anticipate conflicts due to mining in an area around mining. Several other objectives of community empowerment include improving life both economically, socially, institutionally, and environmentally for the better [1].

Empowerment of communities around the mine is very important and needs to be done, this is by the mandate of Law Number 4 of 2009 jo. Law Number 3 of 2020. The definition of mining based on Law Number 3 of 2020 is the business activity of mineral and coal mining, either in whole or in part until the mining activity ceases to operate. The community around the mine is a group/individual that has a direct impact on mining business activities. Some examples of impacts from mining activities include dust which is more concentrated and in greater quantities, damage to surrounding buildings, village infrastructure, and damaged agricultural crops.

Mining conflict is the impact of mining business activities. The issue of mining conflict is a common thing that occurs in Indonesia, including in Lampung Province. Based on records from the Indonesian Forum for the Environment (WALHI), there

were 16 mining cases in Lampung Province [2]. These mining cases are over various types of mining, namely sea sand mining, river sand mining, gold mining, coal mining, and stone mining. One of the mining conflicts that occurred in Lampung Province was the sea sand mining conflict in East Lampung. This conflict was sparked by the granting of mining permits, which continually reaped controversy and unrest among the local community, who work as fishermen. The existence of this mining causes environmental pollution, damages the fishing areas of coastal fishermen in East Lampung district and damages the ecosystem for crab cultivation and has the potential to sink Sekopong Island [3].

Empowerment of the community around the mine is an activity carried out by a business entity to improve the economy, education, socio-culture, health, and environment around the mine. Therefore, every business entity is obliged to carry out community empowerment. This is done to improve the economy, education, socio-culture, health, and environment of the communities around the mine.

However, community empowerment carried out by a business entity by the Regulation of the Minister of Energy and Mineral Resources has not been identified. Therefore, research and studies related to this matter need to be carried out so that each policy is conveyed truthfully and can be implemented optimally. Why is it necessary to empower the community around the mine? And how should it be done? This study will explore and discuss it.

1.2 Research Purpose

The aims of this research are: to identify the problem of empowering communities around mines in Lampung Province; Understand the pattern of community empowerment around the mine in Lampung Province; and analyse and design for empowering communities around mines in Lampung Province.

1.3 Literature Review

Sustainable Mining. Mining can contribute to sustainable development that is realized through sustainable principles of mining [4]. There are five principles of sustainable mining, including safety, environment, economy, efficiency and the community.

The following is an explanation of each of these principles:

1. Safety; Mining operations must prioritize safety. Characteristics of a safe mine include commitment to risk management, appropriate attitudes and behavior, reporting systems, education and training, and processes and equipment.
2. Economy; The goal of a mining business is to produce profits responsibly for as long as possible by keeping costs to a minimum while maximizing revenues. If mining companies integrate sustainable development into their operations, economic performance will improve in the form of lower labor costs; fewer labor disputes, and increased retention rates; lower health care costs; lower production

costs; lower regulatory burden; lower closing costs; lower borrowing costs; lower insurance costs; and better investor relations.

3. Resource efficiency; Mines must also be efficient in managing and extracting their resources. Efficiency also includes a management dimension at the mine site, as poor management decisions can often lead to production difficulties or damage to equipment or industrial relations or other factors that impact optimal resource extraction.
4. Environment; This dimension includes the concepts of ecosystem integrity and natural resource productivity.
5. Society (community); Mining companies, particularly those operating in developing countries, maintain their social license to operate under various initiatives, including preferential employment of local people; training and providing skills in business or providing assistance that will last after the mine closes and beyond.

Economic impact. Mining industry activities have impacts, both positive and negative. The positive of mining activities is that it contributes to increasing local revenue (PAD), opens up regional isolation, contributes to foreign exchange, opens up employment opportunities, procures goods and services for consumption and those related to production activities, and can provide infrastructure for the growth of other economic sectors [5].

Mine Reclamation. Mining activities generally have the following activity stages: exploration, extraction and disposal of rock waste, ore processing and processing plant operations, tailings storage, processing and disposal, infrastructure development, access roads and energy sources, and construction of work camps and residential areas [6].

