E-Journal of Humanities, Arts and Social Sciences (EHASS)
ISSN – Online 2720-7722 | Print 2821-8949
Volume 6 Issue 14 2025 pp 3810 - 3821
Available online at: https://noyam.org/journals/ehass/
DOI: https://doi.org/10.38159/ehass.202561430

Collaborative Partnerships as a Strategy to Improve Road Infrastructure Development in Mineral Extraction Areas

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ABSTRACT
Mining companies play a pivotal role in infrastructure development within the communities where they operate, driven by regulatory frameworks and corporate social responsibilities.. This study investigated the collaborative efforts between mining companies and the municipalities in mineral extraction areas in South Africa, focusing on road infrastructure development Using a qualitative methodology, the research identified key drivers, such as regulatory mandates and Corporate Social Responsibility (CSR) commitments, alongside challenges like misalignment of priorities and coordination inefficiencies within partnerships. The findings revealed that while legal and voluntary contributions from mining companies foster road infrastructure development, systemic barriers, including bureaucratic delays and community unrest, undermine these efforts. The study concluded with recommendations to enhance collaboration, including formalised partnership frameworks, streamlined processes, Public-Private Partnerships (PPP), and increased community engagement. These strategies aim to foster sustainable road infrastructure development and stronger partnerships between municipalities and mining companies. This study contributes to a growing body of literature on PPPs in local governance and infrastructure development.

Keywords: Collaborative Partnerships, Social and Labour Plans, Road Infrastructure, Mineral Extraction Areas, Stakeholder Theory

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Publication History
Received: 6th July, 2025
Accepted: 28th October, 2025
Published online: 30th December, 2025

To Cite this Article:
Moyo, Marcia V., Rasodi K. Manyaka, and Themba M. Lukhele." Collaborative Partnerships as a Strategy to Improve Road Infrastructure Development in Mineral Extraction Areas." *E-Journal of Humanities, Arts and Social Sciences* 6, no. 14 (2025): 3810 - 3821, https://doi.org/10.38159/ehass.202561430.

INTRODUCTION
Road infrastructure is fundamental to economic growth and social well-being, particularly in mineral extraction areas where mining activities significantly influence the local economy. [1] However, municipalities face critical infrastructure deficits, with most of their roads classified as gravel or earth trails.[2] While mining companies operating in municipalities are legally obligated under South African legislation, such as the Mineral and Petroleum Resources Development Act (MPRDA) and the Companies Act, to contribute to local development through Social and Labour Plans (SLPs), their involvement in road infrastructure projects remains inconsistent.

[1] Samuel Asuamah Yeboah, "Digging Deeper: The Impact of Illegal Mining on Economic Growth and Development in Ghana," 2023; William H Money and Katherine E Money, "A Review of Natural Resource Extraction Industries and Their Influence on the Occurrence of Poverty," *Journal of Strategy and Management* 18, no. 1 (2025): 191–204.
[2] Asisipho Ngomfela and Malefetsane Mofolo, "Road Infrastructure Challenges at Mqanduli Village in King Sabata Dalindyebo Local Municipality," *International Journal of Business Ecosystem & Strategy (2687-2293)* 6, no. 5 (2024): 174–83.

Existing literature highlights the potential benefits of collaborative partnerships in addressing road infrastructure challenges, particularly in mineral extraction areas.[3] Studies emphasise that mining companies' contributions to infrastructure development can lead to economic improvement, improved mobility, and enhanced service delivery.[4] However, research also points to misalignment between municipal planning priorities and mining companies' development initiatives, bureaucratic inefficiencies, and weak stakeholder collaboration as persistent barriers to effective infrastructure development.[5] Despite regulatory frameworks mandating mining company contributions, there is limited empirical research on how these collaborations function in practice in local government.

This study explores the collaborative efforts between mining companies and municipality in Fetakgomo Tubatse Municipality regarding road infrastructure development, identifying key drivers, challenges, and opportunities. It examines how regulatory mandates, Corporate Social Responsibility (CSR) commitments, and stakeholder interests influence road infrastructure projects. Additionally, the study assesses how factors such as bureaucratic delays, coordination inefficiencies, and community grievances impact these partnerships. The paper begins by explaining the theoretical framework, grounded in stakeholder theory, to explain the dynamics of collaborative partnerships. Following this, the research methodology is outlined, detailing the qualitative approach used to collect and analyse data. The findings section presents insights from interviews and document analysis, highlighting mining companies' contributions and the challenges in collaboration. The discussion then situates these findings within existing literature, emphasising policy implications and areas for improvement. Finally, the paper concludes with recommendations to enhance collaboration between mining companies and the municipality for sustainable road infrastructure development.

By providing an in-depth analysis of mining-municipal collaboration, this study contributes to a growing body of literature on PPPs in local governance and infrastructure development. The findings offer practical insights for policymakers, municipal officials, and corporate stakeholders seeking to foster more effective partnerships in resource-rich regions.

