Journal of Contemporary Governance and Public Policy, 6 (1) April 2025, 1-22
ISSN: 2722-3981 (Print), ISSN: 2722-3973 (Online)
Available Online at https://journal.ppishk.org/index.php/jcgpp

Governance-Driven Solutions for Women's Empowerment in the Mining Sector: Tackling Gender Inequality through Inclusive Policies

Ikhsan[1]*, Vellayati Hajad[2], Ilham Mirza Saputra[3], Herizal[4], Ikhwan Rahmatika Latif[5]

[1] Department of Public Administration, Universitas Teuku Umar, Indonesia

[2] Department of Public Administration, Universitas Teuku Umar, Indonesia

[3] Department of Public Administration, Universitas Teuku Umar, Indonesia

[4] Department of Political Science and Public Administration, Erciyes University, Türkiye

[5] Department of Public Administration, Universitas Teuku Umar, Indonesia

*Corresponding Author Email: ikhsan.baharudin@utu.ac.id

Received: 17 September 2024; Revised: 24 November 2024; Accepted: 26 November 2024

Abstract

This research examines governance strategies to address gender inequality in the mining industry and enhance women's empowerment. It identifies barriers preventing women from accessing opportunities and leadership roles through a systematic review of 37 articles published between 2014 and 2024. Data analysis using NVivo 12 Plus focused on themes such as women's roles, challenges, and gender dynamics, while VOSviewer was employed for bibliometric analysis. The findings reveal systemic barriers, including limited training, unequal pay, and exclusion from decision-making. The study underscores the need for inclusive policies and gender-sensitive governance to drive meaningful change, aligning with the Sustainable Development Goals (SDGs), particularly gender equality (SDG 5) and decent work and economic growth (SDG 8). It calls for comprehensive policies, comparative analyses of effective strategies across contexts, and integration of community perspectives into empowerment initiatives. Strengthening governance frameworks and fostering collaboration between stakeholders, policymakers, and local communities can enhance gender equality and inclusive growth in mining. Future research should further explore policy effectiveness, cross-national comparisons, and innovative governance models to address structural inequalities and promote sustainable economic participation for women.

Keywords: *Gender Inequality; Inclusive Policies; Mining; Women's Empowerment*

Copyright © 2025 by the Authors. Published by the Pusat Penelitian Ilmu Sosial dan Humaniora Kontemporer, Indonesia. This is an open access article distributed under the terms of the CC BY-SA Licence (https://creativecommons.org/licenses/by-sa/4.0).

How to Cite: Ikhsan, I., Hajad, V., Saputra, I. M., Herizal, H., & Latif, I. R. (2025). Governance-Driven Solutions for Women's Empowerment in the Mining Sector: Tackling Gender Inequality through Inclusive Policies. *Journal of Contemporary Governance and Public Policy*, *6*(1), 1-22. https://doi.org/10.46507/jcgpp.v6i1.647

Permalink/DOI: https://doi.org/10.46507/jcgpp.v6i1.647

Introduction

The mining industry is a major source of employment, particularly in low-income and developing economies (Söderholm & Svahn, 2015; Weldegiorgis et al., 2021). However, women frequently face discrimination when seeking jobs in this sector. This is a significant concern, as expanding women's access to formal mining jobs could empower them and enhance their overall well-being (Adebayo & Werker, 2021; Atienza et al., 2021; Cordano & Zevallos, 2021). Increased female participation in mining also has the potential to disrupt cycles of discrimination by fostering education and positive role models, benefiting future generations. To achieve this, it is crucial to implement policies that address gender inequality (Brain, 2017; Buss & Rutherford, 2020; Ericsson & Löf, 2019; Gamu et al., 2015; Jacka, 2018). This article seeks to improve our understanding of gender integration in the mining sector by examining its operational context. Using theories of governance and feminist institutionalism, it explores the relationship between the mining industry and gender institutions, as well as the interconnections among these institutions. The integration of these theories underscores the necessity of local-level political and social reforms to establish effective gender institutions. These findings offer policymakers fresh insights into addressing the gendered dimensions of informality in the mining industry.

The association between mining and masculinity creates barriers for women's entry into the industry, often leading to their contributions being undervalued (Chisholm-Burns et al., 2017; Diehl & Dzubinski, 2016; Rusba et al., 2022). Lahiri-Dutt (2011) notes that women's work in mining is frequently ignored and lacks proper recognition, resulting in hardships and unfair treatment globally. These challenges are both cultural and structural, as the historically male-dominated industry limits women's access to opportunities, resources, and professional networks. Due to this strong association between mining and masculinity, women's contributions are often overlooked, with Lahiri-Dutt (2011) describing their labour as obscure and hidden, leading to it being forgotten and unappreciated. Consequently, gender-based discrimination persists across multiple aspects of the mining sector, including recruitment, career advancement, and remuneration (Arthur-Holmes & Abrefa Busia, 2021; Valadares et al., 2024; Yakovleva, 2007).

This article examines women's participation in large-scale mining, an area that has received limited academic attention. While existing studies predominantly focus on female miners in artisanal and small-scale mining, characterised by low-tech and labour-intensive mineral extraction and processing (Hilson & McQuilken, 2014; Ledwaba, 2017; Mensah, 2024), women's involvement in large-scale mining remains largely unexplored. Although there has been some progress in understanding gender dynamics in small-scale mining, the experiences and challenges faced by women in larger, industrialised mining operations have been overlooked (Hilson & Maconachie, 2020; Humphries & Thomas, 2023; Ofosu et al., 2022). This study aims to fill this gap by examining the direct participation of women in large-scale mining, offering a comprehensive analysis of their

roles, challenges, and opportunities. Additionally, the study contributes to policy discussions that promote gender equality in the mining sector.

Research on women's roles in Southeast Asian mining remains limited, highlighting the need to address region-specific challenges. Women in large-scale mining in the Global South face numerous obstacles, particularly in West Africa, where they are often relegated to low-paying roles such as gold panning (Chigumira, 2018; Fahy Bryceson et al., 2020; Macmillan, 2017; Sandy & Inayati, 2022). In South Asia, gender inequalities emerge as new mining areas develop near local communities (Daley & Pallas, 2014; Rao et al., 2019). Similarly, in Latin America's mining sector, disparities in wages and treatment persist between men and women (Chávez & Rodríguez-Puello, 2022; Wilches-Gutierrez & Documet, 2018). Cultural beliefs in Southeast Asia, particularly in Indonesia, further restrict women's participation in mining due to superstitions that perceive their presence as bringing bad luck (Aminah, 2017; Peluso, 2018). International discussions on women's roles in the economy, particularly in the mining sector, have brought greater attention to gender-related challenges in global economic development. Gender mainstreaming has become central in these discussions, recognising the equal contributions of men and women to mining and national development. This approach requires organisations and policies to incorporate gender perspectives to achieve meaningful gender equality.

