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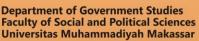
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Local development and environmental governance: Experienced from extractive industry in East Luwu, Indonesia

Umar Congge^{1*)}, Srirath Gohwong²

Abstract

All activities that are beneficial with the use of natural resources and the impact on the environment. Likewise with sustainable development that is intensively carried out without paying attention to the surrounding environment. Therefore, this study aims to look at PT Vale's mining activities from the perspective of Environmental Governance. This research is a descriptive qualitative research with data collection techniques in the form of observation, interviews and literature study. The results of this study are seen from four indicators, namely effective and robust as well as fair and responsive. Management effectiveness is assessed based on the joint commitment made by PT Vale and the local government in realizing sustainable mining practices. The principle of fairness and responsiveness can be realized in efforts to improve the socio-economic outcomes of people living in mining areas where the existence of PT Vale facilitates the community by opening up job opportunities, providing programs for coastal communities.

Keywords: environmental governance, extractive industry, local development

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Introduction

Discourse with the theme of ecology has become a hot topic of discussion (Muthmainnah, Mustansyir, & Tjahyadi, 2020). This is driven by a decrease in the quality of the environment which is marked by the occurrence of various environmental damages in human life. Over the last decade, environmental degradation and exploitation has occurred rapidly. Various human activities, one of which mining is carried out without ecological considerations (Sarupria, Manjare, & Girap, 2019), which ultimately leads to exploitation of nature, and encourages the occurrence of prolonged environmental damage that threatens human survival (Dewi, 2015; Listiyani, 2017). Environmental issues cannot be separated from human actions and activities (Khairina, Purnomo, & Malawnai, 2020). The massive exploitation of natural resources through extractive industries such as mining is one of the factors causing environmental degradation (Purniawati, Kasana, & Rodiyah, 2020; Risal, Bajari, Renyaan, & Dewi Larantika, 2022). This is due to the increasing demand for mining products in the international market (Humphreys, 2001), so that mining activities are often carried out only based on the logic of economic growth and neglecting the calculation of ecological safety.

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Indeed, the mining industry must not harm the community and nature as the main provider of materials in business activities, because it has the potential to destroy the balance of the ecosystem and lead to damage to the environment (Listiyani, 2017). However, in reality the mining industry is one of the many causes of environmental damage. The damage can be physical such as deforestation, water pollution (rivers, lakes and seas) and air pollution, as well as social, namely the loss of community livelihoods due to land conversion (Aytin, 2016; Siombo, 2014).

It is difficult to deny that the mining sector has become a strategic sector in development in several countries, thus being able to set aside other sectors such as agriculture, plantations, fisheries and forestry. However, mining activities in the process contain pros and cons. The group that agrees often underestimates the ecological aspect and emphasizes the economic aspect more. On the other hand, those who do not really agree with the mining industry are more oriented towards environmental sustainability and take sides with the conditions of the people living in mining areas (Risal et al., 2022). Based on this phenomenon, environmental management is needed (Risal et al. 2022), which leads to ensuring environmental sustainability (Ahmed, Thompson, & Glaser, 2019; Oláh et al., 2020), and involves various sectors (Reed & Bruyneel, 2010), such as government and companies involved in mining activities.

Various environmental governance strategies are being put into practice today (Lemos & Agrawal, 2006). The concept of environmental governance emphasizes the sustainability of social systems, development, and ecosystem stability as the main premise, and the environment as the main consideration in every decision taken (Risal et al., 2022; Zhai, Martínez, Beltran, & Martínez, 2020). The implementation of environmental governance involves formal and informal institutions, civil society, traditions, so that in the process there is communication that influences each other between each interest group, and elements of the community involved (Reed & Bruyneel, 2010). Environmental governance has become the center of attention in the issue of setting standards for the implementation of a policy concerning development (Ogutu, 2019). The control of industrial activities and operations, in practice, is manifested in concepts and systematic work programs in the form of environmental protection and management (Ekins, 2011), so as to minimize vulnerability to environmental damage due to development and industrial activities, especially the mining industry.

