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### Gold Mining in Boh River (2007-2021)

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#### Abstract

This article examines the emergence and development of gold mining in Boh River, Mahakam Ulu Regency, from 2007 to 2021. Using the historical method through heuristics, source criticism, interpretation, and historiography, the study draws on interviews, field observation, and secondary materials such as books, legal documents, journals, and archival or documentary sources available to the author. The findings show that gold mining in Boh River emerged from the convergence of alluvial resource potential, limited local employment, community livelihood strategies, and collective mining practices. Its development was marked by a gradual shift from panning with a dulang to machine-assisted extraction using pumps, compressors, and river transport. This technological change reshaped labor relations among miners, workers, capital owners, and gold collectors. Although mining activities faced legal uncertainty and occupational risk, they persisted because they offered a more immediate source of income than other rural livelihoods. The article contributes to local economic history by showing how small-scale mining transformed work, mobility, and social status in an upriver Kalimantan community.

#### Keywords

artisanal gold mining; Boh River; local economic history; Mahakam Ulu; socio-economic transformation

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## Introduction

Artisanal gold mining is an important part of local economic history in many regions of Indonesia. This activity is not only related to the use of mineral resources, but also to changes in livelihoods, labor relations, population mobility, production technology, and relations between communities and the state. In international literature, this activity is commonly referred to as artisanal and small-scale gold mining (ASGM), a form of small-scale gold extraction that often operates with simple technology, limited capital, and varying degrees of formalization ([Meutia et al., 2022](#); [Siegel & Veiga, 2009](#); [Verbrugge, 2015](#)).

Mahakam Ulu Regency is important in this discussion because it is located within an upriver network that has long served as a space of mobility, economic activity, and social interaction. Boh River, one of the tributaries of the Mahakam River, became a site of gold mining activity that developed between 2007 and 2021. This period is significant because it shows a shift from traditional panning to the use of mechanical equipment, while also revealing how local residents and migrants adjusted to economic opportunities, occupational risks, and questions of legality.

Studies of community-based mining in various regions show that small-scale mining often emerges from the interaction between economic need, resource availability, capital, and social networks. At the same time, such activities frequently generate problems of legality, occupational safety, and environmental impact, particularly when technical and institutional supervision remains inadequate ([Meutia et al., 2023](#); [Prescott et al., 2022](#); [Verbrugge & Besmanos, 2016](#)).

Recent literature on artisanal gold mining in Indonesia tends to cluster around three main concerns. First, health and environmental studies emphasize mercury impacts, river and soil degradation, sedimentation, and health risks for miners and surrounding communities ([Agustiani et al., 2025](#); [Arifin et al., 2015](#); [Basri et al., 2020](#); [Harianja et al., 2020](#); [Saragih et al., 2021](#)). Second, studies of governance and formalization examine the relationship between community mining, legality, informal networks, and the need for just livelihood transitions ([Ardikoesoema & Karuniasa, 2025](#); [Keane et al., 2023](#); [Kurniawan et al., 2023](#); [Lumowa et al., 2022](#); [Prescott et al., 2022](#); [Spiegel et al., 2018](#)). Third, studies of spatial dynamics, local knowledge, and value chains highlight mobility, informal trade, knowledge transformation, and the monitoring of mining activity in Kalimantan and other Indonesian landscapes ([Devi et al., 2024](#); [Kimijima et al., 2022](#); [Metaragakusuma et al., 2023](#); [Yoshimura et al., 2021](#)).

Unlike these tendencies, this article does not treat Boh River primarily as a case of toxicology, spatial mapping, or formalization policy. Its research gap lies in a historical reading of gold mining in Boh River as a process of local socio-economic change in the interior of East Kalimantan. The focus is on how alluvial potential, labor needs, tool development, and relations among miners, capital owners, and gold collectors shaped community economic transformation between 2007 and 2021.

Based on this background, the article aims to analyze the emergence of gold mining in Boh River and the development of this mining activity from 2007 to 2021. Its central argument is that gold mining in Boh River developed through the convergence of resource potential, economic need, social networks, and the adoption of mining technology, which gradually changed community work patterns. The article contributes to the local economic history of Mahakam Ulu by examining the transformation of artisanal mining in an upriver region.

