

Evaluating Interagency Collaboration for Environmental Compliance: A Case Study of Tanzania's Mining Regulation

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Abstract

This study evaluated the collaborative efforts among Tanzania's key regulatory agencies overseeing Tanzania's mining sector, specifically the Tanzania Mining Commission (TMC), the National Environmental Management Council (NEMC) and, the Occupational Health and Safety Authority (OSHA). The study focuses on how the actors from these institutions interact in fulfilling their regulatory roles. It seeks to address the tendency to overemphasise the institutional dimension of environmental regulation, leaving behind the relational approach. This was planned to answer two fundamental questions: i) how environmental regulators interact in fulfilling their shared responsibilities and, ii) what challenges they encounter at an interpersonal level. A mixed-method approach was employed, combining qualitative interviews, field observations and, statistical evaluations of compliance data. The findings indicate that regulators engaged in various forms of joint and independent activities to enforce compliance. They worked together through joint inspections, audits, and compliance monitoring. However, the degree of cooperation varied significantly across different locations and, low trust deterred cooperation. Some areas, like Geita and North Mara, exhibited strong interagency collaboration due to, relatively high trust among regulators. In contrast, those in other areas experienced fragmented regulatory oversight due to inconsistent cooperation and trust deficits. This underlines the recommendation for proactive measures to foster open communication and strengthen interpersonal relationships among regulators, which are requisites of trust building.

Keywords: *Mining Regulation, Interagency collaboration, Trust reciprocity, jurisdictional overlaps, Tanzania*

1.0 INTRODUCTION

Tanzania possesses a wealth of mineral resources both on the surface and beneath the subsoil. These resources include metallic minerals such as gold, silver, and copper; gemstones like diamonds, tanzanite, and ruby; industrial minerals including gypsum, phosphate, lime, and salt; construction materials such as gravel and sand; and energy minerals like coal and uranium (NBS, 2017). Mining activities in the country are categorized into three scales of operation: large-scale, medium-scale, and small-scale mining (MEM, 2014). These activities significantly contribute to the national economy, accounting for

4.8% of GDP in 2016 and generating approximately 50% of Tanzania's foreign exchange earnings (NBS, 2017).

Despite the centrality of the country's mining sector, its sustainability and profitability are jeopardized by the regulators' failure to streamline interagency collaboration, which is a strategic process that enables multiple agencies to complement one another toward achieving regulatory objectives. It is now uncommon to observe effective interagency collaboration which would be characterized by knowledge sharing, cooperative decision-making, and network governance, where formalized structures and processes facilitate the active participation of all stakeholders (Knoke et al., 2017; Ballard et al., 2018; Baeza et al., 2020).

Despite efforts to foster interagency collaboration in Tanzania's mining regulation, there is insufficient evidence to assess field experiences in the actual interactions between regulators. Moreover, regulators' field experiences and personal perspectives are only minimally documented in the current literature. Previous studies have primarily focused on governance structures and regulatory efficiency, while relational factors influencing collaboration have received little attention. This concern is based on the belief that while institutional and legislative frameworks establish the foundation for cooperation, interpersonal relationships, trust, and communication between regulators play a significant role in determining the effectiveness of interagency collaboration. The present study examines these relational aspects to provide a more nuanced understanding of how regulatory agencies interact and the barriers they face in enhancing interagency collaboration.

1.1 Theoretical Underpinning of Interagency Collaboration

The existing theoretical literature highlights institutional trust as a crucial factor in fostering and maximizing inter-agency collaboration (DiMaggio & Powell, 1983; Mayer, Davis, & Schoorman, 1995). Theoretical explanations of institutional trust emphasize its role in reducing uncertainty, enhancing cooperative behaviour, and ensuring the efficiency of collaborative efforts. Several scholars have underscored that trust acts as a mechanism to facilitate coordination and sustain long-term partnerships across agencies.

