

An Analysis of Mineral Resource Governance in Zimbabwe's Platinum Group Metals Sector

A Publishable Paper Based on PhD Thesis Research

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Abstract- This paper provides a comprehensive analysis of mineral resource governance (MRG) in Zimbabwe's platinum group metals (PGMs) sector, examining the structural, institutional, and political factors that shape governance outcomes. Despite possessing the world's third-largest PGMs reserves, Zimbabwe continues to experience economic underdevelopment, widespread poverty, and significant revenue leakages estimated at US\$32 billion over two decades. Using a sequential exploratory mixed-methods approach combining key informant interviews (n=31), focus group discussions, document analysis, and survey data (n=214), the paper analyses how MRG is framed and applied, the factors influencing governance efficacy, and the implications for sectoral development. Findings reveal significant governance deficiencies including constitutional-legal misalignment, regulatory fragmentation, weak institutional capacity, limited transparency and accountability, inadequate community engagement, and pervasive corruption. The analysis demonstrates that these challenges are not merely technical but deeply embedded in political economy dynamics, including security sector involvement in mining, elite capture, and political interference. The paper contributes to theoretical understandings of the resource curse by demonstrating how institutional weaknesses and power asymmetries perpetuate governance failures. Recommendations include constitutional alignment, regulatory consolidation, transparency reforms, and institutional capacity building.

Index Terms- Mineral Resource Governance, Platinum Group Metals, Zimbabwe, Institutional Analysis, Resource Curse, Transparency

I. INTRODUCTION

Mineral resource governance (MRG) encompasses the systems, processes, and institutions through which mineral wealth is managed, including legal frameworks, regulatory mechanisms, revenue administration, and stakeholder engagement (Bebington et al., 2018). Effective MRG is critical for transforming resource endowments into sustainable development outcomes, yet many resource-rich countries struggle with governance deficiencies that perpetuate the "resource curse" – the

paradox of resource abundance coinciding with economic underperformance, corruption, and social conflict (Sachs and Warner, 2021).

Zimbabwe presents a compelling case for analysing MRG challenges. The country hosts the world's third-largest platinum group metals reserves after South Africa, with the Great Dyke containing the second-largest known PGMs resources globally and the world's largest high-grade chrome ore resources (Dzinomwa et al., 2014). PGMs are essential raw materials in automotive catalytic converters, electronics, medical devices, and industrial applications, positioning Zimbabwe to benefit significantly from global demand (Taninouchi, 2023). Despite this mineral wealth, Zimbabwe's economy has contracted severely, with hyperinflation, mounting debt (approximately US\$20 billion), and poverty affecting over 7 million people (World Bank, 2023; AFDB, 2024).

The paradox between mineral abundance and economic underdevelopment raises critical questions about governance effectiveness. Between 2000 and 2020, Zimbabwe lost over US\$32 billion through illicit financial flows, largely attributed to weak MRG frameworks (Kurebwa, 2021). Current losses are estimated at US\$1.2–1.9 billion annually through smuggling and revenue leakages (U.S. International Trade Administration, 2024). The outdated Mines and Minerals Act of 1961, despite multiple amendments, remains inadequate for addressing modern governance challenges, particularly sophisticated revenue leakages and foreign investor influences (Veritas Zim, 2023). Regulatory fragmentation, overlapping institutional mandates, corruption, and political interference have created an environment where mineral wealth fails to translate into broad-based development.

This paper provides a systematic analysis of MRG in Zimbabwe's PGMs sector, addressing three key questions: (1) How is MRG framed and applied in the PGMs sector? (2) What factors influence the efficacy of MRG frameworks? and (3) What are the implications of current governance arrangements for sectoral development? Through this analysis, the paper contributes to theoretical understandings of resource governance in politically contested environments and provides evidence-based insights for policy reform.

The paper is structured as follows: Section 2 reviews theoretical and conceptual literature on MRG. Section 3 outlines the research methodology. Section 4 presents findings on the framing and application of MRG, factors affecting governance efficacy, and the implications for sectoral development. Section 5 discusses the findings in relation to theoretical frameworks and comparative cases. Section 6 concludes with policy implications and recommendations.

II. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Conceptualising Mineral Resource Governance

Mineral resource governance refers to the systems of formulating laws and regulations concerning the extraction and utilisation of mineral resources (Mattes, Leeds and Matsumura, 2016). Bebbington et al. (2018) conceptualise MRG as the manner in which power is exercised and policies formulated to manage a country's resources for development. Peattie (2017) emphasises that mineral resource governance encompasses the comprehensive, overarching processes by which mineral resources are estimated, measured, managed, and reported.

Transparency International Zimbabwe (2018) identifies five dimensions of resource governance relevant to understanding MRG: access to information, public participation, adherence to the law, coherence, and inclusiveness. Access to information ensures stakeholders have necessary data for informed decisions (Centre for MRG, 2017). Public participation facilitates hearing diverse voices, fostering transparency and accountability (Maguwu, 2016). Adherence to law guarantees decision-making within legal frameworks (Mlambo-Ngcuka, 2017). Coherence refers to consistency and alignment of policies and regulations (Zimbabwe Democracy Institute, 2016). Inclusiveness emphasises including all relevant stakeholders regardless of social or economic status (Chiyaka, 2018). These dimensions are interconnected and influence one another in complex ways, necessitating holistic analytical approaches (African Peer Review Mechanism, 2018).

The Natural Resource Governance Institute (NRGI, 2013) identifies four components determining governance quality: institutional and legal setting, reporting practices, safeguard and quality control, and enabling environment. NRGI (2017) further groups determinants into value derivation and revenue management, mineral resources institutionalisation, and the enabling environment. These frameworks provide analytical tools for assessing MRG effectiveness across different contexts.

2.2 Theoretical Perspectives on Resource Governance

2.2.1 Resource Curse Theory

Resource curse theory explains the negative development consequences associated with natural resource abundance or dependence (Cater, 2023). Sachs and Warner (2021) demonstrate that resource-rich countries may experience slower economic progress due to over-reliance on extractive industries, corruption, and poor governance. Auty (2020) and Gylfason (2021) argue that resource-rich nations often face challenges in diversifying economies, leading to economic instability and reduced growth prospects.

The causal mechanisms linking resource abundance to poor outcomes include Dutch disease effects, where resource booms appreciate exchange rates and undermine other tradable sectors (Van der Ploeg, 2017); volatility of commodity prices

creating fiscal instability (Humphreys, 2015); and governance failures including rent-seeking, corruption, and weak institutions (Mehlum, Moene and Torvik, 2016). However, not all resource-rich countries experience these outcomes. Chile, Botswana, and Malaysia demonstrate that negative impacts can be mitigated through improved governance (Asefa, 2016). This suggests that governance quality mediates the relationship between resource wealth and development outcomes.

2.2.2 Institutional Theory

Institutional theory examines the role of formal and informal institutions in shaping economic and political outcomes. Scott (2021) asserts that institutions have cognitive, normative, and regulative forms, transported by various carriers including cultures, structures, and routines, operating at multiple jurisdictional levels. North (2018) defines institutions as formal constraints (rules, laws, routines, constitutions) and informal constraints (norms of behaviour, conventions, self-imposed codes of conduct), together with their enforcement characteristics.

In natural resource governance, institutional theorists argue that government weaknesses, vice, and corruption are central components of the resource curse (Dietz, Neumayer and De Soysa, 2017). A country's formal and informal socio-cultural, socio-political, and socio-economic configuration affects how policies are designed and implemented. The theory recognises that institutional quality determines whether resource wealth becomes a blessing or curse (Mehlum, Moene and Torvik, 2016). Weak institutions create opportunities for rent-seeking and corruption, while strong institutions channel resource revenues into productive investments.

2.2.3 Political Economy Theory

Political economy theory explains the disposition and distribution of power in societies, outlining the power balance of states, groups, and individuals (Frieden, 2020). The theory examines how politics affects economic choices and how economic structures shape political outcomes. In resource governance, political economy analysis reveals how elite interests, patronage networks, and power asymmetries influence policy formulation and implementation (Khan, 2020).

Game theory, which analyses how rational stakeholders compete or cooperate for finite resources and power, has influenced political economy studies (Frieden, 2020). In resource governance, this framework explains policy adoption, resource allocation, negotiations, and power struggles among governments, corporations, and interest groups. Political economy analysis is particularly relevant in Zimbabwe, where mineral resources are subject to intense political contestation and elite competition (Saunders and Caramento, 2022).

2.2.4 Political Settlements Theory

Political settlements theory explains how power is distributed and maintained through agreements among elites and key stakeholders (Khan, 2010). The theory focuses on power balance, institutional stability, inclusion, and conflict dynamics, helping analyse governance, policy success or failure, and resource management in fragile or resource-rich states. Giles Mohan (2020) discusses 'elite bargaining' and 'political settlements', demonstrating why 'good institutions' are neither

sufficient nor enough – elites can manipulate formal institutions to maintain power.

Khan (2020) classifies political settlements based on power configurations and institutional characteristics. Levy (2014) distinguishes between 'dominant party' settlements with low risk of power loss and 'competitive clientelism' characterised by high competition and periodic power changes. These different settings create varying pressures on elites and influence their incentives to invest in building formal institutions operating in the public interest. In Zimbabwe, power dynamics and factionalism have created politically strong groups whose main interest lies in exploiting economic opportunity, including mineral resources (Chitongo et al., 2021).

2.2.5 Stakeholder Theory

Stakeholder theory, traced to R. Edward Freeman's (1984) landmark work, posits that stakeholders are individuals or groups who can affect or be affected by achievement of a corporation's purpose (Freeman, 1994). The theory broadens the pool of players from shareholders to employees, environmentalists, vendors, governmental agencies, and communities, suggesting that company success lies in satisfying all stakeholders, not just those who profit from its stock (Simon, 2023).

The theory posits that corporate managers should consider each stakeholder's interests in governance processes, reducing conflicts between stakeholder interests. In the PGMs sector, stakeholders include government ministries, mining companies, local communities, civil society organisations, financial institutions, and international partners, each with distinct expectations regarding dividends, salaries, tax revenue, and community development benefits. Effective governance requires balancing these diverse interests through inclusive decision-making processes (O'Connor et al., 2017).

