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Sanitation and Environmental Health of Settlement Around IUP Mining

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Abstract: *Corporate Social Responsibility (CSR) or community development and empowerment in the mineral and coal mining sector is a Blueprint program containing the provincial government's goals for programs made by mining companies which include a work plan and the person in charge of activities that are synchronized with the plan document of post-mining (RPT), and regional spatial planning (RTRW) Economic Development of the community around the mine to post-mining refers to the level of real income or the work of the local community. In the regulations related to CSR, there is a division of areas that can be grouped into Beneficiaries based on the locations directly affected, namely ring 1 from mining operations. Strategic programs related to sanitation and the housing environment carried out in the CSR or PPM include public health programs and clean water installation programs.*

Key Words: *CSR/PPM, public health, ring, sanitation*

INTRODUCTION

The communities living around the mines are generally the people who directly feel the impact of mining operations. The impacts caused by mining activities consist of negative impacts and positive impacts (Gusman, 2021). Along with mining activities in an area, of course, it causes villages, sub-districts around the mine to be visited by newcomers, either working in companies or looking for sustenance by opening businesses and so on. Along with the increase in population, it will certainly have an impact in terms of sanitation and environmental health in the village or sub-district surrounding the mine. The poor sanitation and shelter before mining operations have existed and taken place. Regional spatial planning, limited local government funds, education, understanding, and the life of rural communities whose incomes are not adequate are the causes of the above occurring in addition to the culture and culture of the local community. Several things related to sanitation and the housing environment that can be seen are; unavailability of adequate clean water, availability of toilets, garbage dumps, sewers, the proximity of houses, and dust due to mining transportation activities (Ardiansah & Fahmi, 2018).

The mining industry is an industry that explores and processes natural resources that are non-renewable or non-renewable, the mining industry will eventually end or be closed, either because the natural resources have run out or because of something that causes the mining industry to stop (Gusman et al, 2020). Therefore, it is very important to plan alternative activities to ensure sustainable development and maintain the development of community welfare. Several matters concerning sanitation and

environmental health may be a priority for the company, which is stated in the Community Development and Empowerment (PPM) program (Ariefianto, 2020).

In general, the RI PPM Program must be made based on the BluePrint. However, considering that South Sumatra Province does not yet have a BluePrint, the RI PPM Program is guided by the results of the South Sumatra Province Musrempang and the results of the Social Mapping of communities around the mine. In addition, the RI PPM Program is adjusted to the Regional Medium-Term Development Plan (RPJMD) for the Province of South Sumatra 2019-2023, the Development Planning Consultation on the Government Work Plan, the Lahat Regency RPJMD 2018-2023, and RTRW Lahat Regency and the results of consultations with stakeholders.

Juridically, this PPM obligation is regulated in the Minister of Energy and Mineral Resources No. 41/2016 concerning Community Development and Empowerment in Mineral and Coal Mining Business Activities, which has been revoked, has been replaced by Minister of Energy and Mineral Resources Regulation No. 25/2018 concerning Mineral and Coal Mining Business Activities. Which is then strengthened again by the derivative regulations, namely. Decree of the Minister of Energy and Mineral Resources No. 1824 K/30/MEM/2018 concerning Guidelines for the Implementation of Community Development and Empowerment (PPM). The derivative regulation states that mineral and coal mining companies are required to carry out PPM throughout the cycle (exploration to post-mining), by making a PPM Master Plan which is consulted and reported on its implementation to the provincial government and the Ministry of Energy and Mineral Resources.

METHODS

Determine the program based on qualitative analysis obtained from social mapping activities by collecting data on regional potential in each village, survey activities using questionnaires and interviews with the "NEED ASSESSMENT" method (Galbreath, 2010), then submitting program proposals by first adjusting to the Vision and Mission of the Province of South Sumatra, RPJMD of South Sumatra Province 2019-2023, Development Planning Deliberation (Musrempang), RPJMD Lahat Regency 2018-2023, and RTRW. The proposed program was then consulted with stakeholders, including the village government, sub-district government, regencies/cities government so that a program concept that had been agreed upon by the stakeholders did not come out of the government's plan for the area. This social mapping is carried out using the principle of data representation using the slovin formula (a formula for calculating the minimum number of samples if the behavior of a population is not known with certainty). The desired data representation is to represent the number of family heads (KK) in each village with a target margin of error of 10%. Meanwhile, to determine the program to be implemented, stakeholder consultation is carried out.

