

The Impact of Mining Activities on The Living Conditions of The People of North Rarowatu District, Bombana Regency

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Keywords

*Mining Impact;
Living
Conditions;
Activities Of
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Abstract

The purpose of this research is to explain the impact of mining activities on the living conditions of Bombana District people. The research was conducted in North Rarowatu Sub-District, Wumbubangka Village and Lantowua Village, with determination of 133 samples from two villages. The data were analyzed in descriptions method using cross tabulation and frequency table with eleven variables that is: the rate of air changes, the level of noise pollution, the level of disruption to water availability, the number of affected households, the frequency of treatment, the level of education, the conditions of residence, the status of residence, the conflict between local communities, the level of depth of conflict, employment opportunities. The results of the research indicate the impact of mining activities on the living conditions of Bombana district communities, especially in the two villages. On the ecological aspect of air conditions, mining activity causes the air condition to get more worst. In addition, mine activity raises noise that disrupts community activities, and a small proportion of groundwater availability is not available. On the social aspect there are still a number of community members who suffer from respiratory problems such as shortness of breath, cough and cold, from the frequency of treatment only a few of them do a treatment. The low level of education in these two villages is the cause of employment opportunities decrease. From the residence's condition and the residence status are still relatively decent and medium. In addition, the changes in environmental conditions lead to conflict between the local community and the company.

1 Introduction

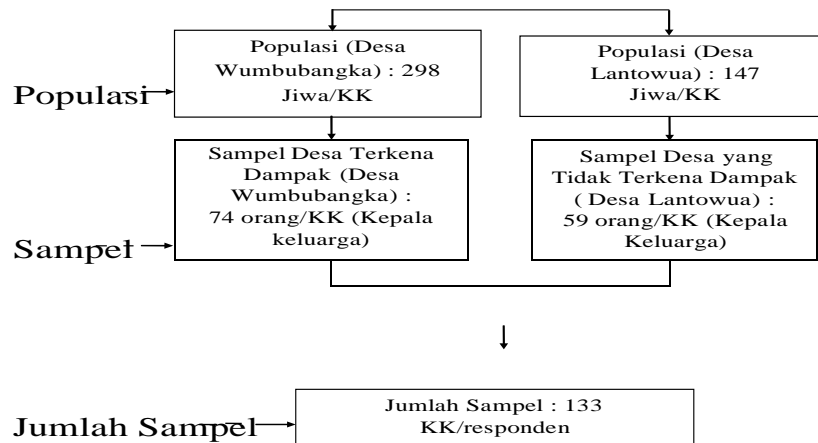
The Bombana gold mine was discovered in mid-2009. At that time, thousands of miners from the island of Sulawesi and outside the island of Sulawesi, such as Java, Kalimantan, Manado, and Papua. This community mining activity was legally assessed after the Bombana Regency Government issued Regent's Decree No. 10 of 2008 concerning the obligation of miners to pay dulang cards of 250,000 rupiah per person. The latest data shows that 60 thousand dulang cards have been issued by the Government which means fifteen billion money has gone into the treasury of the Bombana Government.

As if referring to the ability of the region to produce gold, at the same time the Bombana Regency Government issued 13 Mining Power of Attorney Permits and two of them have been operating, namely PT. Panca Logam Makmur and PT Tiram Indonesia. PT Panca Logam Makmur obtained a permit by the Regent of Bombana to process 2100 ha on the land of the former HTI Barito Pacific and was included in SP (Settlement Units) 8 and 9. Counting nine years of gold discovery in Bombana Regency by Bombana residents, currently there are several companies that have pocketed (IUP) Mining Business Permits but currently only a few companies operate to exploit /

process at their WIUP, for example PT. Panca Logam Makmur dan PT. Sultra Utama Nickel, the two companies until 2017, are still carrying out production activities. However, every development activity in the mining sector must have a positive impact or a negative impact, including a social impact on the community around the mine. The problem in this study is how the impact of mining activities on the living conditions of the people in Bombana Regency.