2.2.6 Rent-Seeking Theory

Rent-seeking theory explains how individuals and groups pursue economic gains through manipulation of the political environment rather than through productive economic activities (Krueger, 1974). A mutual theme of rent-seeking models is that political institutions inclined toward rent-seeking result in societies failing to optimise benefits from resource wealth (Deacon, 2017). When mineral rents are channelled to state coffers, government authority and decision-making frameworks can shift. Mineral rent control becomes a political power basis, and institutions become attuned to maintaining control patterns to capture rents.

In a rent-seeking economy, a small elite class captures and monopolises surplus from non-renewable resources without reinvestment (Cloke, Cooke and Johnston, 2016). Unlike profits, rents do not require investment and thus do not create new wealth. Rent-seeking strategies constitute obstacles to socio-economic development. In Zimbabwe, rent-seeking behaviour in the mining sector has been documented in allocation of mining claims, licensing processes, and revenue management (AFRODAD, 2021; Saunders, 2021).

2.3 Global and Regional MRG Frameworks

2.3.1 Extractive Industry Transparency Initiative (EITI)

The Extractive Industries Transparency Initiative (EITI), launched in 2002, represents a significant global effort to enhance transparency and accountability in the extractive sector. The initiative is structured around a Multi-Stakeholder Group (MSG) integrating voices of governments, civil society, communities, and private companies. EITI requirements are categorised into seven areas: MSG oversight, licenses and contracts, monitoring production, revenue collection, revenue allocation, socio-economic contribution, and outcomes and impacts (EITI, 2016). Despite global endorsement, Zimbabwe remains absent from EITI membership. The government has made pronouncements emphasising transparency, but these have yet to translate into tangible actions toward adopting the EITI framework (ZEPARU, 2018). Rustad, Le Billon and Lujala (2017) observed that in many instances, governments have not provided sufficient space for civil society to participate meaningfully in EITI processes, limiting the initiative's effectiveness.

2.3.2 African Mining Vision (AMV)

The African Mining Vision (AMV), adopted in 2009 by African Union member states, serves as a comprehensive policy framework aimed at ensuring transparent, accountable, and equitable exploitation of the continent's mineral resources. The vision seeks to transform the mining sector into a driver of sustainable growth and socio-economic development by promoting practices that maximise benefits of mineral wealth for African countries and their citizens (Ushe, 2017). Central to the AMV is emphasis on creating robust regulatory frameworks that enhance governance, reduce corruption, and ensure resource exploitation benefits all stakeholders (UNECA, 2020). Despite ambitious goals, AMV implementation has been slow and uneven. As of 2018, only 24 of 54 African countries had formally committed to the vision's principles (Nwapi, Andrews and Bebbington, 2018). Factors contributing to slow progress include weak governance structures, lack of political will, and inadequate financial and technical resources to enforce required reforms (Chuhan-Pole, 2019).

2.3.3 SADC Protocol on Mining

In 1997, SADC heads of state made a pivotal decision to harmonise legislation across the region's mineral sector, recognising the importance of a unified approach to mineral resource development (SADC, 2020). The initiative aimed to create a cohesive framework promoting economic empowerment, poverty alleviation, and improved quality of life throughout the region. However, the SADC treaty and Protocol notably lack specific provisions related to transparency, accountability, and stakeholder inclusion, which are crucial for sustainable mining sector development (Chawatama, 2020).

The absence of these elements represents a significant oversight, given well-documented challenges of corruption, governance deficits, and environmental degradation in the region's extractive industries. Transparency and accountability are essential for ensuring revenues generated from mining activities are properly managed and directed towards poverty alleviation and development (Chawatama, 2020).

2.3.4 Comparative Regional Cases

Botswana demonstrates successful MRG through prudent fiscal management and institutional integrity. The mining sector contributes about 40% of GDP and 50% of direct government revenue (Bank of Botswana, 2020). Botswana avoided poor MRG by enhancing fiscal savings, maintaining current account surpluses, and investing heavily in infrastructure and human capital development (Lewin, 2010). The country exhibits high transparency in public revenue spending, effectively checking corruption levels.

South Africa's Mining Charter, embedded within the Minerals and Petroleum Resources Development Act (2002), facilitates long-term transformation, growth, and development of the mining industry. South Africa is a leading economy in mineral resources exploitation, ranked first globally in PGMs production in 2017 (U.S. Geographical Survey, 2017). However, challenges persist in revenue management, with some communities reporting limited benefits from mining activities (Dechambenoit, 2020).

Democratic Republic of Congo presents contrasting experience. Despite improvements in legal frameworks through updating the Mining Code in 2018, effective application and underlying governance challenges continue to impede full realisation of reforms (NRGI, 2020). The DRC's mining sector is characterised by poor application of rules and laws, ineffective revenue management, and a "failing" enabling environment rating (NRGI, 2020). Weaknesses include lack of publicly available information on reserves, production, and exports, and absence of numerical fiscal rules.

2.4 Zimbabwe's MRG Context

Zimbabwe's mining sector has played a crucial role in the country's economy for over a century (Takavarasha, 2018). The Minerals and Mines Policy of 1890 guided exploitation and governance during the colonial era, but various factors over time have limited successful policy execution (Mambo, 2019). Colonial mining was characterised by exploitation, discrimination, and environmental degradation, with black workers encountering inadequate wages, substandard working conditions, and restricted career advancement prospects (Chipenda, 2024). Profits primarily advantaged colonial authorities and European settlers, intensifying economic inequalities (Mapira, 2017).

Upon independence in 1980, high hopes existed for mineral resources to drive economic growth and prosperity, but constraints and bottlenecks have hindered the sector's full potential (Odziyani, 2016). The government has implemented reforms to promote local ownership, participation, and benefits from mineral resources (World Bank Group, 2018). The Indigenisation and Economic Empowerment Act of 2008 required 51% local ownership in mining businesses, though this was later altered in 2018 to exempt particular sectors (Chigumira, 2020). Such politically influenced policy amendments create a risky regulatory environment for investors (Saunders, 2021).

Current MRG policies fall short of regional counterparts. The Corruption Perceptions Index ranks Zimbabwe 158/196 (2021) on perceived corruption levels. Zimbabwe's Anti-Corruption Commission observed rampant corruption sustained by non-competitive bidding procedures in issuing mining licenses and lack of transparency regarding mining claim owners (AFRODAD, 2021). Corruption, smuggling, and other vices have crippled efforts to leverage mineral resources for essential services such as education, health, and water (ZELA, 2020).

The Mines and Minerals Act (Chapter 21:05), originally enacted in 1961, remains the primary legislation governing mining. Despite multiple amendments, it is widely considered outdated and inadequate for addressing modern MRG challenges, particularly sophisticated revenue leakages and foreign investor influences (Veritas Zim, 2023). The fragmentation of legal statutes and poor enforcement mechanisms have facilitated corruption and illicit activities, undermining the potential benefits of the country's mineral wealth (Murombo, 2016).

2.5 Conceptual Framework

This study adopts a conceptual framework integrating the five dimensions of resource governance identified by Transparency International Zimbabwe (access to information, public participation, adherence to law, coherence, and inclusiveness) with the four governance components identified by NRGI (institutional and legal setting, reporting practices, safeguard and quality control, and enabling environment). The framework organises analysis around four thematic pillars:

Figure 1: Conceptual Framework



Source: Researcher's own illustration

1. **Legislative and Legal Institutional Environment:** Examining how laws, regulations, and institutional arrangements facilitate transparency, accountability, and open-fair competition in the PGMs sector (NRGI, 2021). This includes constitutional provisions, mining legislation, environmental laws, and the mandates and capacities of regulatory institutions.
2. **Extractive Sector Operating Environment:** Analysing the broader governance environment based on external ease of doing business measures including accountability, property rights, corruption, democracy, and political stability (Munier, 2019). This includes corruption levels, political stability, regulatory quality, and the rule of law.
3. **Value Derivation/Realisation:** Examining allocation and extraction rights, exploration, production, environmental protection, revenue collection, and local socio-economic impacts including community investment, infrastructure development, and employment creation (UNECA, 2020).
4. **Revenue Management:** Analysing national budgeting, sub-national resource revenue sharing, management of sovereign wealth funds, and fiscal and monetary policy frameworks governing mineral revenues (Brunnschweiler, 2020).

The framework also incorporates stakeholder knowledge, perceptions, satisfaction, behaviour, and attitudes as mediating factors influencing governance outcomes (Hilson and Maconachie, 2020; Bebbington et al., 2018). These factors shape how stakeholders engage with governance institutions and processes, affecting policy effectiveness and industry stability.

III. 3. METHODOLOGY

3.1 Research Paradigm

This study adopted a pragmatist research paradigm, which enabled a flexible combination of methods addressing both subjective and objective aspects of MRG (Kivunja and Kuyini, 2017). Pragmatism focuses on distilling desired results of specific MRG practices, problems, processes, principles, and systems, ultimately leading to developing approaches for obtaining desired outcomes (Cordeiro, 2020). The paradigm maintains that the best research techniques are those contributing to the most effective answer to the research issue (Muzari et al., 2022).

The philosophical roots of pragmatism are grounded in works of classical pragmatists Charles Sanders Peirce, William James, and John Dewey. Pragmatism serves as a metatheoretical paradigm and guiding philosophy for developing, implementing, and evaluating specific studies and research methods (Allemang, Sitter and Dimitropoulos, 2022). The researcher invoked application of relevant theories as tools for practical MRG research because the paradigm helps understand complex and unpredictable MRG phenomena (Lake, 2020).

3.2 Research Approach

The research adopted a mixed methods research approach to explore MRG in Zimbabwe's extractive sector focusing on PGMs. According to Ghambi (2021), a mixed methods approach answers research questions using qualitative information and descriptive and inferential statistics. The researcher considered this approach appropriate as it gathers reliable data, helping answer research questions from both qualitative and quantitative perspectives (Siedlecki, 2020).

The study employed a sequential exploratory mixed-methods approach, which enhanced the study by first conducting an in-depth qualitative phase to explore key governance challenges and stakeholder perspectives. The researcher interviewed key informant stakeholders in government, mining companies, civil society, and communities to identify critical issues influencing MRG. Qualitative insights gathered from these stakeholders informed a follow-up stage using a targeted quantitative instrument to measure prevalence and intensity of

these issues across different mining regions and stakeholder groups.

