

ANALYSIS OF THE SOCIAL IMPACT OF GRANITE MINING ACTIVITIES ON THE SURROUNDING COMMUNITY

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Abstract

Granite mining activities contribute to regional economic growth by creating job opportunities, boosting community income, and fostering infrastructure development. However, these activities also carry the potential for various social impacts that effect the living conditions of communities surrounding the mining areas. This study aims to analysis the social impacts of granite mining from a sustainable development perspective by examining social, economic, and community well-being aspects. A descriptive methode with a qualitative approach was employed. Data collection involved field observations, interviews, and a review of documents. The findings indicate that granite mining generates positive impacts, such as increased employment opportunities, higher community income, the growth of local businesses, and improved access to infrastructure. Conversely, the community also experiences negative impacts, including shifts in livelihood patterns, potential social conflict, disturbance caused by dust and noise, and environmental degradation that affects social activities. The study concludes that granite mining entails multidimensional social impacts both positive and negative. Therefore, synergy among the company, the government, and the community is essential to achieve sustainable mining management, ensuring that economic benefits go hand-in-hand with improved social well-being and environmental preservation.

Keywords: *social impact, granite mining, sustainable development, community well-being.*

INTRODUCTION

The mining sector is a strategic sector that plays a vital role in supporting national and regional development. Karimun Island in Karimun Regency, Riau Islands Province, is an area with significant mineral resources potential, particularly granite. This potential has encouraged the development of granite mining activities carried out by various companies to meet the needs of domestic construction materials and the export market. The are 8 (eight) IUP OP (Mining Business Permits for Production Operations) for the granite mining sector on Karimun Besar Island. Karimun Regency, Riau Islands Province. The existence of the granite mining industry in Karimun Regency has provided significant economic benefits for the community and local government. Mining activities can open up job opportunities for local communities, increase household incomes, encourage the growth of supporting business sectors, and contribute to regional revenues through taxes and levies (Jimmy et al., 2020). In addition, the development of facilities and infrastructure carried out by mining companies can also benefit the surrounding community by supporting mobility and economic activity.

Besides providing economic benefits, granite mining activities also have the potential to cause various social impacts on communities surrounding the mining area. These social impacts include changes in livelihood patterns, changes in social structures, shifts in local values and culture, changes in social interaction patterns, and the emergence of conflicts of interest related to the use of natural resources and the environment (Hasraman et al., 2025). Long-term mining activities can also impacts community comfort due to noise, dust, blasting vibrations, increased vehicle traffic, and changes in environmental conditions that are part of people's daily lives (Aini Nur Furoida, Indah Susilowati, 2021). Positive impacts are generally seen in increased job opportunities, increased community income, the development of small and medium enterprises, and improved access to public facilities (Effan Zulfiqar, Soritua Ritonga, 2025). Conversely, negative impacts can arise in the form of social inequality, economic dependence on the mining sector, reduced productive land for communities, declining environmental quality, and changes in social relations patterns within the community. If not managed properly, these conditions can effect the sustainability of development and the well-being of communities surrounding the mine.

From a sustainable development perspective, the success of mining activities is not only measured by economic and productions aspects alone, but also by the company's ability to manage the social impacts that arise on the community. Mining companies are required to apply the principles of social responsibility, involve the community in the decision-making process, and ensure that the benefits of mining activities can be felt fairly by all stakeholders (Bunga Ratu Portuna Dewi Santriani, Nurul Asfiyah. 2025). Evaluation of social impacts is important to determine the extent to which mining activities have affected the lives of the community and to identify problems that require management and improvement efforts.

Karimun Regency, as one of the largest granite-producing regions in the Riau Islands Province, has diverse social characteristics, with many relying on fisheries, trade, services, and other local economic activities. The presence of granite mining in this region has the potential to change social conditions and the overall quality of life. Therefore, research is needed to comprehensively analyze the social impacts of granite mining on the communities surrounding Karimun Regency. This research can provide an overview of the form, extent and characteristics of social impacts resulting from granite mining activities. The research results can be used as evaluation material for mining companies, local governments, and other relevant parties in formulating more effective social management policies and strategies to achieve environmentally conscious, socially just, and sustainable mining activities.

