Article:
Macheka, M.T., Mdee, A. and Ofori, A.D. (2025) The political ecology of water quality monitoring in Lesotho mining enclaves. The Extractive Industries and Society, 24. 101740. ISSN: 2214-790X

https://doi.org/10.1016/j.exis.2025.101740

The political ecology of water quality monitoring in Lesotho mining enclaves

Mavis Thokozile Macheka [a], Anna Mdee [b], Alesia D. Ofori [c]

[a] Department of Development Studies, National University of Lesotho, P.O 180, Roma, Lesotho and 2024/25 LUCAS-LAHRI Virtual Visiting Fellow in the Leeds Arts and Humanities Research Institute, University of Leeds. LS2 9JT, Leeds, United Kingdom, mavythoko@gmail.com
[b] School of Politics and International Studies, University of Leeds, LS2 9JT, Leeds, United Kingdom, A.L.Mdee@leeds.ac.uk
[c] Centre for Water, Environment and Development, Cranfield University, College Rd, Wharley End, Bedford MK43 0AL, United Kingdom, Alesia.Ofori@cranfield.ac.uk

Abstract

The extraction of natural resources by local and global mining companies in Lesotho has significant impacts on human and physical geography of their immediate environments. Formal laws and safeguards to prevent environmental and social harms exist, but they are insufficient to address progressive harms and degradation. Using a political ecology framing, this paper examines how mining investors and government/state actors contribute to water pollution in Lesotho. In doing so, the study centres the water quality monitoring challenges that local mining settlements experience. Using the district of Mokhotlong as a case study, qualitative data gathered through desktop review, key informants interviews and focus groups sheds light on the dynamics and tensions surrounding mining activity in Mokhotlong. The state and mining company appear to collude to minimise and silence local concerns, even though Mokhotlong residents are exposed to river pollution, risk of dam explosion and wetland degradation. This study concludes that Lesotho's environmental crisis is deeply embedded in the wider political economy of degradation, desiccation and human impact. If the political dimensions of water quality monitoring in Lesotho's mining enclaves are not recognised, then water pollution will continue to impact rivers and local livelihoods .

Key words: political ecology, water quality monitoring, mining enclaves, Lesotho

1.1 Introduction

Studies in Lesotho have underscored the political dynamics that affect the implementation of environmental regulations in mining and dam projects. For example, the research conducted by Ferguson (1994) on development initiatives indicated that these projects were often depicted as devoid of political context, ignoring the political implications and the role of bureaucratic elites who gain from inefficiency and corruption. This narrative simplifies intricate political and structural challenges into mere individual perspectives, thereby neglecting the genuine political dynamics that exacerbate poverty and governance issues in Lesotho. Furthermore, Braun (2020) examines the "politics of temporality" associated with large dam projects in

Lesotho, highlighting how such projects are frequently advanced through a "politics of promise" that justifies substantial investments. This analysis reveals the relationship between local socio-economic impacts and broader political economic trends, indicating that regional political ecology can shape governance and resource access challenges. Similarly, a recent study pointed out corruption and discretionary power issues within the diamond mining industry, which has been identified as a high-risk sector for economic crimes, with claims of corruption involving government officials (Tlebere, 2023). This research also noted the problem of political interference, particularly the direct involvement of the Minister of Mines in operational matters at the mine, raising concerns about conflicts of interest and the integrity of governance. The study addresses the power disparity between mining corporations and resource-abundant nations, advocating for the establishment of independent authorities to mitigate political manipulation and promote equitable resource management.

In light of the ongoing debates on politics and natural resources in Lesotho, this paper uses a political ecology framing to examine the contributions of mining investors and government entities to water pollution in Lesotho. Water is an essential resource for both the local populations in Lesotho and neighbouring South Africa, as the Lesotho Highlands Water Project facilitates water transfer to South Africa for revenue purposes. Consequently, effective management of water sources is imperative. Additionally, diamonds represent another vital resource in Lesotho that also generates income. Therefore, it is crucial to comprehend the intricate relationship between diamond resources and water sources in Lesotho as well as the influence of political factors on this relationship. Some scholars contend that there is a significant gap in understanding among politicians in linking water rewards for Lesotho and the actual water sources (Mokhethi & Kabi, 2021). Hence, this study focuses on the water quality issues faced by local mining communities. This study sought to address this through the following questions: what actions are taken by mining investors and government entities to address these environmental issues? What obstacles to implementation are present, and how do political factors hinder effective water quality monitoring by mining operations? It uses Mokhotlong district in the mountainous region of Lesotho namely Maluti Mountains which is resource rich in diamonds. The majority of large scale mining companies are situated in Maluti Mountains which largely makes up the country’s highlands to the north and there are two mines in the District namely Letseng and Mothae Mines (Lerotholi, 2021).

1.2 The social and environmental impacts of mining in Africa: A contextual background

Studies in Africa revealed that the mineral industry generally operates in remote territories where livelihoods and cultures are often unrelated to the logic of the global market and the infrastructure and institutions are fragile thus these conditions increase the complexity of the impact of mining (Matlaba et al., 2017). The mining industry has been connected with an array of environmental consequences (Tella & Danjibo, 2024). For instance, mines lead to loss of vegetation, large-scale destruction of water bodies, loss of biodiversity, land use change and food insecurity, increased social abuses and conflicts, high cost of living and air pollution (Worlanyo & Jiangfeng, 2021). Additionally, the mining process can damage ecosystems through deforestation, bushfires, habitat displacement and biodiversity loss (Naibbi & Chindo, 2020) and mines often undermine the health of residents in the communities where they are located (Idowu, 2022). Similarly, Mwakesi et al. (2021) explored the many impacts of mining in Kenya, such as the loss of indigenous-trees, shrubs, grasslands, forests, natural ecosystems, agriculture and pastures, and air pollution. In Nigeria, mining companies have led to deforestation and destruction, causing degradation of land, water, and air with consequences for local lives and livelihoods (Tella & Danjibo, 2024).

