JRIIE Journal of Research Innovation and Implications in Education
Center for Research Implications & Practice

Website: www.jriiejournal.com ISSN 2520-7504 (Online) Vol.10, Iss.2, 2026 (pp. 224 - 234)

Resources Use Conflicts in Tanzania. A Case Study of Mirerani Tanzanite Mining Area in Manyara Region

Simon Peter Kaaya[1] & Nabahani Kimboka[2]
[1]Ward Executive Officer, Bwawani Ward, Arusha District Council
[2]Tengeru Institute of Community Development
Email: kimboka83@gmail.com

Abstract: *Tanzanite mining in Mirerani, Manyara Region, Tanzania, represents a unique resource ecosystem where high-value gemstone extraction intersects with complex social, institutional and political dynamics. This study examined the root causes and dynamics of Tanzanite resource-use conflicts, employing a qualitative case study design to capture perspectives from 121 stakeholders, including small-scale miners, investors, brokers and local authorities. Data were collected through semi-structured interviews, focus group discussions and document review and analyzed thematically to identify recurrent patterns and relationships. Findings reveal interrelated drivers of conflict: inadequate underground demarcation and mining boundaries, inconsistent implementation of mining policies, selfishness and lack of ethical leadership, differences among miners and between miners and investors, limited education and awareness and political interference coupled with corruption. The study demonstrates that conflicts are multidimensional, arising not solely from resource scarcity but from governance gaps, structural asymmetries and social and behavioral factors that erode trust, legitimacy and compliance. By integrating Common-Pool Resource Theory and Resource Abundance Frameworks, the research highlights that sustainable conflict mitigation requires coordinated technical, institutional and human-centered interventions. Key recommendations include strengthening miners' education and capacity, enhancing participatory governance, revising policies to reflect local realities, improving institutional oversight and promoting evidence-based research to inform policy and practice. The study contributes to theoretical and practical understandings of artisanal mining conflicts in sub-Saharan Africa, offering actionable guidance for fostering equitable, transparent and sustainable resource governance in high-value extractive sectors.*

Keywords: *Tanzanite mining, Resources, Resource-use conflicts, Artisanal and small-scale mining, Governance*

How to cite this work (APA):

Kaaya, S. P. & Kimboka, N. (2026). Resources Use Conflicts in Tanzania. A case study of Mirerani Tanzanite Mining Area in Manyara Region. *Journal of Research Innovation and Implications in Education, 10*(2), 224 – 234. **https://doi.org/10.59765/jbv7217**

1. Introduction

The extraction and trade of natural resources have historically been linked to conflict, human rights violations, and the weakening of fragile states across the globe (Bebbington & Bury, 2020). Minerals, precious stones and other commodities have frequently served as both economic drivers and sources of tension (Giyani & Salama, 2025). Globally, the connection between resource trade and armed conflict in countries such as the Central African Republic, Myanmar, Afghanistan, and the Democratic Republic of Congo (DRC) highlights the role of mineral wealth in perpetuating violence and undermining governance (Poncian & Kigodi, 2020).

In eastern DRC, the trade in tin (Sn), tantalum (Ta), tungsten (Tn), and gold (Au) has fueled prolonged conflict, involving multiple actors and neighboring countries (Maliganya et al., 2026). Violence in such contexts is

sustained by political tensions, ethnic disputes and land related grievances, often financed in part by mineral exploitation (Bebbington & Bury, 2020). These patterns illustrate how unregulated resource extraction can create competition, exacerbate local grievances, and entrench conflict, making natural resource governance a critical factor for peace and sustainable development (UNEP, 2019; UNDP, 2022).

Within the African context, Tanzania presents a unique case with the Mirerani Tanzanite mining area in Manyara Region. Tanzanite, a gemstone exclusive to this region, has attracted both small-scale miners and large-scale investors, creating a complex network of stakeholders, including brokers, donors, and master dealers (Poncian & Kigodi, 2020; Donahue, 2018). The Tanzanite mining area spans approximately 8 kilometers in length and 1 kilometer in width, and by the 1990s, production had declined due to unregulated artisanal extraction and informal activities (Donahue, 2018; Mbowe et al., 2016). To formalize mining, the government demarcated the area into four blocks: Block A was assigned to Kilimanjaro Mines Limited, Blocks B and D to small-scale miners, and Block C to the graphite company Graphtan Limited (later operated by Afgem, Tanzanite One Group, and Sky Associates) (Mbowe et al., 2016).

Geologically, tanzanite deposits extend to depths of approximately 2,000 meters, suggesting that, at the current extraction rate, reserves may last for another 30 years (Mbowe et al., 2016). Deep mining requires sophisticated infrastructure and management, which small-scale miners often cannot afford, leading to conflicts over access and control (Poncian & Kigodi, 2020; Maliganya et al., 2026). In Mirerani, these tensions are further exacerbated by the challenges of regulating a high-value gemstone sector and the coexistence of multiple governance regimes.

