The empowerment strategy of communities around mining to response the environment change

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Abstract. The mining activities in Bombana regency create ecological, social, and economic changes in the community. The community empowerment program is one of the important factors to give a support for the community in responding the changes that occur around them. The study aimed to; (1) analyze the level of Community empowerment around mining in Bombana Regency; (2) analyzing the factors that influence the level of community empowerment around mining; (3) formulate the strategies for empowering the communities around mining. The research designed as survey research. The data was analyzed by using descriptive and inferential statistics. The inferential statistics test used to analyze the relationship between independent and dependent variable. It used linear regression analysis with SPSS 18. The community empowerment strategy around mining was formulated based on the results of the regression analysis by considering the effect level of independent variable to the dependent variable. The research results showed that the level of community empowerment is low. The factors that influence the low level of empowerment were the social conflict, the role of government in empowerment, the role of companies in empowerment, and the community adaptive competencies. The strategy of empowering communities around mining in Bombana were; (1) Empowering community around mining through strengthening community adaptive competencies. (2) Empowering community around mining through conflict management.

1. Introduction
The mining activities in Bombana regency began in mid-2008 when gold mining was discovered by the community. Since then, the mining companies have begun to exploit not only gold commodities, but also nickel commodities. The presence of mining companies affects the lifestyle of the community because of the environmental or ecological changes from agriculture to mining [1]. That is happened because of the large number of people who lost their land because it bought by the company to become a mining location. The existence of mining company actually contributes positively to the community through the empowerment program in collaboration with the local government.
The community empowerment program that carried out by the government such as revolving funds loans have not optimally increased the economic empowerment of the community. The program that carried out by the mining companies by providing the financial assistance to the community through village official has not increased the economic empowerment of the community around mining in Bombana Regency. Thus, a strategy to increase the economic empowerment of the community should be carried out comprehensively by utilizing all potential that the community has, so that they can achieve the economic empowerment and independent. The study aims to; (1) analyze the level of community empowerment around mining in Bombana Regency; (2) analyzing the factors that influence the level of community empowerment around mining; (3) formulate the strategies for empowering the communities around mining in Bombana Regency.

2. Methodology
The research was conducted in Bomana Regency, southeast Sulawesi from November 2017 to August 2018 by using survey research design. Kerlinger [2] stated that survey research examined a large universe by selecting and studying selected samples from the population. One of the main advantages of survey research is it is possible to make generalizations for large populations. The populations of the research were the family heads who lived in villages around the mining area. The sample determination was conducted by proportional cluster sampling technique. The cluster was decided based on the implementation area of the company’s CSR program, so that the sample of 182 family head is obtained.

The variable of the research consists of independent variables (x) and dependent variable (Y). The independent variables include; social conflict (X1), is a dispute that occurs between the community and the company; the role of the government in empowering (X2), which is carried out by the government in community empowerment programs around mining area; the role of companies in empowerment (X3) is empowerment activities that carried out by companies in community empowerment programs around mining; Adaptive competence (X4) is the adaptive ability of the respondent. While the dependent variable is the level of empowerment (Y), which is the condition of respondents having access and control over resources both from within and outside the social system, including economic, social, culture, and environmental empowerment.

The data analysis was performed by using descriptive and inferential statistics. The inferential statistics test used to analyze the relationship between independent and dependent variable. It used linear regression analysis with SPSS 18. The community empowerment strategy around mining was formulated based on the results of the regression analysis by considering the effect level of independent variable to the dependent variable.

3. Result and Discussions
3.1. The level of community empowerment around mining in Bombana Regency
The overall community empowerment around mining in Bombana Regency was in the low category (table 1).

| The Level of Empowerment | Score |
|--------------------------|-------|
| Economy                  | 48.6  |
| Social                   | 47.9  |
| Culture                  | 56.8  |
| Environment              | 54.1  |
| Total Score              | 51.8  |

Very low = 0 – 35.00; low = 35.01 – 55.00; High = 55.01 – 80.00; very high = 80.01 – 100
The low of economic empowerment of the community around mining in Bombana is seen from the lack of production mastery factors and the low access to the economic infrastructure. The factor of production, such as agriculture land were reduced and even disappeared due to the switching functions into mining areas. The loss of agriculture lands does not only have an impact on farmers but also other residences who depend on the agriculture sector as farm laborers and traders of agriculture products. On the other hand, the low access to the economic infrastructure facilities is caused by the difficulty of administrative requirements that must be met to obtain a capital loan at the bank. One of the difficulties experienced by residents is providing the loan guarantees.