Southern Africa is currently facing tensions between local communities and mining corporations as well. In Mozambique, for instance, disputes have arisen concerning liquefied natural gas and various minerals. Research conducted by Blanes et al. (2023) indicates that various forms of dispossession have intensified local discontent in the coal mining regions of Tete and the extractive projects in Cabo Delgado, leading to conflicts linked to these extractive activities. In Zimbabwe, similar issues are evident in mining regions, where local residents contest control over mines. Mwatara et al. (2022) reported that residents in Mhondoro established a local organisation called the 'MaMhondoro gangs' aimed at reclaiming and safeguarding access to the Etina Mine, as well as protecting their families from the environmental challenges posed by the rise of an artisanal small-scale mine in the area.

Comparable research in South Africa also indicates that while the mining sector significantly contributes to the nation's economic prosperity, it also poses substantial risks to environmental integrity. The processes of extraction and processing in mining operations lead to considerable waste generation, which varies in composition, properties, and environmental repercussions (Seloa & Ngole-Jeme, 2022). Furthermore, mining activities, coupled with inadequate management of mining waste, are primary contributors to the deterioration of water quality, elevated concentrations of heavy metals in adjacent soil and water resources, air pollution, loss

of biodiversity, and a decline in the diversity and populations of soil microorganisms in areas surrounding mining operations (Bebbington & Bebbington, 2018; Zota et al. 2011; Qu et al. 2022).

Lesotho, similar to other nations in Africa, possesses an abundance of mineral resources, with diamonds being the predominant element of its mining sector. Research conducted by Matandare et al (2019) highlights the environmental repercussions of Letseng Diamonds mining in Lesotho, identifying water pollution, soil degradation, and disruption of ecosystems as the primary environmental challenges associated with the operation. Furthermore, the Nkuebe (2020) indicates that while Lesotho's natural resource exports play a significant role in the country's GDP, many individuals and households residing in mining areas experience poverty and lack access to essential services. This situation has led to protests stemming from dissatisfaction with local employment practices and the environmental consequences of mining activities. Residents near mining operations contend that, although these companies offer certain benefits such as footbridges, water supplies, and food parcels, these provisions do not adequately address the fundamental needs of local residents (MCDF/Lerotholi, 2021).

1.3 Political ecology approach to natural resource extraction in Africa

This analysis will be situated within the framework of political ecology. Political ecology approach encompasses the social and political contexts that influence the genesis, experiences, and management of environmental issues (Macheka, 2021). As an analytical lens, the political ecology framework serves as an effective approach for assessing the political factors that impact the local environments of adjacent populations. Consequently, political ecology, a discipline that addresses issues of injustice, inequality, and power distribution, will be employed in this paper to incorporate a political viewpoint into the examination of environmental challenges faced by mining communities. Macheka (2021) contends that this approach does not deny the existence of environmental issues, nor does it criticise ecological science as a method of analysis; rather, it recognises the influence of political factors in environmental management.

Recently, researchers have used political ecology to analyse a range of case studies. Ayelazuno and Mawuko-Yevugah (2019) explore the interactions between large-scale mining and artisanal small-scale mining in Ghana, with a particular emphasis on environmental regulations and political factors. Their analysis delves into the notion of ecological imperialism, highlighting the conflict between local livelihoods and the activities of foreign corporations.

They argue that mining investments are inherently political, as the interests of the ruling political class take precedence in the enforcement of environmental regulations in Ghana, leading to environmental degradation and adversely impacting the livelihoods of mining communities. A related study in Ghana examined the political dynamics surrounding the formalisation of artisanal mining from 2017 to 2020. The results indicate that informal practices continue to thrive despite governmental attempts to formalise the sector, largely due to punitive measures, such as military interventions, which frequently lead to corruption and patron-client relationships (Ofori et al., 2021). Additionally, a study conducted in Tanzania on small-scale irrigation and environmental degradation revealed significant insights into the political ecology of water access, emphasising conflicting narratives and the shortcomings of formalization efforts (Harrison & Mdee, 2017). In Kenya, research on the effects of oil exploration in Turkana uncovered that alliances between local elites and foreign investors exacerbate inequality and the dispossession of pastoralists, resulting in heightened conflict and marginalisation (Mkutu & Mdee, 2020). The scholars conclude that the prevailing practices may intensify existing inequalities and provoke future conflicts.

Political ecology frameworks are extensively applied in research across Southern Africa. Caramento et al. (2023) investigated the influence of political factors on resource nationalism in three Southern African nations: Tanzania, Zambia, and Zimbabwe. Their findings illustrate how political conflicts and adaptations shape the landscape of resource nationalist politics. Furthermore, the study reveals the impact of electoral politics and political rivalry on decision-making and outcomes. The analysis includes the resource nationalist politics surrounding the Konkola Copper Mine in Zambia and the political ramifications of the Patriotic Front's policies, assessing their electoral implications and the government's response. Similarly, Zimbabwe's Indigenization and Economic Empowerment Act is scrutinized as a political manoeuvre aimed at garnering support for the ruling party (Caramento et al., 2023). The article underscores that resource nationalism transcends mere policy frameworks; it represents a contested political arena shaped by diverse social forces and political dynamics (Caramento et al., 2023). Additionally, Werner (2016) explored the political landscape influencing natural resource management in Zambia, noting the country's relatively stable democratic environment while highlighting persistent tensions between the government and the private sector, particularly within the mining sector. In Zimbabwe, Matanzima (2024) examines the political dynamics associated with lithium extraction, focusing on issues of governance, resource management, and the rights of local communities.

In Lesotho, researchers have explored the application of the political ecology framework. Using the political approach to artisanal mining in Lesotho, Makhetha (2017) revealed that the Lesotho government has rendered artisanal diamond mining illegal, prioritising the interests of commercial mining companies over those of local miners, which has led to conflicts regarding resources and land. Additionally, Makhetha and Maliehe (2020) discuss the political dynamics surrounding artisanal small-scale mining (ASM) in Lesotho, highlighting the government's decision to criminalise ASM to favour large mining enterprises often linked to local elites. Moejane's (2022) study on the socio-economic impacts of mining on local communities indicates that the Lesotho government acknowledges the mining sector's potential to stimulate economic growth and reduce poverty, particularly through diamond extraction. Nevertheless, despite its economic significance, mining companies are not mandated by law to contribute to community development, resulting in friction between local residents and these companies. A recent study further illustrates the influence of politics in the mining sector, noting the lack of clear rationale for the arrangement that allows foreign entities to hold the majority of shares in local mining firms while the Government of Lesotho (GoL) retains minority ownership (Lerotholi, 2021). Moreover, the GoL controls land allocation for mining, which marginalizes local communities from decision-making processes and exacerbates land use conflicts. Lerotholi (2021) also points out that the GoL has faced criticism for employing excessive force against communities protesting the adverse effects of mining, highlighting the urgent need for enhanced human rights protections and greater community engagement in mining activities.

