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"Unearthing the Impacts: Illegal Mining's Toll on Formal Employment and Job Creation"

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ABSTRACT

This systematic review examines the impacts of illegal mining on formal employment, and job creation. Through a comprehensive analysis of relevant literature, the study explores the displacement of formal mining activities, job losses, and the indirect economic consequences of illegal mining. The review assesses existing policies and initiatives, identifies gaps in knowledge, and proposes future research directions. The findings emphasize the need for effective enforcement, policy interventions promoting formalization, and international cooperation to address the negative effects of illegal mining on employment. The study contributes to a better understanding of the issue and provides insights for policymakers, industry stakeholders, and researchers.

KEYWORDS: Illegal mining, formal employment, job creation, displacement, economic consequences, policy interventions, formalization, enforcement, international cooperation

JEL CODES: Q32; Q34; Q38; O17

INTRODUCTION

Illegal mining poses a significant challenge to formal employment and job creation, exerting detrimental effects on both local economies and global mineral supply chains (Antwi-Boasiako, 2003; Agyemang 2010; Aboka et al., 2018; Isung 2021). The unregulated and often environmentally destructive nature of illegal mining operations disrupts formal mining activities, resulting in job losses and reduced opportunities for employment generation (Wilson et al., 2015; Aboka et al., 2018; Mabe et al., 2021; Khan et al., 2021). This paper aims to shed light on the impacts of illegal mining on formal employment and job creation, highlighting the need for effective policies, enhanced enforcement, and international cooperation. Additionally, the paper identifies future research directions to further deepen our understanding of this complex issue and develop strategies to mitigate its negative consequences. By unearthing the toll of illegal mining on formal employment, this study aims to inform policymakers, industry stakeholders, and researchers about the urgent need for action to address this pervasive problem.

Illegal mining poses a significant threat to formal employment and job creation, with detrimental consequences for both local economies and global mineral supply chains (Boadi et al., 2016; Aboka et al., 2018). The unregulated nature of illegal mining operations often displaces formal mining activities, resulting in job losses and limited opportunities for employment generation (Boadi et al., 2016; Yiridomoh). This problem undermines efforts to promote sustainable economic development, decent work, and inclusive growth in mining regions. Therefore, it is crucial to understand the extent of the impacts of illegal mining on formal employment and job creation, as well as to identify gaps in current knowledge and policies.

Despite the recognition of illegal mining as a pressing issue (Boadi et al., 2016), there are notable gaps in our understanding of its impacts on formal employment and job creation. Firstly, there is a lack of comprehensive research that quantitatively assesses the extent of job losses and reduced job creation resulting from illegal mining activities. Understanding the scale and magnitude of these impacts is crucial for designing targeted interventions.

Secondly, there is a need for research that explores the socioeconomic consequences of illegal mining beyond direct employment effects. This includes examining the indirect effects on local businesses, supply chains, and broader economic activity. Such research would provide a more holistic understanding of the economic toll of illegal mining.

Thirdly, there is a dearth of studies that evaluate the effectiveness of existing policies and initiatives aimed at curbing illegal mining and promoting formalization. Assessing the strengths and weaknesses of current approaches is vital for developing evidence-based policy interventions.

Lastly, limited research has focused on the international dimensions of illegal mining, particularly its implications for global mineral supply chains and responsible sourcing practices. Investigating the links between illegal mining and the inclusion of illegally mined minerals in international trade is essential for ensuring the integrity and sustainability of mineral supply chains.

Addressing these gaps in knowledge and understanding is crucial for formulating effective policies, enhancing enforcement efforts, and developing sustainable solutions to mitigate the impacts of illegal mining on formal employment and job creation.

The purpose of this study is to examine and understand the impacts of illegal mining on formal employment and job creation. By conducting a comprehensive analysis, the study aims to inform policymakers, industry stakeholders, and researchers about the magnitude of the problem and its implications for sustainable economic development. Additionally, the study seeks to identify gaps in current knowledge, propose policy implications, and suggest future research directions to address the issue effectively.