Historically, conflicts have also had ethnic dimensions, contributing to persistent mistrust among stakeholders and affecting social cohesion within the Mirerani Ward (Poncian & Kigodi, 2020). Collectively, these issues demonstrate that Tanzanite resource extraction is not merely an economic activity, but a complex social phenomenon intertwined with governance, equity and conflict management. Understanding the root causes of these conflicts and the effectiveness of mitigation strategies is critical for sustainable resource management and local development in Tanzania (UNDP, 2022; UNEP, 2019).

1.1 Statement of the Problem

Despite the National Mineral Policy of Tanzania (2009) aiming to regulate mining activities, enhance socio-economic contributions, and mitigate conflicts in mineral-rich areas, disputes in the Tanzanite mining sector at Mirerani, Manyara Region, persist (URT, 2009; Poncian & Kigodi, 2020). The policy emphasizes increasing local participation in gemstone mining and promoting value addition activities, including cutting, polishing, smelting, and refining, with the aim of creating employment, improving local skills and boosting income (URT, 2009; Mbowe et al., 2016).

However, in practice, the Tanzanite sector continues to experience recurring conflicts between artisanal and small-scale miners (ASM), private mining companies (PMC), brokers, investors, and local communities (Giyani & Salama, 2025). These conflicts often center on underground access, overlapping claims, and competition for mineral resources rather than ownership rights (Poncian & Kigodi, 2020; Maliganya et al., 2026). Local authorities have attempted mediation, yet tensions remain unresolved, indicating that existing policies and governance mechanisms are insufficient to address the complex social, economic, and operational dynamics of Tanzanite mining (UNEP, 2019; UNDP, 2022).

Furthermore, while numerous studies have explored mining conflicts globally and regionally, few have specifically focused on Tanzanite related disputes in Mirerani. The lack of in-depth qualitative research has left critical gaps in understanding interactions among stakeholders, the causes of conflicts, and the effectiveness of existing mitigation strategies (Donahue, 2018; Mbowe et al., 2016; Maliganya et al., 2026).

This study, therefore, seeks to address these gaps by examining the causes, dynamics, and mitigation strategies of Tanzanite resource-use conflicts at Mirerani. The research is academically significant, contributing to the limited body of qualitative knowledge on mining conflicts and practically relevant, aiming to inform policymakers, mining authorities and community leaders on effective conflict resolution strategies, support equitable resource utilization and enhance socio-economic development in Tanzania's only Tanzanite mining region. By doing so, the study aligns with Tanzania's Development Vision 2025 and the Sustainable Development Goals (SDGs), particularly those promoting inclusive economic growth, sustainable industrialization, and peaceful, inclusive societies.

1.2 Research Questions

In order to guide the study and ensure alignment with its objectives, the following research questions were formulated to explore the nature and persistence of resource-use conflicts in the Tanzanite mining sector:

1. What are the underlying causes of resource-use conflicts among stakeholders in the Mirerani Tanzanite mining area?
2. How do resource-use conflicts manifest and evolve in relation to governance structures, institutional practices and stakeholder interactions in Mirerani?
3. What strategies can effectively mitigate resource-use conflicts and promote sustainable resource governance in the Tanzanite mining sector?

2. Literature Review

2.1 Theoretical Literature Review

This study is anchored in two complementary theoretical perspectives explaining resource use conflicts: Common-Pool Resource Theory (CPRT) and the Too Little or Too Much Resource Theory. CPRT was systematically developed by Elinor Ostrom in *Governing the Commons* (Ostrom, 1990), building on institutional analyses of resource governance (Ostrom, 2009). Ostrom challenged deterministic assumptions of inevitable resource degradation, demonstrating that communities can sustainably manage shared resources through robust institutions. Common-pool resources are defined by subtractability, where one user's extraction reduces availability for others, and difficulty of exclusion, meaning access is costly to restrict. Examples include forests, fisheries, grazing lands, water bodies, and mineral deposits (Ostrom, 1990; Ostrom, 2009).

CPRT emphasizes that clearly defined boundaries, collective decision-making, monitoring, and graduated sanctions are necessary to prevent overexploitation and conflict (Ostrom, 1990). Property rights systems are particularly central in coordinating user behavior and shaping incentives for sustainable management (Ostrom, 2009). This framework is directly relevant to Tanzanite mining in Mirerani, where underground gemstone deposits constitute a high-value common-pool resource. Subterranean extensions are technically difficult to demarcate and monitor, creating overlapping claims and enforcement gaps. Weak institutional oversight and ambiguous boundaries therefore generate uncertainty, competition, and recurrent disputes, making CPRT a governance-centered lens for explaining mining conflicts (Poncian & Kigodi, 2020; Maliganya et al., 2026).