Environmental management in Lesotho encounters intricate challenges in balancing the often opposing interests of politicians, local communities, and mining investors. Adopting a political ecology perspective allows for a deeper examination of political interference within mining communities and its implications for water quality monitoring in Lesotho. Political ecology deliberately avoids putting emphasis on such theories as the tragedy of the commons which has inadvertently legitimised state intervention in natural resources management (Macheka, 2021). Consequently, this study aims to explore the dynamics of political interests as they both compete and occasionally collaborate in the governance of environmental issues within Lesotho's mining sector.

1.4 Methodology

The data discussed in this paper is based on a study conducted in Mokhotlong district. There are two mines in the District namely Letseng and Mothae Mines. Letseng Diamonds mine is

3275m above sea level arguably the highest open cast diamond in the world (Hlojeng, 2020). It is owned by UK-based Gem Diamonds Ltd and the government of Lesotho, and one of the higher-ranking diamond mines in Lesotho in terms of production and quality diamonds (Lerotholi, 2021). Additionally, the region also houses the Mothae Mine which is about 5 kilometres distance from the Letseng Diamond mine and operated by Lucapa Diamond Company and owned by Australian Lucapa Diamond Co Ltd and the government of Lesotho. The study thus engaged villages surrounding the mines namely Patiseng, Maloraneng, Ha Seema, Pai-la-itlhatsoa, Ha Ramosoeu, Lets'eng, Ha Masasane, Ha Moroka, Lichecheng, Ha Nthimolane, Lithakong, and Mapoka.

To achieve effective data generation and collection, the study adopted a qualitative research approach. The data collection process began with efforts to gather secondary data, which laid the groundwork for the subsequent collection of primary data. Insights obtained from the analysis of secondary data guided the creation of tools for primary data collection. The qualitative research approach was crucial in assessing the actions taken by mining investors and government/state actors in Lesotho to safeguard the environment from degradation. This approach was vital in exploring the influence of politics on the responsibilities of investors regarding environmental management during mining operations.

This qualitative study collected data through a desktop review, focus group discussions, and interviews. The desktop review was performed as part of the preparatory analysis prior to engaging in detailed analytical work. On a broader scale, this review encompassed the examination of both published and unpublished materials related to mining, politics, and the environment. This comprehensive analysis of scholarly articles concerning mining and environmental degradation in Lesotho yielded significant insights for the study. The extensive review of existing literature was employed to corroborate the findings derived from the primary data analysis. It provided a deeper understanding of the contextual background surrounding the issue at hand. The outcomes of the desktop review enhanced comprehension of the interplay between mining, politics, and the environment, while also identifying critical issues that warranted further exploration through the analysis of pertinent primary data. The literature review findings were supplemented by in-depth interviews and focus group discussions with participants selected through purposive and convenient sampling methods.

In-depth interviews constituted a crucial element of the data collection strategy. We conducted a total of 18 key informant interviews, composed of open-ended questions. Our respondents

included stakeholders involved in mining and environmental issues. Respondents were purposively selected, specifically targeting individuals at the forefront of mining and political issues in Lesotho (see Table 1 below).

Table 1: Key informant interviews by department and gender

Department	Male	Female	Total
Department of Water Affairs	1	0	1
Department of Environment	0	1	1
Department of Geological Survey	1	0	1
Maluti Community Development Forum	1	0	1
Village Chiefs	11	1	12
Senior area Chief	0	1	1
Community Councillor	0	1	1
TOTAL	**14**	**4**	**18**

Additionally, we conducted 12 focus group discussions with community members from the following villages: Patiseng, Maloraneng, Ha Seema, Pai-la-itlhatsoa, Ha Ramosoeu, Lets'eng, Ha Masasane, Ha Moroka, Lichecheng, Ha Nthimolane, Lithakong, and Mapoka (See Table 2 below). The participants were aggregated into groups of women, men, and the elderly.

Table 2: Focus group Discussions by village and gender

VILLAGE	Male	Female	Total
Patiseng	3	7	10
Maloraneng	4	5	9
Ha Seema	3	6	9
Pai-la-itlhatsoa	2	6	8
Ha Ramosoeu	4	5	9
Lets'eng	7	4	11
Ha Masasane	4	4	8
Ha Moroka	3	6	9
Lichecheng	4	8	12
Ha Nthimolane	2	6	8
Lithakong	3	8	11
Mapoka	4	5	9
TOTAL	**43**	**70**	**113**

The primary data collected underwent a thematic analysis, which involved identifying patterns and themes from the gathered data. The analysis process included several stages: recording, transcribing, coding relevant responses to the research questions, and subsequently organising the text into themes. In this instance, the research questions were utilised to uncover recurring common issues and to identify the principal themes that reflect the perspectives gathered through repeated listening to the recordings and transcribing them into written form. As the

study progresses, sub-themes emerged, and coding was done based on these sub-themes. This approach facilitated a deeper engagement with the data, allowing for a transition from a broad reading to the development of specific themes. This was followed by reviewing, defining, and naming the themes. Consequently, the data were organised according to the emerging themes, which include (i) The political ecology of Mokhohlong water resources, (ii) The politics surrounding water contamination, (iii) The political implications and risks associated with slime dams and the potential for dam explosions, and (iv) The politics of water quality monitoring and the economic advantages in mining regions. Detailed descriptions, narrative vignettes, and direct quotes from interviews and focus groups were subsequently presented in alignment with these themes.

