Study Of Social Return Of Investment (SROI) And Reclamation Of CSR Program Of Coal Mining Company In South Kalimantan Province Indonesia

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Abstract

This research was conducted at coal companies in South Kalimantan Province with the sampling method Stratified Random Sampling using secondary data on corporate CSR data and primary data on CSR recipients/perpetrators in the fostered areas of each coal company that distributes and CSR both donations in the form of charity as well as community empowerment. The time of the study was March 2023. Calculation of carbon stocks by multiplying the total number of living endemic plants with the world carbon price in the same year % C organics obtained a carbon content percentage of 0.38. The carbon stock yield was 1.022 tons. Meanwhile, bamboo carbon stocks were calculated using the allometric model and the carbon stock results were 0.621 tons. The CSR program is a community empowerment program that is carried out in a structured manner to deal with both problems or opportunities and potentials owned by the community so that an understanding is built in the community that this is a shared affair. So from the social investment of a coal mining company in South Kalimantan, an SROI ratio of 2.2917 or returns on social, economic, and environmental impacts is 2.29 times the investment value.

Keywords*: CSR, Coal Mining, Reclamation, Replanting, and SROI.*

I. INTRODUCTION

Mining is a line of business that because of the nature of its activities always has an impact on the natural environment. Mining activity always brings two sides. The first side is spurring the country's economic prosperity. The other side is the emergence of environmental impacts. One of the commodities currently being cultivated to meet Indonesia's energy needs is coal. At this time Indonesia has potential coal resources of around 60 billion tons with reserves of 7 billion tons. On the other hand, coal mining is generally carried out in open mining, so it will have an impact on changes in the landscape, physical, chemical, and biological properties of the soil, and in general cause damage to the earth's surface. This impact will automatically disrupt the ecosystem above it, including the water system. In the 19th-century coal mining activities in Indonesia began to appear during the Dutch East Indies colonial period. So began a geological exploration to determine the reserves of coal on earth which was first discovered by George Peacock. Therefore, Kalimantan is one of the areas that has a wealth of non-renewable fossil sources, for the creation of energy sources and the country's economy. A large number of mining activities are still lot of companies in the Kalimantan region carry out mining activities that are not according to standards or do not have a coal mining permit. So that this creates conflict between the people who live around the area and the impacts that threaten the environment in the area due to the large number of coal mining which leaves waste in the form of heavy metals.The presence of this mining industry has many positive impacts on the country's economic growth, besides that this mining industry also has the goal of changing and advancing the structure of the economy and providing added value to industrial growth.

Therefore the issuance of mining licenses in terms of licensing supervision as regulated in Law Number 4 of 2009 concerning Minerals and Coal Article 140 paragraph 3, namely "Ministers, Governors,

and Regents/Mayors by their authority supervise the implementation of mining business activities carried out by holders of Mining Business Permits.Coal mining in South Kalimantan requires attention from the government. This is done because the government cares and pays attention to climate or environmental developments in the area which are threatened due to mining factors that occur. The impacts that threaten the environment are changes in the balance of the ecological system for the surrounding area, pollution of water, air, and rivers as well as the environment in the area due to toxic substances originating from coal mining. Therefore, if coal mining continues, it will have other major impacts, such as changes in ecological conditions that cause landslides, floods, and earthquakes. So the government took decisive action such as stopping the large-scale export of coal to South Korea and others. This is done to reduce environmental pollution and reduce the use of coal resources itself to be more environmentally friendly. Apart from that, the government is also trying to reduce the export of raw materials; this is also being done to further advance Indonesia in the economic sector because if we produce these raw materials domestically and then export them, the country's foreign exchange will increase.

The following is data on the distribution of mine openings and reclamation in South Kalimantan Province in 2020 as follows.

Table 1. Data on the Distribution of Mine Openings and Reclamation in South Kalimantan Province in 2020

Company	Mine Open Area (Ha)	(%)	Reclamation Area (Ha)
PKP2B + PMA	47,525.74	81.97	25,201.98
IUP	10,468.08	18.03	4,629.13
TOTAL	58,043.82	100.00	29,831.11

Source: ESDM Office of South Kalimantan Province, 2021

From Table 1 it can be seen that the largest mining opening area is PKP2B and PMA companies with an area of 47,525.74 Ha with a reclamation area of 25,201.98 Ha. Whereas for companies with IUP status, the mine opening area is 10,468.08 Ha with a reclamation area of 4,629 Ha.