East Luwu Regency is one of the areas that can experience environmental degradation due to mining activities carried out by PT Vale. Recorded in the 2014-2025 contract of work, PT Vale's operating concession area is 118,017 hectares with 70,566 hectares operating in East Luwu district, a large number compared to other operational areas such as Bahodopi's 22,699 hectares and Pomala's 24,752 hectares. This is of course in the process of carrying out deforestation as a result of the transfer of forest land to the mining industry, which will automatically have an impact on ecosystem biodiversity, both animal and biological. Furthermore, the vulnerability of environmental damage due to mining activities carried out by PT Vale in East Luwu can also occur at sea, especially the waters of Bone Bay. Such Dal was caused by the sulfur spill to the seabed from the loading and unloading activities of PT. Vale, as well as damage to coral reefs that were hit by a foreign ship loading sulfur material belonging to PT Vale.

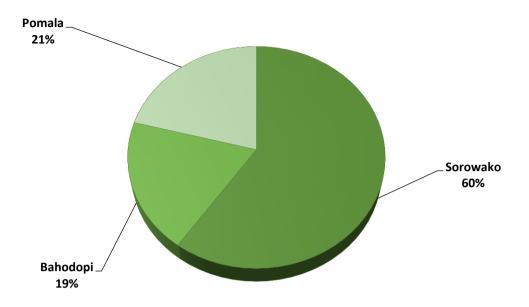


Figure 1. Total Land Concession Area of PT Vale Source: PT Vale Indonesia Tbk Fact Sheet Report

The author assumes that mining activities carried out by PT Vale in East Luwu are vulnerable to environmental damage, so it is very important to conduct in-depth and critical observations regarding the pattern of handling environmental damage due to mining activities and assess the ability of the government and PT Vale to take responsibility for the vision of sustainable development, considering that the implementation of development must pay attention to environmental protection and management efforts to prevent environmental destruction and/or a decrease in environmental functions (Nopyandri, 2014). In addition, it is very interesting to analyze in depth the environmental management efforts carried out by the East Luwu district government and PT. Vale uses a knife of environmental governance analysis, which includes general goals, namely effective, equitable, responsive, and robust, which are used to frame the evaluation, design, and analysis of environmental governance systems. (Bennett & Satterfield, 2018). Each of the four points is considered simultaneously in the institutional, structural, and procedural elements of environmental governance of the Luwu Timur district government and PT Vale in an effort to protect the environment after mining activities.

Research Methods

This research is a qualitative descriptive study, in the sense that it departs from the data, and utilizes a theory as an explanatory instrument, which then ends in a hypothesis or theory. The object of study in this study is related to environmental management in East Luwu which has relevance to mining activities carried out by PT Vale. Collecting data in this study using observation, interview, and literature (literature) techniques. Primary data was obtained through interviews conducted with the East Luwu Regency Environmental Service and also PT Vale's External Affairs. Secondary data is sourced from literature searches in the form of report documents, archives, pictures, or notes, especially from the Environmental Service of East Luwu Regency and PT Vale. In addition, from various other library sources such as books, journals, and other scientific articles that have relevance to the topic of this research.

Result And Discussion Multi-sectoral Cooperation between Local Government and PT Vale in Environmental Management

The concept of environmental governance tries to explain the ecological reality (Partelow et al., 2020), which in practice includes multi-level interactions, both local, national and international. These interactions generally involve the state, the private sector, and civil society, each of which plays a role in the formulation and implementation of environmental protection policies (Wang & Lei, 2021; Wu et al., 2019; Yeh, Tseng, Lee, & Yu, 2020). The success of environmental governance which includes rules, policy practices, and institutional patterns is needed as a solution to environmental problems and to shape the interaction between humans and the environment.