3.3 Research Design

The study followed a case study design focusing on governance of mineral resources using the PGMs sector comprising extractive industry entities, including those under the Platinum Producers Association (PPA) and the Chamber of Mines Zimbabwe (COMZ). This design is contextual as it searched and probed for the precise nature of the problem. The study adopted descriptive statistics which provided a full description of the MRG phenomenon within its context (Urbina, Ruiz and Villa, 2023), helping summarize and clarify quantitative data guided by initial qualitative findings.

The study opted for mixed methods sequential exploration as a specific research design. Qualitative exploration was used with the objective of gaining in-depth understanding of experiences, perspectives, and challenges related to mineral resources governance from viewpoints of various stakeholders in the PGMs sector. The researcher coordinated Focus Group Discussions (FGDs) to reach respondents outside the key

informant group. Document analysis included insights from literature review, reviewing existing policies, laws, regulations, and reports related to MRG in Zimbabwe.

3.4 Population and Sample Size

The study population comprised all stakeholders actively involved in PGMs MRG in three provinces: Harare, Midlands, Mashonaland East, and Mashonaland West. This set included government ministries, quasi-government agencies, policymakers, private-sector actors, CSOs, NSAs, local communities, and other interest groups. A sampling frame was developed representing 2000 elements from government ministries, labour unions, civil society organisations, mining companies, financial institutions, and parliament of Zimbabwe.

For qualitative sampling, the researcher used purposive sampling targeting key stakeholders with relevant information and capacity to respond to MRG framing and application. Snowball sampling complemented purposive sampling through referrals facilitating access to other capable key respondents until data saturation at 31 responses.

Figure 2: Sampling Breakdown



Source: Researcher's own illustration

For quantitative sampling, the researcher employed the Cochran sampling method to determine required sample size:

$$n_o = Z^2 pq / e^2 \text{ (Equation 1)}$$

Where:

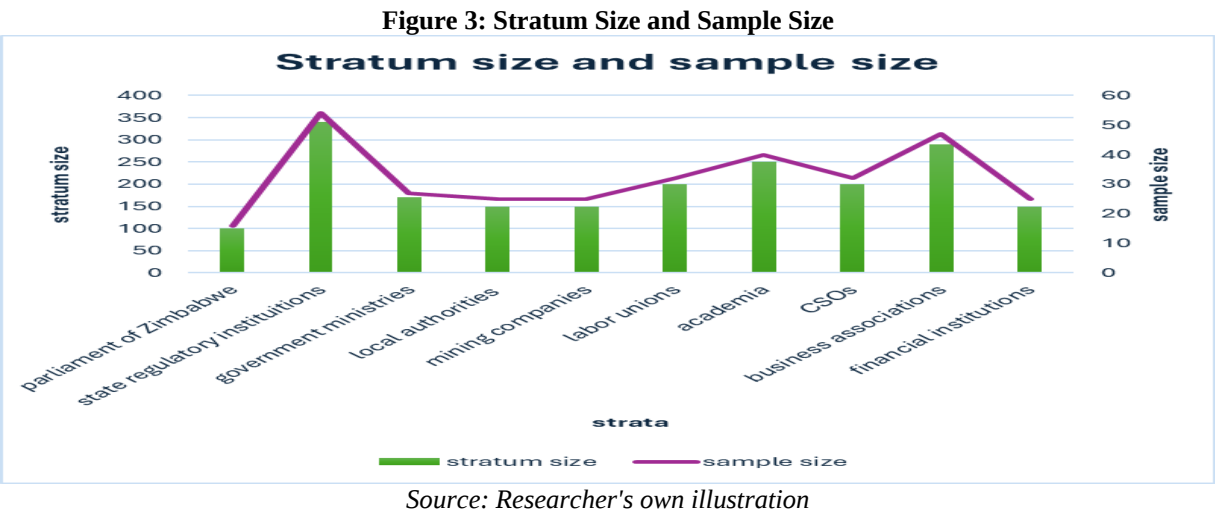
- n_o is the Cochran sample size
- Z is the Z-score (1.96 for 95% confidence level)
- e is desired margin of error (0.05)
- p is estimated proportion of population (0.5)

- q is $1-p$ (0.5)

Using modified Cochran formula due to small sampling frame:

$$n = n_o / [1 + ((n_o - 1)/N)] \text{ (Equation 2)}$$

Where N is population size (2000). The calculated sample size was 323 participants. Stratified random sampling was applied across ten strata, with sample size from each stratum proportionate to stratum size relative to total population.



3.5 Data Collection Methods

Qualitative data collection employed key informant interviews aimed at gaining in-depth insights into stakeholder experiences, perceptions, and roles in mineral resources governance. The researcher interviewed officials from academia, business associations, civil society organisations, financial institutions, government ministries, labour unions, local authorities, mining companies, parliament of Zimbabwe, and state regulatory bodies. Focus group discussions involved facilitated discussions among small groups in mining areas to elicit collective views and explore diverse perspectives on governance issues. Document analysis involved systematic review of existing texts, including policies, laws, reports, and archival data.

Table 1: Delve Criteria for data analysis

Criteria	Description
Study Relevance	The articles chosen were focused on MRG, including those in Zimbabwe’s PGMs sector.
Material Publication Date	The more recent studies of the last 10 years (2016 -2025) took precedence to ensure and guarantee a more up-to-date approach to MRG systems.
Source Credibility	Peer-reviewed journals, government reports, industry white papers, international publications, local and international position papers and reputable news sources
Empirical Data	Quantifiable studies encompassing local and international MRG indicators, legal frameworks, and economic analysis.
Study Comparative Analysis	Comparative articles of Zimbabwe's PGMs sector governance to other mineral-rich countries.
Study Legal and Policy Documents	Local and international Statutes, laws, and regulations that affect PGM governance.
Preferred Language	By and large English-language reports were utilized due to accessibility and provided a range of relevant studies.

Source: Research data

Quantitative data collection employed a structured questionnaire focusing on collecting numerical data to measure participant perceptions, behaviours, and governance indicators across four thematic areas: legislative and legal institutional environment, extractive sector operating environment, value derivation, and revenue management.

Quantitative data analysis employed Stata statistical software for data management, analysis, and visualisation. Frequencies were calculated to generate descriptive statistics, and inferential analysis applied appropriate statistical regressions patterns and themes within qualitative data sets. The researcher used Delve and NVIVO data analysis software to facilitate thematic analysis, leveraging core functionalities to effectively organise and visualise qualitative data. Coding processes involved systematic tagging of data with predetermined codes based on research framework and emerging inductive MRG data.

3.6 Data Analysis Methods

Qualitative data analysis employed thematic analysis, a methodical approach to identifying, analysing, and interpreting

including logistic regression and multinomial logistic regression. Control variables were included to address confounding factors.

3.7 Data Validity and Reliability

Data reliability was ensured through systematic and replicable approaches to data collection and analysis. Data validity was ensured through member checking (respondent validation) and methodological triangulation. Member checking involved sharing research findings, interpretations, and data summaries with key informants to ensure accurate reflection of their perspectives. Methodological triangulation involved using multiple methods and data sources including key informant interviews, FGDs, document analysis, and literature search.

For quantitative reliability, internal consistency of the research instrument was evaluated using Cronbach's alpha coefficient, which yielded 0.85, indicating high internal consistency among items. Expert review, content congruence with relevant legislation, and construct validity checks using response patterns further validated the instrument.

3.8 Ethical Considerations

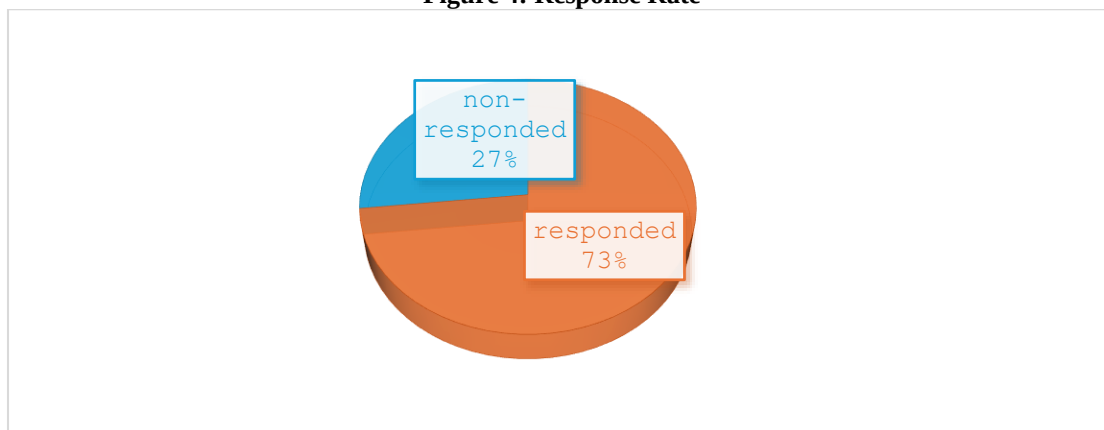
The research was conducted in line with rules and regulations of the Mines and Minerals Act in Zimbabwe. Permission was requested from institutions before conducting research. The researcher obtained ethical clearance from Africa University's Ethics Committee. Informed consent was obtained from all participants, with clear explanation of study purpose, methods, and potential risks and benefits. Confidentiality and anonymity were safeguarded through use of pseudonyms (SH1–SH31) and secure data storage. Respondents were assured participation was voluntary and had no bearing on access to services and benefits.

IV. 4. FINDINGS

4.1 Respondent Characteristics

Of the 323 participants targeted for the study, 214 completed the closed-ended questionnaires, resulting in a 73% response rate. Edwards (2024) indicates that a minimum response rate of 60% is essential for validity of survey-based research. The 73% response rate surpassed this threshold, enhancing reliability of findings (Holtom, 2022).