As for the data presented by the Ministry of Environment and Forestry, there are only 18 companies that have opened mines and reclamation. Here is the list:

1. PD. Baramarta
2. PT. Adaro Indonesia
3. PT. Antang Gunung Meratus
4. PT. Arutmin Indonesia Site Satui
5. PT. Arutmin Indonesia Site Senakin
6. PT. Arutmin Indonesia Tambang Asam-asam
7. PT. Arutmin Indonesia Indonesia Tambang Batulicin
8. PT. Arutmin Indonesia Tambang Kintap
9. PT. Baramega Citra Mulia Persada
10. PT. Borneo Indobara
11. PT. Bumi Rantau Energi
12. PT. Indocement Tunggal Perkasa- Pabrik Tarjun
13. PT. Jorong Barutama Greston
14. PT. Kadya Caraka Mulia
15. PT. Sebuku Iron Lateritic Ores
16. PT. Sumber Kurnia Buana
17. PT. Tunas Inti Abadi
18. PT. Wahana Baratama Mining

The Ministry of Environment and Forestry (KLHK) also stated that the decline in natural forest area in South Kalimantan had reached 62.8% over the last 30 years or since 1990.

From the data, it was recorded that the area of natural forests in South Kalimantan shrank by around 463,481 hectares in the period 1990-2019. Here is the data:

- The Year 1990: 737,758 hectares.
- The Year 2000: 328,007 hectares.
- The Year 2006: 294,338 hectares
- The Year 2011: 288,545 hectares
- The Year 2015: 285,820 hectares
- The Year 2019: 274,277 hectares.

The forest shrinkage was triggered by land clearing, both for plantations and mining. On the other hand, the clearing of non-forest areas has increased since 1990 from 1,025,542 hectares in 1990 to 1,495,497 hectares in 2019. Land cleared for plantations over the past 30 years has reached 219,313 hectares. The land cleared for mining in the 1990-2019 periods reached 29,918 hectares. Meanwhile, of the total area of South Kalimantan covering 3,721,884.85 hectares, the forest area is around 24.68% of the ideal 30%. The plantation area in South Kalimantan compared to the total area is 17.53% or 652,564 hectares. Mining reached 2.88% of the total area or 107,058 hectares in 2019: 274,277 hectares. Forest shrinkage is triggered by land clearing, both for plantations and mining. On the other hand, the clearing of non-forest areas has increased since 1990 from 1,025,542 hectares in 1990 to 1,495,497 hectares in 2019. Land clearing for plantations for the last 30 years reached 219.313 hectares. The land cleared for mining in the 1990-2019 periods reached 29,918 hectares. Meanwhile, of the total area of South Kalimantan covering 3,721,884.85 hectares, the forest area is around 24.68% of the ideal 30%.

The plantation area in South Kalimantan compared to the total area is 17.53% or 652,564 hectares. Mining accounts for 2.88% of the total area or 107,058 hectares.SROI is considered appropriate for understanding impact investing (investment activities aimed at creating social impact). SROI itself is an analytical study that converts the value of impacts that have arisen based on selected indicators to determine economic, social, and environmental welfare into currency values. Then it compares with the number of funds invested before the impact appeared. It is hoped that later by carrying out this SROI analysis study it will be able to show external parties the advantages of AIESEC in terms of credibility, capability, and sustainability. For the internal organization itself, it can be a tool to prove and improve (Vanclay, F. 2003).Social Impact Investment (Impact Investing) may be a new term in Indonesia, but not in other countries in the world. In Indonesia, this is understood as an investment activity that creates a social impact. Institutions or individuals invest in organizations or companies that have a measurable positive impact from a social and environmental perspective, in addition to providing competitive returns on the principal of the loan invested. Impact investing activities are usually initiated as a solution to problems that exist in society.