LITERATURE REVIEW

Stakeholder theory emphasises that organisations should consider the interests of all stakeholders in decision-making rather than focusing solely on shareholders.[6] In the context of mineral extraction areas, key stakeholders include mining companies, local government, and affected communities. The theory is particularly relevant in collaborative partnerships, where mutual accountability, risk-sharing, and collective benefits contribute to successful collaborations.[7] Power imbalances exist between mining companies, which prioritise operational efficiency and shareholder returns, and municipalities, which focus on service delivery and community well-being. Stakeholder theory provides a framework for aligning these interests and fostering sustainable partnerships.[8]

Stakeholder theory originated from strategic management as a means to improve corporate strategy and policy.[9] While profitability remains a key goal, proponents argue that organisations have responsibilities beyond shareholders, including employees, clients, communities, and regulators. The theory involves identifying key stakeholders, engaging with them, managing relationships, and creating

[3] Jacobus Johannes Van Heerden, "Sustainable Mining Communities Post Mine Closure: Critical Reflection on Roles and Responsibilities of Stakeholders towards Local Economic Development in the City of Matlosana" (Stellenbosch University, 2016); Barbara, Gray and Jill Purdy, *Collaborating for Our Future: Multistakeholder Partnerships for Solving Complex Problems* (Oxford University Press, 2018).

[4] R. Edward Freeman et al., "Stakeholder Theory: The State of the Art," 2010; George Nwangwu, "Stakeholder Opposition Risk in Public-Private Partnerships," *Int. J. Econ. Financ. Res* 5 (2019): 36–42.

[5] Van Heerden, "Sustainable Mining Communities Post Mine Closure: Critical Reflection on Roles and Responsibilities of Stakeholders towards Local Economic Development in the City of Matlosana"; Z R M Abdullah Kaiser, "Smart Governance for Smart Cities and Nations," *Journal of Economy and Technology* 2 (2024): 216–34.

[6] Freeman et al., "Stakeholder Theory: The State of the Art."

[7] R. Edward Freeman, Robert Phillips, and Rajendra Sisodia, "Tensions in Stakeholder Theory," *Business & Society* 59, no. 2 (February 16, 2020): 213–31, https://doi.org/10.1177/0007650318773750.

[8] Thulani Mandiriza and David Johannes Fourie, "The Role of Stakeholders in the Adoption of Public–Private Partnerships (PPPs) in Municipal Water Infrastructure Projects: A Stakeholder Theory Perspective," *World* 4, no. 3 (2023): 416–30.

[9] Freeman et al., "Stakeholder Theory: The State of the Art."

value. Effective stakeholder management ensures long-term organisational success by balancing competing interests, fostering trust, and driving innovation.[10]

In collaborative partnerships, stakeholder theory underscores the need for accountability and shared risks to align infrastructure development with public and private interests.[11] Successful collaboration relies on addressing concerns, resolving conflicts, and ensuring transparency throughout projects.[12] Governments, corporate representatives, political parties, and labor unions all play a role in shaping policies and service delivery.[13] Effective stakeholder management in collaborative partnerships is essential for sustainable infrastructure development and municipal growth.

METHODOLOGY

This study adopted a qualitative research approach to explore the dynamics of stakeholder collaboration in the development of road infrastructure in mineral extraction areas. Research is based on an interpretivist paradigm, which emphasises understanding the subjective meanings, perceptions, and interactions among stakeholders. Interpretivism was deemed appropriate for this study, as it allows for a deep exploration of the complexities and uniqueness inherent in stakeholder collaboration. The research was carried out in Fetakgomo Tubatse Local Municipality (FTLM), a region characterised by active mining operations and ongoing infrastructure development efforts. The area was selected due to its strategic importance in mineral extraction and the evident need for better collaboration between public and private stakeholders in road infrastructure projects. The study specifically targeted municipal officials and representatives of mining companies directly involved in road infrastructure planning and development. The research utilised purposive sampling, which is a non-probability technique. This approach enabled the researcher to engage with rich information from participants who could provide valuable insights into collaboration practices and challenges. A total of five municipal officials were interviewed; however, the mining officials declined to participate.

Data was gathered through in-depth interviews with the five participants. Interview questions were designed around key themes such as communication processes, regulatory barriers, and institutional roles. Secondary data was obtained by analysing the documents of integrated development plans (IDPs), SLPs of mining companies, and relevant municipal policy documents. These documents provided contextual and regulatory information that complemented the interview data. All data collected was subjected to thematic analysis, which involved coding and identifying patterns and themes in interview transcripts and documentary evidence. The analysis aimed to uncover common challenges, best practices, and potential strategies to improve collaboration.

Before data collection, ethical clearance was obtained from the University of Mpumalanga. Participants were informed about the purpose of the study, and informed consent was obtained in writing. Confidentiality and anonymity were ensured by coding participant responses and omitting any identifiable information in the final report.