Institutional trust theory suggests that trust in institutions arises from their legitimacy, consistency, and adherence to norms (DiMaggio & Powell, 1983). When institutions follow standardized protocols, they reduce uncertainty and foster cooperation among agencies. Ikwuanusi et al. (2024) emphasize that digital transformation enhances institutional accountability, thereby improving inter-agency collaboration in public service delivery. The authors argue that when public institutions adopt transparent digital solutions, they reinforce trust, reducing bureaucratic inefficiencies that hinder collaboration (Ikwuanusi et al., 2024). Institutional trust also plays a significant role in emergency response and

crisis management. Riharjo and Jianghui (2024) highlight that during the COVID-19 pandemic, inter-agency collaboration was most effective when institutions maintained high public trust levels, ensuring compliance with public health measures (Riharjo & Jianghui, 2024). Similarly, Tapia (2024) underscores the importance of inter-governmental trust in coordinating emergency responses.

The theory highlights further that mutual trust between agencies leads to increased information sharing and cooperative decision-making (Mayer et al., 1995). According to Tukura and Tukura (2024), institutional trust is vital in combatting transnational security threats, as it ensures intelligence agencies share resources effectively (Tukura & Tukura, 2024). Similarly, Udochukwu and Uchenna (2024) identify institutional barriers as key obstacles in intelligence coordination, demonstrating how trust deficits undermine inter-agency collaboration (Udochukwu & Uchenna, 2024).

In light of the above, institutional trust is a foundational element in enhancing inter-agency collaboration, ensuring transparency, accountability, and effective decision-making. Theoretical frameworks from institutional theory highlight how trust facilitates cooperation, especially in intelligence, crisis management, and policy implementation. However, structural weaknesses and lack of transparency remain challenges. Adhikari (2025) identifies weak institutional frameworks as barriers to effective inter-agency coordination in national projects (Adhikari, 2025). Similarly, Musa and Olowonihi (2024) note that intelligence agencies in Nigeria face institutional mistrust, preventing the seamless exchange of security information (Musa & Olowonihi, 2024).

1.2 Existing Research on Interagency Collaboration in Tanzania's Mining Sector

Academic literature on Tanzania's mining sector has extensively examined governance structures, policy coordination, and regulatory effectiveness. While these studies have contributed to a better understanding of the institutional landscape governing mining regulation, they have largely overlooked the interpersonal dynamics that shape regulatory collaboration. Governance challenges and interagency coordination have been widely studied.

Mwita and Ng'ang'a (2023) examined governance barriers in Tanzania's mining sector, highlighting bureaucratic inefficiencies and conflicting regulatory mandates as major obstacles to effective collaboration. Their findings suggest that rigid institutional structures have impeded the ability of agencies to coordinate regulatory efforts. Similarly, Mbogo and Mwangi (2022) analyzed policy coordination mechanisms and identified both opportunities and challenges for improving interagency collaboration. Their research underscores the need for enhanced dialogue among regulatory bodies to streamline compliance processes.

Research has also explored coordination mechanisms and their impact on regulatory efficiency. Masanja and Kiwia (2023) assessed existing coordination frameworks and recommended strategies to improve regulatory alignment and interagency communication. Their findings suggest that structured decision-making processes and enhanced communication channels could significantly improve collaboration. Mushi and Mwakasege (2022) further examined the relationship between interagency collaboration and regulatory compliance, demonstrating that improved cooperation among agencies leads to higher compliance rates and enhanced industry performance. While institutional coordination is essential, effective regulatory collaboration also depends on interpersonal relationships, trust, and communication among regulatory personnel. The role of relational dynamics in interagency collaboration has not been adequately explored, leaving a gap in understanding how interpersonal factors influence regulatory effectiveness.

2.0 MATERIALS AND METHODS

The study employed a mixed-method research design, integrating both qualitative and quantitative approaches. It employed field observations, in-depth interviews, and documentary reviews to enhance the validity and reliability of the findings. Data collection involved direct field observations in four key mining districts—Msalala, Kahama, Geita, and North Mara. Field observation was particularly instrumental in uncovering implicit behavioural patterns that might not have been fully articulated by interview respondents (Denzin & Lincoln, 2017).