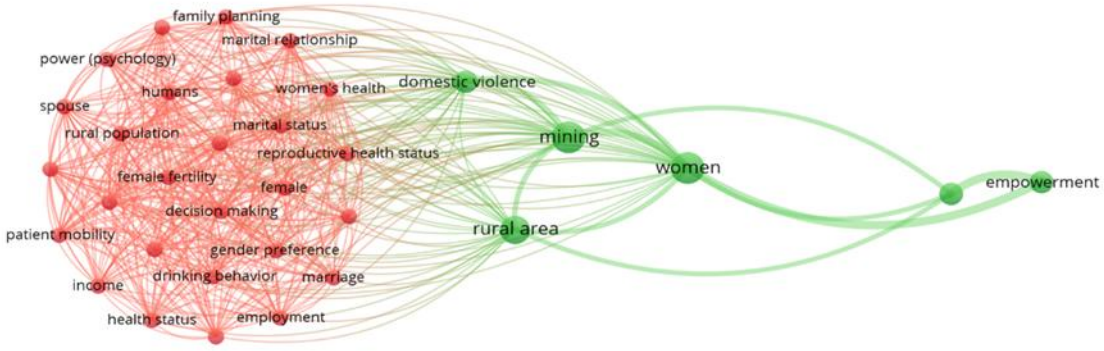


Figure 1. Literature on Women and Mining
Source: Processed by the authors using VOSviewer Software (2024)

Gender equality is essential for promoting social justice and sustainable development within the mining sector (Bansal et al., 2024; Denoncourt, 2022; Monteiro et al., 2019; Pimpa, 2019). Aligning with the Sustainable Development Goals (SDGs)—particularly SDG 5 (Gender Equality) and SDG 8 (Decent Work and Economic Growth)—can drive improvements in social, economic, and environmental outcomes. SDG 5 emphasises the empowerment of women and the achievement of gender equality (Jeevanasai et al., 2023; Filho et al., 2023; Solomon et al., 2021). Achieving this in the male-dominated mining industry necessitates addressing unequal job access, pay gaps, and restricted career advancement opportunities for women. This aligns with SDG 8, which promotes decent work for all and fosters inclusive economic growth. Integrating women into the mining workforce not only drives innovation and productivity but also

combats poverty and contributes to the advancement of local communities (Botah, 2024; Mwaijande & Mwakalikamo, 2024).

The traditionally male-dominated mining industry has faced increasing scrutiny regarding gender equality. Research on women's roles in mining aims to uncover overlooked social, economic, and environmental impacts while addressing long-standing inequalities. Feminist studies have played a key role in highlighting the significance of women's contributions and the challenges they face in this industry. Numerous academic works, as illustrated in Figure 1, have enhanced awareness of gender dynamics in mining.

Historically, gender issues in mining have been ignored, particularly regarding women's exclusion from economic benefits and their disproportionate burden in bearing social and environmental costs. Moreover, hegemonic masculinity in mining continues to hinder gender-sensitive corporate social responsibility (CSR) initiatives, reinforcing rigid gender roles. Cultural norms perpetuate male dominance and frame mining as a physically demanding profession, reinforcing biases that devalue women's contributions. Research has shown that both large-scale and small-scale mining companies fail to provide training opportunities, resources, and working conditions that support women. Additionally, studies indicate that small-scale and artisanal mining disproportionately affects women and children, as the sector often fails to deliver economic benefits to them. To address these inequalities, gender perspectives must be integrated into the political economy of the extractive sector, with a strong emphasis on gender equality plans and empowerment measures.

In Indonesia, mining remains a male-dominated sector, with persistent gender gaps in employment opportunities and leadership positions. Social norms further limit women's participation in the industry. Data from the Central Bureau of Statistics indicates that women constitute only 10% of the mining workforce. Therefore, this study seeks to promote sustainable gender equality in Indonesia's mining sector by integrating social, economic, and environmental dimensions into inclusive policies that align with the Sustainable Development Goals (SDGs).

Research Methods

This study employed a systematic research methodology to investigate the roles and challenges faced by women in the extractive sector (Kitchenham et al., 2009). The research questions guided the data collection and analysis processes, facilitating a comprehensive exploration of gender dynamics within the industry. To ensure a structured approach, a detailed review protocol was developed to systematically address these questions. This protocol outlined the steps for identifying, selecting, and analysing relevant literature, providing a robust framework for the study. It also included strategies for sourcing, filtering, and interpreting data to ensure consistency and comprehensiveness.

The primary source of academic literature on women's roles and challenges in the extractive sector was the Scopus database. A keyword search using "women in the extractive sector" was conducted across titles, abstracts, and keywords to capture a

broad range of relevant studies. Additional terms such as "gender," "mining," and "challenges" were incorporated using Boolean operators to refine the results. The initial search yielded a large dataset, which was subsequently narrowed by focusing on studies that explicitly examined women's roles, challenges, and experiences in this field. Ultimately, 37 articles were identified as relevant and selected for in-depth analysis. These articles were then organised and prepared for further processing, including thematic coding and bibliometric analysis.

Stringent inclusion and exclusion criteria were applied to ensure the selection of high-quality and relevant research. The inclusion criteria encompassed studies published between 2014 and 2024 that explicitly examined the roles or challenges of women in the extractive sector, with a focus on empirical research based on direct observation or data collection. Conversely, exclusion criteria led to the removal of non-empirical reviews lacking specific findings. The selection process followed a two-stage screening approach: an initial review of titles and abstracts, followed by a full-text evaluation of shortlisted articles. Duplicate research findings were eliminated to refine the dataset and enhance the clarity of the results.

The selected articles were systematically analysed using NVivo 12 Plus to facilitate data organisation and review. This process involved coding and categorisation, capturing key insights related to "women's roles," "challenges faced," and "gender dynamics" within thematic nodes created in NVivo. Relevant excerpts from the articles were linked to these nodes, ensuring structured data management. Thematic analysis was then conducted to identify primary themes and subthemes by thoroughly examining the coded data, utilising NVivo's tools to assess term frequency and distribution. This approach revealed patterns and trends across the selected studies. To enhance data interpretability, visual representations such as graphs and concept maps were generated. Additionally, VOSviewer was employed for bibliometric analysis, providing insights into research trends, co-authorship networks, and keyword co-occurrences.

The analytical findings were compiled into a research report, incorporating a detailed discussion of the main results. The study also examined the implications of these findings for gender equality in extractive industries, offering recommendations for future research and policy development. By adopting a gender-sensitive approach, this research aims to highlight critical challenges affecting women in the extractive sector and advocate for equitable and sustainable practices that improve the welfare of women and their communities.

Results and Discussion

Gender Inequality in the Mining Sector

Gender inequality in the mining sector presents significant challenges for women. The impact of globalisation and demographic shifts on the mining workforce has drawn increasing attention to the issue of gender equality. Despite the limited availability of comprehensive research on this topic, it is essential to understand why women work in mining, their lived experiences, and their suggestions for improving conditions within the

industry. Women's opportunities and experiences in mining vary considerably, and various theoretical frameworks help to explain differences in their attitudes, rights, and working conditions. This study seeks to contribute to the academic literature on women in non-traditional roles and offers insights into female employees within the mining sector.

The mining industry, historically male-dominated, continues to demonstrate significant disparities in the division of responsibilities and roles based on gender. Although the number of women in mining has increased, gender dynamics remain a key barrier, affecting social life, career progression, and work arrangements. Gender-based divisions of labour have long been entrenched in many parts of the world, as evidenced in studies by Adisa et al. (2019), Sesele et al. (2021), Sinclair (2021), and Toff & Palmer (2019). Research by Boateng et al. (2014) and Evans et al. (2015) on Zambia's mining industry illustrates how traditional gender stereotypes are embedded within mining culture. Women are traditionally assigned caregiving and domestic responsibilities, while men are often seen as the primary wage earners. These gendered roles reinforce the perception of mining as a male profession and restrict women's access to opportunities.