One form of handling the negative impacts of mining activities is carrying out planned reclamation. What is meant by reclamation is any work aimed at repairing or restoring the original use of land damaged by mining efforts [7].

Post Mining. According to Law Number 3 of 2020 concerning Amendments to Law Number 4 of 2009 concerning Mineral and Coal Mining, Article 1 states that post-mining activities are "planned, systematic and continuing activities after the end of part or all of mining business activities to restore function. the natural environment and social functions according to local conditions throughout the mining area".

Power-Relation Theory. The theory was first proposed by Michel Foucault. Power is not understood as an ownership like property or position, but is understood as a strategy in society that involves diverse relationships. Power is not centered in one subject or institution, but is spread everywhere (omnipresent) in every social relationship. Power is not something that is achieved and then stopped, but is exercised in various relationships and continues to move [8].

Unequal power relations ultimately give rise to high-power and low-power conditions in society. Communities with low-power conditions have limited access to realize and develop themselves. According to Galtung, every individual has the right to self-realization and the right to develop themselves (personal growth). If these two types of rights are obstructed, or according to Galtung the individual cannot realize their potential, that is where violence occurs [9].

Community empowerment. Minister of Energy and Mineral Resources Regulation Number 41 of 2016 defines community development and empowerment (PPM) as "Efforts to encourage improvements in the economy, education, socio-culture, health and living environment of communities around the mine, both individually and collectively so that the standard of living communities around mines will become better and more independent," while according to Law Number 4 of 2009, community empowerment is "an effort to improve community capabilities, both individually and collectively, to improve their level of living."

Stages of community empowerment [1], including:

1. Preparation stage (engagement), field preparation is carried out in the form of a feasibility study on the area that will be used as a target for implementing empowerment.
2. The assessment stage is an activity to identify problems with active community involvement.
3. The planning stage is the stage of preparing plans carried out by officers and the community.
4. Action plan formulation stage. At this stage, officers help the group to formulate and determine programs to overcome problems and also write down short-term goals to be achieved.
5. Activity implementation stage (implementation). This stage is the most important stage.
6. The evaluation stage is the stage of supervision carried out by the community regarding the ongoing program.
7. The termination stage is the stage where the assistance carried out by the officer is terminated.

2 Method

Modeling community empowerment and development around the mining area as referred to in the title of this study requires a clear and directed methodology in realizing the research objectives. A qualitative approach with the method of observation and in-depth interviews was carried out to explore the primary data in this study [10].

The data collection method was carried out through purposive sampling, in which prospective informants/respondents were determined based on their knowledge/experience/authority related to this research topic or proposition, namely community empowerment around the mine.

The community empowerment around the andesite mine in this study is categorized into three elements. There are mining companies (as mining business actors), communities around the mining area, and village governments (as regulators level). These three elements are actors who have mutual interests in the process of organizing mining activities in an area. The data collection process was carried out through an open-ended questions pattern, namely questions with answers and questions that developed according to the informants [11].

Data analysis was carried out on qualitative data which had been processed to become research primary data which was categorized into corporate, community, and government elements. In-depth interview data in the form of voice recordings that have been obtained are processed to extract data related to community empowerment, community conditions, company conditions, government conditions, conflicts that occur, and other information that can become data for analysis and discussion. Several theories were explored and used in an effort to build a model for community empowerment around andesite mining. The formation of a community empowerment model is carried out based on theory which is used as a reference to become a research framework and primary data is obtained as material for the preparation of the model. For data accuracy, researchers applied a triangulation validation strategy.

Data was collected from March until December 2021 in 10 districts and 1 city in Lampung Province.

3 Analysis of Regulations

The first step before collecting primary data, this research was started from collecting all of the regulations that related to the research topic. It is divided into three topics, which are mining, community empowerment, and corporate social responsibility. It collected 23 government regulations that spread from national regulation until regional regulation. It inventoried 12 national regulations, 8 ministerial regulations, and 3 local government regulations in Lampung Province.