## Method

This study uses the historical method with a descriptive-analytical approach. The historical method is used to trace, criticize, interpret, and reconstruct past events based on available sources. The research stages include heuristics, source criticism, interpretation, and historiography, as commonly used in historical research. The descriptive-analytical approach is used to explain changes in gold mining in Boh River chronologically while interpreting their meaning for the socio-economic life of the community.

The heuristic stage was conducted by collecting sources related to gold mining in Boh River. The primary sources in this manuscript include oral information from interviews, field observations, and accounts of mining practices found at the research site. Secondary sources include books on historical methodology, studies of community mining, legal documents, writings on geology or regional potential, and other references that support the discussion. Interviews and observations are important because many practices in artisanal mining are not always documented in written sources.

Source criticism was carried out through external and internal criticism. External criticism was directed at assessing the origin, form, and relevance of sources, including whether interview informants had direct connections with mining activity or local knowledge of the changes that occurred. Internal criticism was used to assess the consistency of source content, especially when comparing oral information, field observations, legal documents, and written sources. Claims about gold content, legal status, production levels, and changes in mining equipment are treated cautiously because each requires a different type of evidence.

The study is periodized from 2007 to 2021. The year 2007 is used as the starting point because, in the manuscript, gold mining activity in Boh River is described as beginning to develop around that period, while 2021 marks the end point of the study's observation of mining development. This periodization helps the article distinguish between the emergence of mining, the expansion of mechanical equipment, changing labor relations, and the persistence of mining amid legal uncertainty.

Interpretation was carried out by connecting field data and written sources to four main issues: the background of mining emergence, technological change, labor relations, and socio-economic impact. The historiographical stage then organized the findings into an analytical narrative so that the development of gold mining in Boh River can be understood as a historical process rather than merely a list of factors or mining tools.

## **Results and Discussion**

### **Boh River as an Economic Space of Artisanal Mining**

Boh River is located in Mahakam Ulu Regency, East Kalimantan, and is connected to the Mahakam River system. In the life of upriver communities, the river functions not only as a transportation route but also as an economic space that provides livelihoods. The manuscript describes the sandy and rocky river environment as a setting that enabled traditional practices of searching for alluvial gold.

Reading Boh River as an economic space is important because it avoids reducing gold mining to the mere presence of minerals. Mining activity developed when resource potential intersected with community economic needs, miners' technical abilities, capital, and distribution networks for mining products. Thus, the mining site was not only a place for extracting gold but also a space where social relations among miners, capital owners, workers, migrants, and collectors were formed.

Claims about geological factors need to be placed carefully. The manuscript cites a 2012 geological note linking gold potential in the upper Boh River area to granitic rocks around the headwaters of Boh River and Memahak ([Kurniasih, 2012](#)). This information may serve as an initial indication of mineral potential, but it must still be distinguished from community oral accounts and everyday evidence of mining production. This distinction is important so that historical analysis does not turn geological indications into certainty unsupported by complete technical data.

### **The Emergence of Mining: Resources, Economic Need, and Social Networks**

The emergence of gold mining in Boh River was shaped by several interrelated factors. The first factor was the availability of natural resources. In the manuscript, the presence of gold around the river flow became the basis for local people to begin panning with simple tools.

However, natural resources do not by themselves produce mining activity. Resources become a historical factor only when communities have the knowledge, need, and opportunity to process them.

The second factor was the socio-economic condition of the community. Limited employment opportunities and the need for additional income made mining a choice perceived as more promising than relying solely on agriculture. In the context of local economic history, this change indicates a shift in livelihood strategies from a pattern more dependent on farming toward a combination of agriculture, mining labor, and seasonal economic activity.

The third factor was social networks and a culture of collective work. The manuscript states that mining was carried out in groups and involved solidarity among miners. This collective work pattern was important because gold mining, particularly when machines were used, required task division, coordination, and trust among group members. Mining was therefore not only an individual activity but also a social practice dependent on labor relations and local networks.