Impact Measurement

Impact measurement in practice is complex, varying in approach and level of rigor, with several methodologies and ways of application that vary between organizations. This carries risks for the emerging impact investment sector; if a certain level of accuracy in impact measurement is not established across industries, the label “impact investment” runs the risk of being depreciated and is only used as a marketing tool for funders with commercial interests. Findings (So & Staskevicius, 2015) show the various purposes behind which impact investors carry out impact measurements. These are then grouped into 4 types, namely:

a.Estimating Impact

This process as part of the investment feasibility test; impacts investors will be interested in estimating the potential impact created through the investment that will be made. This understanding helps investors prioritize where their resources will be invested to create the desired impact.

b. Planning Impact

During the negotiation of an agreement, and/or immediately after an investment is made, impact investors use tools and methodologies to develop an impact measurement plan. For example, developing a collection plan data to monitor and evaluate the impact over the life of the investment.

c. Monitoring Impact

Several impact measurement methodologies are used to monitor progress.

It may supplement financial data to inform performance investment as planned and allow target vs actual comparisons on specific impact metrics. This can be done continuously during the investment period.

d.Evaluating Impact

At the end of the investment cycle, investors may be interested in evaluating the impact that the overall investment has had.

II. METHODS

This research was conducted at coal companies in South Kalimantan Province with the sampling method Stratified Random Sampling (Arikunto, Suharsimi. 2002) using secondary data on the company's CSR data and primary data on CSR recipients/perpetrators in the target area of each coal company which distributing and CSR both assist in the form of charity and community empowerment. The time of the study was March 2023. The data used to analyze SROI was generated based on: (1) Report documents based on the CSR Department of the TBB Coal Mining Company (2) Existing data/reports in the target community/group; (3) Results of interviews & discussions with key stakeholders, for example, group members, event organizers, & the CSR Department of coal mining companies.Data collection used in-depth interview techniques, FGDs, and the assisted village management & review of secondary data provided by coal mining companies. The evaluation approach was carried out using references based on standard documents, government regulations, research outputs, community consensus, and examples using similar events in sync with the local context found among the residents.

This is done to minimize the occurrence of over-chalim / bias that is too high for the calculation output.The data used earlier was then grouped & tabulated. For data that had a permanent and clear quantification rupiah value, the input directly became a financial value; but for some components that were still on good assumptions due to a lack of records as well as because the objects that were calculated could not be assessed (for example the value of benefits based on increased knowledge, changed in mindset, and benefits in the form of services), then calculations were carried out according to the context of the existing program. Value projections were tried to be as close and reasonable as possible, by placing estimates and examples on things that were homogeneous or using the size and standard prices that applied to residents according to the context of the event. Next, the data was analyzed to obtain the calculation of the impact value, and the financial value of the impact to obtain the present value, and then proceed with calculating the value of the SROI ratio.

Calculation of Increasing Carbon Stocks

Multiply the total number of living endemic plants by the world carbon price in the same year. For Endemic Plants calculated by:

$$(AGB)est=0.11 \times \mu \times D^{2.62}$$

Information :

(AGB)est: Tree biomass (kg)

μ: Density of Wood (g/cm^3)

D : Tree diameter (cm)

Carbon stocks are calculated by: Cbh = B x % organic C

Cbh: Carbon content of living biomass (kg)

B: Total biomass (kg)

Meanwhile, the carbon stock of bamboo is calculated using the allometric model: W= a D ^ b

W: Dry biomass of bamboo (kg)

D: The diameter of the bamboo clump

,b : Estimator coefficient

Social Return on Investment

According to the SROI Network, SROI is "a framework based on social generally accepted accounting principles that can be used to help manage and understand social, economic and environmental outcomes." SROI is developed from social accounting and cost-benefit analysis. SROI places a monetary value on social benefits and then compares the benefits received by the public and the private sector against the costs incurred. In this methodology, the results of change are ideally determined through a process involving stakeholders who experience the results of the changes themselves. Later, both negative (including accidental) and positive results must be included in the calculation. In its simplest form, the SROI ratio can be calculated as follows (Idehen, V. 2011).

$$\text{SROI} = \frac{\text{(Present Value of impact)}}{\text{Value of Input}}$$

Logical Model of Theory of Change describes the process of social change desired by an organization, intervention, or investment. A logical model that stems from the evaluation practices of the United States Agency for International Development (USAID) beginning in the 1960s is the form most commonly used to describe the theory of change. (Millar, R., & Hall, K. (2013) include input, activity (intervention), output, the outcome of change, and finally the impact. In its simplest form, a logical model for theory change has five components as described, namely (SERUS. 2010).

a. Input; resources (capital, human) that were invested in activities.
b. Action; real actions that were taken by investors.
c. Output; real output of the services provided.
d. Outcome; changes generated by the activity
e. Impact; wider benefits received by society (Arvidson, Malin and Lyon, Fergus. 2013)

Phase I SROI

As the first stage of research, researchers identified stakeholders and mapped the impact of this program. Seven parties have been identified as the main stakeholders in this UPreneur activity. They were executive committees, exchange participants, local volunteers, foster families, and small business parties (Acharya, Nikhil S. 2010).