The Too Little or Too Much Resource Theory integrates scarcity and abundance perspectives. Scarcity occurs when limited access to resources generates competition, inequality, and tensions, while abundance, particularly of high-value resources like Tanzanite, can fuel corruption, rent-seeking and institutional weakening under fragile governance (Bebbington & Bury, 2020; Lujala et al., 2020; Sovacool, 2021). In Mirerani, conflicts reflect the interaction of both dynamics: governance deficiencies over a shared mineral resource and political economy pressures created by a high-value gemstone sector. Together, these theories provide a comprehensive framework for explaining institutional, structural, and incentive-based drivers of Tanzanite resource use conflicts (Poncian & Kigodi, 2020; Maliganya et al., 2026; UNDP, 2022).

2.2 Empirical Literature Review

Recent scholarship demonstrates a shift in understanding resource-based conflicts from deterministic "resource war" narratives toward governance-centered and political economy explanations (World Bank, 2023). Contemporary studies on artisanal and small-scale mining (ASM) emphasize that mineral wealth does not inherently cause conflict; rather, disputes emerge where institutional arrangements are weak, exclusionary, or inconsistently enforced (Bebbington & Bury, 2020; Hilson & Maconachie, 2020).

In sub-Saharan Africa, mining conflicts are often localized struggles over access, recognition, and benefit-sharing rather than large-scale civil wars (Doyle & Sturman, 2020). Conflicts in artisanal mining zones are shaped less by resource abundance itself and more by fragmented governance, elite capture, and regulatory ambiguity (Hilson & Maconachie, 2020; Sovacool, 2021). Similarly, formalization reforms intended to reduce disorder sometimes exacerbate tensions when implemented without meaningful participation of small-scale miners (Hilson & Maconachie, 2020). These findings challenge earlier perspectives that framed ASM primarily as chaotic or criminal, highlighting how poorly designed institutional interventions can intensify disputes.

Conflicting interpretations persist in literature. One perspective emphasizes economic incentives and rent-seeking behavior as primary drivers of conflict in high value extractive sectors (Lujala, Rustad, & Le Billon, 2020). Gemstone and gold mining attract competition because of their portability and market value, encouraging

opportunism and corruption. Conversely, another perspective stresses structural marginalization and socio-economic vulnerability, arguing that artisanal miners engage in conflict as a response to exclusion from formal mining regimes dominated by large-scale investors (Le Billon, 2021). These contrasting interpretations greed versus grievance, rent seeking versus exclusion, illustrate ongoing debate regarding the underlying causes of mining related disputes.

In Tanzanian contexts, governance reforms such as the Mining Act amendments and value addition strategies aim to promote equitable development (Poncian & Kigodi, 2020). However, there is limited empirical evidence evaluating how these policies function in practice within artisanal mining communities (Poncian & Kigodi, 2020; Maliganya et al., 2026). Institutional effectiveness depends not only on policy design but also on legitimacy, trust, and consistent enforcement (Bebbington & Bury, 2020; UNEP, 2019). The absence of stakeholder-centered qualitative evidence leaves critical gaps in understanding how miners, brokers, and local authorities interpret and experience regulatory reforms.

Thus, although the contemporary literature provides important insights into governance, political economy, and ASM formalization, it presents competing explanations and insufficient case-specific evidence regarding gemstone mining conflicts in Tanzania. This gap justifies an in-depth qualitative examination of Tanzanite resource-use conflicts in Mirerani (Poncian & Kigodi, 2020; Maliganya et al., 2026).

2.3 Research Gaps

Despite growing scholarships on artisanal and small-scale mining (ASM) in sub-Saharan Africa, important gaps remain. Most studies disproportionately focus on gold and conflict minerals in countries such as the Democratic Republic of Congo, leaving gemstone specific conflicts particularly those surrounding Tanzanite largely underexplored (Hilson & Maconachie, 2020; Maliganya et al., 2026). Tanzanite's geographically confined nature and vertically extended underground deposits create distinctive governance and boundary demarcation challenges that are insufficiently addressed in existing literature. Furthermore, debates often separate rent seeking explanations from structural marginalization perspectives, with limited integration of governance weaknesses, economic incentives and localized social dynamics within a single analytical framework.

While Tanzania has implemented significant mining reforms since 2017, there is limited qualitative evidence on how these policies are experienced by artisanal miners, brokers, and community stakeholders (Poncian & Kigodi, 2020; Maliganya et al., 2026). Much of the existing work emphasizes macro-economic outcomes or legislative shifts rather than everyday governance practices, dispute resolution mechanisms and socio-cultural dimensions such as trust, ethical leadership and inter-group relations.

By adopting a stakeholder-centered qualitative approach, this study addresses these gaps, providing context specific insights into gemstone based subterranean resource conflicts in Mirerani. This approach enables a deeper understanding of the interactions between institutional frameworks, social dynamics and governance practices, contributing both academically and practically to the management of high-value artisanal mining settings in Tanzania.