2 Materials and Methods

This research was carried out in Wumbubangka Village and Lantowua Village, North Rarowatu District, Bombana Regency, namely in the area around the affected mining area, which is in Wumbubangka Village and those that are not affected in Lantowua Village. The determination of the research sample can be seen in Figure 1:



Gambar 1 : Teknik Kerangka Sampling dalam Pengambilan Responden

The sample of Wumbubangka Village and the sample of Lantowua Village were 133 families/respondents. The sampling techniques used in determining respondents used the slovin formula according to Sugiyono in 2001, namely:

Rumus :

$$n = \frac{N}{N.d2 + 1}$$

n = sample size

N = population size d

= Estimation error

So the sampling of 133, namely in Wumbubangka Village as many as 74KK / respondent and Lantowua Villages as many as 59 families / respondents. The sample determination technique in this study was carried out using the Simple Random Sampling method (a sampling technique that was chosen randomly). The variables in this study are respondents and living conditions of communities affected by mining activities and those not affected by mining activities, namely: Air change rate, noise pollution level, level of disturbance to groundwater availability, households suffering from diseases, frequency of treatment, level of education, conditions of residence, status of residence, relationships that occur between local communities and migrants, degree of depth of conflict, employment opportunities.

Data processing and analysis using questionnaires that have been interviewed by researchers to respondents by being processed through several steps, namely editing questionnaires, coding data, transferring data to data storage sheets, including data into microsoft excel programs. In conducting quantitative data descriptive analysis, using cross-tabulation and frequency tables. The data displayed is in the form of a graph or table. Then the data is combined

with the results of the interview in the form of quotations to then draw conclusions from all the data that has been processed before.

3 Results and Discussions

Based on the results of research obtained on the influence of mining on the living conditions of the people of Bombana Regency, Southeast Sulawesi.

1. History of The Gold Patching of Bombana Regency

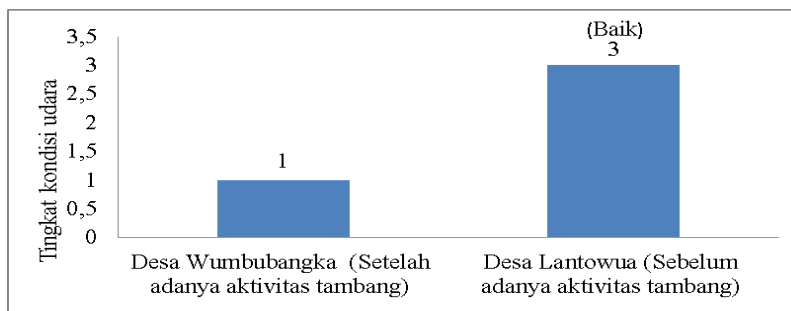
Bombana gold was discovered in mid-May in 2008, and prompted a rise of miners in the area. The Mining and Energy Service of Bombana Regency, recorded as many as 81 thousand people registered as gold panners on an area of 500 hectares. They work at depths between 150 meters to 200 meters. It hasn't counted any other wild panners. This service predicts about 165 thousand tons of gold deposits in Bombana.

In a study conducted by the Local Government, the gold deposit in Bombana will be managed in two ways. First: Empowering local residents through community mining. Where the gold content is within the river and along the Tahi Ite river (20 kilometers), it will be divided into 20 repeating zones, each zone measuring 50 square meters. Second: to explore the gold content in the hills, the government will invite investors or mining powers. This potential is located around the village of Raurau. To regulate regulations between mining companies, the District Government issued a Regent's regulation on zones and the company's contribution to the region. At that time there were 12 Mining Powers (KP) ready to extract gold content in Bombana. Four companies among them are PT. Panca Metal prospered, PT. Oysters Indonesia, PT. Sumber Alam Mega Karya, PT. Talent, whose reporting has been running since October 2008.

But a number of environmental activists, including the Environmental Agency, expressly stated that the Bombana mining site had suffered severe damage due to the 2008 gold panning. The pile of material on the banks of the Tahi Ite river has been mountainous, forming a rocky hill. The ongoing mining eliminates the natural protective functions of ecology and causes major changes not only in terms of the physical environment but also the loss of biodiversity of genetic sources and land vegetation. Changes in environmental hue (geobiophysical and chemical) it also gives rise to pollution of water, soil and air bodies.

In addition, since 2017 there are still impacts of mining activities in terms of positive and negative aspects, including the following:

1. Air Condition Level



Information:

1= Bad (1,9)

2= Enough (2.9)

3= Good (3.9)

Based on the air condition after the existence of mining activity on average (1) in the bad category, while before the existence of mining activities the average (3) in the good category, where after the existence of mining activities is lower than before the existence of mining activities, of course this is after the existence of mining activities has a negative impact.