Figure 4: Response Rate



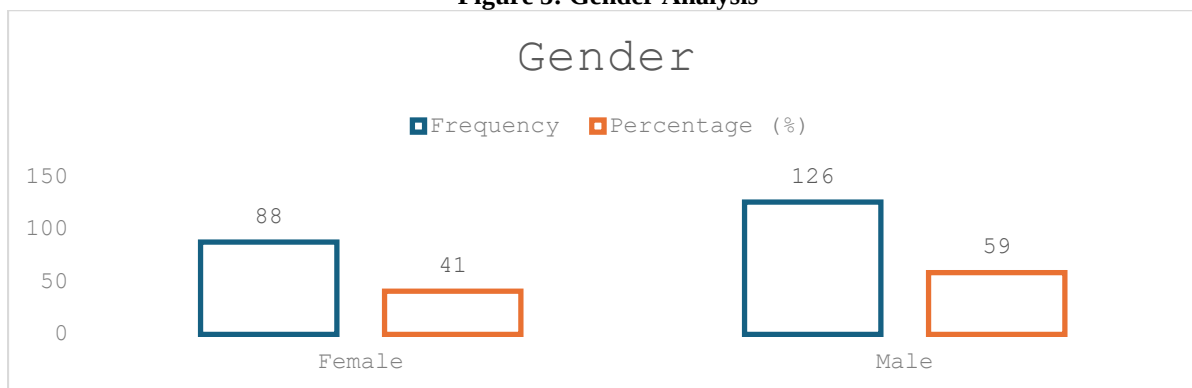
Source: Survey data

4.1.1 Gender Distribution

Males constituted 59% of the total sample, while females accounted for 41%. The observed gender disparity reflects wider patterns in mineral resource governance, characterised by male predominance in decision-making roles (Kotsadam and Tolonen, 2023). Barriers frequently stem from patriarchal systems that

marginalise women, particularly in historically male-dominated sectors such as mining (Eftimie et al., 2020). This imbalance underscores the need for inclusive policies addressing barriers to women's participation in mineral resource governance (Kemp, Owen and Harris, 2021).

Figure 5: Gender Analysis



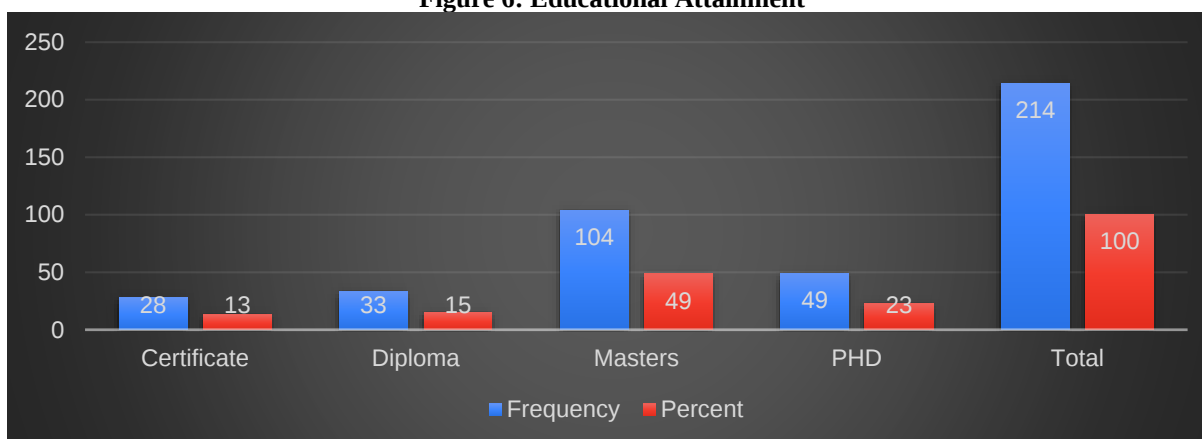
Source: Survey data

4.1.2 Educational Attainment

The predominant educational attainment among respondents was a master's degree, representing 49% of the total, followed by PhD at 23%, diploma at 15%, and certificate or lower at 13%. This distribution indicates that most respondents possess high education levels, demonstrating capability to understand

complex topics including MRG. Recent research by Mutopo and Dube (2023) emphasises significance of educational qualifications in shaping individuals' ability to participate effectively in governance and decision-making processes, especially within specialised sectors like mining.

Figure 6: Educational Attainment



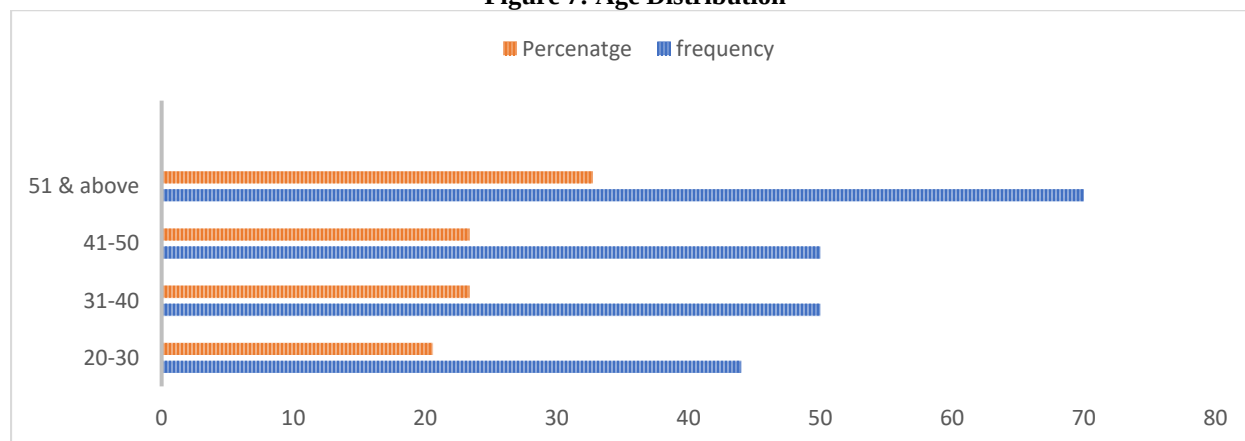
Source: Survey data

4.1.3 Age Distribution

The age group of 51 years and above represents the largest proportion of respondents at 32.6%, followed by 31-40 and 41-50 age groups at 23.3% each. The cohort aged 20-30 exhibited the least representation at 20.8%. Research by Mutangadura and

Munyati (2022) indicates that age diversity plays a crucial role in governance studies, associated with differing perspectives influenced by generational experiences and expertise. The balance in age distribution ensures perspectives obtained represent a wide range of experiences regarding MRG.

Figure 7: Age Distribution



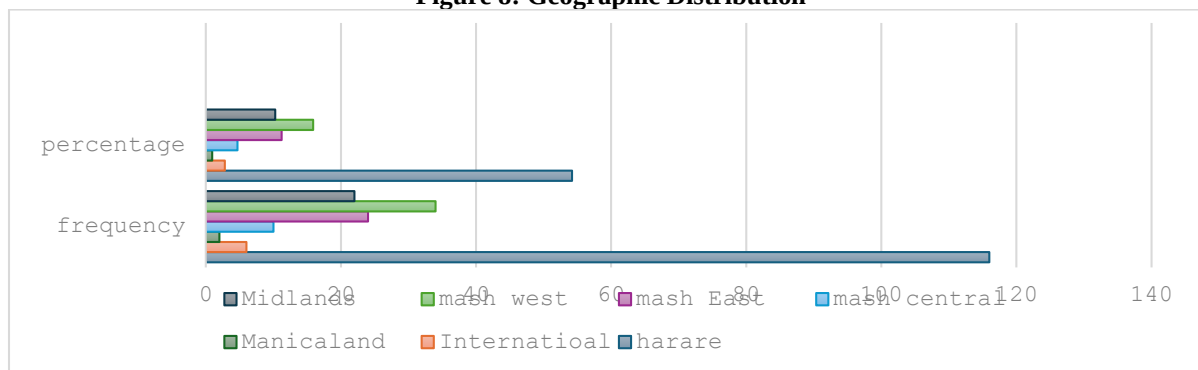
Source: Survey data

4.1.4 Geographic Distribution

Data indicates that 54% of respondents are situated in Harare, establishing it as the predominant region for participant representation. Harare, as Zimbabwe's capital and economic centre, hosts numerous key stakeholders in PGMs governance including government agencies, corporate headquarters, and industry regulators. Mashonaland West, home to the Great Dyke,

accounts for 16% of respondents and plays a significant role in the extractive industry due to rich mineral deposits and proximity to mining operations. The disparity in representation illustrates uneven geographic distribution of mineral resources and concentration of governance activities in significant areas (Matsika and Nyasha, 2022).

Figure 8: Geographic Distribution



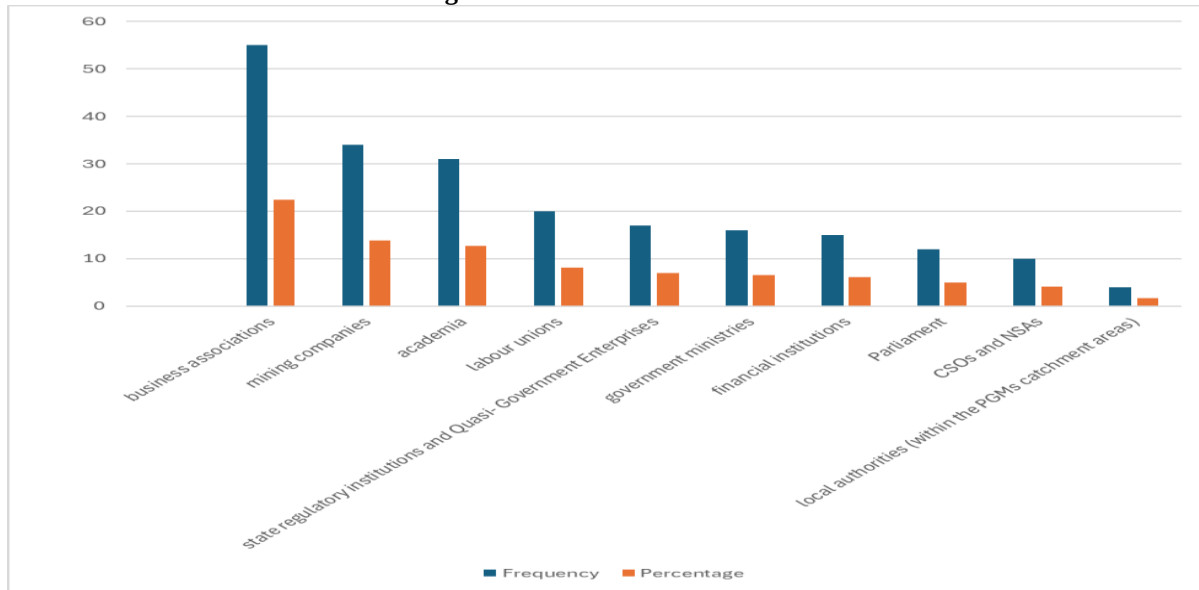
Source: Survey data

4.1.5 Institutional Affiliation

Business Associations with direct and indirect interests in the mining industry represent the largest proportion of respondents, accounting for 22.4%. These organisations are essential in advocating policies that can enhance mineral resource

governance. Mining companies represent 13.9% of respondents, academia constitutes 12.7%, while local authorities account for the smallest group at 1.6%. The significant presence of business associations indicates increasing role of industry stakeholders in shaping regulatory frameworks (Mpofu and Makumbe, 2023).