The purpose of this regulation analysis is to build a legal foundation for modeling community empowerment and development (CE&D) around the mining area. All articles that are written in the regulation are assessed and categorized. There are 5 categories that rise from that process, including: mining company obligations regarding CE&D, the role of the government regarding CE&D, definitions related to CE&D, substance of CE&D, and corporate social responsibility. Those 5 categories come from the article regulation extraction, which then become CE&D patterns from regulatory perspective. Each category contains key principles that arise from regulatory analysis. The output patterns of this regulation analysis are then used as a material for modeling CE&D around the mining area.

4 Mining Conflict

There are 158 minerals and coal mining companies registered by the Department of Energy and Mineral and Resources of Lampung Province in 2020, with 148 compa-

nies in full production operation, and 10 companies still in the exploration process. The research is trying to understand the mining conflict patterns in Lampung Province. An in-depth interview is conducted to research informants that are divided into three informant categories, which is mining company, village government, and local community surrounding the mining area. Data was collected from March until December 2021 in 10 districts and 1 city in Lampung Province. There are 58 research informants, where in detail there are 19 informants from mining company employees, 22 informants from village government officers, 17 informants from local communities around the mining area.

The data result found that most of the mining conflicts are caused by mining activity that impact the community. The following is a list of mining conflicts that arise based on the data that has been collected:

1. air pollution,
2. noise pollution,
3. mining waste damages the environment,
4. mining activities impact agriculture,
5. damage to residents' houses due to mining activities,
6. mining activities disrupt religious activities,
7. mining activities until late at night,
8. road infrastructure is damaged due to mining activities,
9. land conflict,
10. the company breaks promises/commitments,
11. environmental damage compensation has not been realized,
12. lack of use of local labor,
13. corporate ignorance,
14. there is no community empowerment program,
15. there is no corporate social responsibility,
16. mining legal permit problem,
17. lack of company response to the community,
18. the community is not involved in mining activities,
19. the community is not involved in mining supervision,
20. illegal levies and intimidation of mine workers,
21. road access closure,
22. security of transportation routes to mining areas,
23. crime against mining companies,
24. illegal mining.

Based on that mining conflict data, it can be categorized the causes of mining conflicts are as follows:

1. conflicts caused by mining activities that impact the environment and community (number 1, 2, 3, 4, 5, 6, 7, and 8),
2. conflict caused by unfulfilled company commitments (number 10 and 11),
3. conflicts caused by the lack of use of local labor (number 12),
4. corporate ignorance to the community (number 13 and 17),

5. there is no community empowerment program from the company (number 14, 15),
6. lack of community involvement and participation in the mining sector (number 18 and 19),
7. criminal acts aimed at mining companies (number 20, 21, 22, and 23),
8. land conflict (number 9), and
9. illegal mining and mining legal permit problem (number 16 and 24).

5 Community Empowerment Patterns

The search of community empowerment patterns conducted through observations, in-depth interview, and focus group discussion (FGD) process. There are 17 research informants and 4 observation locations in this process. FGD processes are conducted twice with the participants spread from government, company, and non-government organization. The search concluded that community empowerment, specifically in mining sector form patterns and should be done as follows:

1. the need of regulation and procedure for CE&D,
2. guidance, supervision, and evaluation in the CE&D process,
3. transparency in implementing the CE&D program,
4. CE&D funding,
5. developing the CE&D ecosystem,
6. CE&D object targeting,
7. prioritizing community needs and formulating the form of a CE&D program,
8. Communication to the community and community participation in CE&D.