Because mining activities are underground dredging activities that disrupt the ecosystem and the substances contained in it. The mountainous area, which was previously an air conditioner because it stored a lot of trees, is now decreasing in number. Mining activities and driving trucks, every day produce waste in the form of dust and smoke,

thereby increasing air pollution levels

2. Noise Pollution Levels

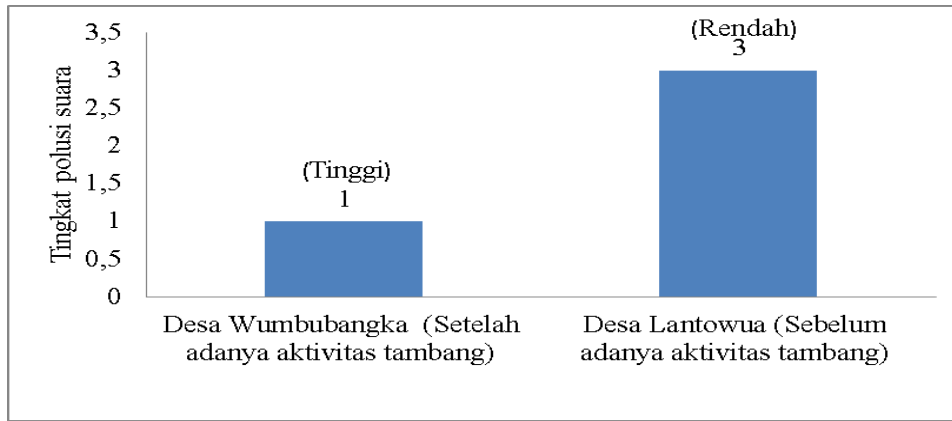


Figure 5 : Average Noise Pollution Levels

Information:

- 1 = Height (1.9)
- 2 = Enough (2.9)
- 3 = Low (3.9)

Based on the level of noise pollution after the average mining activity (1) in the high category, while before the average mining activity (3) in the low category, where after the mining activity is lower than before the mining activity, of course this is after the mining activity has a negative impact.

Because, truck vehicles carrying mining materials not only cause noise effects for the community but also disturbances in the communication process, and disruption of sleep activities, due to truck vehicles that often pass by.

3. Level of Disturbance to Groundwater Availability

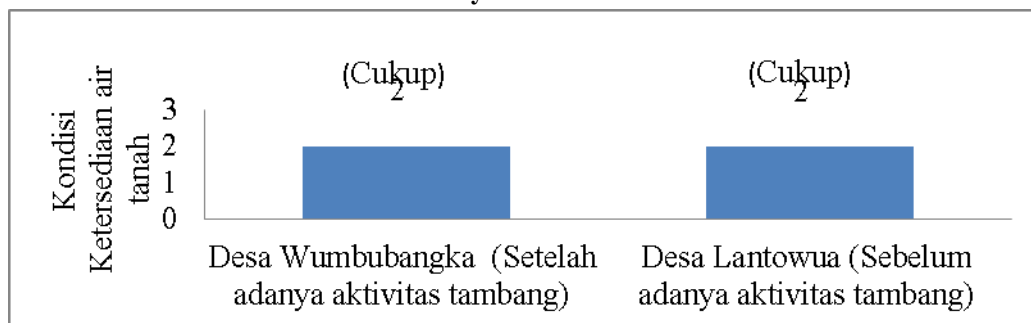


Figure 6 : Average Level of Disturbance to Groundwater Availability

- 1 = Bad (1.9)
- 2 = Enough (2.9)
- 3 = Good (3.9)

Based on Figure 6 above the average level of disturbance to the availability of groundwater, it can be seen that after the existence of mining activity the average (2) is in the sufficient category, which is the same as before the existence of the average mining activity (2) in the sufficient category. Of course, this is after the existence of mining activities has a positive impact.

Where the water owned by households before mining activities comes from mountain water, where after mining activities the water owned comes from drilled well water, this is due to changes in landforms to the forest vegetation

environment, but the water before and after mining activities both have sufficient water.