PRESENTATION OF FINDINGS AND DISCUSSION

The findings reveal significant insights into the dynamics of collaboration between mining companies and municipalities, particularly regarding road infrastructure development. The results are organised into three primary themes:

- Contributions of mining companies.
- Challenges in collaboration.
- Enhancing Mining-Municipal Collaborations

The figure below shows a word cloud generated from NVivo14 and shows the most frequently used words from the responses of the participants.

[10] Freeman, Phillips, and Sisodia, "Tensions in Stakeholder Theory."
[11] Nwangwu, "Stakeholder Opposition Risk in Public-Private Partnerships"; Joanna Węgrzyn and Anna Wojewnik-Filipkowska, "Stakeholder Analysis and Their Attitude towards PPP Success," *Sustainability* 14, no. 3 (2022): 1570.
[12] J. Edwin Benton, "Local Government Collaboration: Considerations, Issues, and Prospects," *State and Local Government Review* 45, no. 4 (2013): 220–23.
[13] Nwangwu, "Stakeholder Opposition Risk in Public-Private Partnerships."

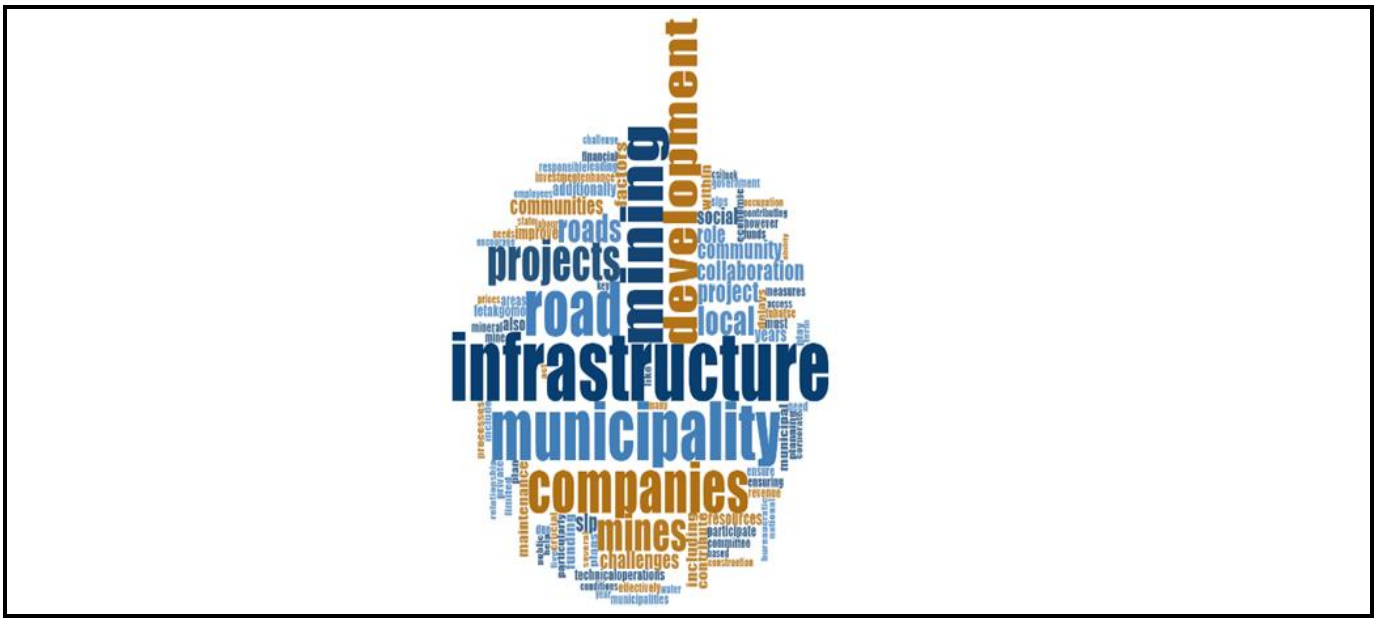

Figure 1: Word cluster

The word cloud prominently features key terms such as ‘infrastructure,’ ‘municipality,’ ‘mines,’ ‘companies,’ ‘collaborations,’ ‘developments,’ and ‘projects.’ These terms encapsulate the main topics deliberated by participants, highlighting a significant emphasis on the involvement of different stakeholders in tackling local infrastructure issues, especially in regions with significant mining activities.

Within the context of the subject ‘Collaborative partnerships as a strategy to improve road infrastructure development in mineral extraction areas,’ the regular reference to ‘mines’ and "infrastructure" highlights the substantial influence that mining companies exert on the progress of local infrastructure. Effective cooperation among mining firms, local governments, and other stakeholders is crucial in guaranteeing that road infrastructure adequately caters to the requirements of both the mining sector and the wider community. The word cloud serves to strengthen the idea that achieving sustainable development in mineral extraction regions relies on the synchronised efforts and dedication of different organisations, especially in dealing with road infrastructure to promote economic expansion and ensure the welfare of the community.