A review of 37 academic publications focused on women in the extractive industry was conducted using keywords such as "women," "mining," and "difficulties." These studies provide a diverse and comprehensive overview of women's experiences across major mining sites globally. The data were imported into NVivo 12 for in-depth thematic analysis. One of the tools employed was NVivo's Word Frequency Query, which visualises the frequency of key terms across the dataset. The analysis revealed that "women" was the most frequently occurring word (1.73%), followed by "mining," "gender," "social," and "work." These findings suggest that the main global barriers for women in the mining industry relate to social issues, especially gender inequality and restricted job access. Accordingly, inclusive women's empowerment initiatives could help to foster equity across the extractive sector. Figure 2 illustrates the most frequently occurring words in the dataset.



Figure 2. Most Frequently Occurring Words in the Data
Source: Processed by the authors using NVivo 12 Plus (2024)

This study utilises NVivo nodes to categorise findings related to gender dynamics, challenges, and women's roles, with the aim of analysing their position within mining communities. These nodes offer important insights into the ongoing exclusion of women and highlight their relevance to Sustainable Development Goal (SDG) 5 (gender equality) and SDG 8 (decent work and economic growth). Figure 3 displays the hierarchical structure of the studies examined.

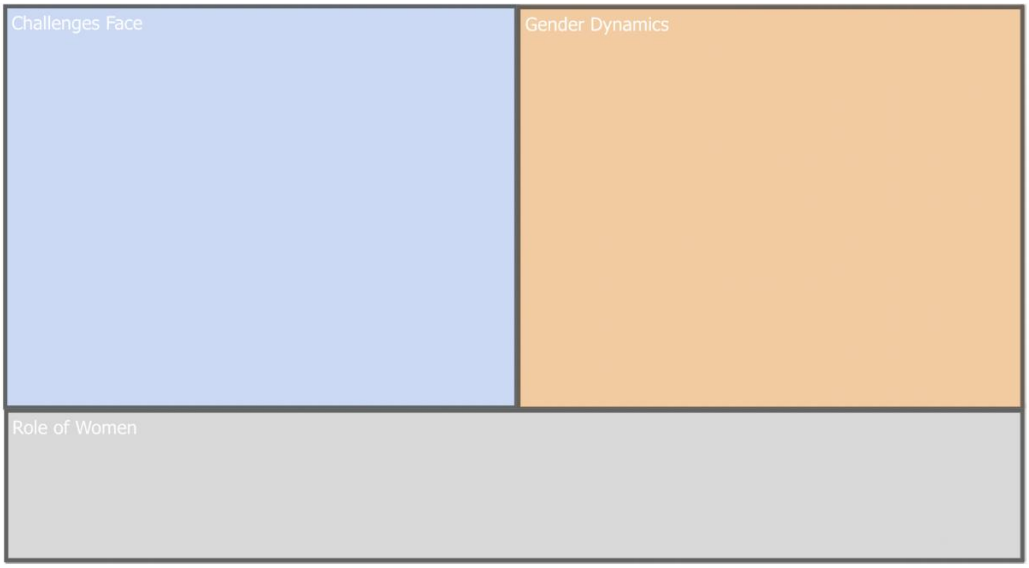


Figure 3. Hierarchical Diagram of Studies on Women and Mining
Source: Processed by the authors using NVivo 12 Plus (2024)

The hierarchical chart in Figure 3 reflects the coding frequency of key themes in the literature, indicating that the challenges faced by women are closely linked to social, economic, and environmental aspects of mining. In this article, “challenges” refer to a range of gender-specific barriers, including discrimination, the double burden of work and domestic duties, poor workplace inclusivity, and health and safety concerns—all of which restrict women’s access to resources, opportunities, and recognition.

The “challenges faced” node identifies a range of barriers experienced by women in mining communities. Beyond facing discrimination, many women must manage a double workload—balancing professional responsibilities with unpaid domestic labour. This burden creates added pressure and is often overlooked, further highlighting gender disparities. Moreover, women are exposed to specific health risks due to unsafe working conditions that do not consider their physiological needs. For instance, the absence of appropriate sanitation facilities at mining sites can impede full engagement. These unsuitable conditions contribute to chemical exposure and inadequate protective equipment.

The neglect of women’s health and safety needs demonstrates the urgency of adopting gender-sensitive approaches in the sector, especially to achieve SDG 8. In addition, the lack of targeted policies in many mining companies continues to marginalise women. These policy gaps hinder women’s participation and contribute to the failure to

realise inclusive economic growth. Such limitations also reduce access to training, increase exposure to workplace discrimination, and restrict career advancement (Amu & Dickson, 2016; Dixon et al., 2014; Musonda, 2021).

Table 1. Barriers to Women's Participation in the Mining Sector
Source: Processed by the authors (2024)

Challenges	Explanations	Implications
Masculinity conflicts in the context of new investments.	A study by Kuo (2020) highlights the masculinity conflicts that emerge as new investments not only have major economic impacts, but also change work structures and gender roles in the mining industry.	Roles requiring physical strength and endurance are often considered the domain of men, while women are more limited to administrative or domestic work.
Division of labour associated with gender stereotypes.	Hegemonic masculinity in mining communities is reflected in the division of labour associated with gender stereotypes.	Women often face structural barriers in achieving key positions in the industry, including limited access to technical training and a lack of motivating role models.
Gender hierarchy in leadership structures.	In the mining industry, gender hierarchies are evident in leadership and decision-making.	Strategic positions are often filled by men, while women are underrepresented, reinforcing power imbalances and slowing progress towards inclusion in decision-making.
Challenges in women's empowerment.	Hegemonic masculinity hinders women's empowerment in mining communities, including stigma against women who go beyond traditional roles, lack of career support, and the need for inclusive policies.	Without overcoming this hegemony, efforts to empower women in the mining industry will continue to be hampered.

The "gender dynamics" node explores how entrenched social norms restrict women's roles in male-dominated mining communities, often relegating them to

supportive or auxiliary roles rather than positions of leadership. This creates unequal power dynamics, with men typically occupying roles related to operations, management, and decision-making. Stereotypes further reinforce the notion that women are unsuited to the physical and technical demands of mining, confining them to clerical or supportive tasks. Such biases are underpinned by patriarchal organisational cultures, where men largely control decision-making, thereby perpetuating non-inclusive working environments.

The "roles of women" node highlights women's contributions in mining communities, including as workers, community leaders, and caretakers. While these roles are crucial for social cohesion and household wellbeing, they are often overlooked or undervalued. In some communities, women are key to supporting family welfare and children's education, yet their economic contributions remain underappreciated. Industry structures frequently prioritise male workers for leadership roles, relegating women to lower-status positions. This lack of recognition not only diminishes women's financial security but also hinders the broader development of mining communities. Addressing this issue requires governance-driven solutions, such as gender-sensitive training, decision-making inclusion, mentorship initiatives, and diversity and inclusion programmes to foster a more equitable working environment.

In summary, the mining industry continues to pose substantial challenges to women's inclusion and advancement. Gender norms restrict workplace roles and exacerbate inequalities in health, economic status, and recognition. These conditions have prompted the rise of anti-mining movements, often led by women, which have illuminated the gendered injustices embedded in extractive industries. Jenkins (2017) highlights the activism of rural women who defend land rights and advocate for community empowerment—often without acknowledgment. Similarly, Matamanda (2020) and Muchadenyika (2015) identify the psychological and economic toll of such resistance, which includes harassment and violence. The dominance of masculinity in mining not only legitimises gender hierarchies but also positions men as more "fit" for hazardous roles, exacerbating workplace discrimination (Malta et al., 2017; Rodrigues et al., 2019). These challenges are summarised in Table 1.

