



## **ANALYSIS OF SOCIAL IMPACT MANAGEMENT, INDUSTRIAL EDUCATION AND ENVIRONMENTAL LAW (SPIHUL) OF EX-MINING LAND IN SOUTH KALIMANTAN**

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### **ABSTRACT**

*The impact of coal mining in South Kalimantan, the phase after exploitation, involves various aspects such as economic, social, environmental, legal, educational and industrial. Although the negative impacts are numerous and complex, this research aims to explore the positive impacts and economic potential for future social welfare. This research involves mapping the positive impacts of former mines and mining pits that are widespread in South Kalimantan, particularly from Kotabaru in the Southeast to Tabalong in the East. Mine pits, which may cover thousands of hectares and reach depths of hundreds to thousands of kilometers above ground level, are the main focus. Through a structured research program, the results can be identified as potential long-term benefits that can be managed properly. One significant positive impact is the potential utilization of former mine pits as an Electric Energy Reserve. Through transformation into a Power Lake, the region can become a sustainable source of renewable energy. In addition, the concept of energy-preneurship can be introduced to encourage innovation in the energy sector and create new economic opportunities. Environmental aspects can also be accommodated through the establishment of Flood Flow Buffers, which not only act as environmental protection but also provide local economic benefits. Revitalized mine pits can be transformed into proverty residences, such as apartments and lake hotels that bring natural beauty as well as a source of income for local communities. In addition, the reconstruction and transformation program can generate land for fish cages and lake biota, create boat and speedboat cruise attractions, and even become a lake sports icon. All of these initiatives can be managed with national development needs in mind and have the potential to become a source of foreign exchange through the tourism and renewable energy sectors.*

**Keywords:** *Energy-preneurship, Power Plant, EIA, ex-mines*

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Received: 5 February 2024

Accepted: 26 March 2024

Publish: June 2024

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**How to Cite:**

Sani, A., Fathullah, A., Saleh, M., Mukhlis., & Rizkiansyah, R. (2024). Analysis of Social Impact Management, Industrial Education and Environmental Law (SPIHUL) of Ex-Mining Land in South Kalimantan. *International Journal of Human Capital Management*, 8 (1), 11-16. <https://doi.org/10.21009/IJHCM.08.01.2>

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## INTRODUCTION

The problem of coal mining and other mines in South Kalimantan that leave a legacy of giant holes has an impact on the overall ecosystem cycle. An obvious impact is the flooding that has occurred in the last 5 years, in the closest and furthest parts of the region, in this study triggered by serious problems caused by the existence of coal mining. Coal and other mines in South Kalimantan, especially in relation to the legacy of giant pits that affect the entire ecosystem cycle. One of the obvious impacts is the frequent flooding that has occurred in the last five years, especially in areas around and far from the existing mine pit locations. This phenomenon is caused by an ecosystem imbalance resulting from the lack of measures such as closure of the mine pit, the absence of reforestation around the mine pit, and the lack of overall restoration efforts through the planting of flood-absorbing trees.

It should be noted that in recent years, the mine shafts have not received adequate ground cover, there is no reforestation policy, and there is a lack of initiative in carrying out comprehensive restoration explorations, especially in terms of planting flood-absorbing trees. This has led to the formation of large open areas, which in turn have become large reservoirs of water both within the mine pits and around the mining area covering thousands of square kilometers.

A number of productive ideas have been put forward to address this problem, including the economic approach of fish farming, reallocation of fisheries by adding fish cages, construction of agricultural reservoirs, and utilization of the tourist site area around the mine pit. However, to date, these efforts have not been able to fully achieve a balance of economic value and environmental impact.

Therefore, this research will try to detail these problems with a measurable and structured scientific approach. The main focus of the research is to map the positive impacts of former coal mines and mine workings that can be identified as potential long-term benefits. There are alternative hypotheses that need to be explored, including the utilization of the mine pit as a giant lake for renewable energy power generation, integration of reforestation to reduce flood impacts, and utilization of the mine land for business and tourism purposes.

The research will also include a thorough feasibility study of the power generation program planning process, taking into account economic value, entrepreneurship and social impacts. It is hoped that this will contribute to finding effective solutions to the complexity of the mine reservoir outflow water problem and its impact on the ecosystem. With a holistic and comprehensive approach, this research is expected to provide a better understanding and concrete policy recommendations to address this issue in a sustainable manner.

## **LITERATURE REVIEW**

- 1) **Exploring the Potential and Utilization of Ex-Coal Mine Lands in South Kalimantan:**  
The utilization of ex-coal mine workings is a significant step in responding to the ecological and economic impacts of the mining industry. According to Hein, et al. (2014), rehabilitation of mined land is one way to reuse land disturbed by mining activities. Research by Hein, et al. (2014) presents various approaches to mine land rehabilitation, including reforestation, agricultural land development, and land use for tourism purposes. For example, rehabilitation programs in South Kalimantan could adopt these approaches to maximize the benefits of former coal mine land.
- 2) **Company and Government Measures to Turn Giant Reservoirs into Power Plants:**  
Turning a giant ex-mining reservoir into a power plant involves cooperation between the company and the local government. According to Soedjono (2018), the steps to implement an integrated power plant can involve the involvement of the private sector, with the government's role as regulator and facilitator. The study by Soedjono (2018) can be used as a reference to understand the strategies and concrete steps that can be taken by companies and the government in managing giant reservoirs as power plants.
- 3) **Solutions to Post-Operating Coal Mining Challenges in South Kalimantan:**  
Once coal mining is no longer in operation, the main challenge involves rehabilitating and reusing mined land. According to Siringoringo, et al. (2019), effective solutions include reforestation, farmland development and diversification of the local economy. Research by Siringoringo, et al. (2019) shows that these solutions can have a positive impact on the environment and the welfare of local communities.