Contributions of Mining Companies

Participants were asked what they think are the factors or drivers that influence mining companies’ participation in road infrastructure development projects within the municipality. These were the responses that each participant gave:

RESP1:

“Mining companies participate in road infrastructure development due to several factors: (1) Regulatory requirements: The Mineral and Petroleum Resources Development Act requires that mining companies set aside funds to develop the areas where they operate. This obligation is reinforced by the Companies Act, which requires businesses to invest in local communities as part of their corporate social investment (CSI) responsibilities. (2) Corporate Social Investment: The Companies Act of 2008 stipulates that companies must allocate at least 1% of their profits to social investments. This encourages mining companies to contribute to infrastructure projects that benefit communities around their operations. (3) Community stability: Voluntarily, mining companies also participate in infrastructure projects to ensure stability within local communities. These projects create short-term employment opportunities, especially for unskilled workers, reducing local dependency on the mines for jobs and fostering goodwill.”

RESP2:

"Mining companies are compelled by law to participate in the development of road infrastructure, particularly through the implementation of Social and Labour Plans (SLP). This is not a matter of choice but rather a legal requirement enforced by the Department of Mineral Resources and Energy (DMRE). In essence, mines do not need any motivating factors except that they should be resourceful to the communities within which they operate. It must be said that before implementing SLP projects, mining companies must first present their plans to the municipality's SLP committee and ensure that their projects align with the Integrated Development Plans (IDP) of the municipality. Once alignment is confirmed, the municipality issues an endorsement letter, which the company must then present to the DMRE for final approval. Without these endorsements, any mining activity or SLP implementation would be considered illegal. The SLP projects operate on a five-year cycle, which means that companies must renew their plans and obtain new endorsements every five years to continue operations. Failure to comply with these regulations results in legal consequences, including the potential closure of the mine."

RESP3:

"Factors include the need for reliable access to mining sites, corporate social responsibility (CSR) commitments, and the potential for reduced operational costs through improved road conditions. Additionally, positive community relations and local stakeholder expectations can encourage mining companies to invest in infrastructure."

RESP4:

"Corporate social responsibility (CSR). Mining companies are often motivated by the desire to maintain a positive relationship with local communities, which can enhance their social license to operate. Furthermore, well-maintained roads are crucial for transporting materials and employees, which directly benefits their business operations."

***RESP** 5:*

"Mining companies are encouraged to participate in the development of road infrastructure due to corporate social responsibility (CSR) obligations. Engaging with local communities and investing in visible, impactful projects like road development allows them to fulfil these obligations and demonstrate their commitment to community development.

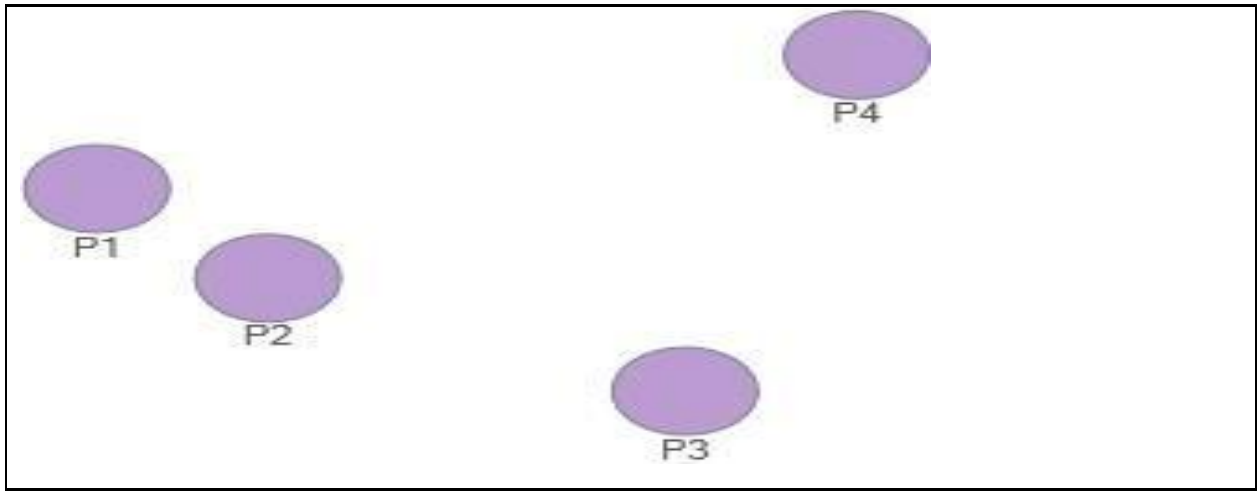

Figure 2: Sociograms

Figure 2 represents Sociograms, which are significant in this study as they offer valuable insights into the organisation and dynamics of social networks, allowing researchers to identify influential individuals, evaluate the flow of communication, and understand the solidarity or disintegration of