FINDINGS AND IMPLICATIONS

1.5 The interplay of politics and power in water quality monitoring in Lesotho Mining enclaves

This section examines the significant environmental challenges faced by mining communities in Mokhohlong and the political dynamics that hinder effective water quality monitoring. It is important to highlight that there are government departments in Lesotho tasked with environmental management, overseeing various laws. In terms of environmental management within mining areas, three primary departments are involved. These include the Department of Water Affairs operating under Ministry of Natural Resources which is responsible for managing both the quantity and quality of surface and subsurface water resources in Lesotho to support the socio-economic development of the Basotho people. Additionally, the Department of Environment, currently operating under the Ministry of Tourism, Environment and Culture, serves as an agency for environmental management and advocates for socio-economic and environmentally sustainable development. The Department of Geological Survey, a division within the Ministry of Mining in Lesotho, is responsible for collecting, synthesising, archiving, and disseminating geoscientific data to potential investors. This data serves as a foundation for designing resource exploration programs in Lesotho.

The departments enforce various environmental laws, including but not limited to the Water Act of 2008 (Act 15 of 2008), which provides for the management, protection, conservation, development, and sustainable utilization of water resources, and the Environment Act of 2008 (Act No. 10 of 2008), which is aimed at protecting and managing Lesotho's environment and natural resources. Furthermore, the National Environmental Policy (NEP) of 1998 outlines the government's vision and strategy for environmental protection and sustainable development, while the Climate Change Policy of 2017 details the country's approach to mitigating and adapting to climate change. Lastly, the Hazardous Substances and Pesticides Act of 2008 regulates the use and management of hazardous substances, including chemicals and pesticides, to safeguard human health and the environment. However, despite the presence of laws and governmental bodies tasked with environmental management in mining areas, mining

companies have been accused of causing environmental pollution and leaving substantial portions of the region in a degraded state as discussed in the subsequent sections.

1.5.1 **Political ecology of Mokhohlong water resources**

Letseng mine is situated at an elevation exceeding 3000 meters, while the communities are located downstream. Participants indicated that Patiseng River, which divides Patiseng village into two, has been contaminated by the mine. This is in addition to Maloraneng River which serves Maloraneng village. The villagers depend on these rivers for livestock hydration, household drinking water, irrigation services, and agricultural activities. The contaminated water from Maloraneng and Patiseng rivers subsequently flows into the Khubelu River, the largest river in the area which serves as the primary drinking water source, household needs and livestock consumption for many villages, including Ha Seema, Maloraneng, Ha Ramosoeu and Pai-la-itlhatsoa. Additionally, the herd boys in the mountain livestock camps (metebo), along with the local villagers, rely on the river for both household needs and drinking water, which poses significant health risks to the community and their livestock. Figures 1 and 2 below illustrate the polluted rivers within the Mokhohlong community. Furthermore, the challenges related to water pollution are linked to the location of the mine. Letseng mine is located within the Letšeng-la-Letsie, a high-altitude palustrine wetland recognised as a Ramsar site. Participants also indicate that the mine's proximity to natural water sources (mekhoabo) intensifies water scarcity in nearby villages, as numerous local water wells (liliba) are drying up, resulting in inadequate water supply from these sources. One participant articulated the consequences of the polluted water on the community:

> *"In this village, there are no taps because the water pipes that supplied Maloraneng village were destroyed by floods, making the polluted Maloraneng stream the main water source. This river merges with the Khubelu River, exacerbating the pollution issue for other villages and endangering the health of individuals who occasionally consume fish from the Khubelu River" (Interview with a village chief, Mokhohlong, 2024).*

Figure 1: The polluted water from the Mine

Figure 2: polluted Maloraneng stream joining the Khubelu River

In light of these challenges, it has been noted that Letseng mine has implemented measures to assist communities with the provision of alternative safe water. Participants indicated that the Mine has facilitated access to clean underground water for numerous villages by constructing water tanks and utilizing solar panels to pump underground water, along with installing water pipes for distribution to various communities. One participant remarked that,

> *"The mine has provided water to some villages namely Patiseng, Lichecheng, and Ha Ramosoeu. However, Maloraneng village remains without any access to clean water, as the taps have ceased functioning due to the destruction of water pipes by floods more than 10 years ago"* (Focus group discussion in Mokhohlong community, 2024).

Nevertheless, it was noted that the installation of water taps in the villages did not resolve the issue of animals drinking and irrigation using water from the contaminated Khubelu River.

In light of these claims, the participants assert that they received no support from the government in tackling water pollution, as they rely on the same water sources for livestock, irrigation, and other livelihood activities, including fishing. Furthermore, certain villages continue to harbour doubts about the safety of the supplied underground water due to the proximity of the mine. Interviews conducted with several participants indicated that these issues have persisted for an extended period. For example, in 2013, the community enlisted the help of a Civil Society organisation to voice their concerns, leading to a march to the mine where they presented a list of grievances. In addition to the water and environmental degradation caused by the mines, community members were aggrieved over how they were refused tenders and job opportunities within the mine. A representative from the local Civil Society Organisation noted that they marched in 2013 and submitted a petition to the mine, yet there was no response to their petition until 2016.

In 2016, the organisation and the community sought assistance from the Ministry of Mines to follow up on the demands made by the Mokhohlong community. However, *'the Ministry insisted on deploying security forces instead'* (Interview with a Civil Society Representative, 2024). In 2016, it was alleged that instead of assisting the community with environmental concerns, demonstrators faced violence and threats at gunpoint. Since that time, there have been no efforts to resolve the issue, no response to the 2013 petition, and there are ongoing legal cases that date back to 2019. The Nkuebe (2020) corroborated these protests, revealing that numerous individuals living in mining communities in Lesotho engaged in demonstrations due to their discontent with local employment practices and the environmental impacts associated with mining operations.

This situation illustrates the manner in which those in positions of authority such as the Ministry of Mines and Environment have misused their power to disregard the concerns of the community. Vulnerable groups within the community face significant environmental risks,

compounded by the state's endorsement of violent measures against them while simultaneously safeguarding the interests of mining investors. The primary livelihood activities of the Mokhotlong community, particularly agriculture, have been severely impacted by the contamination of water sources. Furthermore, the community lacks support in tackling water pollution issues due to a lack of governmental representation, which merely aligns with the mining sector's claims that operations are conducted to acceptable standards. The allegations surrounding these events, coupled with the inaction of the Ministry of Mining and Environment, indicate a political dimension to the issue. The interests of the mining company are prioritised over the environmental well-being of the community. Earlier research conducted by Makhetha and Maliehe (2020) similarly illustrates the lengths to which the government of Lesotho is willing to go in order to safeguard large-scale mining operations.