Laws and policies are the main things needed to limit human actions or activities in an effort to protect the environment. Legal certainty is intended to avoid misunderstandings between parties involved in natural resource management activities and ensure that each group has access to justice. Therefore, the Regional Government of East Luwu Regency issued Regional Regulation Number 7 of 2014 concerning the environment and environmental management as an effort to limit and guide PT Vale's natural resource management. The regulation is a derivative policy of Law no. 32 of 2009 as a follow-up to the realization of sustainable environmental management.

Regional Regulation Number 7 of 2014 concerning environmental management is manifested in the form of cooperation between PT Vale and the regional government of East Luwu Regency, in this case the Environmental Service. This collaboration seeks to optimize environmental management in the mining area. The East Luwu regional government through the Environmental Service has a role in supervising and fostering mining activities carried out by PT Vale. This is a pattern of external microenvironment cooperation, in the sense that there is coordination between local governments and private organizations in solving a problem, which in this context is an environmental issue.

Mining activities carried out by PT Vale are directly supervised by the East Luwu Environmental Service. The supervision is carried out by direct visits held by official employees and a percentage of accountability by PT Vale. Based on the results of the percentage and supervision, it can be seen whether there is pollution and environmental damage. The guidance and supervision phase begins with the preparation of an environmental impact analysis (AMDAL) by PT Vale. The AMDAL is the main document that must be obeyed by PT Vale in carrying out mining activities. The AMDAL contains various rules related to the management of environmental impacts due to mining operations such as landslides due to erosion, waste, and emissions that pollute the air.

Procedurally, PT Vale is obliged to report if it is indicated that it has taken disciplinary action. The report contains the environmental conditions in the mining area. Furthermore, the report will be verified or checked directly by the East Luwu Regency Environmental Service. Verification results can be in the form of sanctions, if found activities that cause environmental damage and pollution. However, in the last few years PT Vale has received a Gold title in responsibility for waste management. This

means that carrying out its mining activities in accordance with SOPs (Standard Operating Procedures), one of which is the production of waste that does not exceed the daily production limit.

Although the granting of mining management permits is under the authority of the central government, local governments still have a very large role. The Regional Government is one of the stakeholders that has the authority to monitor and provide input to the central government regarding the condition of mining management carried out by PT Vale. Therefore, the local government and PT Vale have a coordinating relationship. The success of environmental management cannot be separated from the intense communication and coordination carried out by both parties, namely the Regional Government and PT Vale. In addition, from PT Vale itself, environmental management is considered quite good, especially when viewed from the management system, such as controlling liquid waste by building more than 100 ponds (settlement ponds) equipped with waste water treatment equipment (Pakalangkai Water Treatment) and Lamella Gravity Settler to reduce the concentration of liquid waste, so that the local government feels helped by PT Vale's environmental management system.

Environmental Governance Perspective in Management of Mining Activities

Effective and Robust

PT Vale has produced 72,237 metric tons of nickel, which in this case is highly appreciated for its achievements thanks to the hard work of PT Vale employees. However, this increase was offset by a decrease so that PT Vale had to spend capital due to the decline. However, the company continues to focus on various productivity and cost-saving initiatives to maintain the company's competitiveness in the long term without compromising the company's core values, because the most important thing in this case is the safety of life and preserving the environment in order to preserve natural resources.

One of PT Vale's strategic pillars is to include sustainability as an integral part of its business by building economic, social and environmental aspects, as well as mitigating the impacts of operations. Striving to build strong relationships with stakeholders, invest in reducing the impact of PT Vale's activities, work with high ethical standards, promote transparent management and actively contribute to environmental conservation and sustainable development.

As the main actor in the management of mining resources in East Luwu, PT Vale is required to have a strong commitment to sustainable mining management, in the sense of not only looking at the economics of mining activities, but also looking at the ecological aspects that occur from mining operations. In addition, improving the welfare of local and surrounding communities must be placed in the highest position which is equivalent to environmental conservation. The success of environmental management can be seen from the extent to which the efforts and achievements made by the parties concerned in realizing a stable environmental condition. Management effectiveness is assessed based on the joint commitment made by PT Vale and the local government in realizing sustainable mining practices. Several points can be used as a basis for assessing the effectiveness of management; improvement of ecosystem function, provision of ecosystem services, and environmental health (Bindraban, Dimkpa, & Pandey, 2020; Brockerhoff et al., 2017; Hunter et al., 2019; Luck et al., 2009;

Polasky, Lewis, Plantinga, & Nelson, 2014; Spangenberg et al., 2014; Teague & Kreuter, 2020; Wright et al., 2019).