4. Households Suffering from Disease

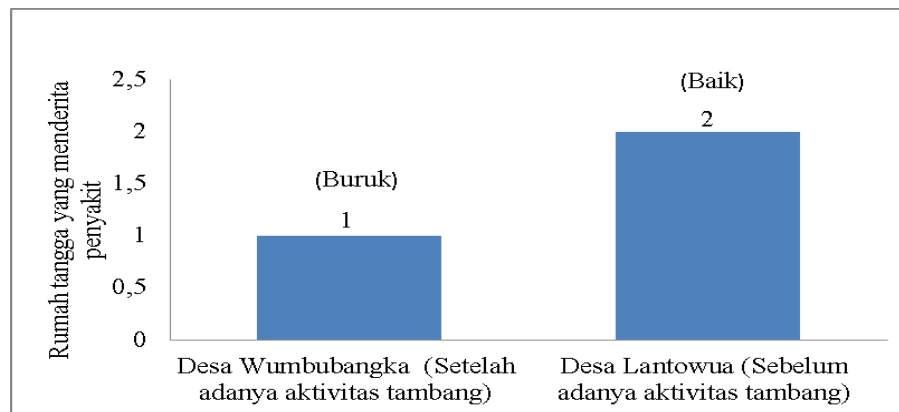


Figure 7 : Average Number of Households Suffering from Disease

Information: 1

= Bad (1,9)

2= Medium (2,9)

3 = Good (3,9)

Based on Figure 7 above, households suffering from diseases after the existence of mining activity are on average (1) in the bad category, whereas before the existence of mining activity the average (2) is in the moderate category. Of course, this is after the existence of mining activities is lower, compared to before the existence of mining activities, so that after the existence of mining activities have a negative impact.

Because the level of public health after mining activities is still relatively poor because currently after mining activities, it causes diseases of the respiratory tract and coughing pile, because from air conditions, a lot of dust is caused by truck vehicles that often drive, causing ARI disease

5. Frequency of Treatment

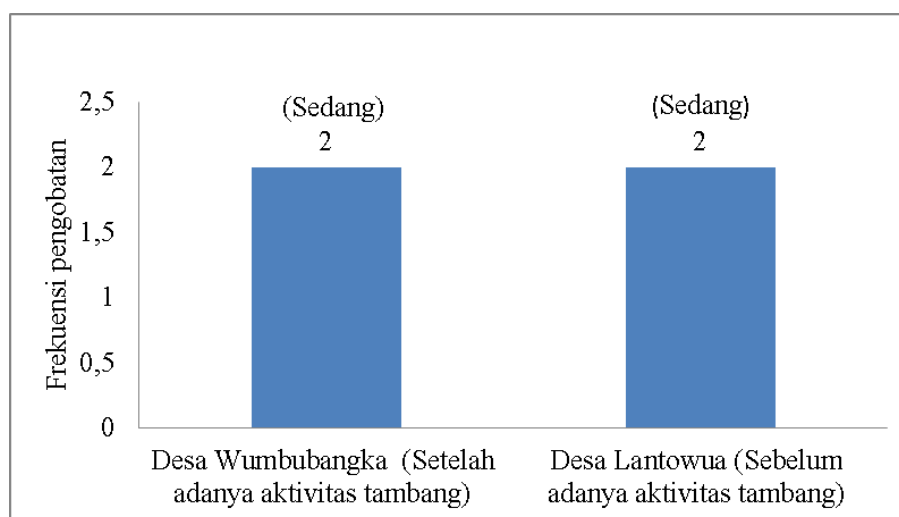


Figure 8: Average Frequency of Treatment

Information:

- 1 = Height (1.9)
- 2 = Medium (2.9)
- 3 = Low (3.9)

Based on Figure 8 above, the frequency of treatment after the existence of mining activities and before the existence of mining activities on average (2) in the moderate category, where after and before the existence of mining activities, both are included in the moderate category, of course this is after the existence of mining activities has a positive impact.

Where the frequency of treatment is still relatively moderate because the treatment is only done a few times. This is because the type of disease suffered is still relatively mild, namely a cold cough and diarrhea.