3. Methodology

This study employed a qualitative research approach to examine resource-use conflicts in Tanzanite mining in Mirerani, Simanjiro District, Manyara Region, Tanzania. A case study design was adopted to explore complex social phenomena within their real-life context, allowing an in-depth understanding of stakeholder interactions, governance dynamics and socio-economic processes (Yin, 2018). Guided by interpretivist paradigm, the research emphasized understanding conflicts from the perspectives of actors directly involved, focusing on meanings, experiences and social interactions (Creswell & Poth, 2018). Mirerani, as the world's only Tanzanite mining site, was purposively selected due to its documented history of disputes over underground demarcations, mining rights and benefit-sharing across four mining blocks (A, B, C and D), operated by both small and large scale actors. This setting provided a suitable context for examining governance, economic and socio-cultural dimensions of mining conflicts.

The study involved 121 respondents, comprising 65 small-scale miners, 25 brokers and dealers, 16 local leaders and 15 service providers, drawn almost equally from Endiamtu Ward (60) and Mirerani Ward (61) to ensure spatial representation. A multi stage sampling procedure was applied: the two wards were purposively selected for their strategic role in Tanzanite extraction; four hamlets in each ward were identified based on mining intensity; and stakeholders were stratified to capture diverse roles and experiences. Small-scale miners and brokers were selected using systematic random sampling from official lists, local leaders were purposively included based on administrative authority and service providers were randomly selected within business categories. This combination of purposive,

stratified and random sampling enhanced representativeness while maintaining analytical depth (Etikan & Bala, 2017).

Data collection methods included semi-structured interviews, focus group discussions (FGDs) and documentary review. Interviews provided detailed insights into individual experiences while FGDs (6-8 participants each) facilitated collective reflection on conflict dynamics. Documentary sources including mining policies, regulations and reports were reviewed to contextualize and triangulate primary data. Thematic content analysis was employed, encompassing coding, categorization and identification of recurrent patterns and themes (Nowell et al., 2017).

Trustworthiness was ensured through credibility (triangulation and prolonged engagement), transferability (thick description), and dependability and confirmability (systematic audit trail documentation) (Lincoln & Guba, 1985). Ethical considerations included obtaining informed consent, ensuring confidentiality, secure data storage and impartial reporting. This methodological approach ensured a rigorous, context-sensitive, and ethically sound investigation of Tanzanite resource-use conflicts in Mirerani.

4. Results and Discussion

4.1Inadequate Underground Demarcation and Mining Boundaries

The findings indicate that inadequate underground demarcation is a central driver of conflict in Mirerani Tanzanite mining. While surface blocks are formally defined, subterranean extensions remain poorly mapped and inconsistently monitored, resulting in frequent encroachments among small-scale miners and between miners and investors. This pattern aligns with Common-Pool Resource Theory (CPRT), which emphasizes that clearly defined boundaries are essential for preventing overuse and disputes in shared-resource systems (Ostrom, 1990; Ostrom 2009). In Mirerani, the lack of effective underground delineation creates uncertainty, fueling repeated confrontations over access and control.

Constraints in technical capacity and institutional oversight exacerbate these conflicts (Le Billon, 2021). Respondents reported that monitoring is inconsistent, enforcement is often delayed or selective and sanctions are perceived as biased, which undermines institutional legitimacy and encourages self-help or retaliatory strategies. These findings support Ostrom's (1990) framework, emphasizing that sustainable management of common-pool resources requires both credible enforcement and trust among users. Similarly, empirical studies in artisanal mining contexts highlight that weak governance amplifies disputes even where formal property rights exist (Childs, 2020; Sovacool, 2021).

The results further challenge traditional scarcity-based explanations of resource conflict. Tanzanite's high market value drives competition, but disputes stem more from technological disparities and unequal access to extraction tools than from resource depletion (World Bank, 2020). Larger investors possess advanced mining equipment, while small-scale miners rely on experiential knowledge, reinforcing structural power asymmetries. This observation aligns with the "too much resource" perspective of the Too Little or Too Much Resource Theory, which posits that abundance in high-value resources can generate institutional stress, elite competition, and local conflicts (Auty, 1993; Bebbington & Bury, 2020).

Finally, the Mirerani case extends CPRT to a subterranean commons, where vertical and hidden resource spaces complicate monitoring and enforcement. Effective conflict mitigation therefore requires integrated strategies combining precise underground mapping, continuous supervision, transparent enforcement and stakeholder engagement (Donahue, 2018; Maliganya et al., 2026). These findings indicate that boundary related conflicts are deeply rooted in institutional fragility, capacity gaps, and social mistrust, highlighting the necessity of a holistic approach that addresses technical, institutional and social dimensions for sustainable Tanzanite resource governance.

4.2 Poor Implementation of Mining Policies

The findings indicate that mining policies in the Tanzanite sector are frequently inconsistently applied, selectively enforced and often delayed. Respondents described confusion regarding permits, licenses and resource ownership, which frequently triggers disputes between small-scale miners and investors. Instances where enforcement favored wealthier or politically connected actors encouraged informal negotiation and self-help strategies. This observation reflects a critical governance gap, illustrating that the mere existence of formal rules is insufficient for preventing conflict (Mbowe et al., 2016), consistent with the Common-Pool Resource Theory (CPRT), which emphasizes that rules must be clearly defined, consistently applied and perceived as legitimate to effectively manage shared resources (Ostrom, 1990; Giyani & Salama, 2025).