LITERATURE REVIEW

Granite mining activities contribute to regional economic development through job creation, increased community income, and regional revenue. According to Law Number 3 of 2020 concerning Mineral and Coal Mining, mining activities must be carried out with due regard for sustainability principles, encompassing economic, environmental, and social aspects. According to Haoxuan Yu (2024), mining activities are a strategic sector capable of driving economic growth, but their implementation must consider the balance between natural resource utilization and the well-being of the surrounding community. Social impact is defined as changes in individual or commodity lifestyles, culture, value systems, health, community rights, social relationships, and aspirations arising from an activity. Social impact assessment is a crucial part of sustainable development because it can identify social changes arising from extractive industries and thus serve as a basis for developing mitigation and community empowerment policies.

The concept of sustainable development emphasizes the balance between economic, social, and environmental aspects in every development activity. In the mining sector, sustainability is measured not only by the magnitude of economic profits but also by the company's ability to maintain environmental quality and improve community welfare. According to the World Commission on Environment and Development (WCED, 1987), sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. The application of sustainable development principles in the mining industry can be achieved through corporate social responsibility programs, community empowerment, reclamation and post-mining activities, and sustainable social impact management. Ibrahim & Ilham Zitri (2023) explain that social impact assessments encompass aspects of community life, namely:

- Community quality of life
- Livelihoods and economic well-being.
- Community health and safety.
- Culture and social values.
- Social relations and community institutions.
- Community participation in decision-making.

METHOD

This research uses a descriptive analysis method with a qualitative approach. The qualitative approach is used to gain a deeper understanding of social changes occurring in society and their suitability with the principles of sustainable development.

RESULTS AND DISCUSSION

The abundant granite resources have encouraged the development of mining activities, which have become a leading sector in the regional economy. Granite mining activities have increased the population growth rate on Karimun Island. According to data from the Central Statistics Agency (BPS) of Karimun Regency, the population of Karimun Regency, has increased annually, particularly in Karimun, Meral West Meral, and Tebing Districts.

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Lisme Santria Sihombing

Table 1. Population

No	District	Population (thousand people)											
		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1	Karimun	44.624	43.760	43.497	43.909	44.187	50.876	51.353	52.610	54.018	47.770	54.100	47.932
2	Meral	38.985	40.956	42.741	43.074	43.370	46.994	48.964	50.015	52.015	53.260	52.870	55.495
3	Meral Barat	12.181	13.391	14.353	14.424	14.505	15.255	14.980	15.466	16.002	17.250	16.400	18.083
4	Tebing	24.788	25.749	26.749	26.992	26.992	27.999	27.721	30.300	30.300	34.540	30.550	37.863
Total		120.549	123.856	127.340	128.399	129.179	141.124	143.018	148.788	152.992	152.820	153.920	159.373