The fourth factor was the economic opportunity created through the relationship between miners and the gold market. Mining products were sold to collectors before being further processed into bullion, jewelry, or other forms. This chain shows that mining in Boh River was not separated from broader economic networks. Local communities were connected to the circulation of gold commodities through collectors and economic actors beyond the mining site.

### **From Dulang to Machines: Technological Transformation in Mining**

The development of gold mining in Boh River was marked by technological change from traditional panning to the use of mechanical tools. In the traditional stage, a dulang was used to separate gold from sand, small stones, and other materials. This method required manual skill, patience, and practical knowledge of river-sand characteristics. The dulang remained important even after machines began to be used because the final separation of gold was still performed manually.

The use of machines changed the scale and tempo of miners' work. Suction machines, compressors, hoses, sluice boxes, and river transportation such as ces boats or speedboats made the extraction of material faster and enabled miners to work in locations that were more difficult to reach. Machines did not replace the entire traditional process; rather, they expanded miners' capacity to collect material that still had to be sorted manually.

This technological change shows the community's creativity in adapting tools to river conditions. However, modernization of equipment did not necessarily mean that mining became fully modern in an institutional sense. In Boh River, mechanical technology developed within the framework of artisanal mining, which remained dependent on work groups, local capital, practical experience, and miners' everyday decisions. The transformation from dulang to machines is therefore better understood as gradual mechanization within artisanal mining, rather than as a shift toward formal industrial mining.

Changes in equipment also affected capital requirements. When mining still relied on the dulang, barriers to entry were relatively low because the required equipment was simple. Once machines began to be used, miners needed capital to buy or rent machines, purchase fuel, arrange transportation, and organize labor. This change became the basis for differences in position among mining workers, independent miners, and capital owners.

### **Labor Relations, Capital Owners, and Miners' Mobility**

In Boh River, relations developed among miners, workers, and capital owners. Miners could work by relying on physical labor and skill, while capital owners provided work units, equipment, or operating costs. The manuscript shows that a person could experience a change in socio-economic position when mining profits allowed a worker to accumulate capital and later

recruit other workers. This change indicates that mining opened opportunities for social mobility, although such opportunities were not evenly distributed among all workers.

Labor relations in artisanal gold mining cannot be separated from the distribution of risk and proceeds. Workers faced physical risk, workplace accidents, and uncertainty in daily yields, while capital owners bore the costs of equipment and operations. The profit-sharing system functioned as a mechanism for maintaining labor relations so that mining activity could continue. In the manuscript, proceeds were shared both among group members and between groups and capital owners.

Miners' mobility was also an important feature of mining in Boh River. The manuscript states that workers came not only from Mahakam Ulu but also from Central Kalimantan, North Kalimantan, Java, and other areas. The presence of migrant miners shows that gold mining became an economic magnet beyond the local community. This mobility could expand work networks, but it also had the potential to alter the social structure at the mining site by bringing together workers from different regional backgrounds and experiences.

Fluctuations in the number of miners show that mining was not a fully stable livelihood. Changes in the number of workers were influenced by mining yields, workplace accidents, occupational shifts, and other economic opportunities. Gold mining in Boh River should therefore be understood as a seasonal and risky economy, even though for some residents it was still considered work that provided income more quickly than other livelihood options.

### **Profit Sharing and Socio-Economic Change**

One important change that emerged from gold mining in Boh River was the formation of a profit-sharing system. The manuscript identifies two forms of sharing: distribution among group members and distribution between groups and capital owners. These two forms show that mining proceeds were not viewed simply as individual income, but as the result of collective work that had to be distributed according to particular agreements.

Profit sharing became an indicator of new economic relations within the community. When gold was obtained, the proceeds could be used for daily needs, equipment purchases, transportation costs, or additional capital. The profits gained by some miners made economic advancement possible, especially when workers were able to become capital owners. However, the manuscript also shows uncertainty because daily yields were not always consistent. This reveals the paradox of artisanal mining: it was regarded as promising, but it remained dependent on chance, skill, location, and capital.

Socio-economic change was visible not only in income but also in work patterns. Communities that had previously depended more heavily on agriculture began to treat mining as an additional source of income or as a main occupation in certain seasons. This change shows how communities adapted to new opportunities in their environment. From the perspective of local economic history, gold mining in Boh River illustrates how upriver communities developed flexible livelihood strategies through a combination of local knowledge, collective work, and both simple and mechanical technologies.