In Mirerani, the inconsistency of policy enforcement undermines institutional legitimacy and fosters mistrust among stakeholders. Weak regulatory oversight amplifies competition and power asymmetries, particularly affecting small-scale miners relative to better-resourced investors. This aligns with findings from artisanal mining studies in Sub-Saharan Africa, which demonstrate that selective enforcement and weak institutions intensify disputes over access and benefit-sharing (Giyani & Salama, 2025; Hilson & Maconachie, 2020; Le Billon, 2021). The data suggest that governance failure, rather than mineral scarcity, is the key driver of recurring conflicts in the Tanzanite sector.

The findings further illustrate the interaction between policy gaps and socio-economic dynamics. Poorly implemented regulations worsen perceptions of inequity, particularly concerning access to high-value mining sites and associated economic benefits. This pattern resonates with the Too Little or Too Much Resource Theory, specifically the "too much resource" perspective, whereby high-value resources under weak governance generate rent seeking, elite capture and localized conflicts rather than equitable development (Auty, 1993; Doyle & Sturman, 2020; Bebbington & Bury, 2020). Delayed or inadequate institutional responses reinforce cycles of mistrust, deepening disputes and entrenching informal power structures.

The study underscores that policy related conflicts in Mirerani are rooted in weak implementation, selective enforcement and limited institutional legitimacy. Effective mitigation requires integrated approaches that combine legal clarity, institutional strengthening, transparency and participatory stakeholder engagement. Policies must be contextually adapted, clearly communicated and equitably enforced to foster trust, fairness and sustainable Tanzanite resource governance, demonstrating that governance quality, rather than scarcity, is central to managing conflict in high-value artisanal mining settings (Donahue, 2018; Doyle & Sturman, 2020).

4.3 Selfishness and Lack of Ethical Leadership

The findings reveal that selfish behavior and weak ethical leadership constitute significant drivers of Tanzanite resource use conflicts in Mirerani. Respondents consistently reported that miners, brokers and investors often prioritize personal gain over collective interests, undermining cooperative norms and escalating disputes over mining areas, decision making authority and access to high value deposits. These observations align with Common-Pool Resource Theory (CPRT), which emphasizes that the sustainability of shared resources depends not only on clear rules but also on the legitimacy, accountability and ethical conduct of those managing and enforcing them (Ostrom, 1990; Bebbington & Bury, 2020; Doyle & Sturman, 2020).

In Mirerani, weak ethical leadership erodes institutional credibility and fosters opportunistic behavior, reinforcing mistrust among stakeholders. The qualitative data indicate that poor guidance, selective enforcement and lack of transparency exacerbate competition and conflict, consistent with prior studies in artisanal mining contexts (Giyani & Salama, 2025; Hilson & Maconachie, 2020; Le Billon, 2021) showing that governance deficits amplify disputes when stakeholder expectations of fairness are unmet. Leadership failures thus interact with technical and regulatory gaps, demonstrating that institutional rules alone are insufficient for effective conflict management (Maliganya et al., 2026).

The study further shows that leadership deficits intersect with structural weaknesses in local governance. When authorities fail to ensure equitable allocation of mining plots or transparent benefit-sharing, miners resort to informal or confrontational strategies to assert claims, creating cycles of interpersonal and group conflict (Lujala et al., 2020). The absence of formalized mediation channels allows minor disagreements to escalate into serious disputes over underground rights and mineral ownership. This pattern reflects broader resource conflict dynamics, where high-value, poorly governed sectors are particularly vulnerable to social tension and opportunistic behaviors, consistent with the "too much resource" perspective of resource conflict theory (Auty, 1993; Bebbington & Bury, 2020).

Addressing these challenges requires integrated strategies targeting both social and institutional dimensions (Doyle & Sturman, 2020). Strengthening ethical standards, leadership capacity, and accountability among mining managers and community representatives is essential (Mbowe et al., 2016). Complementarily, decision-making processes should be transparent, participatory, and subject to oversight through codes of conduct, regular audits, and inclusive governance mechanisms (Bennett et al., 2019). Such interventions can reduce selfish behavior, rebuild stakeholder trust, and enhance cooperation, illustrating that sustainable Tanzanite resource management in Mirerani depends as much on leadership quality and institutional legitimacy as on technical demarcation or policy enforcement.

4.4 Differences among Miners and Between Miners and Investors

The study revealed persistent disagreements both among small-scale miners and between miners and investors, particularly regarding profit-sharing, workload allocation and access to mining sites. Respondents reported that misaligned expectations over ownership and entitlements frequently escalate tensions, with miners feeling marginalized when investors assert dominance and investors perceiving miners as encroaching or mismanaging resources. Limited transparency and weak communication channels exacerbate these disputes, reflecting the central CPRT proposition that clearly defined rules and inclusive governance are critical to managing rivalrous resources (Bebbington & Bury, 2020). The absence of participatory negotiation frameworks undermines institutional legitimacy, allowing interpersonal grievances to compound structural vulnerabilities and produce recurring conflicts (Doyle & Sturman, 2020).