communities. It shows that the opinions of participants 1 and 2 are similar, while participant 3 is not that distant from 1 and 2; however, participant 4 has a different opinion. The responses provided by the participants show a significant degree of similarity, and all participants generally agree on the primary motivations behind the participation of mining companies in road infrastructure. The consensus among the participants suggests that CSR and Corporate Social Investment (CSI) are the main drivers that compel or encourage these companies to participate in such developmental activities. This view concurs with that of Makhavhu, who posits that mining companies, as part of their CSR and CSI initiatives, often undertake projects aimed at improving local infrastructure, including road networks, to contribute to the socioeconomic development of the communities within which they operate.[14]

This involvement not only benefits the local population but also enhances the public image and fosters goodwill within the community. In addition, one of the participants introduced an important perspective by highlighting that compliance with regulatory requirements also plays a role in motivating mining companies to invest in road infrastructure. This suggests that, beyond voluntary contributions through CSR and CSI, there are statutory obligations that can require companies to participate in community development projects, including the development of essential infrastructure. Such regulations may be part of broader government policies aimed at ensuring that mining activities contribute to the economic and social well-being of the regions where these companies are based.[15] Therefore, it can be said that while CSR and CSI are essential to driving road infrastructure projects by mining companies, regulatory frameworks also significantly influence their participation in such developmental activities.

The responses collectively illustrate a comprehensive view of why mining companies participate in the development of road infrastructure. The legal framework provided by the MPRDA and the Companies Act establishes a foundation for these investments, ensuring that mining companies contribute to local development as part of their operational responsibilities. The emphasis on SLPs highlights the structured and regulated approach to community investment, ensuring alignment with broader municipal goals through IDPs. This alignment reflects a deliberate effort to integrate mining activities with local development plans, reinforcing the importance of collaboration between companies and municipalities.

The focus on community stability and CSR underscores the dual motivations of regulatory compliance and voluntary contributions to social welfare. By investing in infrastructure, mining companies not only fulfil their legal obligations but also contribute to the socio-economic stability of the communities in which they operate. This approach benefits both the companies by securing their operational environment, and the communities, by providing essential infrastructure and employment opportunities.

Challenges in Collaboration

The participants were also asked: How can the municipality improve its collaboration with mining companies to address road infrastructure development challenges?

RESP* 1:*

> *"The municipality can improve collaboration by establishing a dedicated liaison office for infrastructure projects, streamlining approval processes, and offering joint training sessions on project management and community engagement. Developing shared goals and ensuring transparency in project execution are also critical."*

RESP 2*:*

> *"The municipality can improve collaboration by building its technical and managerial capacity, ensuring that it can effectively plan and execute infrastructure projects. Streamlining bureaucratic processes to reduce delays in project approvals and implementation is also crucial. Regular communication and joint planning sessions with mining companies can help align objectives and foster a more cooperative relationship."*

[14] Murendeni Kevin Makhavhu, *Corporate Social Investment and Local Economic Development: The Case of Selected Projects in South African Townships* (University of Johannesburg (South Africa), 2021).

[15] Vidette Bester, "A Corporate Social Responsibility Conceptual Framework to Address Artisanal Gold Mining in South Africa," *Resources Policy* 79 (2022): 103030.

RESP 3:

"The establishment of official public-private partnerships (PPPs) is one way for the municipality to formally collaborate with mining firms. Each party's roles, responsibilities, and financial contributions should be spelled out in detail in these agreements. For road infrastructure projects, they can also specify shared obligations and long-term commitments."

RESP 4:

"To enhance the role of mining companies, it is essential to establish clear frameworks for collaboration, including well-defined roles and responsibilities for each party. Incentivising companies through tax breaks or recognition programs could also encourage greater participation. Furthermore, creating multi-stakeholder platforms that include community representatives, municipal officials, and mining companies can facilitate more transparent and effective decision-making."

RESP 5:

"To enhance mining companies' involvement, the municipality could develop more structured partnership frameworks that clearly define roles, responsibilities, and expectations. Regular dialogue between the municipality, mining companies, and community stakeholders can also foster stronger relationships and more sustained collaboration."

The insights from the participants underline that effective collaboration between municipalities and mining companies requires both institutional capacity and mutual commitment. Establishing formalised structures like liaison offices and PPPs would create a foundation for sustained cooperation. Furthermore, addressing systemic inefficiencies, like bureaucratic delays, and Incentivising private sector participation could significantly enhance outcomes.

Additionally, the inclusion of community stakeholders ensures that infrastructure development aligns with local needs, fostering social cohesion and trust. The proposed strategies, if implemented effectively, could transform infrastructure development initiatives into a collaborative effort that delivers long-term benefits for both municipalities and the communities they serve.