## **METHODOLOGY**

This research adopted a qualitative and quantitative approach with a basic program research design. Field research design is conducted with a qualitative approach to explore basic thoughts about the utilization of ex-coal mine land pits and the potential for power generation. Furthermore, program research on miniature power plants on a small scale will be carried out using a quantitative approach of basic quantum physics that is carefully modified by the formula. **Subjects and Objects** The research involves communities that have utilized ex-mining land, with a focus on participation in land rehabilitation and reutilization. The research object is coal mining in South Kalimantan, with analysis of miners' behavior, effectiveness of land conversion, reforestation, and CSR impacts. The research was conducted in several districts in South Kalimantan, including Banjar, Tanah Laut, Tanah Bumbu, Rantau, Tapin, Balangan, and Tanjung, as the main locations of coal mining. The main data sources were KP and IUP-owning companies, involving large, small and sub-contracted companies. Data were collected through field observations, in-depth interviews with stakeholders, and documentation to measure the coordinates and cubic depth of mining pits. Data collection involved observation, in-depth interviews and documentation. Observations were made by observing the condition of the mine pits and their owners. In-depth interviews were used to obtain key data from relevant stakeholders. Documentation involved collecting visual data for further analysis. researchers to gain an in-depth understanding of ex-mining land utilization and power generation potential, while integrating qualitative and quantitative approaches in program research.

## **RESULT AND DISCUSSION**

After going through a series of research stages that include data collection, verification, qualification, and adjustment of data, the results of the analysis open up opportunities for utilization of former coal mining pits with a multi-dimensional approach.

- 1) **Utilization for Nature Tourism and Floating Housing:**  
Based on field observations and satellite photo documentation, the research shows the potential of utilizing the mine pit as an artificial lake for nature tourism, floating boats, culinary, freshwater fisheries, and coral reef diving. This idea can be an alternative creative economy and tourism industry development (sani, 2022).
- 2) **Energy Source Utilization of Rice Field Waters:**  
The suggestion to use mine shafts as an energy source for rice field waters by creating new irrigation is an innovative step. This process involves channeling water to various sectors such as plantations, rice fields, and manufacturing, with a focus on filtering and utilizing wastewater (Sani, 2018).
- 3) **Utilization for Residential Tourism and Flood Power Generation:** Residential concepts such as floating villas, irrigation houses, and floating villages show potential for creative utilization. In addition, the idea of transforming the mine pit into a giant flood-powered reservoir illustrates a sustainable solution to circumvent traditional sources of power generation.
- 4) **Utilization of the Mine Pit Source for Agriculture and Greening:** The utilization of mine shafts as hedroponic farmland, especially for crops such as hybrid coconut, randu, and cotton, provides a new alternative for reforestation and post-mining land management.
- 5) **Utilization as a Water City and Floating Modern Residence:**  
The concept of lake tourism water towns and floating modern residences creates new opportunities for the property and tourism industries. This potential can trigger economic growth and provide answers to environmental challenges such as landslides and flooding.
- 6) **Utilization as Sports and Tourism Objects:**  
The transformation of lakes and mine shafts into sports objects, including rising and automotive touring, shows a positive contribution to the sports and tourism industry.
- 7) **Urgency of Program Research and Test Research:**  
The analysis reflects the importance of program research and pilot research to obtain further data, refine research designs, and apply research results to the field. In the context of flood power generation, program research provides the foundation for formulating policy and further development.

It is important to note that all results and ideas must be tested through program research and pilot research to ensure sustainability, success and positive impacts in the long term. Engaging stakeholders and creating a supportive policy framework are important steps in planning the implementation of the results of this research.

### **Discussion**

This research reveals the potential for revitalizing ex-coal mining pits in South Kalimantan into multifunctional resources that can support various economic and environmental sectors. Based on the analysis, several key conclusions can be drawn:

- 1) **Land Use Diversification:**  
Ex-mining pits can not only be used as nature tourism areas, floating housing, and sports objects, but can also gain economic benefits from the agricultural, energy, and industrial sectors (sani, 2022).
- 2) **Innovation in Resource Utilization**

The concept of utilizing water resources in the mine pit for irrigation of rice fields, flood power generation, and creative industries shows significant innovation in utilizing natural potential in a sustainable manner.

- 3) Transformation of Ex-Mine Environment:  
Through reforestation and planting of productive plants, mine pits can be transformed into productive green land, supporting environmental sustainability and addressing the negative impacts of mining.
- 4) The Important Role of Program Research and Piloting:  
The implementation of ideas from research requires rigorous program research and trials. This process will prove the feasibility, sustainability and real potential of the concepts on the ground.
- 5) Stakeholder and Policy Support: Stakeholders from various sectors, including the government, mining companies and local communities, need to be actively involved in supporting and encouraging the implementation of the research results. Supportive policies are also needed to create a conducive regulatory environment.
- 6) Contribution to Economy and Environment: The utilization of ex-mining pits not only provides positive economic impacts through tourism, agriculture, and energy sectors, but also contributes to environmental restoration and reforestation of ex-mining areas.
- 7) Models for Other Regions: The concepts and ideas generated from this research have the potential to become models of ex-mining land management for other regions facing similar challenges. With proper adaptation, these ideas can be applied in different geographical contexts.

## **CONCLUSION**

The importance of seeing ex-mining pits as resources that can be transformed into sustainable development opportunities. The next step is to develop practical measures and policies that support the implementation of these ideas, paving the way for a positive transformation in the utilization of ex-mined land in South Kalimantan and other regions, in order to increase the economic potential of the region that contributes to the financial independence and welfare of surrounding communities.

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