6. Education Level

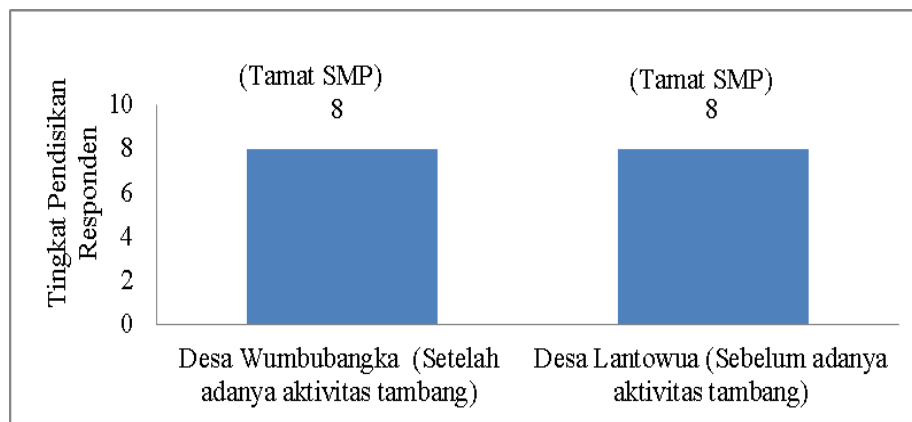
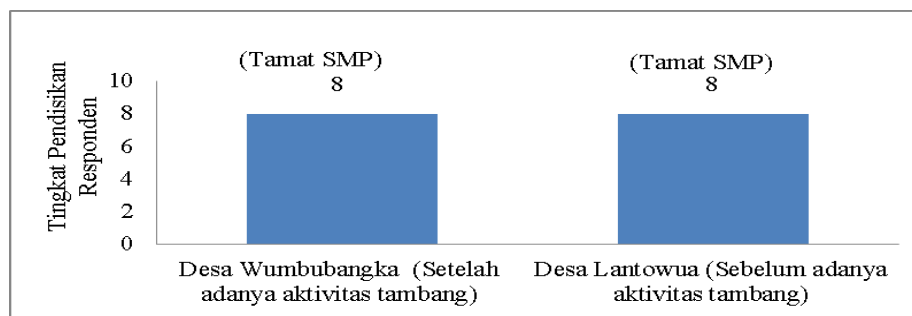


Figure 9 : Average Level of Education (Years)



Information:

- 0 = No School (1)
- 6 = Finished Elementary School (1.9)
- 9 = End of SMP (2.9)
- 12 = Finished High School (3.9)
- 16 = College Park (4.9)

Based on the level of education after the existence of mining activities, the average (8) in the category of junior high school graduation is the same as before the mining activity, where before and after the mining activity both graduated from junior high school. This is after mining activities have a positive impact.

Where before and after the mining activity there was a low level of household education. This is due to the low economy that does not allow to go to school, and the lack of, school education facilities and infrastructure, which

are then aggravated by the location and distance of schools that are very far away.

7. Conditions of Residence

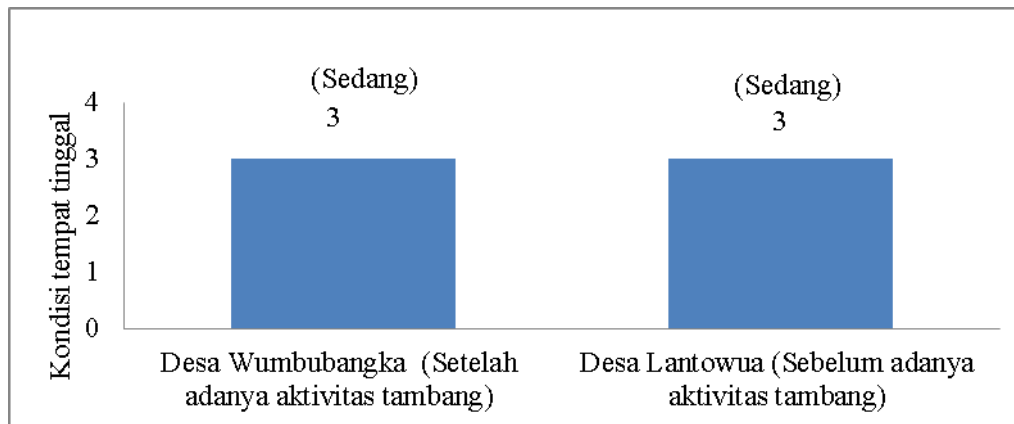


Figure 10: Average Living Conditions

Information:

- 1 = Very Unworthy (1.9)
- 2 = Not Worth it (2.9)
- 3 = Medium (3.9)
- 4 = Worth (4.9)
- 5 = Very Decent (5.9)

Based on Figure 11 above, residential conditions after and before the existence of mining activities on average (3) in the Medium category, of course, after mining activities have a positive impact.