The observations focused on the interactions between environmental regulators, guided by the premise that understanding relational patterns in regulatory settings is best achieved through first-hand experience (Creswell & Poth, 2018). Additionally, qualitative data was gathered through in-depth interviews with 15 environmental regulators from TMC, NEMC and OSHA, who were deemed knowledgeable about environmental compliance and regulatory interactions. The selection of interview participants followed a purposive sampling technique to ensure that respondents had relevant expertise (Bryman, 2016).

To supplement and cross-validate primary data, an extensive review of compliance reports, regulatory frameworks, and other relevant documents was conducted. This triangulation of data sources enhanced the credibility of the study by integrating observed behaviours, stakeholder perceptions, and documentary evidence (Yin, 2018). The analysis of qualitative data followed a thematic approach, where key themes related to “trust” and “willingness to cooperate” were identified, coded, and categorized (Braun & Clarke, 2006).

Interview transcripts were analyzed to detect similarities and discrepancies in stakeholders' perspectives, while field observation data was examined through systematic interpretation of interaction patterns among regulators (Patton, 2015).

Quantitative data, primarily derived from compliance reports, was used to cross-check and verify primary data (Field, 2018). The combination of qualitative and quantitative methods was crucial in the validation process. While qualitative interviews provided in-depth insights into relational complexities, quantitative data offered empirical support to validate these findings.

3.0 RESULTS AND DISCUSSION

3.1 The Conduct of Environmental Regulators in Mining Fields

Regulating the mining sector in Tanzania is a multifaceted endeavour involving multiple agencies that work both independently and collaboratively to ensure compliance with environmental and mining laws (Kinyondo & Huggins, 2021). Officials from these agencies engage in activities such as auditing, inspections, and compliance monitoring, with some operations being conducted jointly while others remain independent. A key example of this inter-agency cooperation is the National Environmental Management Council (NEMC), which frequently collaborates with private environmental auditors and inspectors to conduct environmental audits (Field Survey, May 2019).

Among the regulatory bodies, the Tanzania Mining Commission (TMC) played a central role in field operations. TMC officials, including Zonal Mines Officers (ZMOs) and Mines Resident Officers (MROs), are responsible for overseeing mining activities, issuing permits, and ensuring compliance with regulatory standards. In certain cases, TMC officials worked alongside other government agencies such as NEMC to conduct joint regulatory exercises. However, the extent of inter-agency collaboration varies across regions. For example, areas such as Geita and North Mara demonstrated high levels of cooperation, whereas in other locations, regulatory agencies operated with minimal coordination (Field Survey, May 2019).

Environmental compliance monitoring remained a core responsibility of NEMC officials, who collaborate with TMC officers to oversee mining operations and conduct environmental audits. However, research has highlighted NEMC's limited capacity to fulfil its regulatory mandate effectively. Schoneveld et al. (2018) and Maliganya & Bengesi (2018) noted earlier that due to NEMC's broad responsibilities beyond the mining sector, resource constraints often hinder its ability to conduct proactive inspections. This challenge underscores the necessity of inter-agency collaboration to mitigate capacity limitations. Without such cooperation, NEMC officials can only respond to reported cases of non-compliance rather than proactively enforcing environmental standards.

Beyond environmental compliance, occupational health and safety oversight falls under the jurisdiction of the Occupational Health and Safety Authority (OSHA). OSHA inspectors provide safety training and professional guidance to mine workers while conducting routine workplace inspections. Their statutory responsibilities include workplace registration, risk assessments, and accident

investigations, all in accordance with the Occupational Health and Safety Act (OHS Act, 2003). Working in teams, OSHA officials ensured that employees operate in safe conditions and that mine operators adhere to occupational safety regulations (Field Survey, May 2019).