Based on the 2021 annual report, PT Vale is committed to environmental issues by reducing the amount of carbon emissions by 33 percent by 2030 and Net-Zero Carbon Emissions by 2050. This is PT Vale's effort to improve ecosystem functions. In addition, in order to maintain the ecosystem around the mining area, PT Vale also has Pakalangkai Waste Water Treatment which is integrated with approximately 100 liquid waste settling ponds (ponds). While controlling dust and particulate emissions at the nickel processing plant, the company operates an ESP (Electrostatic Precipitator) or dust catcher with static electricity technology and Bag House (dust and particulate capture facilities) in the smelting furnace and reducing furnace. In 2020 PT Vale won a green proper award from the Ministry of Environment and Forestry. This means that PT Vale has made every effort to comply with all applicable regulations in terms of environmental management as well as community empowerment so that this achievement is appreciated by the government.

Furthermore, the provision of ecosystem services is carried out by PT Vale through the supply of electrical energy needs to communities in mining areas. The electricity distribution comes from hydroelectric power plants so as to minimize the use of fossil energy. The distribution is carried out in cooperation between PT Vale and the State Electricity Company. In addition, for clean water needs, PT Vale builds water treatment with quality standards from the State Drinking Water Company and the World Health Organization (WHO). The development is intended for people who need clean water.

PT Vale's commitment to effective environmental management is invaluable from the nursery program. The program is an effort to treat tree seedlings that are experiencing deforestation. The 2.5 hectare treatment area has 700 thousand seedlings, of which are endemic to East Luwu. The program is part of improving environmental health through the process of post-mining land reclamation. PT Vale's nursery is also managed to become a tourist place for people who visit. Furthermore, the program is an integration of mining activities and post-mining land rehabilitation. The existence of a nursery is not only used by PT Vale, but also by the community. Thus, the seeds that have been developed are given to people who want to plant trees.

PT Vale has established a 2.5 hectare modern nursery which has been in operation since April 2006. PT Vale Indonesia Tbk's nursery also produces various native species and endemic plants which are part of biodiversity conservation. Local plants include betao, bitti, nyatoh, and forest mangosteen. Meanwhile, endemic plants, for example, ebony and dengen fruit. Before mining activities were carried out, PT Vale Indonesia Tbk ensured that no protected species of fauna or flora were found at the mining site. Based on data for 2020, it is known that the reforestation that has been carried out by PT. Vale Indonesia Tbk outside the boundaries of the concession area, which is 10,280 ha. The amount outside the concession is 10,000 ha and inside the concession itself (2021 target) is 280 ha.

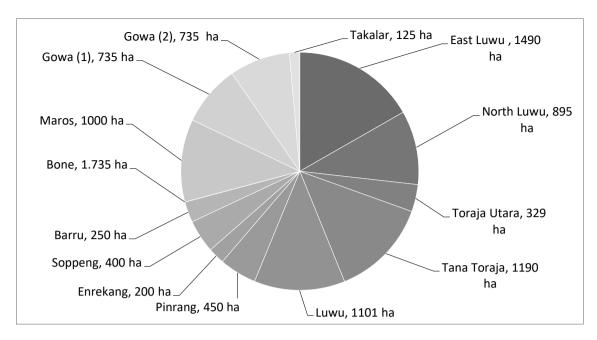


Figure 2. Data on reforestation areas in South Sulawesi Province Source: Annual Report PV Vale, 2020

From figure 2. it is known that there are 14 areas that will experience reforestation in 2020 and the area most affected by reforestation areas is Bone district, which is 1,735 ha and the area that is least affected by reforestation areas, is Takalar district with a total area of 125 ha. This reforestation data certainly attracts attention because some of the areas included in the reforestation area are not mining locations from PT. Vale Indonesia Tbk, but because they feel responsible for environmental management (Dasanayaka, Gunarathne, Murphy, & Nagirikandalage, 2022; Peng, Chen, Elahi, & Wan, 2021), PT. Vale Indonesia Tbk carried out a reforestation innovation such as establishing a modern nursery (nursery) in Sorowako, East Luwu Regency, to be precise.