In the Indonesian context, colonial legacies and patriarchal traditions have historically framed men as breadwinners and women as homemakers, limiting women's access to formal employment in mining. Structural reforms are therefore essential to realising SDG 5 and SDG 8, enabling women to fully participate in the mining economy and dismantling long-standing exclusionary practices. Despite global progress, women in Indonesia still face significant barriers to representation, leadership, and safe working conditions. Research by Benya (2017) and Kansake et al. (2021) has documented hostile working environments, limited promotional pathways, and pay inequity, which continue to marginalise women. National Labour Force Survey data reveal that women make up less than 10% of the Indonesian mining workforce, with just 115,000 female employees compared to 1.28 million men—underscoring the entrenched gender imbalance in the sector.

Impacts of Mining on Women in Indonesia

The mining sector in Indonesia exerts a significant influence on various aspects of society, including its economic, social, and environmental dimensions (Bahlburg, 2023; Ikhsan et al., 2023).

Economic Impact

In mining communities, the extraction of resources such as coal, gold, and other minerals considerably affects employment and income distribution. Further investigation is needed to fully understand the gender-specific implications of these impacts, particularly given the distinct opportunities and challenges women face in comparison to men (Monteiro et al., 2019). The mining sector offers the highest wages among all industries. Figure 4 presents the average monthly earnings across different sectors.



Figure 4. Industries Ranked by Average Number of Employees (Highest to Lowest)
Source: Processed by the authors (2024)

Gender inequality is especially pronounced in mining, with women earning significantly less than their male counterparts. Despite increasing awareness and efforts to address this disparity, women continue to encounter barriers to fair pay and advancement. Discrimination and limited career prospects persist, signalling an urgent need for policies and initiatives that promote gender equity.

The Indonesian mining workforce displays a clear gender imbalance, with men predominantly occupying operational and technical positions, while women are often relegated to lower-paying support roles. Addressing this gap requires targeted educational and skills training for women to qualify for higher-paid roles in the formal mining sector. However, persistent discrimination and socio-cultural barriers present major challenges. Income inequality within mining communities further reveals that men in better-paying positions experience greater income growth, while women—especially those involved in informal work such as domestic labour, food vending, or handicrafts—

remain economically marginalised. Table 2 illustrates the income distribution of women in Indonesia's mining sector.

Table 2. The Income of Women Employed in the Mining Sector in Indonesia
Source: Processed by the authors (2024)

Type of Mine	Mine Location	Income (USD/day)
Gold	North Gorontalo	$4.00
Gold	West Lombok	$1.50
Gold	Central Kalimantan	$6.25
Coal	West Sumatra	$2.70
Coal	Aceh	$1.90

NVivo analysis reveals that these economic impacts are deeply rooted in structural and systemic issues. Women frequently encounter wage gaps, limited promotion opportunities, and financial instability exacerbated by the dual burden of paid work and domestic responsibilities. These constraints hinder women's financial independence and contribute to their vulnerability in the labour market.

Furthermore, NVivo's thematic analysis links economic hardship with workplace and domestic violence. Competition over resources and power dynamics in mining communities fuel unsafe environments for women, both at work and at home. Economic stress often intensifies domestic violence, leaving women with few alternatives due to financial dependency. Addressing these challenges requires integrated strategies that promote diversity, foster entrepreneurship, and empower women through community-based initiatives. Implementing programmes centred on diversity and inclusion can help remove barriers to women's participation in mining. Entrepreneurship education, access to microcredit, and support for women-led businesses offer practical solutions for improving financial independence. Strengthening local cooperatives and organisations can also reduce women's dependence on precarious mining jobs. Despite mining's potential to boost local economies, the absence of gender-sensitive policies continues to exclude women from its benefits. Targeted interventions—such as vocational training, financial support, and action against wage discrimination—are essential for reducing economic vulnerability and promoting gender equality in mining areas.

Social Impact

Mining operations in various parts of Indonesia have brought profound social consequences, including changes in social structures, women's roles, and broader health, education, and welfare issues. Mining-induced economic disparities have exacerbated class divisions and migration patterns, with those employed in mining enjoying greater financial rewards than others. This divergence has heightened social tensions,

particularly where migrant workers are involved. Figure 5 shows the population engaged in mining in Indonesia (2020–2023).

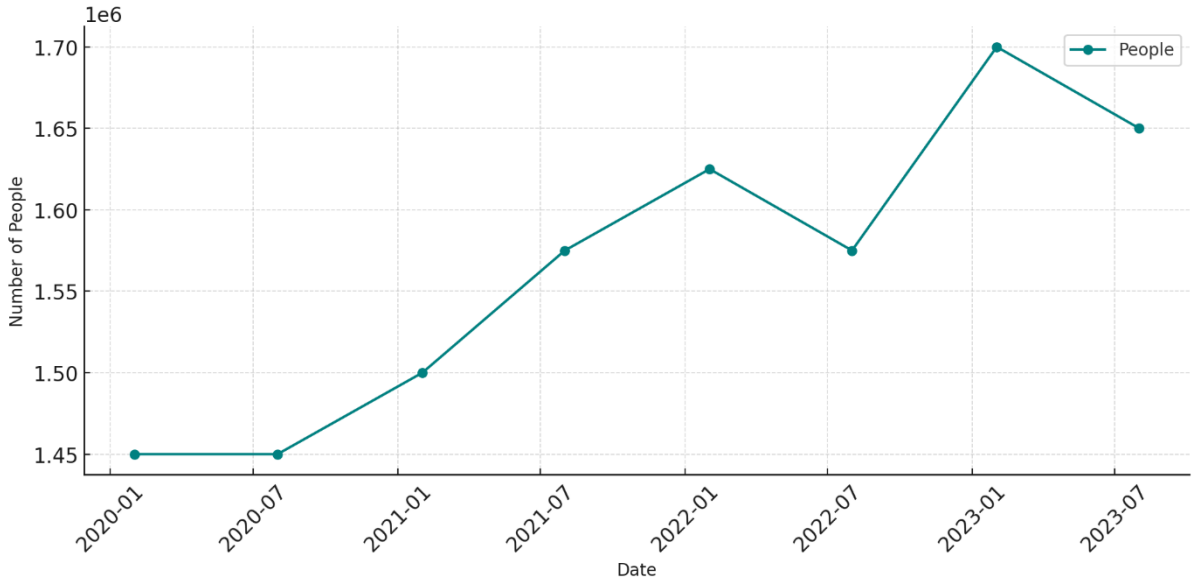


Figure 5. Number of Indonesians Employed in the Mining Sector (2020–2023)
Source: Processed by the authors (2024)

NVivo analysis identifies substantial shifts in women's roles within mining-affected communities and households. The absence of male breadwinners—often due to long working hours or migration—places additional pressure on women to assume both financial and domestic responsibilities. These evolving roles have significant emotional implications, with women balancing traditional expectations and new economic duties.

The data also indicate that, while increased mining income allows some women to participate more actively in local organisations and community development, they still bear the burden of maintaining domestic roles. This dual responsibility generates conflict between conventional gender expectations and newly emerging economic opportunities, revealing the complexity of social transformation in mining communities.