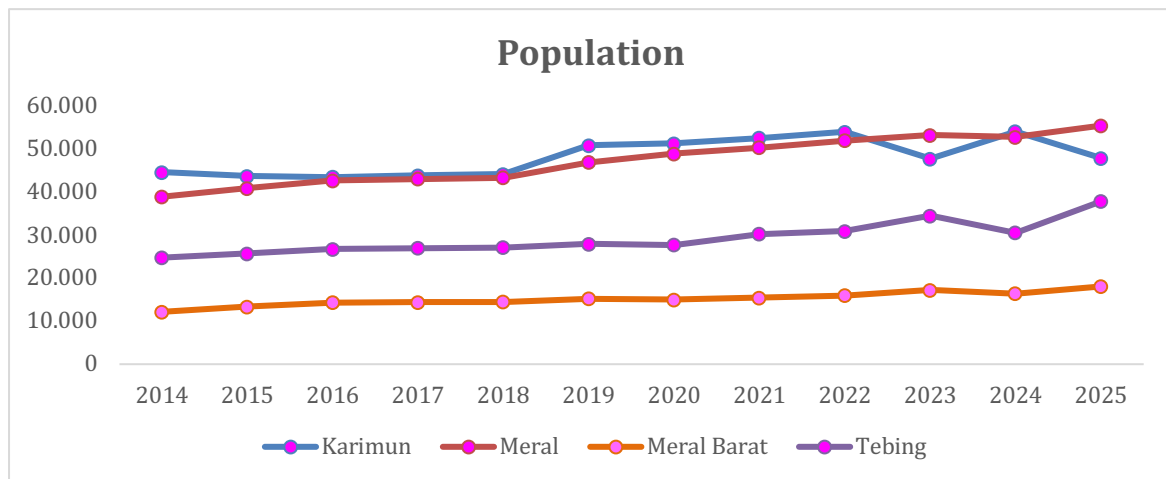


Figure 1. Population Chart

Positive Impact of Granite Mining Activities on the Community

1. Increased Employment Opportunities

Interviews with the community and the company indicate that granite mining has created employment opportunities for local residents. Job opportunities are available in various fields, such as heavy equipment operators, mechanics, field supervisors, administrative staff, security personnel, and other support workers. The presence of mining companies provides alternative livelihoods beyond the fisheries, agriculture, and trade sectors, which previously served as the community's primary sources of income. Some respondents stated that working in the mining sector provides a relatively more stable income compared to traditional jobs that are heavily influenced by weather and seasonal conditions. This finding aligns with research by La Ode Muhammad Elwan et al.,(2022), Who stated that the presence of the mining industry can increase local labor absorption and reduce unemployment in areas surrounding mines. This research indicates that communicates who gain access to employment with mining companies experience an improved standard of living and an increased ability to meet basic family needs. Data from the Central Statistics Agency (BPS) of Karimun Regency shows that the Karimun Regency workforce has increased.

Table 2. The Workforce in Karimun Regency

No	Year	Economically Active	
		Working	Unemployment
1	2016	86.673	5.229
2	2017	95.079	5.745
3	2018	100.667	2.533
4	2019	91.095	5.264
5	2020	96.295	8.786
6	2021	100.615	7.801
7	2022	101.543	7.496
8	2023	118.816	7.606
9	2024	126.969	7.414
10	2025	124.419	8.380

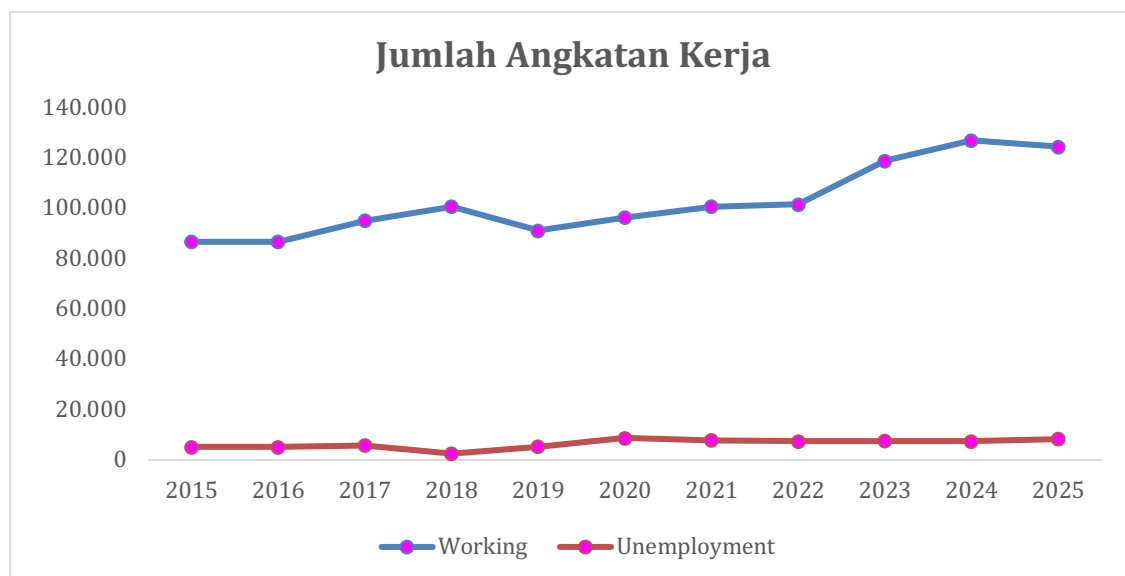


Figure 2. The Workforce in Karimun Regency

2. Increased Local Income and Economic Activity

The research results show that mining activities have a multiplier effect on the economy of the surrounding community. The increasing number of mining workers has encouraged the growth of various small businesses such as food stalls, convenience stores, transportation services, house rentals, and other service businesses. Most respondents stated that the presence of mining companies increases economic turnover in villages surrounding the mining area. The income of people working directly or indirectly in the mining sector has increased compared to before mining activities. These research findings support the findings of Manzilia Fatma and Amy Yayuk Sri Rahayu (2021), who explained that the mining sector has the ability to create economic linkages with other sectors, thus positively impacting local economic development

3. Improvement of Infrastructure and Sosial Facilities

Based on field observations, several public facilities, such as access roads, student transportation, ambulance operations, and community social activities, receive support from the company through its corporate social responsibility program (Community Development and Empowerment). The community believes that the company's presence has helped improve accessibility to previously difficult-to-reach areas. Improved infrastructure has had a positive impact on population mobility and the distribution of community output