This social mapping is the first step in identifying the condition of the community around the mine as a study material in identifying problems, formulating strategic issues and patterns of change needed in the future, including post-mining sustainability. In a certain period, each individual and group moves into changes in power, economic structure, sources of funding, and the role of the population. Social mapping can help in understanding and interpreting these changes. The main principle for companies when conducting social mapping is that this activity is expected to collect as much information as possible in a specific area that can be used as material for making the best decisions in building community self-reliance and sustainability.

RESULTS AND DISCUSSIONS

Results

With an area of 4,361.83 km² Lahat Regency. The largest sub-district is the East Kikim sub-district with an area of 564.45 km² or about 13% of the total area of Lahat Regency, while the sub-district with the smallest area is Muara Payang sub-district with an area of 37.50 km² or about 0.8% of the total area of Lahat Regency. The results of the implementation of social mapping, it is divided into two parts, the first is the search for primary village profile data from sub-district data, village office data, to find out village monographs and village potentials. The second part is a "NEEDS ASSESSMENT" survey with a questionnaire to find out the wishes. This technique uses deep interviews and interviews (face to face) with several community leaders and ordinary community members who are considered to represent the overall aspirations of the village community by providing a list of questions compiled in questionnaires and conducting structured interviews guided by enumerators in charge of recording the answers from the information sources. The location of the IUP can be seen in Fig 1 below.



Fig 1. Map of IUP Lahat

In determining strategic programs, proposals for community activities will be obtained in terms of institutions, community participation, and sectors (education, health, economic independence, etc. See PPM scope). Reference material for selecting and determining various needs and community preparation in implementing the program. The results of the preparation and determination of the program carried out will be the basis for the implementation of integrated PPM activities. The areas targeted by PPM are divided based on the Ring concept (which looks at the proximity of the location to the company's operational activities. Even though there are limits to a certain radius, for example, 5 km for Ring 1, basically these boundaries are not rigid and generally follow administrative areas (village or sub-district). In general, the Ring concept is described in Table 1 below.

Table 2. Mine Circumference (In Indonesia)

Ring 1	Ring 2	Ring 3
Wilayahnya terkena dampak langsung dari kegiatan operasional pertambangan, merupakan lokasi dari keberadaan fasilitas utama perusahaan, yang masyarakatnya memiliki frekuensi hubungan tinggi dengan perusahaan. Lingkupnya adalah satu atau beberapa desa yang wilayah atau area pencarian hidupnya terkena dampak langsung dari kegiatan perusahaan, baik yang bersifat dampak lingkungan dan sosial berdasarkan studi baseline (pendahuluan) dan Amdal (Analisa mengenai dampak lingkungan).	Wilayahnya terkena dampak lingkungan langsung dari kegiatan pertambangan, merupakan lokasi dari keberadaan fasilitas utama perusahaan, yang masyarakatnya memiliki frekuensi hubungan sedang dengan perusahaan. Lingkupnya adalah satu atau beberapa kecamatan yang wilayah atau area pencarian hidupnya terkena dampak langsung dari kegiatan perusahaan, baik yang bersifat dampak lingkungan dan sosial berdasarkan studi baseline (pendahuluan) dan Amdal (analisis mengenai dampak lingkungan) namun masih dalam lingkup administrasi kabupaten yang sama dengan wilayah ring I.	Wilayahnya terkena dampak lingkungan langsung dari kegiatan pertambangan, merupakan lokasi dari keberadaan fasilitas utama perusahaan, yang masyarakatnya memiliki frekuensi hubungan rendah dengan perusahaan. Lingkupnya adalah satu atau beberapa kabupaten yang area yang terdapat kelompok masyarakat yang terkena dampak tidak langsung dari operasional perusahaan dalam lingkup propinsi yang sama dengan wilayah ring I dan ring II atau lingkup nasional.

Mine ring table is determined based on the approved EIA Study where the areas directly affected (ring I, ring II and ring III) are mining operations.

Discussions

Benefit by Location

The ring area is an area that is directly affected by mining operations and the location of the company's main facilities, where the community has a high frequency of contact with the company. The scope is one or several villages, sub-districts, and districts whose areas or areas of livelihood are directly affected by company activities, both environmental and social impacts based on baseline studies and Environmental Impact Analysis. To receive optimal benefits from program implementation, the company has classified the area boundaries based on the locations directly affected.



Fig 2. PPM Ring I, II, III Cost Sharing (In Indonesia)

PPM Program Plan

Community development is an activity carried out in a systematic, planned, and directed manner to increase public access to achieve social, economic conditions and a better quality of life when compared to previous development activities. In essence, community development and empowerment is a process of socio-cultural adaptation carried out by industry, central and local governments to the lives of local communities.