When OSHA inspectors detected regulatory violations, they issued compliance orders requiring mine operators to rectify deficiencies (Field Survey, May 2019). These orders include improvement notices with deadlines for corrective action and, in cases of imminent hazards, stop-work orders. Generally, mining companies complied with these directives, fostering a cooperative regulatory environment. Legal enforcement was rarely necessary, as OSHA officials encountered minimal resistance from industry stakeholders, reflecting a climate of mutual understanding between regulators and mining companies.

Despite the observed cooperation among regulatory agencies, challenges related to inter-agency coordination persisted. Field observation has identified instances of regulatory disjointedness that negatively impact enforcement effectiveness (Field Survey, May 2019). One of the major obstacles is the inefficient sharing of regulatory reports and information among agencies. Bureaucratic hurdles and legal confidentiality restrictions often impede the timely exchange of crucial data. This lack of coordination resulted in delays in regulatory decision-making and enforcement. Many regulators perceived these challenges as indicative of distrust among agencies, further complicating efforts to foster effective inter-agency collaboration (Field Survey, May 2019).

3.2 Status of Interagency Collaboration in Tanzania's Mining Regulation

In the Tanzanian context, interagency collaboration is governed by legislative frameworks, interagency coordination mechanisms, and technological integration. The Mining Act of 2010, revised in 2017, establishes the legal basis for interagency collaboration by allocating specific responsibilities to multiple regulatory bodies, some of which overlap to ensure comprehensive oversight. The TMC plays a central role in coordinating regulatory activities, working closely with the NEMC to enforce environmental protection policies. Regular interagency meetings, joint task forces, and structured information-sharing systems have been implemented to enhance communication and coordination among these institutions.

Additionally, joint inspections and audits further reinforced accountability by enabling regulators from different jurisdictions to assess compliance collectively (Schiavi, 2013; Field Survey, May 2019). These mechanisms aimed to strengthen regulatory efficiency and ensure sustainable mining practices. In addition, joint audits and inspections allow multiple agencies to assess regulatory compliance collectively, reinforcing accountability and streamlined oversight (Mining Policy Framework, 2018; Field Survey, May 2019).

Beyond formal coordination mechanisms, technological integration has played an increasingly vital role in improving interagency collaboration. The adoption of digital platforms has facilitated real-time information sharing among regulators, significantly enhancing the efficiency of regulatory oversight. The implementation of an online mining cadastre system has enabled electronic application and management of mining licenses and permits, providing a centralized platform for stakeholders to access regulatory information. According to the Tanzania Mining Commission's 2021 Annual Report, the integration of digital platforms has improved data transparency and strengthened collaboration among regulatory agencies (TMC, 2021).

Despite these efforts, challenges persisted in achieving seamless interagency collaboration. Limited financial and human resources constrained the capacity of regulatory agencies, affecting their ability to engage in effective communication and joint regulatory activities. Fragmented data management practices have further complicated interagency coordination, as the lack of standardized data collection methods caused inconsistencies in compliance reporting. Additionally, the presence of multiple stakeholders with competing interests, including mining companies, local communities, and civil society organizations, complicated communication and regulatory enforcement.

3.3 Relational Challenges Encountered by Tanzania's Mining Regulators

Environmental regulators faced relational challenges that hindered effective interagency collaboration. The relational challenges were empirically reflected in the lack of trust and had constantly and commonly impeded regulatory efforts (Field Survey, May 2019). Lack of trust was evident and widespread due to communication gaps and conflicting interests. While not unique to the case of Tanzania, the trust deficit widely undermined cooperation, reduced transparency, and created inefficiencies in enforcing mining regulations (Jenkins, 2019; Onyango, 2022; Judijanto et al., 2023).

3.3.1 Lack of trust due to communication gaps

Field observations revealed a lack of cooperation among regulators from different agencies, primarily due to trust deficits (Field Survey, May 2019). Regulators worked for different agencies were often reluctant to assist one another in their duties, opting instead to gather similar data separately rather than share information. For example, both NEMC and OSHA required access to the same environmental and occupational safety data from mining operators and each collected the information independently. This lack of collaboration was an indication of inter-agency distrust. Worse still, some information suggests that trust deficit revolved internally within individual agencies. One respondent reflected on this, stating:

"Several undesirable incidents taught me not to trust even my co-workers. I have had unfortunate experiences in which confidential information from my files was leaked to an OSHA inspector. This information was

used to their advantage, leaving me vulnerable to blame. This created unnecessary tension and distress, particularly with those I shared office space with" (Interview with TMC1, May 24, 2019).