Figure 9: Institutional Affiliation



Source: Survey data

4.2 Framing and Application of MRG in the PGMs Sector

4.2.1 Constitutional and Legislative Frameworks

The study found that Zimbabwe's mining regime does not fully address fundamental challenges in mining laws and regulations. SH27 (International Law and Business) noted issues including acquisition and possession of rights, ownership patterns, requirements and restrictions, transfer and encumbrance, environmental considerations, indigenous title, and general land rights. A disorganised allocation of institutional mandates and poorly structured regulatory framework complicates application of procedures and systems.

SH19 revealed that the national constitution aims to enhance MRG through several key provisions. Section 315(2) explicitly requires that negotiation and execution of State contracts, including concessions of mineral rights, guarantee transparency, integrity, cost-effectiveness, and competitiveness. Section 298(1)(b)(ii) stipulates that revenue generated at national level should be distributed fairly and equitably among central government, provincial and local levels. Section 301(3) requires that a minimum of approximately five percent of national revenues be allocated to provinces and local authorities as annual share. Section 298 delineates principles of public financial management encompassing transparency, accountability, and equitable resource distribution. Section 73 establishes the right to an optimal environment and mandates State implementation of reasonable legislation to prevent pollution and ecological degradation.

However, respondents confirmed that the current situation is inconsistent with constitutional aspirations, making provisions irrelevant for implementation. SH28 stated that coherence of MRG frameworks is fundamentally within the President's constitutional mandate, requiring resolution of legislative and legal conflicts through established structures and processes.

4.2.2 Regulatory Fragmentation

The study revealed that governance frameworks for mineral resources in Zimbabwe's PGMs sector are fragmented. Although a formal legal framework exists through the Mines and

Minerals Act (Chapter 21:05), collective embracing and application of established governance principles remains inconsistent. Interviews with SH6 and SH7 indicated that the existing governance structure exhibits insufficient coordination among regulatory bodies, resulting in inefficiencies in MRG and frequently leading to conflicting policies. SH7 from the Ministry of Mines remarked that the regulatory landscape is characterised by overlapping mandates from multiple agencies, complicating effective governance and rendering adherence to set procedures near impossible.

This finding aligns with prior research by Moyo and Chigumira (2023), who contended that Zimbabwe's extractive industry experiences deficiency in policy coherence, especially within the PGMs sector. Industry respondents identified fragmentation and silo approaches to MRG as major obstacles to enhancing transparency and accountability. SH3 from a platinum mine in Selous stated that government can reduce business operating costs and eliminate arbitrage opportunities and corruption, remarking that there is no political will to enforce even existing weak governance requirements.

4.2.3 Transparency and Accountability Deficits

A significant finding pertains to absence of transparency and accountability in PGMs sector governance. SH8 expressed concerns regarding lack of transparency in contracts and revenue flows between government and mining companies, particularly given varied enabling statutes and discretion afforded to different government portfolios. SH8 further noted that access to information about mining deals is limited, complicating efforts to hold companies or government accountable for resource mismanagement.

Lack of transparency has been associated with corrupt practices in the sector. Ncube and Tafirenyika (2022) observed that lack of transparency in mining agreements creates environment conducive to illicit financial flows and tax evasion. This study validated these concerns, with key informants supporting adoption of the Extractive Industries Transparency

Initiative (EITI) and similar measures to enhance governance. Zimbabwe has not yet signed the EITI, complicating efforts to enhance transparency.

Conflation and duplication of roles and responsibilities contribute to deficit of transparency and accountability, diminishing ethical standards. SH5 from a regional mining business association stated that vested interests are potentially facilitators of illicit financial flows. Addison (2024) argues that politicisation of public institutions creates institutional constraints serving as significant obstacles to enhanced management and oversight of extractive industries.

SH20 noted that persistent veil of secrecy surrounding extractive industry operations has restricted both public and legislative access to information regarding mining sectors. Concealment of corrupt practices within high-level government has been significant, and industry opacity has contributed to deficiency in technical knowledge, hindering government's capacity to implement effective internal control frameworks.

4.2.4 Parliamentary Oversight Limitations

SH2 from a significant parliamentary portfolio committee expressed concerns that parliament functions as a weak legislative body lacking capacity to act as counterbalance to more dominant executive authority. Parliamentarians experience marginalisation in critical decision-making processes and face discouragement in performing oversight functions because of the parliamentary whipping system. Zimbabwe is often perceived as a nation dominated by a ruling party exercising extensive control, where parliamentarians typically endorse executive policy frameworks with minimal or no substantive debate.

This leads to constitutional and legislative shortcomings, resulting in various procedural rules frequently granting substantial legal and other powers to the executive branch. Effectiveness of Parliament is reduced, compromising its capacity to legislate with optimal oversight in the mining sector.

4.2.5 Policy Inconsistency and Regulatory Instability

The study found that inconsistencies in Zimbabwe's regulatory framework pose a challenge to effective governance of mineral resources. Frequent amendments to the Indigenisation and Economic Empowerment Act have generated uncertainty within the industry. The law persists in statutes of Zimbabwe, characterised by inherent weaknesses affecting investor confidence. Research indicated that Zimbabwe has modified various legislative measures via statutory instruments, particularly those related to fiscal and monetary policy, which mining companies identify as source of uncertainty.

Statutory instruments are inherently reactive, undermining companies' medium to long-term strategies, adversely impacting production levels and profitability. Veritas (2024) reports that Zimbabwe implemented over 300 statutory instruments to address various socio-economic issues from January 2023 to June 2024. SH3 remarked that regulatory environment is unpredictable, with frequent changes in laws and regulations rendering long-term planning nearly unfeasible.

Policy inconsistency directly affects operational efficiency and investment climate within the PGMs sector. Chigumira (2021) found that policy volatility negatively impacts foreign direct investment in Zimbabwe's extractive industry, especially in

capital-intensive sectors such as PGMs. This study extends previous findings by demonstrating that regulatory instability impacts not only investments but also disrupts daily operations of mining firms, resulting in inefficiencies in production, profitability, and price competitiveness.

4.3 Factors Affecting MRG Efficacy

4.3.1 Institutional Capacity Constraints

Limited institutional capacity of regulatory bodies is a significant factor affecting MRG framework efficacy. SH7 from the Ministry of Mines and Mining Development indicated that insufficient human and financial resources significantly hinder capacity to effectively oversee mining operations, stating that outdated tools and inadequate staffing impact capacity to monitor compliance. This observation aligns with Wellmer (2017), who highlighted necessity of robust institutional capacities for effective governance in the mining sector.

SH9 from Ngezi Rural District Council emphasised that enhancing institutional capacity in the PGMs sector, adequately resourcing and equipping regulatory institutions with necessary skills and funding, would significantly improve enforcement of regulations and overall governance effectiveness. Insufficient training and restricted access to resources result in regulatory deficiencies exploited, undermining MRG. The study acknowledges these weaknesses but further exposes deliberate institutional weakening to engender weak MRG as a ploy to exploit these weaknesses for individual and sectorial gain.

SH11 and SH17 believed a fair and efficient judiciary is crucial for enforcement of mining laws, enabling effective enforcement of penalties for illegal mining and contract violations, thereby safeguarding integrity of governance frameworks (Murombo, 2016). SH5 of African Development Bank emphasised glaring influence of inadequate institutional capacities on compliance enforcement within mining sector. Mkodzongi (2022) indicates that African countries with weak institutions frequently encounter challenges in regulating complex industries such as mining.

4.3.2 Security Sector Involvement

The study found that the security sector plays a vital role in MRG in the PGMs sector. The security sector, through the police service, has delegated government agency responsibility for combating illegal mining and minerals smuggling, maintaining security in mining areas, supporting enforcement of mining laws, and mediating conflicts among stakeholders. However, its effectiveness is constrained by institutional, human, and operational challenges.

The study found that the security sector through ZRP faces monumental capacity constraints. SH20 from Chinhoyi University highlighted constraints including inadequate funding, insufficient staffing, and limited access to essential tools and equipment. SH20 further noted general lack of interest in adopting and using digital technology and lethargy in demanding technological tools from government. SH7 pointed out that outside skills and training gaps, culture of honesty and hard honest work has long been eroded in the police service, with weak interagency coordination and corruption exacerbating these challenges.

Significantly, Zimbabwe's security sector evolution into active economic players, directly and indirectly investing in

mineral extraction particularly in platinum, diamonds, and gold, has undermined regulatory and enforcement roles. SH10 disclosed that some security entities have running partnerships with foreign investors across all mineral categories, making this crucial sector both a player and enforcer. SH10 further notes with concern that this dual involvement creates opaque enforcement regime facilitating illicit financial flows, fostering security sector corruption, discouraging credible foreign investment, and hindering long-term EI reform.

4.3.3 Revenue Collection Capacity Gaps

The study acknowledges the pivotal role played by Zimbabwe Revenue Authority (ZIMRA) as delegated government tax collecting agent, collecting taxes, monitoring compliance, curbing illicit financial flows, and ensuring proper valuation of exports. Research established that ZIMRA's effectiveness is hindered by several capacity constraints: acute shortage of skilled personnel to address complexities of PGMs taxation, limited technological tools and digital infrastructure for real-time mineral resources monitoring, insufficient funding for essential activities like field audits, inadequate data integration systems, and weak enforcement mechanisms particularly when dealing with multinational corporations engaging in sophisticated tax avoidance strategies.