Phase II and III SROI

After identifying stakeholders and mapping the impact of the program, the second stage was to describe the impact on the program for each stakeholder as well as the calculation approach and monetization approach

Phase IV SROI

By looking at and examining the description of the impact stated, the share of the UPreneur change in each stakeholder was determined. However, SROI does not focus on examining the correlation of these foreign variables, so further research is needed in subsequent years when these impacts have lasted longer so that the influence of the foreign variables identified here can be tested.

Phase IV SROI

By looking at and examining the description of the impact stated, the share of the UPreneur change in each stakeholder was determined. However, SROI does not focus on examining the correlation of these foreign variables, so further research is needed in subsequent years when these impacts have lasted longer so that the influence of foreign variables identified here can be tested (The SROI Network. 2012).

III. RESULTS AND DISCUSSION

For the sake of business sustainability, both private and state-owned companies set aside company funds to be used as CSR (Corporate Social Responsibility) funds. Funds to be distributed to the environment and its surroundings usually target four sectors, such as education, health, environment, and small business empowerment. There is a breakthrough made by a company engaged in coal mines in South Kalimantan (Kalsel). They use CSR funds for reclamation and environmental preservation. Four coal companies in South

Kalimantan have entered into a Cooperation Agreement /Corporate Social Responsibility (CSR) with the Ministry of Public Works and Public Housing (PUPR). The four companies are PT Talenta Bumi, PT Binuang Mitra Bersama, PT Hasnur Jaya International, and PT. Antang Gunung Meratus.

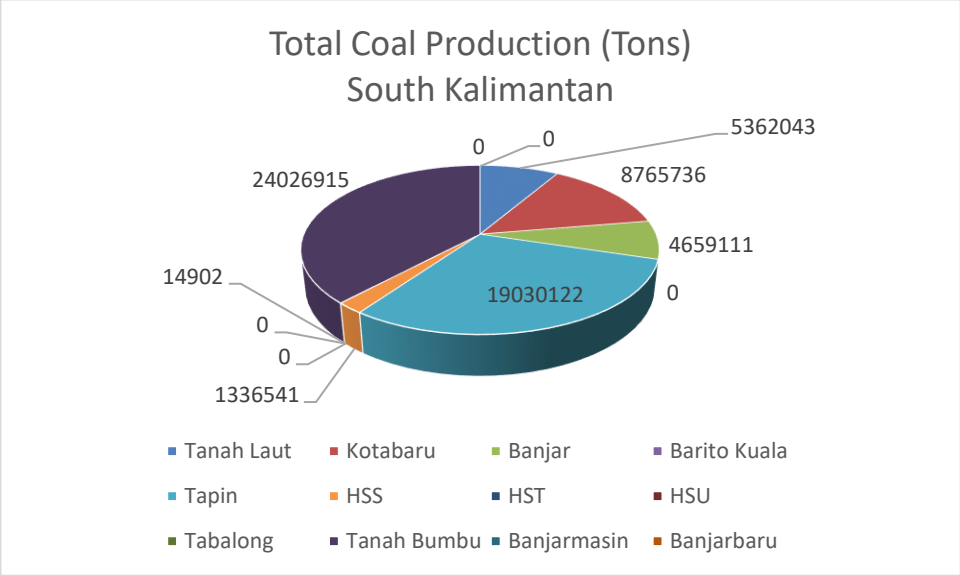

Fig 1. Total Coal Production (tons) of South Kalimantan Province in 2020

Table 1 shows that the largest amount of coal production by mining companies in South Kalimantan Province was in Tanah Bumbu Regency, amounting to 24,026,915 tons and the smallest production was in Tabalong Regency, namely 14,902 tons. There are five regencies/cities that do not have coal production, namely Banjarmasin City, Banjarbaru City, HST, HSU and Barito Kuala Regency.The total CSR costs disbursed for the reclamation and planting of gaharu wood and bamboo trees in the ring 1 and ring 2 areas of the coal mine is Rp 189 billion. Now the infrastructure development has been completed. Reclamation and planting of gaharu and bamboo trees with a CSR scheme can be a new model of financing, especially in the environmental sector. The existence of CSR is expected to support economic activities and the welfare of the local community.