From a governance perspective, these disputes illustrate how institutional fragility amplifies competition over high value Tanzanite deposits. Small-scale miners' limited access to technical tools and capital, contrasted with investors' superior equipment and financial leverage, creates asymmetric power dynamics. This observation aligns with research emphasizing that unequal resource access and weak enforcement of mining regulations contribute to recurring conflicts, particularly in settings where governance structures are underdeveloped (Bebbington & Bury, 2020; Jacob & Pedersen, 2020).

The data further indicates that conflicts are mutually reinforcing perceived injustices prompt informal strategies and resistance among miners, which often provoke stricter control or retaliatory measures from investors. This cyclical pattern demonstrates that disputes in Mirerani are relational and systemic, shaped not merely by resource value but by the legitimacy of governance, recognition of rights and procedural fairness. CPRT's emphasis on institutional credibility and stakeholder trust explains why weak oversight perpetuates conflict despite formal legal frameworks (Bebbington & Bury, 2020; Pedersen & Jacob, 2019).

Effective conflict mitigation therefore requires strategies that integrate legal, institutional, and social dimensions. Strengthening structures for mining rights, establishing transparent agreements, and creating participatory platforms for equitable profit sharing and workload management can reduce tension and foster cooperative relationships between miners and investors (Mbowe et al., 2016; Mehlum et al., 2019). Mirerani's case illustrates that addressing interpersonal, institutional, and power disparities is essential for sustainable governance and conflict management in high-value artisanal mining settings (Bebbington & Bury, 2020; Lujala et al., 2020).

4.5 Limited Education and Awareness among Small-Scale Miners

The study revealed that limited education and awareness among small-scale miners is also a critical driver of Tanzanite resource use conflicts. Many miners reported unfamiliarity with mining laws, safety protocols and formal dispute resolution mechanisms, which frequently led to misunderstandings, informal practices and inadvertent encroachments. These knowledge gaps heighten vulnerability to exploitation by more informed or powerful actors, illustrating how social and structural factors intersect to influence resource governance.

The findings strongly reinforce the relevance of Common-Pool Resource Theory, which emphasizes that sustainable management of shared resources depends not only on clearly defined boundaries but also on users' understanding and ability to comply with rules (Bebbington & Bury, 2020). In Mirerani, miners' limited awareness compromises their engagement with formal institutional frameworks, weakening collective enforcement and perpetuating recurring disputes. Informational gaps exacerbate structural weaknesses, creating a feedback loop in which informal practices become normalized in the absence of informed participation.

These results also extend the "Too Little or Too Much Resource" theory by highlighting that conflict is mediated by human and social capacities, not just resource scarcity or abundance (Lujala et al., 2020; Maliganya et al., 2026). Even when Tanzanite deposits are abundant, insufficient understanding of legal procedures, contractual obligations, and safety standards precipitates disputes, reinforcing power asymmetries between small-scale miners and investors and undermining trust. Limited education thus emerges as a structural factor that compounds governance gaps and intensifies competition over high-value minerals.

Addressing these challenges requires targeted capacity-building interventions, including training on mining regulations, contractual obligations, safety procedures, and conflict resolution (Giyani & Salama, 2025). Such initiatives operationalize CPRT principles by enhancing users' ability to comply with rules, strengthen institutional legitimacy and reduce reliance on informal, conflict-prone practices (Bebbington & Bury, 2020; Jacob & Pedersen, 2020). The Mirerani case demonstrates that developing human capital is fundamental to mitigating resource

disputes and promoting sustainable, equitable, and cooperative Tanzanite mining operations.

4.6 Political Interference and Corruption

Political interference and corruption, though less frequently reported, emerged as a critical factor shaping Tanzanite resource-use conflicts in Mirerani. Respondents highlighted favoritism, bribery, and undue influence by local politicians and powerful actors, which distort decision-making, compromise fairness and erode trust in formal institutional mechanisms. These findings indicate that governance structures alone are insufficient when political dynamics undermine consistent enforcement and equitable application of mining rules (Donahue, 2018).

From a theoretical standpoint, this theme demonstrates the intersection of Common-Pool Resource Theory and the Too Little or Too Much Resource framework. CPRT emphasizes that effective governance of shared resources depends not only on clearly defined rules but also on credible, impartial enforcement (Bebbington & Bury, 2020; Mehlum et al., 2019). In Mirerani, political interference weakens institutional legitimacy, reduces compliance with regulations and encourages informal or confrontational dispute resolution. The high value of Tanzanite further amplifies incentives for rent seeking, consistent with resource curse arguments, where resource abundance generates corruption and elite capture rather than equitable benefit sharing (Maliganya et al., 2026; Lujala et al., 2020).