This testimony illustrates how breaches of confidentiality within regulatory institutions contribute to distrust among colleagues. The failure to uphold professional secrecy undermines collaboration and weakens the effectiveness of inter-agency partnerships.

According to institutional trust theories, when trust deteriorates, it can lead to reduced cooperation and limited information sharing (Edelenbos & Eshuis, 2012). Trust deficit affects the relationship between regulatory agencies, resulting in fragmented enforcement efforts and regulatory inconsistencies (Temby et al., 2015).

3.3.2 Lack of trust due to conflicting interests

Temby et al. (2015) highlighted that conflicting interests and mandates are a major barrier to institutional collaboration. This was true in the study areas in that the conflicting interests among regulators caused distrust and eventually hindered interagency collaboration. The data indicates that regulators originated from diverse professional backgrounds and had differing priorities that led to competition for control over regulatory processes and enforcement priorities (Field Survey, May 2019). This created tension among agencies, further complicating collaboration.

Multiple agencies with overlapping responsibilities competed over mandates instead of working cooperatively. This resulted in redundant enforcement activities, inefficient resource allocation, and inconsistent policy implementation. This is problematic as remarked by Mu et al. (2019) who conceived power struggles between concomitant agencies which operate without a clear jurisdictional demarcation. In the study areas, the lack of a clear jurisdictional demarcation caused agencies with greater political backing or financial resources to dominate regulatory activities, sidelining less influential agencies. This state of affairs reinforced distrust and further fractured inter-agency relations.

3.4 Thematic Analysis of Trust and Willingness to Cooperate

Participants highlighted that trust, both interpersonal and systemic, is a key determinant of the quality of relationships among regulators. When colleagues' decisions were perceived as reliable, regulators demonstrated a greater willingness to engage collaboratively and share information. However, when the trust was weak, it attracted scepticism and minimal cooperation. A senior official from TMC noted,

"Trust is the foundation of any effective regulatory system. If each of us believes that we are working for a common goal and in goodwill, it would be feasible to cooperate willingly." (Interview, NEMC1, June 2019).

This perspective was echoed by a respondent from NEMC, who described trust as a prerequisite for open communication and effective enforcement. However, despite the acknowledged importance of trust, the interviews revealed several barriers that hinder its development. One of the most frequently cited challenges was the lack of sustained engagement among regulators. Participants noted that regulatory interactions were often limited to compliance inspections and enforcement actions rather than ongoing dialogue and collaboration. An official from OSHA explained,

"We meet and share some information only when there is a violation. There is little opportunity to build relationships outside of enforcement, which makes it harder to establish trust." (Interview, OSHA1, August 2019).

This ad-hoc system of engagement is seemingly unhealthy for sustainable interagency collaboration (Judijanto et al., 2023). The interview data suggests the necessity of building a culture of trust to enhance interagency collaboration. Participants identified several strategies to strengthen trust and improve willingness to cooperate among environmental regulators.

A widely supported approach is pointing to increasing stakeholder engagement through constant sharing of information rather than limiting that to some selected incidents. Respondents suggested that regular forums and collaborative environmental initiatives could help bridge the gap and enhance cooperation between regulators. A senior officer from TMC remarked, *"We need to build long-term trust and encourage cooperation."* (Interview, TMC3, August 2019). This sentiment was shared by several other regulators who emphasized the need for joint operations to enhance trust and, in return, to foster cooperation.

Generally, participants held the idea that trust is not merely an abstract concept but a critical factor for interagency collaboration. When trust is present, the willingness to cooperate increases, making enforcement efforts more effective. However, achieving this trust requires proactive engagement and constant interactions.