Further NVivo findings highlight worsening health, education, and welfare conditions. Environmental pollutants—especially air, water, and soil contamination—pose serious health risks, particularly to pregnant women and children. Women are doubly affected, both through direct exposure and by caring for ill family members. This underscores the urgency for health policies tailored to the gender-specific impacts of mining.

In terms of education, children in mining areas face systemic disadvantages due to underinvestment in educational infrastructure. NVivo thematic coding points to disruptions in schooling caused by inadequate facilities, which hinder the community's long-term development and perpetuate reliance on mining. Without quality education, future generations may be trapped in the same precarious cycle.

Environmental Impact

NVivo coding provides a nuanced understanding of the environmental impact of mining, particularly its effects on women. Key themes include land degradation, water and air pollution, and coastal contamination—each affecting women in distinct ways due to their traditional roles in agriculture, water management, and caregiving.

Land degradation, stemming from soil erosion, declining fertility, and landscape changes, disproportionately affects women who rely on small-scale farming. With less fertile land, women must work harder to produce food or search for alternative plots, increasing economic pressure and threatening food security.

Water pollution emerges as another critical issue. NVivo data show frequent associations between mining, toxic waste, and household water management. Polluted rivers and groundwater disrupt daily life and health, forcing women to travel further for clean water and exposing families to illnesses such as skin and gastrointestinal diseases. The added workload and health risks deepen gender inequality in these communities.

Air pollution is another major concern. Emissions from mining activities—including sulphur dioxide, nitrogen oxides, and mercury—have been linked to respiratory and cardiovascular problems. Women and children are particularly at risk due to outdoor exposure during agricultural work or daily commutes. The resulting healthcare costs further burden families already affected by economic and environmental stressors.

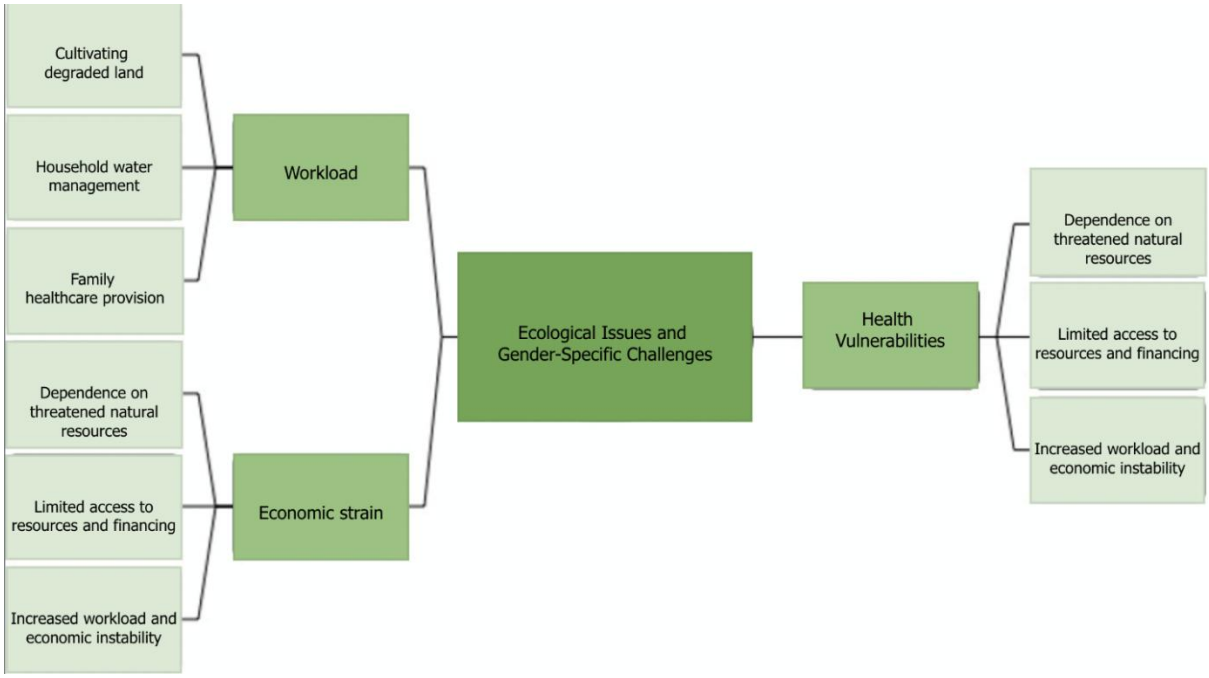


Figure 6. Ecological Issues and Gender-Specific Challenges
Source: Processed by the authors using NVivo 12 Plus (2024)

Finally, coastal pollution—particularly in Aceh—has had serious consequences. Coal spills and industrial runoff have contaminated water sources, damaged fishing grounds, and degraded agricultural land. Women in these coastal regions report feeling helpless, as their livelihoods and well-being are threatened. Sentiment analysis in NVivo

reflects frustration and disempowerment among women facing these compounding challenges.

Figure 6 presents cross-thematic data showing how environmental degradation intersects with gender-specific vulnerabilities. The coding matrix illustrates the links between ecological harm and increased workloads, reduced access to resources, and health disparities. These findings underscore the need for gender-sensitive environmental policies, including improved regulation, alternative livelihoods, water and sanitation infrastructure, and access to healthcare.

NVivo's analysis highlights the urgent need for an integrated approach that addresses both environmental sustainability and gender equality to safeguard the resilience of mining-affected communities—particularly the women who shoulder a disproportionate share of the burden.

Governance Mechanisms and Policies

Governance and policy frameworks addressing economic, environmental, and social impacts significantly influence Indonesia's mining sector. These mechanisms, rooted in national and regional regulations—such as the Mining Law (No. 4 of 2009)—aim to regulate mining activities in a manner that benefits society while minimising adverse effects. The political, economic, and social context of the country shapes these policies, which prioritise resource management, environmental protection, and the equitable distribution of mining benefits. Moreover, they serve as instruments for the government to enforce regulations, guide investments, and address key issues such as sustainable mining, the protection of indigenous rights, and the promotion of gender equality within the industry.

Indonesia's gender equality policy in the mining sector emphasises the incorporation of both men's and women's perspectives through gender mainstreaming. This approach seeks to tackle the underrepresentation of women in mining, reported to be less than 10% in the 2019 national workforce survey. Gender mainstreaming aims to ensure equitable benefits for all genders in the sector. Regulatory frameworks, such as Presidential Instruction No. 9/2000, are pivotal in promoting gender equality by mandating the integration of gender perspectives across all aspects of national development. This instruction has become a cornerstone of development policy in Indonesia.

The 2020–2024 National Medium-Term Development Plan underscores gender equality as a fundamental component of national development. It aims to create equal opportunities for both men and women, particularly in the mining sector, by recognising women's vital role in enhancing quality of life, strengthening institutions, and expanding access to financial resources. Despite ongoing efforts to promote diversity and inclusion, gender inequality remains prevalent in the mining industry, where women continue to face structural barriers to equal opportunities and career progression. Several legal provisions aim to address these issues, including Law No. 13 of 2003 on Manpower, which ensures equal treatment for women, and Law No. 21 of 2007 on the Eradication of Human Trafficking, which protects women from exploitation in high-risk industries like

mining. Furthermore, Presidential Regulation No. 26 of 2010 mandates Indonesia's participation in the Extractive Industries Transparency Initiative (EITI), which promotes sustainable and transparent mining practices, particularly with regard to government revenue transparency and corporate accountability—elements that directly impact women in mining-affected communities.