*1.5.2 **The politics of water contamination***

The study reveals that the Letseng Mine collected samples of polluted water and dust particles for testing. However, the absence of local representation during the testing process raises doubts about the Mine's claims that the dust particles and water pose no threat. There are significant concerns regarding the controversial nature of the water test results. Media monitoring has uncovered a detrimental report concerning contaminated water, along with allegations that the mining company acknowledged the pollution at some point (Kabi, 2022).

In 2022, residents of Patiseng and Maloraneng, who depend on nearby natural water sources for drinking and daily household tasks, voiced their concerns about the presence of blue and black water. An environmental journalist, Kabi (2022), reported that community members had noticed contaminated water in the local stream for many years and claimed it was responsible for causing stomach-aches and diarrhoea. In 2024, similar allegations persist, with media outlets frequently covering these stories (Kabi, 2024; Lescij, 2024). There were also reports of illnesses suspected to be linked to the polluted water. An investigation conducted by investigative journalists uncovered that water contamination from the mine poses a severe risk to infants (Kabi, 2024).

Reports from a journalist suggest that a confidential government document determined that the Mine is intentionally polluting the stream that villagers depend on for their daily needs (Kabi, 2024). Additionally, the media outlet cited the following excerpt from the purported report: "Based on the chemical analysis conducted by the DWA (Department of Water Affairs) laboratory, consuming this water can result in diarrhoea; sensitive individuals and infants may

experience hemoglobinemia, which could cause them to suffocate and may ultimately lead to death," as stated in a January 2023 report by the Department of Water Affairs. In response to these allegations and findings, the mine asserts that there is no correlation between drinking water sources and hemoglobinemia; therefore, they chose not to comment (Kabi, 2024).

A separate report published in June 2024 corroborated the findings regarding water pollution and its associated health risks. Investigative journalists conducted a visit to the mining community in January 2024, where they collected water samples directly from the wastewater discharge pipe of the mine before it entered the community river, as well as from a nearby stream located 50 meters from the mine (Lescij, 2024). The journalists indicated that they sent these samples for analysis to a laboratory in neighbouring South Africa. The results indicated alarmingly high levels of E. coli, measured at 12 MPN/100mL, which significantly exceeds the permissible limit of 1 MPN/100mL, along with nitrate levels of 30 mg/L, surpassing the acceptable threshold of 11 mg/L (Lescij, 2024). The report asserted that these contaminants pose serious risks to both human health and animal life. Furthermore, the mining company refuted claims that its wastewater was responsible for the E. coli contamination in the community river, attributing the presence of E. coli to animal activity in the river (Lescij, 2024). The Mine acknowledged awareness of the elevated nitrate levels but stated that it has undertaken measures to mitigate this issue.

This section addresses allegations regarding water pollution and its detrimental effects on the health of the community, which reports the presence of dark and blue waters leading to stomach-aches and diarrhoea. It is particularly concerning that there exists a report acknowledging the mine's contribution to water pollution; however, the government has chosen to suppress this information and has not made it available to the affected Mokhotlong residents. Despite ongoing legal actions initiated by the community, the government has opted to maintain the confidentiality of the report. Furthermore, independent investigative journalists conducted water tests in 2024, confirming that the identified contaminants pose significant risks to both human health and wildlife. The state, which should represent the interests of local villagers, has failed to take action in response to the findings presented by journalists or the concerns raised by the communities themselves. This situation suggests that the state prioritise the economic advantages or revenue generated by the mine over pressing environmental issues. Consequently, the degradation experienced is likely to persist, as the elite continue to disregard environmental concerns.

1.5.3 The political implications and risks associated with slime dams and the risk of dam explosion.

The mining operation has constructed several slime dams, situated uphill from the communities to reduce the contamination of local rivers by chemical-laden water. Additionally, the mine employs various chemicals to mitigate the hazards associated with its polluted water entering nearby streams and rivers. Nevertheless, the residents in the surrounding areas harbour concerns regarding the potential for dam failure. Particularly, for the residents living in Patiseng village who are most closest to the dam, residents live in constant apprehension of a possible slime dam failure, given their proximity beneath the structure.

This has resulted in continuous anxiety, even though the task and responsibility of monitoring the effectiveness has been shifted to the villagers and village heads;

> '*the anxiety is compounded by the fact that the mine has tasked us with monitoring the dam, providing us with sirens and walkie-talkies to alert the community in case of an explosion or rising water levels, enabling the villagers to evacuate to the designated assembly point in Hara Mosoeu village'* (Interview with village Chief, Mokhotlong community, 2024*)*.

Although the mine has reassured the villagers that its practices are standard and pose no risk, the community representatives remain convinced of the dangers they face. The villagers of Patiseng, facing significant environmental threats, approached the Civil Society Organisation, Maluti Community Development Forum and the Ministry of Mines and Environment in 2017 to request relocation from the hazardous area. It was reported that when the community representatives met with the then Minister of Mines, he expressed strong support for their relocation. However, this stance shifted following his visit to the mine. One participant recounted that after touring the mine, the Minister altered his position, assuring the community representatives that there was no imminent danger. The mine also conducted a study tour for villagers, asserting that the dam posed no risk of explosion, as it primarily contained clay that would not spread far in the event of a failure.

Despite this, some community members continued to advocate for relocation, while the mine contended that the responsibility for relocation lay with the communities themselves. In 2019, a legal case for relocation was initiated by the communities, who sought expert evaluations of the dam's structural integrity. However, despite pursuing this legal avenue, the case remains unresolved. Participants attribute this delay to the community's limited resources and a perceived lack of political will from both the government and the mine. Local Civil Society

Organisations, representing local interests, are currently working to engage international experts to assess the dam's safety. This initiative arises from concerns that the initial assessment lacked expert involvement, as it was merely a visit conducted by mining representatives and local residents, accompanied by assurances from the mining representatives that the dam poses no threat. The inability of the mine to address environmental concerns has led some participants to argue that the mine has gained excessive power, functioning almost as a state within a state, leveraging its financial resources to operate independently of governmental oversight and support for local mining communities.