6 Designing Community Empowerment and Development

The formulation of CE&D for the people around the mining area were arranged through analysis of theory, regulations, mining conflict, and community empowerment patterns. Compilation of those analyses form a design of CE&D around the mining area. This design was validated through the FGD process. The result of the whole processes generating a model of CE&D around the mining area as follow:

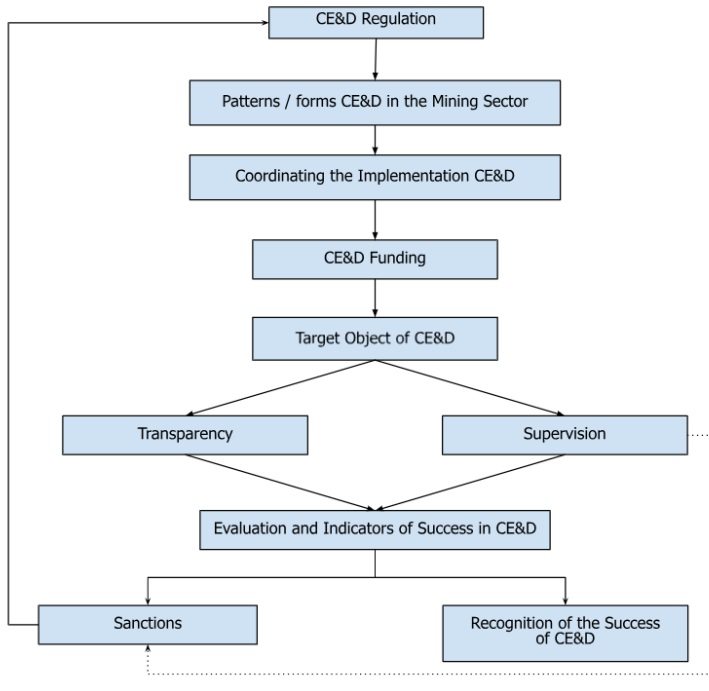


Fig. 1. Community empowerment and development model diagram

1. CE&D regulation

This begins with the action on establishment of regulations as a legal basis for the implementation of CE&D. Regulations must be formed as a basis for building a community empowerment and development ecosystem. The regulation can be in the form of a blueprint or master plan. Regulations can be formed by the government, from the scale of the central government or until village government.

2. Patterns/forms of CE&D in the mining sector

There are five patterns or ways of implementing CE&D for the community around the mining area: self-realization and development, infrastructure development, environmental, economic, and social development, access to resources, and concern for community.

Self-realization and development is a form of CE&D that emphasizes three kinds of how communities are developed: intellectual development, development of community resource potential, and community access to determine their choices.

Infrastructure development is a form of CE&D through the development of public infrastructure around the mining area. Environmental, economic, and social development: the example of environmental development like healthy sanitation, clean water supply, etc.; Social development like programs for community institutions, assistance

for the poor, etc.; Economic development for communities like giving an incubation for small business.

Access to resources is a principle of CE&D that should give access to resources, production, capital, opportunity, market, and knowledge for the community. Concern for community is a principle of CE&D where companies should have empathy and care for the community.

3. Coordinating the implementation CE&D

A coordination is needed after the patterns/forms of CE&D are decided. The urgency of this process is to communicate, involving community participation, and as media discussion between stakeholders.

4. CE&D funding

The funding for the CE&D program can originate from mining companies or from the government. The amount of CE&D budget allocation must be determined and increased every year.

5. Target object of CE&D

In determining the object of CE&D, it needs to set terms and conditions. Community needs to participate in determining which communities as a target object of CE&D. Community awareness and support is the key of CE&D program acceptance. Proportional development is realized through determining the radius of the CE&D program area. The closer to the mining area will get more priority the get the CE&D program.

6. Transparency and supervision

Transparency will improve the people's trust on the CE&D program. All the programs, processes, until the funding of CE&D need to be transparent and accessible.

A supervision on the implementation of CE&D also needed beside the transparency itself. The government, specifically which has authority in the mining sector, needs to supervise the whole CE&D processes. Not only from the official government, the supervision process can also be done through community involvement. Community or village governments also have a right to intervene in the supervision of the CE&D process.

7. Evaluation and indicators of success in CE&D

The evaluation of CE&D was conducted not only by the government, but also by the community, village government, and all of the stakeholders.

The evaluation results become indicators of success in CE&D. Institutional, business, income, environment, life, and community improvement, and also regional development are the key indicators of CE&D success.