Table 2. Monetization of CSR Factors of Mining Companies in South Kalimantan

FACTOR	***OUTCOME*** INDICATOR	**PARAMETERS**	UNIT	/ALUE PER UNIT	DESCRIPTION
Economic Welfare	Increased income of residents	Income results of residents above the South Kalimantan UMR No. 188.44/0842/KUM/2022	Rp	3,236,245.17	Increase in residents' income by the formation of new business opportunities with the existence of a mining company
	Utilization of Waste as Briquettes	Price of briquettes	Kg	IDR 22,000	1,000 baglog waste = 500 kg of briquettes
	Community empowerment program	Development of creative economy businesses such as craft businesses, etc	Business	250,000,000	Creative economy business by taking advantage of regional advantages
	Ecotourism	Eco-based tourism openings	quantity	150,000,000	Formation of tourist villages, fishing ponds, outbounds, self-photo parks, etc.
	Fish Farming	Fish production in the ring area of coal companies	kg	250,000,000	Establishment of community businesses in the form of fish farming in bio floc, cages, etc.
	Development of Business Skills	Business Course Cost	Package/ person	IDR 5,000,000	30 group members
	Increasing of skills in using technology	Technology Usage Course Cost	Package/ person	IDR 2,500,000	30 group members

Social Welfare	Increasing of Marketing Skills	Marketing Course Cost	Package/ person	IDR 3,750,000	30 group members
	Increasing of Social Capital	Transaction and Information Cost	Unit	IDR 10,000,000	Process of transaction and information
	Improving of the quality of joint action	Business Maintenance Cost	Business Cycle	IDR 5,000,000	Mutual assistence eliminates some of the costs
Environmental Sustainability	Endemic Tree Planting (Gaharu)	The formation of an ecosystem of gaharu trees which are useful for greening also adds to the people's economy by selling gaharu wood.	Ha	IDR 75,000,000	Gaharu trees are useful for greening and also add to the residents' economy by selling gaharu wood
	Utilization of Briquette Waste	Air Pollution Recovery Cost	kg/L/year	IDR 22,500,000	Waste of coal briquettes
	Carbon Reduction	Gaharu and bamboo planting will reduce carbon in the coal mining ring area	Carbon (tonnes)	IDR 35,500,000	The planting of gaharu trees in the hills and the planting of bamboo in the watersheds
	Sustainability of Water Resources Preventing river erosion	The planting of bamboo trees around the watersheds	Ha	IDR 25,500,000	The saving of water resources
	Development of Bamboo Plants (reclamation)	The planting of bamboo trees around the watershed	Trees/ha	IDR 16,500	The planting of bamboo trees around the watershed to reduce carbon and prevent river water erosion
	Land Fertility and Sustainability	The growth of native vegetation, improving the quality of soil and water in the coal mining ring area	Ha	IDR 50,000,000	Water and Soil Quality According to the normal threshold

Source: Primary Data Processing 2023

Estimated Future Value (*Present Value*)

At this stage, all impact events are calculated and estimated in detail from the results of the empowerment process using CSR funds from coal mining companies. So that the magnitude of the impact for each of these impact parameters is obtained. Impact events (inputs, processes, and outcomes) obtained based on the results of calculating the number of impact events (evidence) can be used as reference data for companies in reporting (social reports) and also social projects, such as various previous studies (Cahya, B. T. (2014) regarding the determinant factors that influence companies in disclosing CSR information, including those related to company size, profitability, and industry profiles that are positively correlated with CSR information disclosure. From determining the value of each outcome obtained by the community, then the calculation of the Present Value is by multiplying it by the frequency of outcomes obtained, as follows.