To improve the quality of society requires no small cost. These funds will later be used to finance community development and empowerment programs in the area around the mine. The company plans to provide funds to villages in ring 1, ring 2, and ring 3. The aims and objectives of the PPM are formulated to make it easier for companies or Mining Business Entities to have indicators of achieving plans at a certain time (milestone). Objectives are the overall goals and expectations to be achieved and are consistent with company policies. Goals can be general and can have a fairly long period, for example, a five-year goal. The objectives of PPM are described in various environmental objectives, namely the key performance requirements applicable to the company or its part related to the development interests of the communities surrounding the mine that need to be defined and met to achieve these objectives. Environmental goals typically have a period not exceeding one year. Goals can be annual goals, semester goals, or quarterly goals. To realize the PPM policy, the company can set several goals and objectives.

Mapping Social Sanitation and Environmental Health Evacuation and Follow-up

From the implementation of social mapping, several problems can be seen in the field and based on direct interviews (face to face) with several leaders and ordinary people. The results of the social mapping activity are synchronized with government programs with the results of the Lahat Regency Musrengbang, whose program is adjusted to aspects related to PPM activities, then in consultation with the closest company parties who are also involved in this PPM activity. Several programs are designed in consultation with stakeholders, such as sub-districts, village officials, communities, so that these activities can be implemented properly and by the targets set by the government and internal targets set by the company. Some of the things that were discussed in consultation with stakeholders that emerged from the social mapping related to several things such as Table 2 below.

Table 2. Results of consultation with stakeholders (In Indonesia)

No	Program PPM	Rencana Program
1	Kesehatan	
	a. Kesehatan Masyarakat Sekitar Tambang	Pemeriksaan Kesehatan Periodik
	b. Tenaga Kesehatan	Beasiswa untuk Perawat
	c. Sarana dan/atau Prasarana Kesehatan	- Bantuan Peralatan Kesehatan - Bantuan obat-obatan & vaksin - Perbaikan Fasilitas Kesehatan
2	Pengelolaan Lingkungan	- Pelatihan pengelolaan distribusi air bersih desa - Debu akibat kegiatan angkutan batubara
3	Pembangunan infrastruktur	- Pembangunan Instalasi air bersih desa - Bantuan Perbaikan fasilitas Umum desa - Pembangunan MCK - Tempat pembuangan dan pengelolaan sampah desa

Potret Sanitasi Pemukiman di Sekitar Area Tambang yang Buruk



Fig 3. Poor Sanitation in Mine Circumference (In Indonesia)



Fig 4. Realization of the Circle Mine Escape Program (In Indonesia)

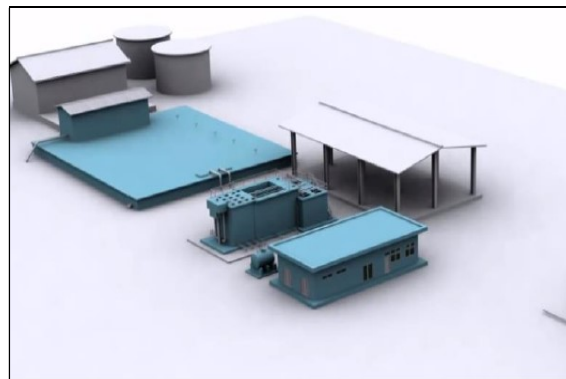


Fig 5. Clean Water Installation Plan

The procedure for assessing the success of this program is to determine the success index per year with the following formula.

$$\text{Success index} = \text{Actual/target} * 100\%$$

- Evaluation of program success is carried out annually with a success index, following the following success criteria:
- If the success criteria index is above >75% each year, then the program is declared “successful”
- If the success criteria index is above 50-75% each year, then the program is declared "enough"
- If the success criteria index is above <50% each year, then the program is declared "not successful"

CONCLUSIONS

There are major health impacts due to poor sanitation such as diarrhea, typhoid, polio, and worms as well as ARI. According to data (World Health Organization), that of the 7 billion people in the world there are still around 2.6 billion people who do not have good sanitation facilities in their settlements. PPM objectives need to be formulated to make it easier for companies or Mining Business Entities to have indicators of achieving plans at a certain time (milestone). Policy consistency is important so that the realization and implementation of PPM can run well. The objectives of PPM are described in various environmental objectives, namely the key performance requirements applicable to the company or its part

related to the development interests of the communities surrounding the mine that need to be defined and met to achieve these objectives.

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