SH18 points out that institutional capacity constraints also stem from broader systemic issues and resistance to institutionalisation of technologically driven systems. SH3 states fragmented collaboration between ZIMRA and other key state

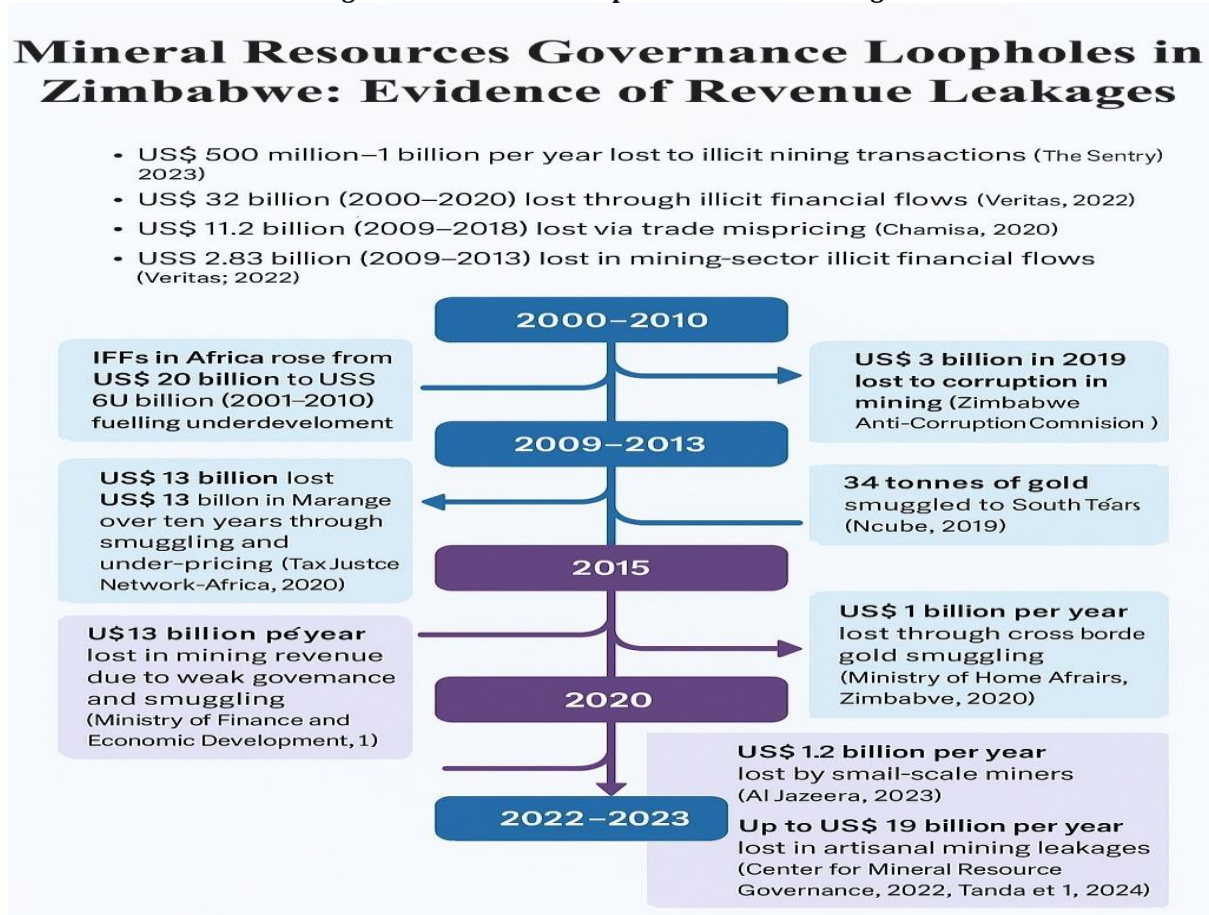
agencies not only creates economy-wide inefficiencies but discourages creativity and innovation in solving absence of regulations tailored to deal with unique aspects of effective PGMs sector governance. The study noted that institutionalised corruption undermines efforts to ensure compliance.

4.3.4 Illicit Financial Flows

The issue of illicit financial flows was frequently mentioned by respondents, particularly in relation to the PGMs sector. Several interviewees from civil society organisations noted that IFFs, including underreporting of production and smuggling of PGMs, were rampant. SH5 stated that significant amount of platinum and other precious metals leave the country illegally, depriving government of much-needed revenue. MMCZ acknowledged widespread smuggling and emphasised need for advanced monitoring systems like drones to curb illegal exports.

Southern Africa Resource Watch (SARW, 2025) reported that Zimbabwe loses approximately US\$100 million monthly due to illicit trade in critical battery metals, exacerbated by weak regulatory enforcement. Between 2000 and 2023, it is estimated that IFFs and mineral resources smuggling siphoned off approximately US\$32 billion from Zimbabwe, significantly curtailing state capacity to finance social protection initiatives and other development projects (Global Financial Integrity and United Nations, 2023). This finding is consistent with Global Witness (2022) highlighting Zimbabwe as a hotspot for IFFs in mining industry.

Figure 11: Evidence of Reported Revenue Leakages



Source: Researcher's own illustration

4.3.5 Regulatory Ecosystem Fragmentation

Regulatory fragmentation, marked by overlapping responsibilities among multiple institutions, has become a critical issue undermining governance in the PGMs sector. SH14 and SH21 from ZIMRA noted that conflicting mandates among agencies often lead to operational inefficiencies. A respondent observed that unclear role definitions lead to delays in decision-making and policy implementation. Literature, particularly Nhamo and Mukonza (2020), identifies regulatory overlaps in African mining sectors resulting in insufficient coordination and conflicting policies.

This fragmentation creates loopholes utilised by companies and regulatory bodies, consequently affecting accountability and transparency. SH18, 22, and 24 from Transparency International Zimbabwe highlighted that insufficient inter-agency coordination exacerbates corruption and mismanagement. The findings support Besada and Martin (2016) assertion that institutional clarity is crucial for fostering transparent and efficient governance in resource-rich nations.

4.3.6 Political Interference and Elite Capture

The study established that several challenges in Zimbabwe are consequences of national politics. SH10 mentioned the effect of power politics and political interference in all national processes including government systems and processes. The net effect is that political interference compromises MRG by

distorting decision-making processes, creation of politically protected persons whose activities deepen smuggling and corruption economy-wide. SH10 was concerned that weakening of institutional autonomy exposes the EI to impunity particularly when political actors engage in individual or political party interests over MRG.

SH4 in Zivagwe Rural District Council stated that primary causes of issues in Zimbabwe's artisanal mining stem from unethical, unprofessional, and corrupt power dynamics among various stakeholders, including state actors and political elites. Chitongo et al. (2021) highlighted prevalence of political hegemony in disorganised and chaotic ASM operations, primarily due to political factors and lack of political will to formalise the sector and establish suitable governance frameworks.

4.4 Environmental Governance

The study revealed several frameworks governing environmental management and sustainability in the PGMs sector. The constitution guarantees every individual the right to a clean and healthy environment. Mining corporations are required to adhere to environmental regulations delineated in the Mines and Minerals Act (Chapter 21:05), Water Act (Chapter 20:24), Environment Management Act (Chapter 20:27), Explosives Act (Chapter 10:08), Forestry Act (Chapter 19:05), Hazardous Substances and Articles Act (Chapter 20:03), Atmospheric

Pollution Prevention Act (Chapter 20:03), and Parks and Wildlife Act (Chapter 20:14).

The Environmental Management Act (Chapter 20:27) serves as the cornerstone of Zimbabwe's environmental legislation, establishing the Environmental Management Agency (EMA) to regulate, monitor, and promote sustainable environmental practices. Statutory Instrument 134 of 2019 requires companies listed on the Zimbabwe Stock Exchange to submit ESG reports outlining approaches to social, economic, and environmental issues.

However, concerns have increased regarding difficulties in acquiring ESG information from Chinese investors, especially those engaged in Joint Venture Agreements with the Zimbabwean government. SH18 from Chinhoyi Town Council indicated that increasing presence of Chinese miners has led to significant workplace abuses and deterioration of environmental conditions, attributed to "Chinese Impunity." A study by ZELA (2024) endorsed this viewpoint, referring to it as a "Chinese Curse"—negative consequences associated with unregulated or poorly monitored Chinese investments in Zimbabwe's mining sector. Environmental governance has become a significant factor in MRG. Members of environmental advocacy organisations expressed apprehensions regarding environmental degradation resulting from PGMs mining activities. One respondent observed that oversight regarding environmental impact of mining activities is minimal, and enforcement of environmental regulations is inadequate. Community members residing near mining sites expressed similar concerns, noting pollution of water sources and degradation of air quality.

Research conducted by Dube et al. (2022) indicates that environmental governance within Zimbabwe's mining sector is inadequately developed, characterised by limited compliance with environmental impact assessments and other sustainability standards. Although EMA has responsibility for ensuring compliance, its enforcement capabilities are constrained. Mining companies often prioritise economic benefits at expense of environmental protection, resulting in minimal motivation to implement sustainable practices.

4.5 Community Engagement and Benefit-Sharing

The research indicated that community engagement and corporate social responsibility within the PGMs sector are insufficiently addressed. Interviews with community leaders in proximity to significant mining operations, particularly in the Great Dyke region, indicated that despite assertions from mining companies regarding investments in local communities, actual impact on livelihoods has been negligible. A community leader remarked that benefits promised by mining companies seldom reach local population, with challenges persisting regarding inadequate infrastructure and restricted access to essential services.

This finding aligns with ZELA (2021) report emphasising gap between CSR initiatives and genuine community development. Inadequate engagement with local communities can result in tensions and social unrest, as evidenced in various mining regions worldwide. Communities largely lack consensus on procedures and systems for economic empowerment and benefit sharing frameworks derived from mining revenues.

SH26 emphasised necessity of glocalisation, indigenisation, and legally mandated local participation, highlighting importance of balancing investment promotion, enhancing business environment, and ensuring stakeholder satisfaction. A participant in an FGD in Ngezi articulated preference for community insurance for local economy to be responsibility of mining investors, emphasising that communities no longer favour community social responsibility but rather community social partnerships, with distinction lying in degrees of benefit sharing and participation.