Enhancing Mining-Municipal Collaborations

Participants were asked to comment based on their experience on what measures that maybe can be implemented to improve the role that the mining companies play in helping the development of the municipality with the road infrastructure, and to improve the collaboration that they can have with the mines. The responses of the participants were divergent as they had different experiences with mining companies. The responses were as follows:

***RESP*1:**

"*To improve the role of mining companies in supporting the development of municipal road infrastructure, several measures can be considered:*

*(1) Policy Reform on Revenue and Billing: The current Municipal Property Rates Act (MPRA) limits municipalities to claim property rates only on surface properties, which results in under-contribution from mines. Introducing specialised valuation processes, such as geological assessments, can help to accurately value underground resources, leading to increased revenue from mining operations. (2) Revised Tariffs: Municipalities can introduce additional percentages for mining companies, ensuring that they contribute more equitably to local fiscal needs. For instance, the Municipality recently implemented this approach to address undercharging. (3) Leveraging Social and Labour Plans (SLPs)**:** Municipalities can consolidate funds from SLPs and use them as collateral to secure loans from debt capital markets or institutions such as the Development Bank of Southern Africa (DBSA). This can accelerate service delivery by focusing on income-generating infrastructure. (4) Concession-Based Funding: Partnering with the National Treasury, municipalities can blend mines commitments with government grants. This allows municipalities to borrow funds at lower or no interest rates, using SLPs and grants as*

*repayment sources.(5) Land-Based Financing: Mines can contribute to bulk services and housing for their employees, in exchange for temporary tax rebates. The revenue generated post-rebate can be reinvested in local infrastructure projects. (6) Public-Private Partnerships (PPPs)**:** Exploring PPPs and project finance options can provide alternative mechanisms for infrastructure funding, crucial in challenging economic conditions."*

***RESP* 2:**

"*To improve collaboration with the mines, the municipality has implemented several strategies. First, they established quarterly mining forums where the municipality, community members, and mine representatives, including councillors, discuss and resolve issues related to job recruitment and business opportunities. This forum addresses complaints from the community about limited access to jobs and business contracts with the mines. Additionally, a technical mining forum has been created, focusing on discussions between municipal officials and mine representatives, particularly within the Economic Local Development (ELD) department's mining and industrialisation unit. This forum allows for pre-discussions before broader meetings with councillors and stakeholders, ensuring better alignment. Furthermore, the municipality has established a platform where the ELD unit consults with mines before they present their SLP projects to the SLP committee. This step helps refine proposals and ensures a smoother process for obtaining endorsement letters. These regular meetings and open communication channels have strengthened the relationship between the municipality and the mines, fostering a collaborative environment."*

***RESP* 3:**

"To improve the participation of mining companies, the municipality could develop more structured partnership frameworks that clearly define roles, responsibilities, and expectations. Regular dialogue between the municipality, mining companies, and community stakeholders can also foster stronger relationships and more sustained collaboration. The municipality can improve collaboration by establishing a dedicated liaison office for road infrastructure projects, streamlined approval processes, and offering joint training sessions on project management and community participation. Developing shared goals and ensuring transparency in project execution are also critical."

RESP* 4:*

"To improve the role of mining companies, it is essential to establish clear frameworks for collaboration, including well-defined roles and responsibilities for each party. Incentivising companies through tax breaks or recognition programmes could also encourage greater participation. Furthermore, creating multi-stakeholder platforms that include community representatives, municipal officials, and mining companies can facilitate more transparent and effective decision-making."

RESP* 5:*

"*To improve the role of mining companies in public road infrastructure projects, governments could offer incentives such as expedited regulatory approvals or reduced royalties and taxes. These agreements would encourage companies to invest in infrastructure that benefits both the community and their operations."*

The findings offer a comprehensive overview of the various issues and strategies related to the interaction between the Municipalities and the mining companies. The results underscore critical concerns about revenue generation, road infrastructure financing, community participation, and collaboration between the municipality, mining companies, and local stakeholders.

One of the key issues identified is the impact of the Municipal Property Rights Act (MPRA), which currently limits the municipality's ability to claim revenue from underground properties. This constraint has led to a significant shortfall in potential revenue from mining activities. To address this, the municipality has proposed employing specialists, such as geologists, who could more accurately value and tax mining output, thus increasing fiscal contributions. This challenge of capturing adequate revenue from the mining sector resonates with the broader legal and technical constraints faced by other mining

towns.[16] These limitations, as highlighted in the findings, are further supported by studies such as those by Jiang et.al, which emphasise the need to reform local tax regimes to better reflect the true economic value of mining activities.[17] Such reforms would support the municipality's initiative to reassess tariffs.