By using NVivo to analyse governance mechanisms and policies for women's empowerment in the mining sector, researchers can code elements such as resource efficiency, stakeholder representation, and institutional transparency. NVivo facilitates the identification of governance patterns and themes, allowing for the examination of how gender mainstreaming policies are implemented and how they address broader issues like sustainability, equity, and socio-economic development. In this context, NVivo is particularly useful in tracking gender diversity in leadership and understanding how governance frameworks shape inclusive workplace practices.

Despite the formal inclusion of gender mainstreaming in several policy documents, its practical implementation remains limited. Women in the mining industry are often regarded as more vulnerable and at greater risk than their male counterparts due to social norms that frame mining as a male-dominated profession. These challenges are compounded by limited access to training, restricted opportunities for leadership roles, and gender-biased workplace cultures. Nonetheless, governmental and corporate actors are taking steps to improve female participation. For example, the National Development Planning Agency has launched the Women's Empowerment Programme to improve women's quality of life through education, skills training, and increased financial inclusion.

Effective governance is also critical for ensuring transparency and accountability in the mining sector, particularly given its legacy of corruption and mismanagement. Transparent systems for allocating mining concessions, conducting environmental impact assessments, and distributing revenues are essential for restoring public trust and ensuring that the benefits of mining reach local communities. In addition to these structural challenges, gender inequality remains a major concern. Women face discriminatory practices such as unequal pay and limited career advancement. Thus, inclusive governance is essential—ensuring that marginalised groups, including women, indigenous peoples, and rural populations, are actively involved in policy decisions that affect their lives and livelihoods.

Corporate Social Responsibility (CSR) policies are another essential component in fostering inclusivity within the mining sector. CSR mandates the implementation of initiatives that benefit local communities—such as infrastructure development, education support, and assistance for small businesses. These initiatives are designed to ensure that communities share in the benefits of mining operations. Programmes focused on economic empowerment—including cooperatives, SMEs, and microfinance—have shown positive outcomes for women. They provide stable income alternatives to mining, enhance women's financial literacy, and support informed business decision-making. However, women in these programmes still face obstacles, including limited access to markets, persistent gender bias, and inadequate infrastructure. Continued collaboration

between government, civil society, and the private sector is needed to strengthen such initiatives and ensure they meet women's needs.

To sustain the competitiveness of Indonesia's mining industry, efficient governance mechanisms must be firmly established. This includes implementing adaptive regulatory frameworks that respond to market and environmental changes. One proposed solution is a CSR fund dedicated to supporting gender mainstreaming in mining communities. Effective coordination between the government, mining companies, local stakeholders, and indigenous groups is essential. Measures to improve governance include simplifying the permit application process, digitising environmental impact assessments, and increasing transparency in regulatory procedures. However, persistent bureaucracy and inconsistent enforcement continue to hinder the sector's long-term development potential.

Moreover, policies encouraging the development of downstream industries—such as mineral processing—are central to maximising the value of domestic resources. These initiatives aim to shift Indonesia's role from merely exporting raw materials to capturing greater value from processing and refining activities, thereby contributing to national economic development. Empowerment initiatives, including cooperatives and microfinance, continue to offer women alternative income sources, reduce dependence on unstable mining jobs, and enhance their business and financial skills. However, gender discrimination, infrastructure gaps, and market barriers persist. Thus, the ongoing development of inclusive and gender-responsive policies remains vital. This requires multi-sectoral collaboration to ensure that women in mining areas can contribute fully to community welfare and benefit equitably from the mining economy.

Conclusion

This research highlights that governance-based and governance-driven solutions are vital for empowering women in the mining industry, particularly in tackling entrenched gender disparities. Despite the sector's economic potential, women remain marginalised in both employment and decision-making roles. A detailed analysis using NVivo 12 Plus reveals that persistent gender-based role divisions continue to limit women's opportunities for advancement, posing a complex and significant barrier. Accordingly, inclusive policies grounded in gender-sensitive governance are urgently needed to address these inequities.

The alignment of policies with the Sustainable Development Goals (SDGs)—notably SDG 5 (gender equality) and SDG 8 (decent work and economic growth)—reinforces the need for collaboration among governments, corporations, and NGOs. Effective cooperation between the state, private sector, and civil society organisations is essential to ensure equal opportunities for women and to dismantle systemic barriers. Achieving women's empowerment in the mining sector requires a strong, shared commitment from all stakeholders to ensure that inclusive policies are not only well-designed but also effectively implemented.

Furthermore, this study identifies several persistent constraints that must be addressed to advance gender equality. Further research is essential to deepen understanding of global gender dynamics and to identify sustainable implementation strategies. Future studies should investigate the psychological and emotional impacts of gender inequality and propose interventions that promote women's mental well-being. Recommendations for future research include the development of more comprehensive and inclusive policy frameworks, cross-national comparative analyses of best practices for increasing women's participation, and the integration of community perspectives in the design of empowerment initiatives. By pursuing these strategies, the mining industry can move closer to becoming a model for gender-inclusive and sustainable development worldwide.

Acknowledgements

We would like to extend our sincere gratitude to the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia for funding this research through the Fundamental Research Scheme (105/UN59.7.LPPM-PL/2024). We are also deeply grateful to Universitas Teuku Umar, Indonesia, for their steadfast support throughout the research process.

References

Adebayo, E., & Werker, E. (2021). How much are benefit-sharing agreements worth to communities affected by mining? *Resources Policy*, *71*, 101970. https://doi.org/10.1016/j.resourpol.2020.101970

Adisa, T. A., Abdulraheem, I., & Isiaka, S. B. (2019). Patriarchal hegemony: Investigating the impact of patriarchy on women's work-life balance. *Gender in Management*, *34*(1), 19–33. https://doi.org/10.1108/GM-07-2018-0095

Aminah, A. (2017). Tambang Rakyat Rentan Konflik (Studi Kasus Pertambangan Emas Rakyat Di Gunong Ujeun Kabupaten Aceh Jaya). *Jurnal Public Policy*, *3*(2). https://doi.org/10.35308/jpp.v3i2.123

Amu, H., & Dickson, K. S. (2016). Health insurance subscription among women in reproductive age in Ghana: do socio-demographics matter? *Health Economics Review*, *6*(1), 24. https://doi.org/10.1186/s13561-016-0102-x

Amulya Jeevanasai, S., Saole, P., Rath, A. G., Singh, S., Rai, S., & Kumar, M. (2023). Shades & shines of gender equality with respect to sustainable development goals (SDGs): The environmental performance perspectives. *Total Environment Research Themes*, *8*, 100082. https://doi.org/10.1016/j.totert.2023.100082

Arthur-Holmes, F., & Abrefa Busia, K. (2021). Occupying the Fringes: The Struggles of Women in Artisanal and Small-Scale Gold Mining in Rural Ghana—Evidence from the Prestea–Huni Valley Municipality. *Gender Issues*, *38*(2), 156–179. https://doi.org/10.1007/s12147-020-09261-4

Atienza, M., Fleming-Muñoz, D., & Aroca, P. (2021). Territorial development and mining. Insights and challenges from the Chilean case. *Resources Policy*, *70*, 101812.