8. Sanctions and recognition of the success of CE&D

Sanctions are the parts of CE&D regulation implementation. These sanctions should be added in the CE&D regulation articles. Evaluation and sanctions implementation result as feedback for CE&D regulation improvement.

Recognition of the success of CE&D is also important to build a trust from the community to the mining company. A publication of CE&D success by the mining company is an example of this success recognition.

This CE&D model creating a loop diagram which covers a holistic process on community empowerment and development around the mining area. It is found that there are eight key processes that need to be conducted, from building a regulation as the code of conduct until executing the sanctions. This CE&D model detailing the sustainable principles of mining [4], specific on community principle. Laurence, 2010 only mentioned that mining companies should has social license on the way they run a mining business. An example of social license is like the preferential employment of local people. This empty space on community principle as a part of sustainable mining is the state of the art of CE&D model. Umanailo, 2018 also strengthen the needs of integration of community empowerment in the structural and operational level [11].

CE&D model can reduce the gap of power relation because of the existence of regulation as the code of conduct, transparency, supervision, and also sanctions. This power sharing through transparency and supervision can decrease the absolute power.

7 Conclusions

The community empowerment and development (CE&D) model is the result of this research. The analysis of regulations, mining conflict exploration, and community empowerment patterns are the primary data of this research on the process of model arrangement. There are eight steps of the CE&D process in this model. Started from the CE&D regulation arrangement as a foundation, then ended with evaluation and sanctions for the mining company who do not implement CE&D around the mining area based on the regulation that has been legalize.

The CE&D model is a contribution of this research to the community and mining sector. Mining conflict, which is mostly caused by a conflict between mining company and community around the mining area, can be expected to be reduced through this CE&D model implementation. Community welfare and mining business sustainability are also expected be realized through this CE&D model.

References

1. Sudarmanto, E.: Konsep Dasar Pengabdian Kepada Masyarakat: Pembangunan dan Pemberdayaan. Yayasan Kita Menulis (2020).
2. Isworo, T.: Walhi Catat 16 Kasus Tambang di Lampung. Lampung Post. Retrieved December 28, 2022, from <https://m.lampost.co/berita-walhi-catat-16-kasus-tambang-bermasalah-di-lampung.html>, (2020).
3. Budisantoso.: Kontroversi penambangan pasir laut di Lampung Timur picu konflik. ANTARA NEWS. Retrieved December 28, 2022, from <https://www.antaranews.com/berita/1355662/kontroversi-penambangan-pasir-laut-di-lampung-timur-picu-konflik>, (2020).
4. Laurence, D.: Establishing a sustainable mining operation: an overview". *Journal of Cleaner Production*, 19, 278-284 (2010).
5. Mangkusubroto, K.: Mining Investment Policy in Indonesia. *Indonesia Mining Journal*, vol. 1(3) (1995).
6. Munir, M., & Setyowati, D. N.: Kajian Reklamasi Lahan Pasca Tambang Di Jambi, Bangka, Dan Kalimantan Selatan. *KLOROFIL: Jurnal Ilmu Biologi dan Terapan*, vol. 1(1). (2017).
7. Adi, A. N., Widodo, S., and Nurwaskito, A.: Analisis Reklamasi Tambang Batu Kapur Di Kecamatan Bungoro Kabupaten Pangkep Provinsi Sulawesi Selatan". *Jurnal Geomine*, vol. 5(2) (2017).
8. Bertens, K.: *Filsafat Barat Kontemporer* Prancis. Jakarta: Gramedia (2001).
9. Galtung, J.: *Studi Perdamaian: Perdamaian dan Konflik Pembangunan dan Peradaban*. Eureka: Surabaya (2003).
10. Saunders, M., & Lewis, P.: *Doing Research in Business & Management*. Pearson Education Limited (2012).
11. Umanailo M.C.B.: Integration of Community Empowerment Models", *Proceeding of Community Development*, vol. 2, pp. 268-277 (2018).

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