Empirically, the study shows that political favoritism reinforces cyclical disputes (Lujala et al., 2020). Stakeholders perceiving bias often bypass formal channels, resorting to informal or adversarial measures to assert claims. This dynamic illustrates how corruption interacts with structural and social vulnerabilities, magnifying both the frequency and intensity of conflicts. The findings align with broader evidence from sub-Saharan Africa, where weak governance and patronage networks exacerbate disputes in artisanal and small-scale mining contexts (Jacob & Pedersen, 2020; Hilson & Maconachie, 2020).

These findings extend CPRT by highlighting that institutional legitimacy depends not only on rule clarity but also on insulation from political manipulation (Poncian & Kigodi, 2020). In high-stakes resource settings like Tanzanite mining, governance failures are amplified when enforcement is selective or biased. Mitigating political interference requires strengthening anti-corruption measures and establishing transparent, participatory, and community-inclusive mechanisms. By integrating institutional, social, and political dimensions, interventions can enhance trust, ensure equitable rule enforcement, and reduce reliance on informal conflict resolution, thereby promoting sustainable resource management in Mirerani.

5. Conclusion and Recommendations

5.1 Conclusion

This study set out to explain the persistence of Tanzanite resource-use conflicts in Mirerani by integrating institutional, political economy and socio-cultural perspectives within a qualitative case study framework. Rather than treating conflict as an inevitable consequence of mineral wealth, the findings demonstrate that disputes emerge from the interaction between governance fragilities, structural inequalities, and high value resource incentives. The Mirerani case therefore challenges deterministic “resource conflict” narratives and instead positions conflict as an outcome of institutional misalignment and legitimacy deficits.

Theoretically, the study advances the application of Elinor Ostrom’s Common-Pool Resource Theory (CPRT) to vertically extended, subterranean commons. While CPRT emphasizes clearly defined boundaries, monitoring and graduated sanctions, the Mirerani case demonstrates that in underground gemstone contexts, boundary ambiguity is not merely administrative but spatially and technologically embedded. The concept of a “vertical commons” extends CPRT by illustrating how hidden and depth-based mineral deposits complicate enforcement, intensify asymmetries in technical capacity and magnify uncertainty. Institutional legitimacy, therefore, becomes as critical as boundary clarity.

Simultaneously, the findings refine the “Too Little or Too Much Resource” perspective by demonstrating that abundance alone does not generate conflict. Rather, high value resources under weak governance create amplified incentives for rent seeking, elite influence, and opportunistic behavior. In Mirerani, abundance interacts with policy inconsistency, political interference, and limited miner capacity to produce cyclical disputes. Conflict thus reflects a governance incentive imbalance rather than scarcity or abundance in isolation.

Empirically, the study contributes context-specific qualitative evidence to Tanzanian mining scholarship, complementing existing analyses of governance reforms. It demonstrates that regulatory reforms and formalization efforts are insufficient when institutional enforcement is selective, ethical leadership is weak, and miners lack legal literacy. Sustainable governance in artisanal mining settings therefore requires an integrated model that

combines technical demarcation, consistent rule enforcement, participatory decision-making, anti-corruption safeguards and structured capacity building.

Beyond Mirerani, the findings hold broader implications for artisanal and small-scale mining governance across sub-Saharan Africa. The study underscores that conflict mitigation must address not only institutional design but also power asymmetries, trust deficits and political economy dynamics. Effective governance of high value commons depends on aligning formal regulatory frameworks with credible enforcement, ethical leadership and informed stakeholder participation.

Ultimately, Tanzanite resource use conflicts in Mirerani are symptomatic of systemic governance and legitimacy challenges rather than isolated disputes over mineral access. By extending CPRT into subterranean resource systems and integrating abundance based political economy analysis, this research contributes to advancing theory on extractive governance in high-value artisanal mining contexts. Sustainable conflict reduction, therefore, demands multi-level, theory-informed interventions that integrate technical precision, institutional integrity, social capacity, and depoliticized enforcement to build resilient and equitable mining systems.

5.2 Recommendations

Based on the study findings, the following five consolidated recommendations are proposed to reduce Tanzanite resource use conflicts in Mirerani, Manyara Region:

1. **Strengthening Education, Awareness, and Capacity of Small-Scale Miners**

Provide training on mining laws, safety, dispute resolution, and entrepreneurial skills to promote responsible practices and reduce conflicts.

2. **Enhancing Local Governance and Community Engagement**

Local authorities should ensure fair law enforcement, facilitate participatory dialogue, and foster trust among miners, investors, and brokers.

3. **Reviewing and Adapting Mining Policies for Contextual Relevance**

Revise policies to clarify boundaries, ensure equitable access, and establish transparent profit-sharing and workload allocation mechanisms.

4. **Strengthening Institutional Oversight and Market Structures**

Enhance governance, reduce corruption, monitor operations, and create inclusive markets and support mechanisms for miners.