In addition, the findings highlight the difficulty in financing road infrastructure projects due to limited municipal revenues. To overcome this challenge, the suggestion of using alternative financing mechanisms, such as - PPPs or project financing, is proposed as a viable solution. Additionally, the findings reveal significant community discontent with recruitment practices and local business opportunities associated with the mines. Many community members and local business owners feel excluded from the economic benefits of nearby mining activities. In response, the municipality has established quarterly mining forums to address these concerns, fostering greater engagement and collaboration with affected communities.

These findings align with stakeholder theory, which emphasises the importance of balancing the interests of all parties affected by business activities. The challenges in revenue generation and road infrastructure financing highlight the need for a more inclusive approach where mining companies recognise their broader obligations beyond profit maximisation. Additionally, the establishment of quarterly mining forums reflects a stakeholder-oriented strategy, fostering dialogue and collaboration between the municipality, the mining sector, and local communities to ensure more equitable socio-economic benefits.

Discussion Summary

The unavailability of mining officials may have limited the voice of the mining companies concerning the collaborative endeavors towards infrastructure development. However, the findings from the participants who were available paint a rather disheartening picture concerning collaborative endeavors for infrastructure development. Although regulatory frameworks that encourage collaboration between mining companies and local governments exist, the findings revealed a significant misalignment between the contributions of mining companies and the broader road infrastructure priorities of the municipalities. Mining companies often focus their investments on projects that serve their immediate operational needs, rather than aligning with the long-term development goals outlined by the municipality. Existing research notes that CSR endeavors by the mining sector often gravitate towards projects that directly safeguard business continuity rather than enhancing social well-being.[18] This is squarely against the social investment, which should be beneficial to both the mines and the hosting communities. Other researchers argue that the selfish posture by the natural resource extraction industries frequently entrenches poverty when their investments fail to align with broader development goals.[19] This misalignment produces fragmented outcomes, for example, instead of developing integrated road networks that strengthen local economies, contributions remain project-specific and often disconnected from municipal infrastructure strategies. Ngomfela and Mafolo accentuate that such fragmented and inconsistent investments exacerbate road infrastructure challenges for rural communities, undermining developmental impact.[20] Van Heerden suggests that mining-led development projects require sustained coordination and re-alignment with local government strategies to be transformative beyond the lifespan of mining operations.[21]

The PPPs emerged from the findings as an approach that can be explored in trying to strengthen the collaboration between the municipality and the mining companies. This type of partnership stands to potentially bridge the gap between private sector resources and public sector needs. As highlighted, multistakeholder partnerships are essential for solving complex developmental challenges where resources and expertise are distributed across sectors.[22] However, it is apparent that PPPs in mining-linked road development infrastructure face significant coordination constraints. Poor communication, lack of

[16] Tracy-Lynn Field, *State Governance of Mining, Development and Sustainability* (Edward Elgar Publishing, 2019).
[17] Jinglu Jiang, Ann-Frances Cameron, and Ming Yang, "Analysis of Massive Online Medical Consultation Service Data to Understand Physicians' Economic Return: Observational Data Mining Study," *JMIR Medical Informatics* 8, no. 2 (2020): e16765.
[18] Bester, "A Corporate Social Responsibility Conceptual Framework to Address Artisanal Gold Mining in South Africa."
[19] Money and Money, "A Review of Natural Resource Extraction Industries and Their Influence on the Occurrence of Poverty."
[20] Ngomfela and Mofolo, "Road Infrastructure Challenges at Mqanduli Village in King Sabata Dalindyebo Local Municipality."
[21] Van Heerden, "Sustainable Mining Communities Post Mine Closure: Critical Reflection on Roles and Responsibilities of Stakeholders towards Local Economic Development in the City of Matlosana."
[22] Gray and Purdy, *Collaborating for Our Future: Multistakeholder Partnerships for Solving Complex Problems*.

transparency, and differing priorities between stakeholders often lead to inconsistencies in project execution. This is in line with Benton, who stresses that local government collaborations often fail when institutional mechanisms for cooperation are weak.[23] Likewise, Mandiriza and Fourie argue from a stakeholder perspective that PPP adoption in municipal infrastructure depends heavily on active stakeholder engagement and the resolution of competing interests.[24] Reasoning from the way in which the mining companies responded to this study, it can be assumed that they are not active stakeholders, as such municipalities cannot depend on them.

The findings also revealed that community dynamics, such as the negative perceptions, also complicate the delivery of road infrastructure in Feta Kgomo Tubatse Municipality. These negative perceptions harboured by the community members have resulted in sporadic protests which were often linked to poor service delivery. The participants indicated that community members resort to protests because they are dissatisfied with poor performance by the municipality. Therefore, part of the reason project implementation gets interrupted is the protests and the mistrust between community members and the municipality. The inadvertent consequences of the disruptions are that projects get delayed and costs increase disproportionately, as evidenced in broader literature.[25] Community unrests in mineral extraction areas, rooted in weak governance, not only intensify the fragile relationship between municipalities and mining companies but also erode the social license to operate an indispensable condition for sustainable mining community relations.