It is important to recognise that, over the years, the mining sector has resulted in the large-scale forced displacement of millions across Africa (Gukurume & Tombindo, 2023). Such displacements are typically orchestrated by government entities in collaboration with mining investors. For example, in Ghana, the government employs measures such as military interventions to enforce compliance, playing a crucial role in the relocation of artisanal miners (Ofori et al, 2021). Furthermore, a separate study in Ghana indicated that the government is responsible for enacting policies that facilitate fair and effective resettlement processes, which include compensation and support for those displaced (Arhin et al, 2022). In South Africa, the government has also been involved in facilitating relocation agreements through Section 21 companies, which often lack authentic community representation and are heavily influenced by traditional leaders (Ubink & Pickering, 2024). Notably, within the Mokhotlong mining community, there exists a village that is willing to relocate from a hazardous area; however, certain government representatives, allegedly colluding with the mining company, are unwilling to provide assistance. This situation raises suspicions of corruption, suggesting a collusion between government officials and mining corporations, which fosters corporate social irresponsibility. This scenario further exemplifies how certain government departments and the mining sector evade accountability while legitimising operations that adversely impact vulnerable communities. The political landscape has exposed the exploitation of power, as mining companies frequently collaborate with certain government officials, disregarding the varied interests and perspectives of the community.

1.5.4 Politics of water quality monitoring and economic benefits in mining areas

The study revealed challenges faced by the government in executing environmental conservation initiatives. Residents of Mokhotlong villages said that their only formal means of raising concerns is through community meetings organised by the Senior Area Chief and the local Councillor, where they can present their issues to mine representatives. These meetings

sometimes feature visits from independent organisations that advocate for the safeguarding of the local environment against the mine's activities, seeking to hold the mine accountable for its harmful environmental impacts in the area. Nevertheless, it is important to highlight that the communities expressed that the relevant government departments are failing to offer the required support. One resident pointed out that,

> *"The Government is failing to assist local communities in ensuring that the mine addresses all the environmental issues it creates. No Government officials ever come to our communities to discuss environmental challenges, despite the mine's claims of occasional visits from Government representatives to address such matters"*(Interview with village chief, Mokhotlong, 2024)

This was additionally confirmed by the relevant government officials engaged in the study. It was established that government departments, including the Department of Water Affairs, the Department of Environment, and the Department of Geological Survey, perform random and regular inspections of the Mine to ensure compliance with their environmental and social management plans, which are designed to reduce environmental pollution and alleviate any negative impacts arising from mining operations. Moreover, the government officials expressed concerns regarding insufficient funding and logistical challenges as primary obstacles preventing the Departments from regularly interacting with affected communities and conducting their own analyses of contaminated water samples. They, however, emphasised that the mines are legally required, as stipulated in their licensing agreements, to comply with the nation's environmental legislation and policies. They must collaborate with the appropriate ministries and departments to reduce and manage water pollution. Additionally, it was clarified that the Government has directed the mines to cooperate with relevant departments to ensure that all impacted villages have access to reliable and safe water sources, given that the mines contaminate their primary water supply, which consists of local rivers and streams.

The environmental situation in Mokhotlong continues to deteriorate, despite these existing commitments and laws aimed at protection, as evidenced by increasing water pollution and exposure to dust particles, among other issues. Local interviewees expressed that the Government, through its relevant Ministries and Departments, has shown a lack of interest in engaging with them to understand the environmental challenges they are facing. Consequently, the community suspects that either negligence or corruption within these governmental bodies is contributing to the Government's inaction. Representatives from the relevant government

departments have pointed out that the absence of enforcement of regulations and penalties against polluting mines is a significant challenge. The Government appears hesitant to implement stringent measures, as these mines are vital economic contributors in Lesotho and provide employment for many Basotho individuals. Participants from government departments voiced concerns that if the mines were compelled to cease operations due to environmental pollution and degradation, a considerable number of jobs would be lost, potentially leading to a collapse of the national economy. As previously affirmed by Ayelazuno and Mawuko-Yevugah (2019), African governments regard mining companies as essential contributors to foreign direct investment, and thus, it is imperative to promote their establishment and ongoing operations within the nation. Government departments have stressed their commitment to fostering positive relationships with the mines, continuously advising them on strategies to minimize and prevent environmental pollution. Despite the adverse environmental impacts on the Mokhotlong community, the Government seems to prefer dialogue and negotiations with the mines regarding the protection of water sources rather than pursuing more stringent measures that might ensure compliance with policies and legislation designed to safeguard these vital resources.

1.6 Discussion: The political ecology of water quality monitoring in Lesotho's mining enclaves

The interplay of politics and power reveals a collusion between mining companies and government officials, undermining local livelihood interests and environmental protection. The mining company often collaborate with certain government officials, neglecting the diverse interests of the local residents, which is evident in the challenges associated with implementing environmental protection initiatives. Similarly, a recent study in Lesotho by Tlebere (2023) pointed to problems with corruption and discretionary power in the diamond mining industry, which has been identified as a high-risk sector for economic crimes, with allegations of corruption involving government officials. In mining enclaves in Lesotho, local communities in Mokhotlong are marginalised, with limited opportunities to express their concerns, while the government prioritises the economic benefits of mining, neglecting environmental health. There is a gap in formal processes, as allegations of collusion and corruption between mining companies and government officials emerge, leading to corporate social irresponsibility and a lack of accountability for environmental degradation. This is not a phenomenon unique to the Letseng mine; a recent study examined the failures of Reskol Diamond Mining in Lesotho, which are often denied or covered up even by the government, which has always acted in

collusion with the company (Ts'ele, 2024). The government has aligned itself with more influential actors, and the power and institutions essentially produce water pollution and protect capitalist interests. This phenomenon is also common in parts of Africa, as a similar study conducted in Ghana on conflict, collusion and corruption in small-scale mining revealed that foreign miners operated with impunity because they were protected by those in positions of power, i.e. public officials, politicians and chiefs, in exchange for private payments (Crawford & Botchwey, 2017)

Politics surrounding mining enclaves of Lesotho reveal that the existing formal structures are distorted, leading to failures in regulation. There is general environmental oversight, as despite the existence of laws and government bodies designed to manage the environment, there is a significant failure in enforcing these regulations, and government departments do not support local residents in addressing pollution and other environmental issues resulting from mining activities. Foreign mines have greater institutional capacity than governments, making government regulation problematic. For instance, a similar study of another local mine in Lesotho, Liqhobong, reveals that efforts by the Lesotho government are aimed at weakening the local mining cooperative, as the government has issued private claims to investors, which undermines the position of artisanal diamond miners, including and managing their pace of work, ultimately leading to their exclusion (Makhetha, 2017). Again the political landscape surrounding water pollution in Mokhotlong Mining area is characterised by a lack of representation for the most vulnerable groups, leading to increased environmental risks and inadequate support in dealing with the impacts of mining. There are no formal structures for local residents to communicate with government on this issue. They feel disenfranchised, struggling to have their voices heard in community meetings that occasionally include mine representatives but often lack genuine governmental support. The responsibility of managing environmental concerns has been shifted to local people as they monitor the dam which has a risk of explosion. The structure of the dam itself, which supposedly does not pose a risk of explosion, is used by the mine to downplay the concerns of residents.