Where the community has a large number of family members. One house is inhabited by more than two heads of families, so although the condition of the building is permanent, the walls and plinth are made of cement, the area of the building is not sufficient for the whole family.

8. Status of Residence

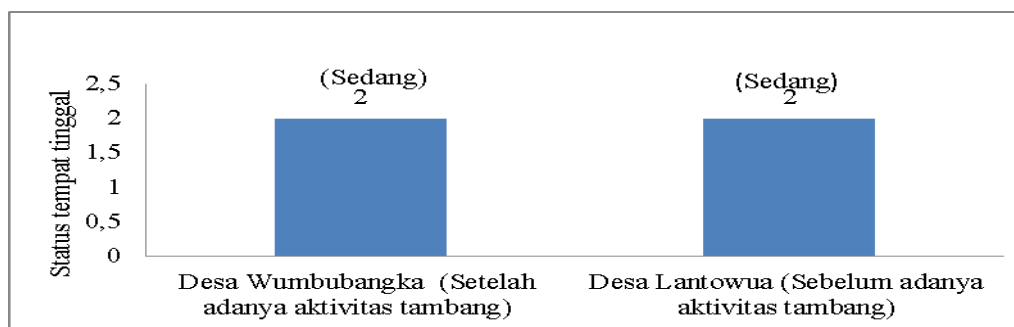


Figure 11 : Average Status of Residence

Information: 1
= Bad (1,9)

2= Medium (2,9)

3 = Good (3.9)

Based on the status of residence, after and before the existence of mining activities on average (2) in the moderate category, where after and before the existence of mining activities are both included in the moderate category, of course, after the existence of mining activities have a positive impact.

Where the household is an immigrant citizen who has the status of a newly married couple, so it does not have a private place to live, and from an economic point of view it is not possible to build a house.

9. Relationships That Occur Between Fellow Local Communities

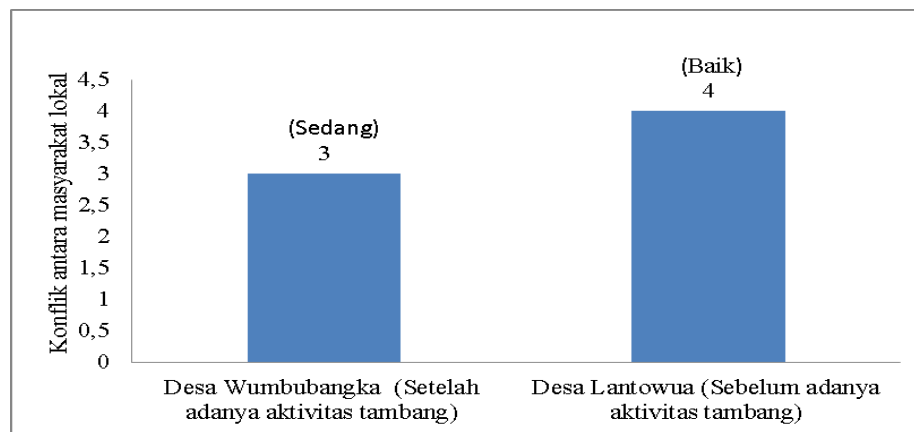


Figure 12 : Average Relationships That Occur Between Fellow Local Communities

Information:

1 = Very Bad (1.9)

2= Bad (2,9)

3 = Medium (3.9)

4 = Good (4.9)

5 = Excellent (5.9)

Based on Figure 13 above, the relationship that occurs between fellow local communities after the existence of mining activities is on average (3) in the moderate category, where before the average mining activity (4) in the very good category, of course, this is after the existence of neagative impact mining activities, because it is lower after the mining activity is compared to before the mining activity.

Where in terms of mutual cooperation and mutual assistance is still very rarely done, because what makes the relationship between people is still not well established, besides, only the distance of the house is close together, it facilitates the process of establishing contact and communication between residents.