The delivery of sustainable road infrastructure in mineral extraction areas is constrained by three interrelated challenges, which are regulatory misalignment, coordination difficulties in PPPs, and community unrest. These challenges reflect what Freeman, Phillips and Sisodia describe as "tensions in stakeholder theory," where competing interests and power asymmetries between stakeholders make alignment difficult.[26] The findings demonstrate that effective infrastructure delivery depends not only on financial resources but also on governance capacity, transparency, and inclusive stakeholder engagement. For mining companies SLPs to have a meaningful developmental impact, stronger institutional frameworks, alignment of SLPs with municipal IDPs, and proactive community engagement are essential.

RECOMMENDATIONS

To address the challenges identified and improve collaboration between mining companies and municipalities for road infrastructure development, the following recommendations are proposed:

To enhance the effectiveness of mining companies' contributions to the development of road infrastructure, several strategic measures should be implemented. First, the establishment of formalised collaboration frameworks is essential. Developing clear PPP agreements that define roles, responsibilities, and financial commitments of all stakeholders will help ensure alignment with municipal IDPS and prevent misalignment of the project. Furthermore, enhancing municipal capacity is crucial in building technical and managerial capabilities within municipalities to effectively plan and implement infrastructure projects. This can be achieved by providing training in project management, community participation, and regulatory compliance.

In addition, streamlining approval processes by simplifying bureaucratic procedures will help reduce delays in project approvals and execution. Establishing dedicated liaison offices can facilitate communication between mining companies and municipal officials. At the same time, promoting community inclusion through multistakeholder platforms that involve community representatives will ensure alignment with local needs and foster social cohesion. Regular dialogue between mining companies, municipal officials, and community stakeholders will further build trust and transparency.

To encourage greater investment, it is important to incentivise private sector participation by introducing measures such as tax breaks or public recognition programmes for mining companies actively

[23] Benton, "Local Government Collaboration: Considerations, Issues, and Prospects."
[24] Mandiriza and Fourie, "The Role of Stakeholders in the Adoption of Public–Private Partnerships (PPPs) in Municipal Water Infrastructure Projects: A Stakeholder Theory Perspective."
[25] Asuamah Yeboah, "Digging Deeper: The Impact of Illegal Mining on Economic Growth and Development in Ghana"; Van Heerden, "Sustainable Mining Communities Post Mine Closure: Critical Reflection on Roles and Responsibilities of Stakeholders towards Local Economic Development in the City of Matlosana."
[26] Freeman, Phillips, and Sisodia, "Tensions in Stakeholder Theory."

contributing to community development. Additionally, strengthening regulatory oversight will help enforce compliance with the MPRDA and SLPs, ensuring that mining companies adhere to their commitments. Regular reviews and updates to regulatory frameworks should also be performed to reflect the evolving community and municipal needs.

Finally, addressing social instability is essential to prevent disruptions in infrastructure projects. Developing proactive strategies to mitigate community protests, improve service delivery, and address grievances will help foster community ownership of projects, leading to greater acceptance and reduced disruptions. By implementing these measures, mining companies, municipalities, and communities can work together to improve road infrastructure development and overall socio-economic growth. By implementing these recommendations, municipalities and mining companies can create more effective and sustainable partnerships, ensuring that infrastructure development contributes meaningfully to the socioeconomic advancement of local communities.

CONCLUSION

This study examined the collaborative efforts between mining companies and municipalities in road infrastructure development. Despite regulatory frameworks such as the MPRDA and CSR commitments compelling mining companies to contribute to local development, their participation remains inconsistent. Key challenges include misalignment between municipal and corporate priorities, bureaucratic inefficiencies, and weak stakeholder engagement, all of which hinder the effectiveness of these collaborations.

The findings highlighted that while mining companies play a crucial role in infrastructure development, their contributions are often reactive rather than strategically aligned with municipal planning. PPPs have the potential to bridge this gap, but their implementation is undermined by coordination failures, regulatory complexities, and social instability, such as community protests over service delivery concerns. These factors emphasise the need for structured and transparent collaboration frameworks to ensure that mining contributions are sustainable and integrated effectively into municipal development plans.

To improve mining-municipal collaboration, this study recommends the establishment of formalised partnership agreements, streamlined project approval processes, and improved municipal capacity for infrastructure planning and management. Strengthening regulatory oversight and promoting active community participation in decision-making processes can also foster greater accountability and long-term commitment from all stakeholders. Ultimately, effective collaboration between mining companies and municipalities is essential for addressing infrastructure challenges and fostering socioeconomic development. By implementing the proposed strategies, mineral extraction municipalities can maximise the benefits of private sector investment, ensuring that the development of road infrastructure contributes to sustainable growth and improved community well-being.

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