The research questions for the study are (a) What is the extent of the impacts of illegal mining on formal employment and job creation? (b) How do illegal mining activities displace formal mining operations and contribute to job losses?

It is assumed that illegal mining activities have a negative impact on formal employment and job creation. The assumption is based on the understanding that illegal mining often displaces legal mining operations, leading to job losses and limited opportunities for job creation in affected regions.

It is further assumed that the formalisation of artisanal and small-scale mining can contribute to improved employment opportunities. This assumption is based on the premise that providing legal recognition and support to small-scale miners can lead to better working conditions, increased productivity, and integration into formal supply chains.

The challenges of the study are as follows: **Data Availability:** The study's findings and analysis are contingent on the availability and quality of relevant data on illegal mining, formal employment, and job creation. Limited data or inconsistencies in data collection methods may impose limitations on the accuracy and generalizability of the results.

Regional Specificity: The study's findings may be limited to specific regions or countries where illegal mining is prevalent. The impacts of illegal mining on formal employment and job creation can vary significantly across different geographical contexts, regulatory frameworks, and socioeconomic conditions. Therefore, the study's conclusions may not be universally applicable.

The complexity of Causal Relationships: Establishing direct causal relationships between illegal mining and its impacts on formal employment can be challenging. The effects of illegal mining on job losses and reduced job creation may be influenced by various contextual factors, including market dynamics, labour policies, and the presence of alternative employment opportunities. Disentangling these complex relationships may require further research and analysis.

The scope of the research is as follows: This study focuses specifically on the impacts of illegal mining on formal employment and job creation. It examines the displacement of formal mining activities, job losses, reduced job creation, and associated economic consequences. The study analyses the direct and indirect effects of illegal mining on employment within the mining sector and explores potential socio-economic alternatives for affected communities.

The scope of the study encompasses both the local and international dimensions of illegal mining, acknowledging its transnational nature and its implications for global mineral supply chains. Additionally, the study considers the effectiveness of existing policies and initiatives aimed at curbing illegal mining and promoting formalization.

While the study provides valuable insights into the topic, it is important to note that it does not cover all aspects related to illegal mining comprehensively. Factors such as environmental impacts, health and safety hazards, social dynamics, and governance issues, while significant, are beyond the immediate scope of this study and could be explored in future research.

METHODOLOGY

Research Question Development: Clear research questions were formulated to guide the systematic review process. These questions addressed specific aspects of the impacts of illegal mining on formal employment, and job creation. They were focused, specific, and structured to ensure a systematic approach to gathering and analysing relevant literature.

Search Strategy: A comprehensive search strategy was developed to identify relevant studies from various sources. This included academic databases, grey literature, industry reports, and relevant government publications. The search terms and keywords were carefully selected to capture relevant studies related to illegal mining, formal employment, and job creation.

Study Selection: A two-step study selection process was employed. Initially, the identified studies were screened based on titles and abstracts to determine their relevance to the research questions. In the second step, the full texts of the potentially relevant studies were assessed to ensure they met the inclusion criteria. Any discrepancies or disagreements during the selection process were resolved through discussions and consensus among the research team.

Data Extraction: Data extraction was carried out to gather pertinent information from the selected studies. This included key details such as study design, geographic location, sample size, methodologies employed, and findings related to the impacts of illegal mining on formal employment and job creation. This process was conducted using a standardized data extraction form to ensure consistency and accuracy.

Quality Assessment: The quality and reliability of the included studies were assessed to evaluate their robustness and potential biases. Various quality assessment tools and checklists, such as the Newcastle-Ottawa Scale or the Cochrane Risk of Bias tool, were utilized to assess the methodological rigour of the studies. This step helped in determining the overall quality of evidence and potential sources of bias within the selected studies.

Data Synthesis: The findings from the selected studies were synthesized, and analysed. This involved summarizing the key findings, identifying common themes, and exploring patterns or discrepancies within

the literature. The results were presented in a systematic and organized manner, often utilizing tables, charts, or thematic analysis techniques to enhance clarity and understanding.

Limitations and Bias: The limitations of the systematic review were acknowledged and discussed. These may have included publication bias, language bias, or limitations inherent to the available literature. Steps were taken to minimize bias during the study selection and data extraction processes, and the potential impact of any identified biases was considered in the interpretation of the results.