https://doi.org/10.1016/j.resourpol.2020.101812

Bahlburg, F. (2023). The Local Impact of Mining in Peruvian Districts: Evidence of a Subnational Resource Curse? *International Journal of Energy Economics and Policy*, *13*(4), 264–286. https://doi.org/10.32479/ijeep.14319

Bansal, S., Nangia, P., Singh, S., & Cichoń, D. (2024). Where's our share: Agenda for gender representation in mining industry. *Resources Policy*, *90*, 104820. https://doi.org/10.1016/j.resourpol.2024.104820

Benya, A. (2017). Going underground in South African platinum mines to explore women miners' experiences. *Gender and Development*, *25*(3), 509–522. https://doi.org/10.1080/13552074.2017.1379775

Boateng, G. O., Mumba, D., Asare-Bediako, Y., & Boateng, M. O. (2014). Examining the correlates of gender equality and the empowerment of married women in Zambia. *African Geographical Review*, *33*(1), 1–18. https://doi.org/10.1080/19376812.2013.814188

Botah, K. Y. (2024). Why Institutions Matter: Analysis of Their Significance in Shaping Economic, Environmental, And Policy Transformation. *Journal of Social and Policy Issues*, 79–87. https://doi.org/10.58835/jspi.v4i2.246

Brain, K. A. (2017). The impacts of mining on livelihoods in the Andes: A critical overview. *Extractive Industries and Society*, *4*(2), 410–418. https://doi.org/10.1016/j.exis.2017.03.001

Buss, D., & Rutherford, B. (2020). Gendering women's livelihoods in artisanal and small-scale mining: an introduction. *Canadian Journal of African Studies*, *54*(1), 1–16. https://doi.org/10.1080/00083968.2019.1691028

Chávez, A., & Rodríguez-Puello, G. (2022). Commodity price shocks and the gender wage gap: Evidence from the Metal Mining Prices Super-Cycle in Chile. *Resources Policy*, *76*, 102497. https://doi.org/10.1016/j.resourpol.2021.102497

Chigumira, E. (2018). Political ecology of agrarian transformation: The nexus of mining and agriculture in Sanyati District, Zimbabwe. *Journal of Rural Studies*, *61*, 265–276. https://doi.org/10.1016/j.jrurstud.2017.11.003

Chisholm-Burns, M. A., Spivey, C. A., Hagemann, T., & Josephson, M. A. (2017). Women in leadership and the bewildering glass ceiling. *American Journal of Health-System Pharmacy*, *74*(5), 312–324. https://doi.org/10.2146/ajhp160930

Daley, E., & Pallas, S. (2014). Women and Land Deals in Africa and Asia: Weighing the Implications and Changing the Game. *Feminist Economics*, *20*(1), 178–201. https://doi.org/10.1080/13545701.2013.860232

Denoncourt, J. A. (2022). Supporting Sustainable Development Goal 5 Gender Equality and Entrepreneurship in the Tanzanite Mine-to-Market. *Sustainability (Switzerland)*, *14*(7). https://doi.org/10.3390/su14074192

Diehl, A. B., & Dzubinski, L. M. (2016). Making the Invisible Visible: A Cross-Sector Analysis of Gender-Based Leadership Barriers. *Human Resource Development Quarterly*, *27*(2), 181–206. https://doi.org/10.1002/hrdq.21248

Dixon, J., Luginaah, I., & Mkandawire, P. (2014). The National Health Insurance Scheme in Ghana's Upper West Region: A gendered perspective of insurance acquisition in a

resource-poor setting. *Social Science and Medicine*, *122*, 103–112. https://doi.org/10.1016/j.socscimed.2014.10.028

Ericsson, M., & Löf, O. (2019). Mining's contribution to national economies between 1996 and 2016. *Mineral Economics*, *32*(2), 223–250. https://doi.org/10.1007/s13563-019-00191-6

Evans, D. M., Zipper, C. E., Hester, E. T., & Schoenholtz, S. H. (2015). Hydrologic Effects of Surface Coal Mining in Appalachia (U.S.). *Journal of the American Water Resources Association*, *51*(5), 1436–1452. https://doi.org/10.1111/1752-1688.12322

Fahy Bryceson, D., Bosse Jønsson, J., & Clarke Shand, M. (2020). Mining mobility and settlement during an East African gold boom: Seeking fortune and accommodating fate. *Mobilities*, *15*(3), 446–463. https://doi.org/10.1080/17450101.2020.1723879

Gamu, J., Le Billon, P., & Spiegel, S. (2015). Extractive industries and poverty: A review of recent findings and linkage mechanisms. *Extractive Industries and Society*, *2*(1), 162–176. https://doi.org/10.1016/j.exis.2014.11.001

Hilson, G., & Maconachie, R. (2020). Artisanal and small-scale mining and the Sustainable Development Goals: Opportunities and new directions for sub-Saharan Africa. *Geoforum*, *111*, 125–141. https://doi.org/10.1016/j.geoforum.2019.09.006

Hilson, G., & McQuilken, J. (2014). Four decades of support for artisanal and small-scale mining in sub-Saharan Africa: A critical review. *Extractive Industries and Society*, *1*(1), 104–118. https://doi.org/10.1016/j.exis.2014.01.002

Humphries, J., & Thomas, R. (2023). 'The Best Job in the World': Breadwinning and the Capture of Household Labor in Nineteenth and Early Twentieth-Century British Coalmining. *Feminist Economics*, *29*(1), 97–140. https://doi.org/10.1080/13545701.2022.2128198

Ikhsan, I., Latif, I. R., Hajad, V., Hasan, E., Mardhatillah, M., & Herizal, H. (2023). The Abundance of Special Autonomy Funds: An Ironic Portrait of Aceh's Poverty Alleviation. *Journal of Government and Civil Society*, *7*(1), 96. https://doi.org/10.31000/jgcs.v7i1.6441

Jacka, J. K. (2018). Annual review of anthropology: The anthropology of mining: The social and environmental impacts of resource extraction in the mineral age. *Annual Review of Anthropology*, *47*(1), 61–77. https://doi.org/10.1146/annurev-anthro-102317-050156

Jenkins, K. (2017). Women anti-mining activists' narratives of everyday resistance in the Andes: staying put and carrying on in Peru and Ecuador. *Gender, Place and Culture*, *24*(10), 1441–1459. https://doi.org/10.1080/0966369X.2017.1387102

Kansake, B. A., Sakyi-Addo, G. B., & Dumakor-Dupey, N. K. (2021). Creating a gender-inclusive mining industry: Uncovering the challenges of female mining stakeholders. *Resources Policy*, *70*, 101962. https://doi.org/10.1016/j.resourpol.2020.101962

Kitchenham, B., Pearl Brereton, O., Budgen, D., Turner, M., Bailey, J., & Linkman, S. (2009). Systematic literature reviews in software engineering - A systematic literature review. *Information and Software Technology*, *51*(1), 7–15. https://doi.org/10.1016/j.infsof.2008.09.009

Kuo, I. C. (2020). Changing masculinities in response to environmental impacts of mining:

Reflections from Mindre village, Papua New Guinea. *The Extractive Industries and Society*, *7*(2), 446-452. https://doi.org/10.1016/j.exis.2019.03.016

Lahiri-Dutt, K. (2011). The Megaproject of Mining: A Feminist Critique. In *Engineering Earth* (Issues 329–351). Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-90-481-9920-4_20