10. Levels of Conflict As a Result of Ecological Change

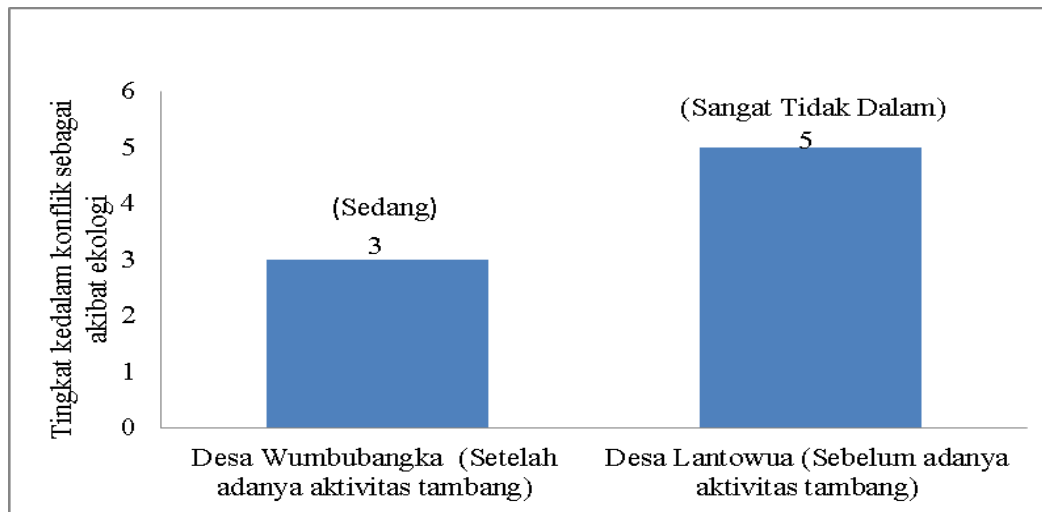


Figure 13 : Average Level of Conflict

Information:

1 = Very Deep (1.9)

2 = In (2.9)

3 = Medium (3.9)

4 = Not In (4.9)

5 = Very Not Deep (5.9)

Based on the level of conflict after the average mining activity (3) in the moderate category, where after the average mining activity (5) in the very deep category, of course, this is after the existence of mining activities has a negative impact, where there are often conflicts between the community and mining companies.

This is after mining activities, the conflict that occurs is an open conflict (manifest), where the parties to the dispute negotiate with each other regarding the issue of environmental damage or land damage experienced by local communities. This can be seen by the problem of air changes such as hot and dusty air temperature conditions. The level of conflict that occurs after mining activities is still at a moderate level because generally people only complain to the company as a result of the damaged roads of the community.

11. Respondent Employment Opportunity Rate

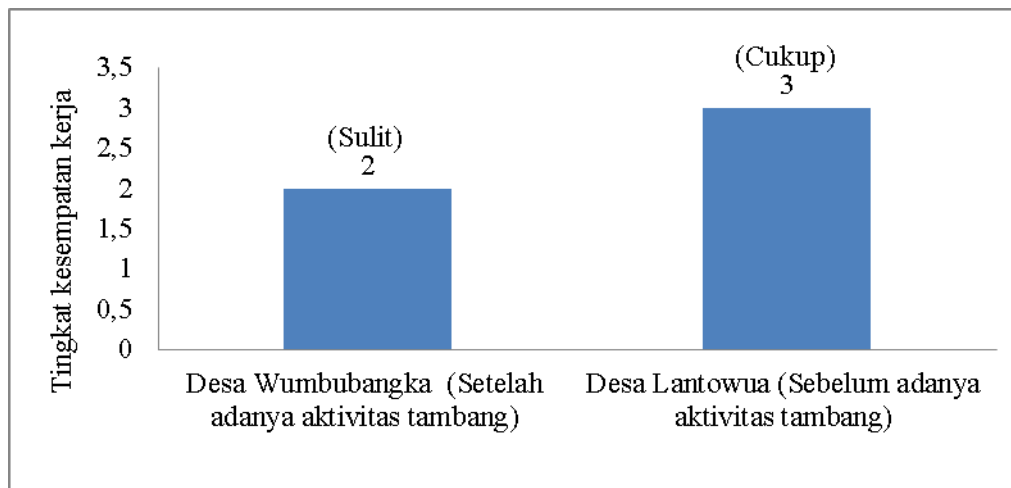


Figure 14: Average Respondent's Employment Opportunity Rate Information:

- 1 = Very Difficult (1.9)
- 2 = Difficult (2.9)
- 3 = enough (3,9)
- 4 = Easy (4.9)
- 5 = Very Easy (5.9)

Based on the level of employment opportunities, after the existence of mining activities on average (2) in the difficult category, where after the average mining activity (3) in the sufficient category, of course, after the existence of mining activities, it has a negative impact, which is lower after mining activities, compared to before the existence of mining activities.