The community empowerment program that carried out by the government such as revolving funds loans have not optimally increased the economic empowerment of the community. Likewise the program that carried out by the mining companies by providing the financial assistance to the community through village official has not increased the economic empowerment of the community around mining in Bombana Regency. Hutomo [3] states that the community economic empowerment is strengthening the ownership of production factors, strengthening the mastery of distribution and marketing, strengthening the community to obtain adequate salary/wages, and strengthening the community to obtain information, knowledge and skills, which must be done in a multi-aspect manner both from the aspect of its own society as well as aspect of its policies. According to Wilson [4], the material aspects of community economic development include work, business, investment, income, and productivity. Thus, the efforts to improve the economic empowerment of the community should be carried out comprehensively by utilizing all potential of the community so that they can achieve economic empowerment and become independent.

The social empowerment is the condition of people that having access and control over various social aspects in their lives, including access to the social infrastructure. The low empowerment of community around mining in Bombana is reflected in the difficulty of accessing social infrastructure such as education and health facilities. In addition to physical difficulties due to a considerable distance, also access in terms of financing. The community empowerment programs implemented by both local government and mining companies have not been optimal in providing facilities for the community to obtain adequate education and health services. The empowerment program which carried out by the company is very minimal on education and health aspects. Some companies have never even provided any assistance for education and health. Lord and Hutchison [5] suggest that one form of powerlessness is the existence of social isolation and unresponsive service system. A less responsive service system ignores those who are poor, disabled, and lack of knowledge.

The cultural empowerment is the condition of society having access and control over various aspects to culture values in their lives. The results of the study indicate that the cultural empowerment of community around mining in Bombana is quite high. This is reflected in the living condition of the community who still apply the cultural values or norms and customs in their lives. Communities in Bombana consist of various types of ethnicities who live side by side with different languages and customs. However, a harmonious atmosphere can be realized with inter-ethnic tolerance and life that has blended both through marriage ties and in commercial activities. One aspect of the culture that is still lagging behind is cultural infrastructure such as traditional art studios and local craft centers. The government efforts to foster aspects of the local culture of the community through fostering traditional institutions with various culture activities such as traditional festivals held every year are felt to be quite good in preserving traditional culture. While the community empowerment program by the company is very minimal in giving attention to the cultural aspects of society. According to Ife and Tesoriero [6], local cultural traditions are an important part of instilling a sense of community and helping to give them a sense of identity. Therefore, the community development will seek to identify important elements of the local culture and preserve it. This tradition includes local history and heritage, local handicraft, local food, or other products such as local festivals or fairs, local bands, a reputation for football skill, or related to the certain ethnic communities.

The environmental empowerment is the condition of the community in having access and control over various aspects related to the natural resources management in the vicinity including the
preservation of natural resources. The research results indicate that the environmental empowerment of community around mining in Bombana is low. This can be seen from the increasingly limited access and ownership of land, both to carry out the cultivation activities and to get the forest product such as timber to build houses. The presence of mining companies also caused the condition of river water disturbed. In addition, the mining companies’ activities cause the air disturbances in the form of the amount of dust caused by the movement of mining vehicles carrying mining materials. The environmental disturbances that occur in the community can cause not only conflict with the company, but also disrupt the public health.

3.2. The factors that influence the level of community empowerment around mining in Bombana Regency

The result analyses about the factors that influence the level of community empowerment around mining in Bombana regency are explained in table 2.

Table 2. Factors that influence the level of community empowerment around mining in Bombana regency

| Variable                              | Regression coefficient to the level of community empowerment | Calculated t Value |
|---------------------------------------|-------------------------------------------------------------|--------------------|
| Social conflict (x1)                  | 0.36                                                        | 2.79**             |
| Government role in the empowerment (X2)| 0.40                                                        | 2.84**             |
| Company role in the empowerment (X3)  | 0.38                                                        | 2.25*              |
| Adaptive competence (X4)              | 0.90                                                        | 2.88**             |

Note: **highly significant at α < 0.01; *Significant at α < 0.05; t_{Table α 0.01} = 2.61; α 0.05 = 1.98