The mining company operates with a high degree of autonomy, functioning almost like a ‘state within a state’, resulting in excessive power, while the government is unable to enforce environmental regulations due to its economic dependence on mining operations. The situation in Mokhotlong District thus reflects a broader political dimension, where the interests of the mining sector often outweigh the concerns of the community, exacerbating the environmental

risks faced by vulnerable groups. Similar findings can be found in another study conducted in Lesotho on artisanal diamond mining in Butha-Buthe District, where the sector has historically been marginalised and criminalised by the Lesotho government, which favours large mining corporations (Makhetha & Maliehe, 2020). It is argued that this favouritism was driven by the interests of local elites and foreign investors, leading to the exclusion of individual diamond miners from the mining process. Therefore, the issue of water pollution in the Mokhotlong community is one of power and vested interests at the expense of the local environment and social impacts.

1.7 Conclusion

The research reveals the complex relationship between political dynamics and environmental management within mining areas. The results highlight ongoing water pollution issues in the Mokhotlong area, the costs of which are borne disproportionately by local residents, with little effective intervention from the relevant authorities. The results suggest that the existing strategies employed by the Mining company, including the provision of drinking water and the construction of slime dams, are failing to address the issues at hand. These measures are proving to be ineffective, exacerbated by political influences, as certain politicians and the mine management prioritize the maximisation of natural resource exploitation, frequently leading to harmful consequences for the environment. The political landscape is a significant factor contributing to the inability to address environmental degradation experienced by the local residents of Mokhotlong.

This situation illustrates that the management of environmental concerns in mining areas is influenced by power relations that extend beyond the local level. The paper contends that political factors hinder effective water quality monitoring in these regions, as certain politicians and government officials prioritise economic gains over ecological considerations. This study concludes that the environmental crisis in Lesotho is intricately linked to a broader political economy characterised by degradation, resource depletion, and human impact.

Therefore, this issue might be tackled by enhancing environmental regulatory frameworks, which includes establishing clear standards for water quality and mining activities. Furthermore, it is essential to strengthen the capacity of implementing agencies, and the creation of independent monitoring and enforcement bodies is vital to guarantee transparency and accountability within the mining industry. However, such mechanisms are often shaped by power and influence in practice. Revealing the politics of water pollution in mining is

essential for a realistic public conversation. Studies such as this shed light on the collusion of powerful actors in ignoring local concerns and impacts. To counteract this, a shared recognition of the problem is required in combination with the deployment of active political agency to create incentives and drivers to address the environmental and social impacts of mining operations.

1.8 References

Arhin, P., Erdiaw-Kwasie, M.O and Abunyewah, M (2022), Displacements and livelihood resilience in Ghana's mining sector: The moderating role of coping behaviour Patrick *Resources Policy* 78, 102820. https://doi.org/10.1016/j.resourpol.2022.102820

Ayelazuno, J. A., and Mawuko-Yevugah, L. (2019). Large-scale mining and ecological imperialism in Africa: the politics of mining and conservation of the ecology in Ghana. *Journal of Political Ecology*, *26*(1), 243-262. https://doi.org/10.2458/V26I1.22962

Bebbington, A., and Bebbington, H. D. (2018). Mining, movements and sustainable development: Concepts for a framework. *Sustainable Development*, *26*(5), 441-449. https://doi.org/10.1002/sd.1888

Blanes, R. L., Rodrigues, A. C., and Gonçalves, E. (2023). The multiple paths of extraction, dispossession, and conflict in Mozambique: From Tete's coal mines to Cabo Delgado's LNG projects. *The Journal of Social Encounters*, *7*(1), 4-25. https://doi.org/10.69755/2995-2212.1159

Braun, Y. (2020). Lesotho's white gold: the political ecology of temporality and the economy of anticipation in resource extraction and large dam infrastructural projects. *Journal of Political Ecology*, *27*(1), 853-876. https://doi.org/10.2458/v27i1.23250

Caramento, A., Saunders, R. G., and Larmer, M. (2023). The Return of Resource Nationalism to Southern Africa–Introduction. *Journal of Southern African Studies*, *49*(3), 339-357. https://doi.org/10.1080/03057070.2023.2272547

Crawford, G., and Botchwey, G. (2017). Conflict, collusion and corruption in small-scale gold mining: Chinese miners and the state in Ghana. *Commonwealth & Comparative Politics*, *55*(4), 444–470. https://doi.org/10.1080/14662043.2017.1283479

Ferguson, J. (1994). *Anti-politics machine: Development, depoliticisation, and bureaucratic power in Lesotho*. University of Minnesota Press.

Gukurume, S., and Tombindo, F. (2023). Mining-induced displacement and livelihood resilience: The case of Marange, Zimbabwe. *The Extractive Industries and Society*, *13*, 101210. https://doi.org/10.1016/j.exis.2023.101210

Harrison, E., and Mdee, A. (2017). Successful small-scale irrigation or environmental destruction? The political ecology of competing claims on water in the Uluguru Mountains, Tanzania. *Journal of Political Ecology*, *24*(1), 406-424. https://doi.org/10.2458/v24i1.20881

Hlojeng, T. (2020). *The contribution of Letseng Diamonds Mine Corporate Social Responsibility in the Mokhotlong district* (Doctoral dissertation, University of the Free State).