4.0 CONCLUSIONS AND RECOMMENDATIONS

To address relational challenges in interagency collaboration, scholars have recommended various mechanisms that could be effective in the case of mining regulation in Tanzania. If implemented properly, the following strategies could enhance cooperation among regulatory agencies, improve enforcement efficiency, and foster a more coordinated regulatory environment.

4.1 Developing Clear Interagency Agreements Defining Roles and Responsibilities

One of the key recommendations is to develop clear interagency agreements that define the roles and responsibilities of each regulatory body, helping to minimize conflict (Jenkins, 2019). Developing interagency agreements can help clarify roles, enhancing communication can reduce regulatory inefficiencies, and sustained joint training programs can foster long-term trust among regulators. A structured interagency agreement could provide clear guidelines on the specific responsibilities of each institution, ensuring accountability and streamlining regulatory processes. For instance, if it is explicitly established that NEMC will oversee all environmental audits while OSHA is solely responsible for occupational safety inspections, regulatory agencies can avoid unnecessary overlaps and minimize tensions. However, for this recommendation to be successful, it requires the commitment of agency leaders to foster a shared regulatory vision. Without common will and institutional alignment, these agreements risk remaining ineffective.

4.2 Enhancing Communication Channels to Facilitate Information Sharing

Another crucial recommendation is the enhancement of communication channels to facilitate information sharing and transparency (Edelenbos & Eshuis, 2012). This is certainly a workable solution in the Tanzanian mining regulatory context. Establishing efficient communication mechanisms would enable real-time data exchange, improve regulatory responsiveness and reduce bureaucratic delays. A centralized regulatory database accessible to TMC, NEMC, and OSHA could serve as a common platform where agencies can upload and retrieve compliance records, fostering regulatory coherence. However, concerns over data confidentiality and security must be addressed to prevent breaches of sensitive information. Strong data governance policies, outlining clear protocols on access and usage, would be necessary to ensure that enhanced communication does not compromise professional integrity.

4.3 Building Trust through Joint Training Programs

Another significant recommendation is building trust through joint training programs that encourage professional relationships and shared accountability among regulators (Temby et al., 2015). When agencies operate in isolation, it leads to fragmented enforcement, misaligned regulatory priorities, and weakened oversight capabilities. Joint training programs offer an opportunity to cultivate trust by allowing regulators from different agencies to interact in a structured environment, develop a common understanding of enforcement priorities, and establish professional networks. A multi-agency workshop on environmental compliance and occupational safety, for example, could bring together officers from NEMC, OSHA, and TMC, facilitating dialogue on best practices and reinforcing cooperative approaches to regulation.

Such initiatives not only enhance professional rapport but also create a sense of shared responsibility, reducing the tendency for agencies to operate independently. However, for these training programs to be effective, they must be part of an ongoing effort rather than sporadic initiatives. Institutionalizing interagency training—where all newly appointed regulatory officers are required to undergo collaborative professional development—would ensure that trust-building efforts are sustained over time. While these recommendations provide viable solutions to the relational challenges faced by Tanzania's mining regulators, their success ultimately depends on strong leadership, policy commitment, and continuous institutional engagement. If these mechanisms are effectively implemented, they could transform Tanzania's mining regulatory framework into a more coordinated and efficient system, ensuring better compliance with environmental and safety regulations while fostering sustainable mining governance.

From the foregoing, it can be re-stated that interagency collaboration is integral to ensuring regulatory compliance in Tanzania's mining sector. Regulatory agencies in Tanzania's mining sector worked together through joint inspections, audits, and compliance monitoring. However, the degree of cooperation varies significantly across different regions. Some areas, like Geita and North Mara, exhibited strong interagency collaboration, while others experienced fragmented regulatory oversight due to inconsistent cooperation among agencies. The key challenges against interagency collaboration included bureaucratic inefficiencies, inconsistent participation of agencies in field operations, and jurisdictional overlaps.

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