The management of social conflict has a very significant effect on the empowerment level. It means that high the social conflicts occur around mining have an impact on the low level of community empowerment. The social conflict factors are reflected in the occupational process of natural resources (SDA), the company’s dominance of natural resources and the handling of negative impact. The social conflict of the SDA occupation process occurs because of the existence of the residents who are not satisfied with the value of compensation given by the company and the presence of residents who claim their land is occupied by the company without compensation. As the result, complaints and disputes occur because the land owners claim they have never sold their land. In addition the conflict occurred because the residents who forced to sell their land because the condition of the land that was difficult to access due to mining activities around it. The social conflicts due to the company’s domination of natural resources because the companies limit the public access to the concession areas such as not allowing the residents to use the land that has not been managed by mining companies. In addition, the company did not provide the socialization about the concession boundaries, so that many residents did not know the limits of the company’s permit area. While the conflict from handling the negative impacts occur because the poor handling of negative impacts caused by mining activities. The mining activities cause the adverse effects on the environment which also affect the community such as river damage and pollution, dust disturbances, and the occurrence of flooding during the rainy season.

The role of the government in empowerment programs has a high significant effect on the empowerment level. It shows that the role of the government in empowerment is determining factors in increasing the community empowerment. The development of business capacity, especially the provision of business capital, helps the community to expand business scale and marketing. In addition, the capital business helps the community to improve the quality and the diversification of business products. The social networking development helps people to expand their social relations, so that they impact on the reach of the communication network that supports the social and economic activities. Providing employment opportunities provides opportunities for the community to get jobs.
and improve their standard of living. The provision of public infrastructure provides convenience for community activities. The existence of adequate public infrastructure facilitates the public mobility, especially in developing economic business.

The role of company in empowerment has a significant effect on the empowerment level. The company is quite helpful the community in proving the employment opportunities, especially in fields that is in accordance with the level of ability and skills that are owned by the community. Generally people work as unskilled laborers or become the security units in mining companies. The role of the company is providing public infrastructure, especially in the repair of roads and bridges. In addition, the company also provided assistance in repairing the religious and education facilities.

The level of empowerment is significantly influenced by the adaptive competence of the community. It means that the low adaptive competence of the community influences the low level of empowerment of communities around mining in Bombana. The observations at the research location show that the community has low ability in utilizing the potential of their natural resources, for example the potential of agriculture and farming. Agriculture products such as coconut, cocoa, and cashew have not been processed into products that have high economic value. These commodities are sold by farmers without further processing. Likewise with the potential in farming sector, the community generally breeds by releasing their farming. There are no residents who have farmed intensively like fattening.

3.3. The strategies for empowering the communities around mining in Bombana Regency

According to Hanel and Prahalad [7] strategy is an action that is incremental (always increasing) and continuously and carried out based on the point of view of what is expected by customers in the future. The strategy for empowering the community around mining was formulated based on the result of the analysis of the community empowerment level and the influencing factors. Therefore, the formulation of the strategy below shows the priority scale of the strategy for empowering community around mining in a sequential manner, namely ; (1) Empowering communities around mining through strengthening community adaptive competencies. (2) Empowering communities around mining through strengthening the role of the stakeholders; (3) Empowering communities around mining through conflict management.

3.4. The community empowerment around mining through strengthening community adaptive competencies

The changes in the ecology of agriculture to mining have an impact on the economic conditions of the community around mining in Bombana. It happens because the amount of agricultural land and plantations that are converted into mining areas. In addition, the mining also has a negative impact on the environment in the form of pollution and damage to springs. The forms of community empowerment program carried out by mining companies are mostly directed towards physical development such as roads and bridges. While the local government is also quite intensive in carrying out the infrastructure development, and the increasing community competence has not been optimally touched. The community empowerment program is ideally emphasized in improving community competence, especially the adaptive competence so that the community has the ability to adapt to the environmental changes that occur. Therefore, the empowerment approach that has been carried out by the human resources, so that the community can obtain the empowerment benefits from the existence of high economic value of the natural resources around them. Kale and Mazaheri [8] stated that the composition of socio-political forces in each region directly shapes the strategies adopted by leaders for the natural resource sectors and overall development. The abundance of natural resources does not always produce the predictable pathways from the results of rich regions improves their economic.

The empowerment program can be directed in effort to decrease the poverty and increase the income of the community around mining in Bombana. The economic potential in research location is high enough to encourage an increase in community income, for example, the development of agriculture products, fisheries and farming.
Shetty [9] argue that poverty lines or poverty levels have long been used as a basis for the intervention by the government around the world. This is represented by the amount of money needed to buy all household members to meet this e recommended daily calories need. Gavino, et al. [10] suggested that what is important to be empowered is the fulfillment of basic needs such as safe drinking water, shelter, and clothing fulfillment of basic running needs in all economic strata.