Table 3. Present Value of Mining Companies' CSR Programs in South Kalimantan

FACTOR	*OUTCOME* INDICATOR	PARAMETERS	UNIT	VALUE PER UNIT	FREQUENCY	TOTAL
Economic Welfare	Increased income of residents	Income results of residents above the UMR South Kalimantan No. 188.44/0842/KUM/2022	IDR	3,236,245.17	2,500	8,090,612,925
	Utilization of Waste as Briquettes	Price of briquettes	Kg	IDR 22,000	1,000,000	22,000,000,000
	Community empowerment program	Development of creative economy businesses such as craft businesses, etc	Business	250,000,000	350	87,500,000,000
	Ecotourism	The opening of eco-based tourism	total	150,000,000	100	15,000,000,000

	Fishing Farming	Fish production in the ring area of coal companies	kg	250,000,000	100	25,000,000,000
Social Welfare	Development of Business Skills	Business Course Cost	Packages/ person	IDR 5,000,000	2,000	10,000,000,000
	Increasing of skills in using technology	Technology Usage Course Cost	Package/ person	IDR 2,500,000	2,000	5,000,000,000
	Increasing of Marketing Skills	Marketing Course Cost	Package/ person	IDR 3,750,000	2,000	7,500,000,000
	Increasing of Social Capital	Transaction and Information Cost	Unit	IDR 10,000,000	250	2,500,000,000
	Improving of the quality of joint action	Business Maintenance Cost	Business Cycle	IDR 5,000,000	500	2,500,000,000
Environmental Sustainability	Endemic Tree Planting (Gaharu)	The formation of an ecosystem of gaharu trees which are useful for greening also adds to the people's economy by selling gaharu wood.	Ha	IDR 75,000,000	1,000	75,000,000,000
	Utilization of Briquette Waste	Air Pollution Recovery Cost	kg/L/year	IDR 22,500,000	1,000	22,500,000,000
	Carbon Reduction	Gaharu and bamboo planting will reduce carbon in the coal mining ring area	Carbon (tonnes)	IDR 35,500,000	1,000	35,500,000,000
	Sustainability of Water Resources Preventing river erosion	The planting of bamboo trees around the watersheds	Ha	IDR 25,500,000	1,000	25,500,000,000
	Development of Bamboo Plants (reclamation)	The planting of bamboo trees around the watershed	Trees/ha	IDR 16,500	10.000	165,000,000
	Land Fertility and Sustainability	The growth of native vegetation, improving the quality of soil and water in the coal mining ring area	Ha	IDR 50,000,000	1000	50,000,000,000
TOTAL *OUTCOME*						393.755.613.925
Deadweight						-
Attribution						10%
Drop Off						-
NETT *OUTCOME*						433.131.174.215

Source: Primary Data Processing 2023

Scoring and SROI Calculation

From the calculation of the present value, it is known that the net outcome is Rp. 830,471,308. Furthermore, the SROI ratio is calculated by comparing the present value with the input value to find out how much the return ratio is obtained from social investment. So, it can be known by the following calculation:

Present of Value (IDR)	**Value of Input (IDR)**	**SROI Ratio =** $\frac{Present\ of\ Value}{Value\ of\ Input}$
433,131,174,215	189,000,000,000	2.2917

Source: Primary Data Processing 2023

IV. CONCLUSION

Based on the results and discussion, the following conclusions can be drawn, namely the calculation of carbon stocks by multiplying the total number of living endemic plants with the world carbon price in the same year % C organic, the percentage of carbon content is 0.38. The carbon stock yield is 1.022 tons. Meanwhile, bamboo carbon stocks are calculated using the allometric model and the carbon stock results are 0.621 tons. The CSR program is a community empowerment program that is carried out in a structured manner to deal with both problems or opportunities and potentials owned by the community so that an understanding is built in the community that it is a shared affair. So from the social investment of a coal mining company in South Kalimantan, it is obtained the SROI ratio of 2.2917; or returns on social, economic, and environmental impacts is 2.29 times the investment value.

V. SUGGESTION

Based on the study, the authors suggest that by implementing this CSR program, the community can understand and have the ability to carry out a series of activities in their area independently and sustainably by the provisions of the implementation framework issued by coal mining companies. Having a concern with problems and environmental preservation is a part of efforts to realize the vision and mission of coal mining companies and CSR of coal mining companies. One of the efforts is to create work units, especially work units in the economic sector as financial and capital institutions for community small businesses in poverty alleviation and empowerment. Beside that, the effort to make Medium-Term Planning (PJM) a forum for realizing program synergy by the aspirations and needs of the community. And the last is to conduct monitoring, evaluation, and reporting as part of program implementation to ensure the success of programs implemented by coal mining companies.

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