Equitable and Responsive

Sustainable development pays attention to the balance of the ecosystem and ensures that the potential of natural resources can be utilized for prosperity, especially for the surrounding community. The principle of being equitable and responsive can be realized in an effort to increase the socio-economic outcomes of communities living in mining areas. The distribution of CSR (corporate social responsibility) is PT Vale's main step in improving the socio-economic conditions of the community. The distribution of CSR by PT Vale aims to improve the welfare of communities throughout the East Luwu region by utilizing natural resources that are managed sustainably so that they can be felt by the next generation. In the agricultural sector, PT Vale distributes its CSR budget to farmer groups in the Nuha sub-district. This is done to increase the income of farmers in the area. Furthermore, in the fisheries sector, PT Vale provides a fish apartment program for coastal communities. This program arose because they saw the natural potential that existed in the coastal area of the Mailili sub-district as well as the results of the marine processing industry.

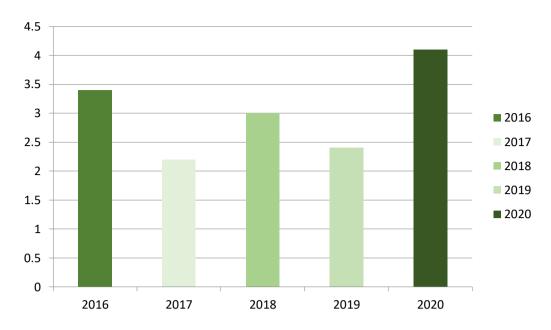


Figure 3. Community development program funds *Source: PT Vale Indonesia Tbk Fact Sheet Report*

Welfare can be said as the fulfillment of daily food needs. The presence of PT Vale is a driving force for improving the quality of life of the surrounding community. The economic aspect is one element that can be met so that there will be a sense of justice for both parties. As an effort to implement corporate social programs, PT Vale conducts community development programs through equitable distribution of benefits. PT Vale together with the East Luwu Regency Government and the community work together to carry out community development and empowerment in accordance with Law No. 6 of 2014 (Village Law). The community development program exists to stimulate village development, particularly the mining company's operating areas, in accordance with the Minister of Energy and Mineral Resources Decree 1824 of 2018. The community empowerment program in the process includes the signing of a Memorandum of Understanding (MoU) by PT Vale and a Cooperation Agreement with the Directorate General Rural Area Development of the Ministry of Villages, Development of Disadvantaged Regions and Transmigration (PDTT), the Department of Community and Village Empowerment of South Sulawesi Province and the East Luwu Regency Government regarding the implementation of the Community Development Program. Since 2015 the company has been fostering farmers in empowerment areas to practice environmentally friendly healthy agriculture through organic rice cultivation. Then in 2017 the company provided guidance and assistance for micro, small and medium enterprises in the empowerment area. To date, there are around 38,000 people in the company's empowerment area as beneficiaries of the PPM implementation.