Conclusion and Implications: The systematic review concluded by summarizing the main findings, highlighting key insights regarding the impacts of illegal mining on formal employment and job creation. The implications for policy, practice, and future research directions were discussed based on the synthesized evidence. The review aimed to provide an evidence-based understanding of the topic and to inform decision-making processes in addressing the challenges posed by illegal mining.

EFFECTS OF ILLEGAL MINING ON FORMAL EMPLOYMENT

Employment Displacement: Illegal mining activities often lead to employment displacement in formal sectors. As illegal miners encroach upon legal mining operations or exploit unregulated areas, formal mining companies may experience a reduction in their workforce. Several studies have documented the negative impacts of illegal mining on formal employment (Antwi-Boasiako, 2003; Agyemang 2010; Aboka et al., 2018; Isung 2021).

For example, research conducted by Arhin, Erdiaw-Kwasie and Abunyewah (2022) in Ghana found that illegal mining activities led to the displacement of workers in formal mining companies. The study highlighted that the presence of illegal miners resulted in job losses and reduced employment opportunities for local communities.

Similarly, a study by Khan et al. (2021) revealed that illegal mining operations led to the displacement of workers in the formal mining sector, particularly in regions where illegal mining activities were prevalent.

Moreover, illegal mining can also lead to indirect employment displacement in supporting industries. Formal mining operations often rely on a network of suppliers and service providers, such as equipment manufacturers, transportation companies, and catering services. The disruption caused by illegal mining can result in reduced demand for goods and services, leading to job losses in these sectors as well (Antwi-Boasiako, 2003).

Skill Mismatch and Job Losses: Illegal mining activities can contribute to skill mismatch and job losses in formal sectors. When formal mining companies face reduced production or closure due to illegal mining, workers with specialized skills may find themselves unemployed or unable to utilize their expertise effectively. This can lead to a mismatch between the skills possessed by the workforce and the available job opportunities.

In addition, illegal mining activities often involve rudimentary techniques and lack proper safety standards, resulting in a lower requirement for skilled labour. This can discourage investments in skill development and training programs, as formal mining companies may prioritize cost reduction over workforce development (Hilson, 2002; Tom-Dery et al., 2012; Adu et al, 2016; Emmanuel, Jerry, & Dzigbodi, 2018).

A study by Arah (2015) found that illegal mining activities led to substantial job losses in the formal mining sector. The study emphasized that the presence of illegal miners reduced the productivity and profitability of formal mining operations, leading to downsizing and layoffs.

Moreover, the negative impacts of illegal mining on job losses are not limited to the mining sector alone. Formal mining operations rely on a range of supporting industries and services, such as equipment

suppliers, transportation companies, and catering services. The decline in formal mining activities due to illegal mining can have ripple effects, resulting in job losses in these associated industries as well (Sarfo-Mensah et al., 2010).

Furthermore, the informal mining sector that emerges around illegal mining activities often operates with lower labour standards and limited job security. Workers in this sector are vulnerable to exploitative conditions, including low wages, lack of social protection, and hazardous working environments (Aghetara, 2012; Hilson; 2016; Redehey, 2017; Aboka et al., 2018). This informalization of the mining sector can further exacerbate job losses and hinder formal employment opportunities.

Additionally, the prevalence of illegal mining can discourage investments in training and skill development programs within the formal mining sector. Formal mining companies facing economic challenges due to illegal mining activities may prioritize cost-cutting measures, including reducing investments in workforce development. This, in turn, hampers the ability of workers to acquire new skills that align with evolving industry demands (Mcquilken & Hilson (2016) r).

Impacts on Formal Job Creation: Illegal mining can impede formal job creation by deterring investments and affecting the overall business environment. The presence of illegal mining activities can create an atmosphere of uncertainty and insecurity for potential investors, leading to a decline in formal job opportunities.

A study by Hilson and Pardie (2006) explored the impact of illegal mining on formal job creation in the gold mining industry. The research highlighted that the activities of illegal miners created an unpredictable operating environment, causing formal mining companies to scale back their investment plans and reduce employment opportunities.