The study also focused on indigenisation policies designed to enhance local ownership and participation. The Indigenisation and Economic Empowerment Act requires 51% of shares in mining companies be held by indigenous Zimbabweans, but stakeholder interviews indicate varied perspectives on its efficacy. SH2 from the Chamber of Mines stated that although policy aims to empower local communities, it frequently results in ownership structures more symbolic than substantive, with indigenous stakeholders receiving nominal shares lacking genuine decision-making authority. SH24 from ZNCC opposed equity indigenisation, advocating instead for local procurement by mining companies, arguing that localising procurement expenditure leads to more equitable distribution of benefits, establishes industrial linkages, fosters gainful employment, promotes edu-skill development, facilitates industrialisation, and contributes to poverty alleviation.

4.6 Quantitative Analysis of MRG Dimensions

4.6.1 Stakeholder Knowledge of Revenue Management

The study examined stakeholder knowledge of revenue management in the PGMs sector using logistic regression analysis. Results indicate that education level, age, geographic location, and access to information (radio ownership) are statistically significant predictors of knowledge levels.

Holders of bachelor's degrees show log-odds increase of 1.4177 in PGMs revenue management knowledge compared to certificate holders, master's degree holders show increase of 1.1192, and doctorate holders show increase of 1.6404. These findings demonstrate that educational attainment significantly enhances understanding of revenue management issues.

Age shows negative coefficient (-0.4282), indicating that knowledge tends to decline as age increases, but age squared shows positive coefficient (0.0057), suggesting convex relationship where knowledge eventually increases with age. Geographic location significantly affects knowledge, with stakeholders in Midlands (1.2712) and Mashonaland Central (1.907) showing higher log-odds of knowledge compared to Harare. Radio ownership (1.0328) positively influences knowledge, demonstrating importance of information access.

4.6.2 Stakeholder Behaviour Towards Revenue Management

Multinomial logistic regression analysis examined stakeholder behaviour regarding PGMs revenue management, with responses classified as "never," "rarely," and "often" discuss revenue management issues. Descriptive statistics indicate that 17% of respondents rarely discuss PGMs revenue management, while 83% frequently engage in discussions, with no respondents reporting "never."

Age negatively influences revenue management behaviour (-0.6324), while age squared shows positive effect (0.0079), suggesting that negative behaviour peaks at certain age then reverses. Length of residence in geographical location shows negative effect (-0.0379), indicating that longer residence correlates with reduced discussion frequency. Gender is significant, with females showing 1.2596 units higher multinomial logit than males for infrequently discussing revenue management.

4.6.3 Stakeholder Attitude Towards Revenue Management

Analysis of stakeholder attitudes using 5-point Likert scale (completely dissatisfied to completely satisfied) revealed significant patterns. Age shows negative impact on attitudes (-0.4508), while age squared shows positive effect (0.0056), indicating that negative attitudes improve with age. Geographic location positively influences dissatisfaction (0.2014), with respondents in mining areas expressing greater dissatisfaction with revenue management.

Gender shows significance in Panel 3 (neither satisfied nor dissatisfied), with females showing 0.9270 units higher multinomial logit than males. Institutions show significance in Panel 5 (completely satisfied), with one-unit increase corresponding to 1.1118 increase in log-odds of complete satisfaction.

4.6.4 Legislative and Legal Institutional Environment

Analysis of stakeholder knowledge of legislative and legal institutional environment revealed that institutions and geographic location are statistically significant. Labour unions (-1.2277), civil society organisations (-3.208), parliament of Zimbabwe (-2.2748), and financial institutions (-1.7177) show negative coefficients compared to mining companies (reference category), indicating lower knowledge levels among these stakeholder groups.

Geographic location significantly influences knowledge, with Mashonaland East showing positive coefficient (1.3138). For behaviour, age positively influences behaviour (1.2538) while age squared shows negative effect (-0.0133), indicating concave relationship. Parliament of Zimbabwe shows positive effect on behaviour (2.2676), demonstrating parliamentary engagement in mining legislation processes.

Analysis of stakeholder attitudes toward legislative inclusiveness revealed that length of residence positively influences "not knowledgeable" category (0.0562), indicating that longer-term residents feel less informed about legislative amendments. Education level negatively affects "not inclusive" perception (-1.1347), showing that educated stakeholders feel more included. Gender shows significance in "highly inclusive" category, with females showing 1.1282 units higher multinomial logit than males.

4.7 Summary of Key Findings

The analysis reveals several critical findings regarding MRG in Zimbabwe's PGMs sector:

1. **Constitutional-Legal Misalignment:** Constitutional provisions promoting transparency, accountability, and equitable resource distribution are not effectively implemented, creating gap between constitutional aspirations and practical governance.

2. **Regulatory Fragmentation:** Overlapping mandates among multiple institutions create inefficiencies, conflicting policies, and governance gaps that undermine effective oversight.
3. **Institutional Capacity Constraints:** Regulatory bodies lack adequate human, financial, and technological resources to effectively monitor and enforce compliance, creating arbitrage opportunities.
4. **Transparency and Accountability Deficits:** Limited disclosure of contracts, revenues, and licensing information creates environment conducive to corruption and illicit financial flows.
5. **Security Sector Involvement:** Dual role of security forces as both regulators and economic players creates conflicts of interest and opaque enforcement regimes.
6. **Political Interference:** Power politics and elite capture distort decision-making processes and undermine institutional autonomy.
7. **Community Exclusion:** Local communities are marginalised from decision-making processes and receive limited benefits from mining activities.
8. **Environmental Governance Weaknesses:** Inadequate enforcement of environmental regulations leads to ecological degradation and social dislocation.
9. **Knowledge Gaps:** Stakeholder knowledge of revenue management and legislative frameworks varies significantly by education, location, and access to information, with women and rural communities particularly disadvantaged.

V. 5. DISCUSSION

5.1 Theoretical Implications

The findings of this study contribute to theoretical understandings of mineral resource governance in several ways. First, they provide empirical support for resource curse theory by demonstrating how institutional weaknesses and governance failures perpetuate the paradox of resource abundance coinciding with economic underdevelopment. Zimbabwe's experience aligns with Sachs and Warner's (2021) argument that poor governance mediates the relationship between resource wealth and development outcomes. The estimated US\$32 billion in revenue leakages over two decades represents resources that could have transformed the economy, yet instead flowed illicitly out of the country due to weak governance frameworks.

The study extends resource curse theory by highlighting the role of security sector involvement in perpetuating governance failures. The dual role of security forces as both regulators and economic players creates unique challenges not adequately addressed in existing literature. When institutions tasked with enforcement become active participants in resource extraction, the separation between regulator and regulated collapses, creating opaque enforcement regimes that facilitate illicit activities. This finding suggests that resource curse analyses must attend to the specific institutional configurations that emerge in contexts where security sectors maintain significant economic interests.

Second, the findings validate institutional theory's emphasis on formal and informal constraints shaping governance outcomes (North, 2018; Scott, 2021). The study

demonstrates how formal institutions (Mines and Minerals Act, regulatory agencies) are undermined by informal practices (corruption, patronage, political interference). The persistence of these informal constraints despite formal institutional reforms suggests that governance improvement requires attention to underlying power dynamics and incentive structures, not merely legal and regulatory changes.

The constitutional provisions promoting transparency and accountability represent strong formal constraints, yet their irrelevance in practice demonstrates how informal power arrangements can neutralise formal institutions. SH19's observation that constitutional aspirations are inconsistent with current governance reality illustrates the gap between formal rules and actual practices that institutional theory seeks to explain.

Third, the findings contribute to political settlements theory by illustrating how power configurations shape governance outcomes (Khan, 2010; Levy, 2014). Zimbabwe's political settlement, characterised by a dominant party with extensive control over state institutions, has created conditions where elite interests in resource extraction override broader developmental objectives. The involvement of politically exposed persons in mining activities, allocation of claims to politically connected individuals, and resistance to transparency reforms all reflect the underlying power dynamics that political settlements theory highlights.

The study supports Khan's (2020) argument that in clientelistic political settings, formal institutions are subordinated to informal power arrangements. The failure of parliamentary oversight, despite constitutional mandates, illustrates how the whipping system and party discipline subordinate legislative functions to executive control. This finding underscores the importance of analysing power configurations, not just institutional design, in understanding governance outcomes.

Fourth, the findings engage with stakeholder theory by demonstrating consequences of stakeholder exclusion. The marginalisation of local communities, civil society organisations, and non-state actors from governance processes has created legitimacy deficits and social tensions. Communities' shift from demanding CSR to CSP (community social partnerships) reflects evolving expectations for meaningful participation and benefit-sharing. This finding supports Freeman's (1994) contention that sustainable governance requires balancing diverse stakeholder interests through inclusive processes.

Fifth, the study contributes to rent-seeking theory by documenting mechanisms through which elites capture resource rents. The opaque allocation of mining claims, underreporting of production, transfer pricing, and smuggling all represent rent-seeking behaviours that divert resource wealth from public benefit to private accumulation. SH5's observation that vested interests facilitate illicit financial flows illustrates how rent-seeking becomes institutionalised when governance frameworks are weak.

5.2 Comparative Analysis

Comparing Zimbabwe's MRG framework with regional counterparts illuminates both deficiencies and potential reform pathways. Botswana's success demonstrates that resource wealth can drive development when accompanied by prudent fiscal management, transparent institutions, and sustained political commitment (Lewin, 2010). Botswana's establishment of

stabilization funds, investment of resource revenues in infrastructure and human capital, and maintenance of transparent public finance systems offer lessons for Zimbabwe. The contrast highlights that mineral wealth alone is insufficient – governance quality determines whether resources become blessing or curse.

South Africa's experience with local content regulation and community engagement offers insights for Zimbabwe's empowerment policies. The critique of equity indigenisation in favour of local procurement advanced by SH24 aligns with South African debates about effective benefit-sharing mechanisms. South Africa's challenges with local capability to meet mining sector needs (Dechambenoit, 2020) also caution against unrealistic local content targets without accompanying capacity building.