However, this economic change must be interpreted proportionally. The manuscript does not yet provide complete quantitative data on the number of miners, annual production values, or household income distribution. Therefore, conclusions about community economic improvement need to be stated cautiously. The available evidence is stronger for showing income opportunities, changing labor relations, and certain forms of social mobility than for claiming that the entire community experienced evenly distributed welfare gains.

### **Legality, Occupational Risk, and the Limits of Sustainability**

From the perspective of legality, gold mining in Boh River faced problems because it operated as an artisanal mining practice that did not always fall within a formal licensing framework. In the context of artisanal mining, legality cannot be understood only as a matter of

legal violation; it must also be read as an issue of community access to production spaces, licensing information, capital, and alternative livelihoods. ASGM literature shows that informal status often weakens supervision, production data, worker protection, and impact control ([Keane et al., 2023](#); [Meutia et al., 2023](#); [Prescott et al., 2022](#); [Siegel & Veiga, 2009](#); [Spiegel et al., 2018](#)).

The question of legality cannot be separated from community economic needs. When mining became a faster and seemingly more reliable source of income, residents continued the activity despite its risks. This condition reveals the tension between state regulation, local livelihood needs, and informal economic practice. Therefore, analysis of mining in Boh River should not stop at labeling the activity as legal or illegal; more importantly, it should explain why the activity persisted and how communities negotiated risk in everyday life.

Occupational risk became an important limit to the sustainability of artisanal mining. The use of machines, diving, compressors, and excavation around the river could accelerate production, but it also increased accident risks and pressure on the river environment. ASGM literature shows that technological change, limited supervision, and the use of hazardous substances in gold processing can affect the health of miners and nearby communities. Because this manuscript does not yet provide laboratory data on mercury or water quality in Boh River, these references are used as comparative context, not as direct evidence of pollution at the research site ([Agustiani et al., 2025](#); [Arifin et al., 2020](#); [Esdaile & Chalker, 2018](#); [Gibb & O'Leary, 2014](#); [Jayanti et al., 2025](#); [Taux et al., 2022](#)).

Thus, the development of gold mining in Boh River between 2007 and 2021 reveals a complex process. On one side, mining opened income opportunities, expanded work networks, and enabled some workers to improve their economic position. On the other side, mining brought legal uncertainty, occupational risk, and capital requirements that could widen differences between equipment owners and mining laborers. This complexity makes mining in Boh River important to read as a history of local socio-economic change.

## **Conclusion**

Gold mining in Boh River from 2007 to 2021 emerged from the convergence of resource potential, economic need, social networks, and the community's ability to use mining technology. This activity developed not merely because gold was present, but because residents made it a livelihood strategy when employment opportunities were limited and economic needs increased. Gold mining in Boh River is therefore part of the local economic history of Mahakam Ulu, showing the relationship between the river environment, community labor, and social change.

The development of mining was marked by gradual mechanization from the use of the dulang to suction machines, compressors, and faster river transportation. This technological change altered the tempo of work, capital requirements, and relations among mining laborers, independent miners, capital owners, and collectors. Mining also encouraged the mobility of miners from various regions and opened opportunities for social advancement among some workers who were able to accumulate capital. However, these opportunities were accompanied by uncertain yields, workplace accident risks, and legal problems.

The historical contribution of this article lies in explaining that artisanal gold mining in Boh River was a process of socio-economic transformation, not merely an activity of resource extraction. The study shows how an upriver Kalimantan community adjusted to mining-based economic opportunities through collective work, technological adaptation, and profit sharing. To strengthen the article at the next stage, interview data, informant details, legal evidence, and geological and economic references should be clarified so that the relationship between evidence and argument becomes stronger.

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## Conflict of Interest

The author(s) declare no conflict of interest. If a conflict exists, it must be disclosed clearly.

## AI Use Disclosure

The author used generative AI tools only for language editing and proofreading. The author reviewed and verified all content and remains fully responsible for the manuscript.

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