Negative Impacts of Granite Mining Activities on the Community

1. Changes in Community Livelihood Patterns

Although the mining sector opens up new job opportunities, research shows a shift in community livelihoods from traditional sectors to the mining sector. Some people are leaving jobs as fishermen, farmers, or small business owners due to the attraction of higher income levels in the mining sector. This situation has the potential to create economic dependence on mining activities. If mining activities cease or production decreases, communities risk losing their primary source of income, which could impact household economic stability. This finding aligns with research by Rahman et al. (2021), who stated that community dependence on the mining sector is a challenge to sustainable development in mining areas

2. Disturbance to Public Comfort and Health

Interview results indicate that residents living near the mining site experience impacts in the form of heavy equipment noise, dust from material transportation activities, and vibrations from rock blasting activities. Dust generated from mining activities and material transportation is a major community complaint because it can affect air quality in residential areas (Haoxuan Yu et al., 2024). In addition, increased transport vehicle traffic also poses a safety risk to road users. Research by Wan Hasmirah Wan Ibrahim et al. (2019) shows that open-pit mining activities using the quarry system have the potential to reduce the quality of the surrounding environment, which ultimately affects the level of comfort and health of the community if not managed optimally.

3. Potential for Social Conflict

The research found differences in public perceptions of mining companies. Some communities support mining activities because they provide economic benefits, while others believe that the environmental and social impacts outweigh the benefits. These differing interests have the potential to lead to social conflict if not balanced by good communication between companies, the government, and the community. Conflicts generally relate to employment opportunities, land acquisition, distribution of economic benefits, and environmental management. According to researchers Ricardi S. Adnan & Gumilar R. Somantri (2023), social conflict in mining areas generally occurs due to an imbalance in the distribution of benefits and a lack of community involvement in the decision-making process.

Social Impact Analysis in the Perspective of Sustainable Development

Based on research findings, granite mining activities in Karimun Regency have multidimensional social impacts. Positive impacts are seen in increased employment opportunities, community income, local economic growth, and infrastructure development. However, negative impacts also arise in the form of changes in livelihood structures, environmental disruption, and potential social conflict. From a sustainable development perspective, the success of mining activities is not only measured by the economic contribution generated, but also by the company's ability to maintain a balance between economic, social, and environmental aspects. Therefore, it is necessary to strengthen community empowerment programs, increase community participation in decision-making, optimize programs (Community Development and Empowerment), and more effective environmental impact management to minimize negative social impacts that arise. The results of the study indicate that the sustainability of the economic benefits of the mining sector in Karimun Regency is highly dependent on the ability of all stakeholders to manage social impacts in an integrated manner so that community welfare can continue to improve without sacrificing environmental quality and social cohesion in the future.

CONCLUSION

Research findings indicate that the most dominant positive impact is increased employment opportunities for local communities, both directly through employment by mining companies and indirectly through the development of supporting business sectors such as trade, transportation services, restaurants, and other small businesses. Mining activities also contribute to increased infrastructure development that supports the social and economic activities of the surrounding community. Conversely, granite mining activities also generate several negative social impacts. These impacts include shifts in community livelihood patterns from traditional sectors to the mining sector, increased economic dependence on the mining industry, disruptions to comfort due to dust, noise, and mining vehicle traffic, as well as the potential for social conflict related to the distribution of economic benefits, employment opportunities, and environmental impact management.

From a sustainable development perspective, granite mining activities in Karimun Regency have contributed to regional economic development. However, more optimal efforts are needed to manage social aspects. Increased community participation, the implementation of sustainable corporate social responsibility programs (Community Development and Empowerment), community economic empowerment, and effective environmental impact management are crucial factors in maximizing social benefits and minimizing the negative impacts of mining activities. The implementation of sustainable mining management requires strong synergy between companies, the government, and the community. Companies play a role in carrying out mining activities in accordance with good mining practices, implementing social responsibilities, and minimizing environmental impacts. The government serves as a regulator and supervisor, ensuring that all mining activities comply with laws and regulations and the principles of sustainable development. Meanwhile, the community plays a crucial role as stakeholders involved in the planning, implementation, and supervision of mining activities. Through harmonious collaboration between these third parties, the economic, social, and environmental benefits of mining activities can be optimized, thereby improving community welfare while preserving the environment for future generations.

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