Cooperation of PT. Vale is more focused on community development because here the government is only an intermediary between PT Vale and the community so that PT Vale prioritizes the welfare of the community (Figure.3), therefore the graph shown is more prominent with PT Vale and the community we can see with the community development program where the implementation of corporate social programs through the Community Development (PPM). The company collaborates with the East Luwu Regency Government and the community. PPM is designed for the 2018-2022 period and synergizes with Government regulations that stimulate village

development and mining company operating areas in particular, namely Minister of Energy and Mineral Resources 1824 of 2018 concerning Guidelines for Implementation of Community Development and Empowerment and Law Number 6 of 2014 (Village Law). Regarding its implementation, Vale signed a Memorandum of Understanding (MoU) and a Cooperation Agreement with the Directorate General of Rural Area Development, Ministry of Villages, Development of Disadvantaged Regions and Transmigration (PDTT), the Department of Community and Village Empowerment of South Sulawesi Province and the East Luwu Regency Government, implementation of the Community Development Program. Previously, since 2015 the company has been fostering farmers in empowerment areas to practice environmentally friendly healthy agriculture through organic rice cultivation. Then in 2017 the company provided guidance and assistance for micro, small and medium enterprises in the empowerment area. Until now there are around 38,000 people in the company empowerment area as beneficiaries of the PPM implementation, And also Improving corporate governance in a sustainable manner Implementing good corporate governance (GCG) which prioritizes openness and transparency to prevent business from risks of corruption and bribery.

This has been realized through socialization and training on Anti-Bribery and Corruption (ABC) for all employees and contractors of the company since 2015. At the same time, the company has also developed anti-corruption guidelines that are binding on the company's internal scope as well as its partners. Since January 1, 2016, PT Vale has opened an independent reporting channel, the Vale Whistleblower Channel (VWC), which is a reporting service that is managed independently and professionally by a violation reporting service provider in Indonesia. VWC is directly connected to the Vale S.A. Code of Ethics and Conduct Section. VWC is a channel for reporting allegations of fraud, fraud, or violations of company policies. PT. VALE also has social programs and support for development, namely economic development, education, health. It belongs to the district team. The local government focuses on scholarships for undergraduates, while Vale is currently entering S2 and S3. Vale is thinking how to synchronize S1, S2, and S3. interrelated then the health program on covid-19 at that time PT Vale had problems with health infrastructure, PT Vale asked the government what PT Vale could help with. For example, such as improving health services, ensuring that all facilities for the pustu are met, capacitating fields, capacitating nurses, and meeting existing qualification standards are PT. Vale's contribution to the government, especially in the health department and the economy, such as farm roads, agricultural activity facilities, harvest season, tractor and so on. For example, when there is an agricultural area, the target is a number of hectares of open rice fields by providing tractors, the target is reached then the harvest season if there is a problem with the tools to support the smooth running of the farmers, then Vale provides contribution assistance then how is the management Vale and the government collaborate to form village economic institutions. capacitation and facilitation of how the legalization of its business runs according to the SOP, so that what happens is handled by PT Vale and the government. And also Improving corporate governance in a sustainable manner Implementing good corporate governance (GCG) which prioritizes openness and transparency to prevent business from risks of corruption and bribery. This has been realized through socialization and training on Anti-Bribery and Corruption (ABC) for all employees and contractors of the company since 2015. At the same time, the company has also developed anti-corruption guidelines that are binding on the company's internal scope

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Vale's strategic pillar is to include sustainability as an integral part of its business by building the economy, social and environment, and mitigating the impacts of mining operations. PT Vale builds strong relationships with stakeholders, invests in reducing the impact of our activities, works with high ethical standards, promotes transparent management and actively contributes to environmental and biodiversity conservation, and sustainable development. More than 50 years of operation in Indonesia, producing 75,000 tons of nickel matte per year, supplying 5% of the world's nickel needs. Commitment to sustainable mining practices is our effort to realize the main target in its mining operations in eastern Luwu.

Conclusion

Environmental Governance is an approach that can be used for anyone who wants to explore the environment. Even this exploration activity must comply with the rules so as not to disturb the state of the ecosystem. A lot of sustainable development that is being carried out at this time actually ignores this so that there is a lot of environmental damage everywhere. Environmental sustainability must be maintained by all parties. Synergy from all stakeholders is needed in order to achieve sustainability and reduce environmental damage. PT. Vale as a mining company has performed its role quite well but still needs to continue to develop innovations so that it becomes even better. The author hopes that this research can provide benefits for readers and can be input for related agencies.

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