The DRC's experience parallels Zimbabwe's in several respects – both countries possess enormous mineral wealth yet struggle with governance failures, corruption, and limited developmental impact. The DRC's improvements in legal frameworks through Mining Code reforms, juxtaposed with persistent implementation challenges, mirror Zimbabwe's situation where formal institutional reforms have not translated into improved governance outcomes (NRGI, 2020). This parallel suggests that legal reform alone is insufficient without addressing underlying political economy dynamics.

Chile's public-private partnership model demonstrates how balanced state oversight and private investment can drive sustainable development (Vega, 2020). Chile's establishment of Codelco as a state-owned enterprise operating alongside private companies, coupled with stabilization funds and transparent revenue management, offers a model for balancing state control with market efficiency. However, critics note that Chile's restrictions on private investment in strategic minerals may limit innovation and technical development (Martínez and López, 2019), highlighting trade-offs inherent in different governance models.

5.3 Governance Deficits and Their Implications

The governance deficits identified in this study have profound implications for Zimbabwe's development. The estimated US\$32 billion in revenue leakages over two decades represents resources that could have addressed critical infrastructure gaps, strengthened health and education systems, and reduced poverty. The continued loss of US\$1.2–1.9 billion annually perpetuates a cycle of underdevelopment where resource wealth fails to translate into broad-based prosperity.

Institutional Weakening: Deliberate under-resourcing of regulatory institutions, documented in findings on ZIMRA, ZRP, and EMA capacity constraints, reflects a pattern of institutional weakening that facilitates rent-seeking and corruption. When institutions lack capacity to enforce compliance, opportunities for arbitrage expand, and illicit activities flourish. The finding that some stakeholders offered to technologically equip police services but were turned down suggests active resistance to institutional strengthening that would constrain illicit activities.

Social and Environmental Costs: Community exclusion from governance processes and inadequate environmental enforcement impose direct costs on mining-affected populations. Water pollution, air quality degradation, and land disturbance affect livelihoods and health, while limited benefit-sharing means communities bear costs without receiving commensurate benefits.

The shift from CSR to CSP demands reflects communities' recognition that voluntary corporate initiatives are insufficient – what is needed are institutionalised mechanisms ensuring meaningful participation and benefit-sharing.

5.4 Political Economy Dynamics

The political economy dynamics underlying governance failures in Zimbabwe's PGMs sector warrant particular attention. The involvement of security sector entities in mining operations, documented in SH10's disclosure of partnerships with foreign investors, creates fundamental conflicts of interest. When institutions responsible for enforcement become economic actors, regulatory capture becomes institutionalised rather than exceptional.

The patronage networks linking political elites to mining concessions, documented in allegations regarding ZMDC, Marange diamonds, and allocation of claims to politically connected individuals, reflect the clientelistic character of Zimbabwe's political settlement (Khan, 2020). Resource rents serve not only as revenue for state coffers but as patronage resources for maintaining political coalitions. This dynamic creates powerful constituencies resistant to transparency and accountability reforms that would constrain access to rents.

The factionalism within ruling elites, reflected in contradictory policy positions between ministries and policy reversals on indigenisation, illustrates how elite competition over resource rents shapes governance outcomes. When policy becomes instrument of factional struggle rather than coherent development strategy, regulatory instability and investor uncertainty result. The on-again/off-again export tax and conflicting interpretations of fiscal obligations by different ministries reflect this dynamic.

The marginalisation of parliament through the whipping system, documented in SH2's observations, subordinates legislative oversight to executive control. When parliamentarians cannot exercise independent judgment on mining legislation and contracts, a key accountability mechanism is disabled. This institutional configuration reinforces executive dominance over resource governance and limits spaces for contestation and oversight.

5.5 Implications for Sustainable Development

The governance deficits identified in this study have direct implications for Zimbabwe's ability to achieve sustainable development objectives, including Vision 2030 goals of becoming an upper-middle-income country. The mining sector's contribution to GDP (approximately 12%) falls far below potential given the country's mineral endowments. PGMs production could drive industrialisation through beneficiation and value addition, creating upstream and downstream linkages that generate employment and stimulate local economies.

However, realising this potential requires addressing the governance failures documented in this study. Revenue leakages must be stemmed through enhanced transparency, digital monitoring systems, and strengthened enforcement. Regulatory fragmentation must be addressed through institutional consolidation and enhanced coordination. Community engagement must be transformed from tokenistic CSR to meaningful partnership through institutionalised benefit-sharing

mechanisms. Environmental governance must be strengthened through adequate resourcing of EMA and enforcement of compliance.

The Digital Integrated Mineral Governance (DIMG) Model proposed in related research offers a pathway for addressing many of these challenges through blockchain technology. By creating immutable digital records of mineral endowments, mining titles, supply chains, royalty payments, and environmental compliance, DIMG could enhance transparency, reduce corruption, and ensure equitable benefit distribution. However, technological solutions alone are insufficient – they must be accompanied by political commitment, institutional strengthening, and stakeholder engagement.

VI. 6. CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This paper has provided a comprehensive analysis of mineral resource governance in Zimbabwe's platinum group metals sector, examining the framing and application of MRG, factors affecting governance efficacy, and implications for sectoral development. The analysis reveals significant governance deficiencies including constitutional-legal misalignment, regulatory fragmentation, weak institutional capacity, limited transparency and accountability, security sector conflicts of interest, political interference, community exclusion, and environmental governance weaknesses.

These deficiencies are not merely technical but deeply embedded in political economy dynamics, including elite capture, patronage networks, and factional competition over resource rents. The estimated US\$32 billion in revenue leakages over two decades represents resources that could have transformed Zimbabwe's economy, yet instead flowed illicitly out of the country due to weak governance frameworks. The continued loss of US\$1.2–1.9 billion annually perpetuates a cycle of underdevelopment where mineral wealth fails to translate into broad-based prosperity.

The study contributes to theoretical understandings of resource governance by demonstrating how institutional weaknesses, power asymmetries, and informal practices combine to perpetuate governance failures. It extends resource curse theory by highlighting the role of security sector involvement in perpetuating these failures, validates institutional theory's emphasis on formal and informal constraints, and illustrates how political settlement configurations shape governance outcomes.

6.2 Recommendations

Based on the analysis, the following recommendations are proposed for enhancing MRG in Zimbabwe's PGMs sector:

1. Constitutional and Legal Alignment

- Align mining legislation with constitutional provisions promoting transparency, accountability, and equitable resource distribution
- Expedite completion of Mines and Minerals Act amendment process with inclusive stakeholder consultation
- Ensure all sectoral legislation (environmental, water, forestry) is harmonised with mining law to reduce regulatory conflicts

2. Regulatory Consolidation and Coordination

- Establish a centralised digital platform for inter-agency information sharing and joint decision-making
- Clarify and streamline institutional mandates to reduce overlaps and conflicts
- Consider consolidation of regulatory functions to reduce duplication and enhance efficiency

3. Institutional Capacity Building

- Adequately resource regulatory institutions (MMMD, EMA, ZIMRA) with human, financial, and technological resources
- Provide targeted training in mining law, environmental regulation, and financial crime investigation
- Invest in digital infrastructure for real-time monitoring of mining activities and revenue flows

4. Transparency and Accountability Enhancement

- Join and implement Extractive Industries Transparency Initiative (EITI) standards
- Mandate public disclosure of mining contracts, licenses, and beneficial ownership
- Strengthen parliamentary oversight through capacity building and reduced party discipline constraints
- Protect whistleblowers and support civil society monitoring

5. Addressing Security Sector Involvement

- Clarify separation between security sector regulatory functions and economic participation
- Ensure security entities engaged in mining are subject to same regulatory oversight as private companies
- Investigate and address conflicts of interest arising from dual roles

6. Community Engagement and Benefit-Sharing

- Institutionalise community participation in decision-making processes through multi-stakeholder platforms
- Strengthen Community Share Ownership Trusts with transparent governance and reporting requirements
- Shift from voluntary CSR to mandated community development agreements
- Ensure local procurement and employment targets are enforced

7. Environmental Governance Strengthening

- Adequately resource EMA for effective enforcement of environmental regulations
- Mandate and enforce environmental impact assessments for all mining projects
- Require mine rehabilitation plans with financial guarantees
- Strengthen monitoring of compliance with water, air, and land quality standards

8. Revenue Management Reform

- Implement Integrated Revenue Integrity Framework (IRIF) combining transparency, institutional capacity, and technology
- Establish sovereign wealth fund for intergenerational equity
- Strengthen transfer pricing and tax avoidance enforcement

- Enhance coordination between ZIMRA, RBZ, and other revenue agencies

9. Gender and Inclusion Mainstreaming

- Develop and implement gender policy for mining sector
- Ensure women's participation in decision-making structures
- Address barriers to women's access to mining opportunities and benefits
- Collect and report sex-disaggregated data on mining employment and benefits

10. Knowledge and Information Access

- Enhance public access to geological data, production statistics, and revenue information
- Utilise multiple information channels (radio, community meetings, digital platforms) to reach diverse stakeholders
- Support civic education on mining governance and citizen rights
- Strengthen academic and research capacity on mining governance issues

6.3 Areas for Further Research

This study identifies several areas requiring further research:

1. **Security Sector Governance:** Deeper analysis of security sector involvement in mining, including ownership structures, partnership arrangements, and implications for regulatory enforcement.
2. **Benefit-Sharing Mechanisms:** Comparative analysis of different benefit-sharing models (CSOTs, royalties, local procurement) to identify effective approaches for community development.
3. **Political Economy of Reform:** Analysis of political conditions under which governance reforms are possible, including elite incentives, coalition building, and windows of opportunity.
4. **Technology and Governance:** Assessment of blockchain and other digital technologies' effectiveness in enhancing transparency and reducing corruption in different contexts.
5. **Gender and Mining:** Deeper analysis of gender dimensions of mining governance, including barriers to women's participation and strategies for inclusion.
6. **Comparative Analysis:** Systematic comparison of Zimbabwe's MRG framework with other resource-rich countries to identify transferable lessons and context-specific factors.
7. **Environmental Governance:** Analysis of environmental compliance determinants and effective enforcement mechanisms in mining contexts.
8. **Artisanal and Small-Scale Mining:** Governance challenges and opportunities in ASM, including formalisation pathways and community engagement.

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