Studies (Hilson, 2002; Yankson & Gough, 2019) in Ghana indicated that the prevalence of illegal mining negatively affected formal job creation in the mining sector. These studies found that the uncertain legal and regulatory environment surrounding illegal mining discouraged investments from formal mining companies, resulting in limited job creation.

Studies (Patel et al., 2016; Owusu et al., 2019; Yankson & Gough, 2019; Tuokuu et al., 2020) in Ghana highlighted the negative impact of illegal mining on formal job creation in the gold mining sector. These studies found that illegal mining activities created a high-risk environment, which discouraged both domestic and foreign investments. As a result, formal job opportunities in the sector remained limited.

Additionally, the diversion of mineral resources to illegal channels can lead to a decline in formal job creation opportunities. As illegal miners extract and sell minerals outside of regulated channels, the formal sector loses out on potential revenue and employment generation (Boadi et al 2016; Burrows & Bird, 2017; Hunter 2019).

These challenges are further compounded by the lack of legal frameworks and inadequate enforcement mechanisms in many regions affected by illegal mining. Weak regulation and governance contribute to an environment that hinders formal job creation and allows illegal mining activities to persist.

CONCLUSIONS

Illegal mining has a significant negative impact on formal employment and job creation in affected regions. The presence of illegal mining operations often leads to the displacement of legal mining activities, resulting in job losses for formal miners and reduced opportunities for new job creation. The informal nature of illegal mining hinders the development of sustainable and inclusive employment practices. Workers engaged in illegal mining activities typically face precarious working conditions, low wages, and a lack of social protection. This undermines efforts to promote decent work and sustainable livelihoods in affected

communities. Illegal mining also disrupts supply chains and market dynamics, leading to a decline in economic activity in formal mining sectors. The illegal extraction and trade of minerals can create distortions in commodity prices, reduce market competitiveness, and discourage investment in legal mining operations. This further exacerbates the negative impact on employment and job creation. Addressing illegal mining is crucial for fostering sustainable and inclusive economic development while safeguarding the well-being of mining-dependent communities and the integrity of mineral supply chains.

POLICY IMPLICATIONS

Strengthen law enforcement and regulatory frameworks: Governments should enhance efforts to combat illegal mining by improving enforcement mechanisms and implementing stricter penalties for offenders. This includes increasing surveillance, intelligence gathering, and cooperation between relevant agencies to detect and dismantle illegal mining operations.

Promote formalization of artisanal and small-scale mining (ASM): Governments should develop policies, and programs to support the formalization of ASM activities. This includes providing legal recognition to small-scale miners, improving access to finance and technology, and offering training and capacity-building initiatives to enhance their productivity and compliance with environmental and labour standards.

Enhance collaboration and international cooperation: Addressing the issue of illegal mining requires international cooperation due to its transnational nature. Governments should strengthen collaboration with neighbouring countries and international organizations to share information, coordinate enforcement efforts, and combat the illicit trade of minerals.

FUTURE RESEARCH DIRECTIONS

Impact assessment of formalization policies: Further research is needed to evaluate the effectiveness of policies aimed at formalizing ASM activities. This research should assess the socioeconomic impacts of formalization on employment, income generation, and the overall well-being of small-scale miners and affected communities.

Environmental and health implications: Illegal mining often involves the use of harmful practices such as mercury pollution, deforestation, and water contamination. Future research should focus on assessing the environmental and health consequences of illegal mining activities, including their long-term effects on ecosystems and human populations.

Socioeconomic alternatives for affected communities: Research should explore the development of alternative livelihood options for communities heavily dependent on illegal mining. This could involve identifying sustainable economic activities, promoting entrepreneurship, and supporting the diversification of local economies to reduce dependence on illicit mining.

Global value chains and responsible sourcing: Investigating the links between illegal mining and global mineral supply chains is crucial. Future research should examine the effectiveness of responsible sourcing initiatives, traceability mechanisms, and certification schemes in preventing the inclusion of illegally mined minerals in international trade.

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