In addition, the community capacity in making programs such as skill can be realized especially to the residents who are classified as marginal so that they have the ability to increase their empowerment. The high potential of natural resources in the research location has not been utilized optimally. This is due to a lack of community skills to develop this potential. Jonsson [11] said the empowerment programs emphasize direct transfer or relevant or appropriate knowledge, skills, and resources to marginalized groups. This is mainly done in the socio-economic and cultural structure of the powerless society. The local government and companies have the resources needed to realize a skill improvement program for the poor. Both can establish harmonious relations to eliminate institutional barriers that often stumble in cooperation between institutions. According to Amdam [12] the empowerment approach to development places an emphasis on direct democracy, local independence, social learning, and autonomy in decision-making of organized territorial communities. Jonsson [11] argues that practitioners of the empowerment must consider the social structure, barriers and power relations that maintain inequality and injustice that limits individual opportunities to improve their living conditions in society, and increase their access to the tools of power and influence in society.

3.5. The strategy for empowering community around mining through strengthening the role of stakeholders

There are three main stakeholders in the community empowerment model around mining in Bombana Regency namely the community, government, and mining companies. The role of each stakeholders need to be strengthened and synergized, so that it will be more optimal in achieving the empowerment goals. According to Bailey [13] the empowerment means the transfer of power between stakeholders. It can occur on a number of different levels. Individual may gain new skills or power in relation to other people, groups, and their representatives can gain the influence and exert greater power in decision making. The power balance can change between organizations involved in partnership or securing increased resources or compliance from higher level authorities.

Although the role of the government and companies is quite important in community empowerment, the community element is a determining factor for such empowerment. As stated by Lawson and Kearn [14] that to be empowered, people need to increase their critical awareness, have the opportunity to make choices and the ability to institutionalize actions afterwards. Developing the awareness so that people can be critical and reflective about where they want to be and how they want to achieve their goals. Developing awareness can be a practical construct in terms of training and capacity building in the context of appropriate (local organizational) support, experience, networks and significant connections in terms of raising or developing community awareness.

Likewise the companies, the community empowerment program in Bombana known as CSR, needs to be adjusted internally. It means that companies need to consolidate organizations on the implementation of programs and structures that are responsible for them. Athanasopoulou and Selsky [15] emphasize that CSR implementation as an organizational process that dynamically introduces or revises organizational policies and practices to respond to the need for socially responsible business practices. The implementation of CSR requires interaction with the external environment and requires structure, operations, strategies, and behavioral changes at level and function in the organization.
3.6. The strategy for empowering the community around mining through conflict management

Social conflict is a condition that always occurs in mining areas. It has a bad impact on people live. The majority of community around mining in Bombana is farmers. When the mining company came and began to operated, many people lost their land. While some residents who still own their land, feel the impact of the environmental damage in the form of lack of water sources for irrigation and pollution. According to Humphreys [16] conflict is driven more by agricultural dependency than by the use of other natural resources. It happens because the community is a farmer who has a high dependence on agricultural products to meet their daily needs.

The government intervention is very important to minimize the occurrence of conflicts that occur around mining. This is because the government has formal authority to carry out the policies that must be obeyed by mining companies that operating in their areas. Hegre and Nygard [17] suggest that good governance is very important to reduce the risk of conflict. The government with good governance is able to accelerate conflicts to the end. While the government with poor governance will make the conflict resolution process become longer.

A conflict can also hamper an activity, including an empowerment program. Lawson and Kean [14] emphasize that community stability or cohesiveness is an important factor in empowerment. More stable areas are easier to manage and in various fields have the potential to offer more opportunities for empowerment. Therefore, before the conflict spreads and become more open, the intensive communication from all stakeholders is needed to clarify the issue and resolve it immediately. Hamelink [18] stated that the communication plays an important role in preventing low-intensity disputes from escalating towards cruel destructive conflict.

4. Conclusion

The level of community empowerment around mining area in Bombana Regency is relatively low. The factors that influence the low level of empowerment are social conflict, the role of government in empowerment, the role of companies in empowerment, and the adaptive competence of the community. The strategy of empowering communities around mining in Bombana are; (1) Empowering community around mining through strengthening community adaptive competencies. (2) Empowering community around mining through strengthening the role of the stakeholders; (3) Empowering community around mining through conflict management.

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