Leal Filho, W., Kovaleva, M., Tsani, S., Țîrcă, D.-M., Shiel, C., Dinis, M. A. P., Nicolau, M., Sima, M., Fritzen, B., Lange Salvia, A., Minhas, A., Kozlova, V., Doni, F., Spiteri, J., Gupta, T., Wakunuma, K., Sharma, M., Barbir, J., Shulla, K., … Tripathi, S. (2023). Promoting gender equality across the sustainable development goals. *Environment, Development and Sustainability*, *25*(12), 14177–14198. https://doi.org/10.1007/s10668-022-02656-1

Ledwaba, P. F. (2017). The status of artisanal and small-scale mining sector in South Africa: Tracking progress. *Journal of the Southern African Institute of Mining and Metallurgy*, *117*(1), 33–40. https://doi.org/10.17159/2411-9717/2017/v117n1a6

Macmillan, H. (2017). Plus ça change? Mining in South Africa in the last 30 years – an overview. *Review of African Political Economy*, *44*(152). https://doi.org/10.1080/03056244.2017.1313728

Malta, D. C., Bernal, R. T. I., Andrade, S. S. C. de A., da Silva, M. M. A., & Velasquez-Melendez, G. (2017). Prevalence of and factors associated with self-reported high blood pressure in Brazilian adults. *Revista de Saude Publica*, *51*(suppl 1), 1S-10S. https://doi.org/10.1590/S1518-8787.2017051000006

Matamanda, A. R. (2020). Battling the informal settlement challenge through sustainable city framework: experiences and lessons from Harare, Zimbabwe. *Development Southern Africa*, *37*(2), 217–231. https://doi.org/10.1080/0376835X.2019.1572495

Mensah, L. (2024). Battling on multiple frontiers: an African feminist examination of women's struggles in artisanal and small-scale mining (ASM). *Cogent Social Sciences*, *10*(1). https://doi.org/10.1080/23311886.2024.2399935

Monteiro, N. B. R., da Silva, E. A., & Moita Neto, J. M. (2019). Sustainable development goals in mining. *Journal of Cleaner Production*, *228*, 509–520. https://doi.org/10.1016/j.jclepro.2019.04.332

Muchadenyika, D. (2015). Women struggles and large-scale diamond mining in Marange, Zimbabwe. *Extractive Industries and Society*, *2*(4), 714–721. https://doi.org/10.1016/j.exis.2015.08.003

Musonda, J. (2021). Modernity on Credit: The Experience of Underground Miners on the Zambian Copperbelt. *Journal of Southern African Studies*, *47*(3), 369–385. https://doi.org/10.1080/03057070.2020.1864921

Mwaijande, F., & Mwakalikamo, J. (2024). Potential of Social Protection Policy Interventions for Breaking Poverty Cycle in Tanzania. *Journal of Social and Policy Issues*, 34–39. https://doi.org/10.58835/jspi.v4i1.306

Ofosu, G., Torbor, M., & Sarpong, D. (2022). Gender and artisanal and small-scale mining: Exploring women's livelihood and occupational roles in formalised settings. *Journal of Rural Studies*, *96*, 121–128. https://doi.org/10.1016/j.jrurstud.2022.10.013

Peluso, N. L. (2018). Entangled Territories in Small-Scale Gold Mining Frontiers: Labor

Practices, Property, and Secrets in Indonesian Gold Country. *World Development*, *101*, 400–416. https://doi.org/10.1016/j.worlddev.2016.11.003

Pimpa, N. (2019). How mining companies promote gender equality through sustainable development? *Cogent Business & Management*, *6*(1). https://doi.org/10.1080/23311975.2019.1647590

Rao, N., Lawson, E. T., Raditloaneng, W. N., Solomon, D., & Angula, M. N. (2019). Gendered vulnerabilities to climate change: insights from the semi-arid regions of Africa and Asia. *Climate and Development*, *11*(1), 14–26. https://doi.org/10.1080/17565529.2017.1372266

Rodrigues, A. P., Gaio, V., Kislaya, I., Graff-Iversen, S., Cordeiro, E., Silva, A. C., Namorado, S., Barreto, M., Gil, A. P., Antunes, L., Santos, A., Miguel, J. P., Nunes, B., & Dias, C. M. (2019). Sociodemographic disparities in hypertension prevalence: Results from the first Portuguese National Health Examination Survey. *Revista Portuguesa de Cardiologia (English Edition)*, *38*(8), 547–555. https://doi.org/10.1016/j.repce.2019.11.006

Rusba, K., Wahyuni, S., & Nurwati, N. (2022). Workforce Knowledge in Mining Safety Management System Policy Implementation. *Jurnal Public Policy*, *8*(4), 211. https://doi.org/10.35308/jpp.v8i4.5192

Sandy, N. T., & Inayati, I. (2022). Transfer of Land and Building Taxes in the Plantation and Forestry Sector in Indonesia in a SWOT Analysis Review. *Jurnal Public Policy*, *8*(3), 168. https://doi.org/10.35308/jpp.v8i3.5484

Sesele, K., Marais, L., van Rooyen, D., & Cloete, J. (2021). Mine decline and women: Reflections from the Free State Goldfields. *Extractive Industries and Society*, *8*(1), 211–219. https://doi.org/10.1016/j.exis.2020.11.006

Sinclair, L. (2021). Beyond victimisation: Gendered legacies of mining, participation, and resistance. *Extractive Industries and Society*, *8*(3), 100870. https://doi.org/10.1016/j.exis.2021.01.005

Söderholm, P., & Svahn, N. (2015). Mining, regional development and benefit-sharing in developed countries. *Resources Policy*, *45*, 78–91. https://doi.org/10.1016/j.resourpol.2015.03.003

Susan Solomon, D., Singh, C., & Islam, F. (2021). Examining the outcomes of urban adaptation interventions on gender equality using SDG 5. *Climate and Development*, *13*(9), 830–841. https://doi.org/10.1080/17565529.2021.1939643

Toff, B., & Palmer, R. A. (2019). Explaining the Gender Gap in News Avoidance: "News-Is-for-Men" Perceptions and the Burdens of Caretaking. *Journalism Studies*, *20*(11), 1563–1579. https://doi.org/10.1080/1461670X.2018.1528882

Valadares, S. S., De Carvalho Neto, A. M., Mota-Santos, C. M., & Diniz, D. M. (2024). Women in mining: from subtle barriers to open prejudice. In *Revista de Gestao* (Vol. 31, Issue 3). https://doi.org/10.1108/REGE-10-2021-0193

Vásquez Cordano, A. L., & Prialé Zevallos, R. (2021). Country competitiveness and investment allocation in the mining industry: A survey of the literature and new empirical evidence. *Resources Policy*, *73*, 102136. https://doi.org/10.1016/j.resourpol.2021.102136

Weldegiorgis, F. S., Dietsche, E., & Franks, D. M. (2021). Building mining's economic

linkages: A critical review of local content policy theory. *Resources Policy*, *74*. https://doi.org/10.1016/j.resourpol.2021.102312

Wilches-Gutierrez, J., & Documet, P. (2018). What is known about sexual and reproductive health in Latin American and Caribbean mining contexts? A systematic scoping review. *Public Health Reviews*, *39*(1), 1. https://doi.org/10.1186/s40985-017-0078-z

Yakovleva, N. (2007). Perspectives on female participation in artisanal and small-scale mining: A case study of Birim North District of Ghana. *Resources Policy*, *32*(1–2), 29–41. https://doi.org/10.1016/j.resourpol.2007.03.002