5. **Promoting Further Research to Support Policy and Practice**

Encourage studies evaluating policy effectiveness and participatory approaches to improve conflict management and resource governance.

Acknowledgment
We sincerely thank all respondents who shared their valuable insights on the Resources Use Conflicts in Tanzania. A case study of Mirerani Tanzanite Mining Area in Manyara Region. Their contributions were essential in shaping this study.

Conflict of Interest

The authors declare no conflict of interest in relation to this work. All findings and interpretations are the responsibility of the authors alone.

References

Bebbington, A., & Bury, J. (2020). Political ecologies of resource extraction: Agendas for research and practice. *World Development, 128*, 104860. https://doi.org/10.1016/j.worlddev.2019.104860

Bebbington, A., Abdulai, A.-G., Humphreys Bebbington, D., Hinfelaar, M., & Sanborn, C. (2019). *Governing extractive industries: Politics, histories, ideas*. Oxford University Press.

Bennett, N. J., Cisneros-Montemayor, A. M., Blythe, J., Silver, J. J., Singh, G., Andrews, N., Calò, A., Christie, P., Di Franco, A., Finkbeiner, E. M., Gelcich, S., Guidetti, P., Harper, S., Hotte, N., Kittinger, J. N., Le Billon, P., Lister, J., López de la Lama, R., McKinley, E., Sumaila, U. R. (2019). Towards a sustainable and equitable blue economy. *Nature Sustainability, 2*(11), 991–993. https://doi.org/10.1038/s41893-019-0404-1

Childs, J. (2020). Extraction in four dimensions: Time, space and the emerging geo(-)politics of deep-sea mining. *Geopolitics, 25*(1), 189–213. https://doi.org/10.1080/14650045.2018.1508928

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Sage Publications.

Donahue, K. C. (2018). *Tanzanite: Commodity fiction or commodity nightmare*. http://press-files.anu.edu.au/downloads/press/n3952/pdf/ch03.pdf

Doyle, C., & Sturman, K. (2020). Mining conflicts and corporate accountability in Africa. *The Extractive Industries and Society, 7*(2), 453–460. https://doi.org/10.1016/j.exis.2019.11.007

Etikan, I., & Bala, K. (2017). Sampling and sampling methods. *Biometrics & Biostatistics International Journal, 5*(6), 00149.

Giyani, B. F., & Salama, A. (2025). Development of mining industry in Tanzania: A review.

Hilson, G., & Maconachie, R. (2020). Formalising artisanal and small-scale mining: Insights, contestations and clarifications. *Area Development and Policy, 5*(4), 469–486. https://doi.org/10.1080/23792949.2019.1680245

Le Billon, P. (2021). Crisis ecologies of the war economy. *Journal of Peasant Studies, 48*(3), 567–584. https://doi.org/10.1080/03066150.2020.1722067

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.

Lujala, P., Rustad, S. A., & Le Billon, P. (2020). The price of peace: Oil and conflict recurrence. *Energy Research & Social Science, 62*, 101374. https://doi.org/10.1016/j.erss.2019.101374

Maliganya, W., & Bengesi, K. M. K. (2026). Emerging technologies and sustainable mining practices in Tanzania: Innovations, challenges, and strategic pathways. *IntechOpen*. https://doi.org/10.5772/intechopen.1013514

Mbowe, W., Yabu, N., & Lugobi, M. (2016). Tanzanite processing in Tanzania: Challenges and opportunities (WP No. 9).

Mehlum, H., Moene, K., & Torvik, R. (2019). Institutions and the resource curse. *Economic Journal, 129*(623), 1–20. https://doi.org/10.1111/ecoj.12576

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods, 16*, 1–13.

Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press.

Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. *Science, 325*(5939), 419–422. https://doi.org/10.1126/science.1172133

Poncian, J., & Kigodi, H. (2020). Resource governance and conflict in Tanzania's mining sector. *African Studies Quarterly, 19*(3), 45–63.

Sovacool, B. K. (2021). Who are the victims of low-carbon transitions? Towards a political ecology of climate change mitigation. *Energy Research & Social Science, 73*, 101916. https://doi.org/10.1016/j.erss.2021.101916

United Nations Development Programme. (2022). *Managing natural resources for peace and sustainable development*. UNDP.

United Nations Environment Programme. (2019). *Mineral resource governance in the 21st century: Gearing extractive industries towards sustainable development*. UNEP.

United Republic of Tanzania. (1997). *Mineral policy of Tanzania*. Ministry of Minerals.

United Republic of Tanzania. (2009). *Mineral policy of Tanzania*. Ministry of Minerals.

United Republic of Tanzania. (2010). *Mining Act*. Ministry of Minerals.

World Bank. (2020). *State of the artisanal and small-scale mining sector*. World Bank.

World Bank. (2023). *Minerals for climate action: The mineral intensity of the clean energy transition*. World Bank.

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). Sage Publications.