Where the lack of employment opportunities to the indigenous people is due to the low education of the local community so that many migrant or local people take experts from the job sector.

4 Conclusion

Based on the description above, the author concludes that the impact of mining activities on the living conditions of the people of Bombana Regency has an impact.

- a. Deterioration in the quality of the environment such as changes in air conditions to feel hot, dusty and look arid.
- b. Mining activities cause noise pollution, causing noise that interferes with hearing, communication, and sleep activities
- c. The availability of groundwater sources is very available because the water available is from the water of the wellbore, from the mountains.
- d. There are members of the public who experience pain in the respiratory tract such as shortness of breath, cold cough, due to the large capacity of inhaled dust
- e. The frequency of treatment, although treatment is only a few times carried out, but treatment from the general practitioner is needed due to the lack of health facilities.
- f. Low level of education resulting in lack of getting a job.
- g. The condition of residence to give birth to family members even if one house is inhabited by two heads of the family in the condition that the economy factor does not allow building a house.
- h. Status of residence, because most of the local people or migrant communities, the number of housing is not the owner of the house itself but as a tenant.
- i. The level of competition, thus triggering conflicts between local communities and migrant communities.

- j. Changes in environmental conditions as a result of mining activities, trigger conflicts between the community and mining companies.

5 References

- Fuad, F.H., and S. Maskanah. 2000. Innovation in Dispute Resolution of Forest Resource Management. Bogor: LATIN Library.
- Hadi, S.P., 2006. Matriculation Lecture Materials for the Master of Environmental Science Program, Diponegoro University, Semarang.
- Dyahwanti, N., 2007. Environmental Impact Study of Sand Mining Activities in the Green Belt Area of Mount Sumbing in Temanggunginarni Regency, http://Documents/inarni_nur_dyahwanti.pdf (accessed march 12, 2017)
- Kristanto, P., 2004. Industrial Ecology. Yogyakarta: Andi Yogyakarta.
- Kartodihardjo, H., Safitri, M., Ivalerina, F., Khan A., Tjendronegoro, S.M.P., 2005, Under one Umbrella of Natural Resources Management, Suara Bebas, Jakarta.
- Kamil, S.Y., 2009. [Http://www.KabupatenBombana/Tambang Emas Bombana%36The Blessing or Green Ancaman_Sarekat of Indonesia.htm](http://www.KabupatenBombana/Tambang Emas Bombana%36The Blessing or Green Ancaman_Sarekat of Indonesia.htm) (accessed January 23 , 2017)
- Noor, D., 2006. Environmental Geology. Yogyakarta: Graha Ilmu
- Qomariah, R., 2002. The Impact of Coal Unlicensed Mining on the Quality of Land Resources and The Socioeconomics of Communities [Thesis]. Bogor: Bogor Agricultural Institute.
- Sulto, and Noor., 2011. Mining Definition, <http://Documents/Chapter II.pdf> (accessed December 2017)
- Sultan, A., 2011., Impact of Mining Activities of Class c Excavated Materials on the Living Conditions of Village Communities, Mining http://Dampak on socioeconomics and Ekologi_bimbinya arya hadi.pdf (access date April 2017)
- Salim, H.S., 2007. Mining Law in Indonesia. Jakarta: PT Raja Grafindo Persada.
- Sudarmanto. 1996, Analysis of socioeconomic aspects of village communities around forests in the utilization of forest products and their development prospectsBogor: Bogor Institute of Agriculture.
- Wardhana, W.A., 2004. Impact of Environmental Pollution, Revised Edition, Andi, Yogyakarta.
- Wahyuni, E.S and Muljono, P., 2009. Social Research Methods. Bogor: Department of Communication Science and Community Development, Faculty of Human Ecology, IPB.



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