Idowu, G. A. (2022). Heavy metals research in Nigeria: a review of studies and prioritization of research needs. *Environmental Science and Pollution Research*, *29*(44), 65940-65961 https://doi.org/10.21203/rs.3.rs-1495299/v1

Kabi, P (2024, March 15). Unveiled Investigation: Water Pollution From Letšeng Diamonds Mine Poses Lethal Threat to Infants. *Pulitzer Centre* https://pulitzercenter.org/stories/unveiled-investigation-water-pollution-letseng-diamonds-mine-poses-lethal-threat-infants

Kabi, P. (2022, May 15). Lesotho communities blame diamond mine pollution for trail of sickness, death and 'poisoned pasture' *Daily Maverick* https://www.dailymaverick.co.za/article/2022-05-15-lesotho-communities-blame-diamond-mine-pollution-for-trail-of-sickness-death-and-poisoned-pasture/

Lescij, L. (2024, June 11). 'UK-Diamond Company that won water and climate awards has been linked to water pollution in Lesotho', *MNN Centre for Investigative Journalism*. https://lescij.org/2024/06/11/uk-diamond-company-that-won-water-and-climate-awards-has-been-linked-to-water-pollution-in-lesotho/

Lyytimäki, J., and Peltonen, L. (2016). Mining through controversies: Public perceptions and the legitimacy of a planned gold mine near a tourist destination. *Land use policy*, *54*, 479-486. https://doi.org/10.1016/j.landusepol.2016.03.004

Macheka, M.T. (2021), Environmental management and practises in Zimbabwe's Chivi district: A political ecology analysis, *Cogent Social Sciences,* 7(1), 2000569. https://doi.org/10.1080/23311886.2021.2000569

Makhetha, E. (2017). The rise and fall of Liqhobong diamond mine cooperative in Lesotho. *Anthropology Southern Africa*, *40*(3), 185-196. https://doi.org/10.1080/23323256.2017.1364136

Makhetha, E., and Maliehe, S. (2020). 'A concealed economy': Artisanal diamond mining in Butha-Buthe district, Lesotho. *The Extractive Industries and Society*, *7*(3), 975-981. https://doi.org/10.1016/j.exis.2020.06.010

Maluti Community Development Forum (MCDF)/Lerotholi, T. (2021). Large-Scale Diamond Mining in Lesotho: Unpacking its Impact on Adjacent Communities, Kimberley Process Civil Society Coalition, Maseru, Lesotho.

Matandare, B., Mukurunge, T. and Bhila, T. (2019), Impacts of Mining Operations on Water Resources and Ecosystems: The Case of Letseng Diamonds in Lesotho, *International Journal for Scientific Research and Development 6(12).*

Matanzima, J. (2024), Displaced by the transition: The political ecology of climate change mitigation, displacements and Lithium extraction in Zimbabwe, *The Extractive Industries and Society 20*, 101572. https://doi.org/10.1016/j.exis.2024.101572

Matlaba, V. J., Mota, J. A., Maneschy, M. C., and dos Santos, J. F. (2017). Social perception at the onset of a mining development in Eastern Amazonia, Brazil. *Resources Policy*, *54*, 157-166. https://doi.org/10.1016/j.resourpol.2017.09.012

Mkutu, K., and Mdee, A. (2020). Conservancies, conflict and dispossession: the winners and losers of oil exploration in Turkana, Kenya. *African Studies Review*, *63*(4), 831-857. https://doi.org/10.1017/asr.2020.2

Moejane, K. (2022). *The socio-economic impact of mining on the livelihoods of Liqhobong village mining communities* (Doctoral dissertation, University of the Free State).

Mokhethi, S. and Kabi, P. (2021). Lesotho's 'White Gold: Water, Water everywhere…but Not a Drop to Drink for Local Communities. Daily Maverick 168, 11 April 2021

Mwakesi, I. W., Wahome, R. G., and Ichang'i, D. W. (2021). Impact of mining on environment: a case study of Taita Taveta County, Kenya. *African Journal of Environmental Science and Technology*, *15*(5), 202-213. https://doi.org/10.5897/ajest2020.2926

Mwatara, W., Mujere, J. and Mkodzongi, G. (2022). Between violence and negotiation: Gold-rushes, gang violence, and negotiated access in artisanal gold mining along Zimbabwe's Great Dyke, *The Extractive Industries and Society,* 11, 101103. https://doi.org/10.1016/j.exis.2022.101103

Naibbi, A. I., and Chindo, M. (2020), Mineral Resource Extractive Activities in Nigeria: Communities Also Matter! *Journal of Geoscience and Environment Protection, 8*, 212-229. http://www.scirp.org/journal/Paperabs.aspx?PaperID=103307

Nkuebe, M. (2020). Amid lucrative exports of natural resources, Basotho overwhelmingly feel left out, Afrobarometer, Dispatch No. 394, 25 September 2020.

Ofori, A. D., Mdee, A., and Van Alstine, J. (2021). Politics on display: The realities of artisanal mining formalisation in Ghana. *The Extractive Industries and Society*, *8*(4), 101014. https://doi.org/10.1016/j.exis.2021.101014

Qu, S., Wang, G., Shi, Z., Zhu, Z., Wang, X., and Jin, X. (2022). Impact of mining activities on groundwater level, hydrochemistry, and aquifer parameters in a Coalfield's overburden aquifer. *Mine Water and the Environment*, *41*(3), 640-653. https://doi.org/10.1007/s10230-022-00875-6

Seloa, P., and Ngole-Jeme, V. (2022). Community perceptions on environmental and social impacts of mining in Limpopo South Africa and the implications on corporate social responsibility. *Journal of Integrative Environmental Sciences*, *19*(1), 189-207. https://doi.org/10.1080/1943815X.2022.2131827

Tella, A. A., and Danjibo, N. D. (2024). The environmental impact of mining activities in the local community: A structural equation modelling approach. *International Journal of Social Work*, *11*(1), 44-53. https://doi.org/10.5296/ijsw.v11i1.21747

Tlebere, L. (2023). *An inquiry into the mining industry of Lesotho* (Doctoral dissertation, National University of Lesotho).

Ts'ele, R. (2024). *Reskol Diamond Mining (PTY) LTD, mining in Kolo, Lesotho, 1991-2022* (Master's thesis, National University of Lesotho).

Ubink, J. and Pickering, J. (2024), The mine, the community, and the chief–mining governance and community representation in conditions of legal pluralism, *Legal Pluralism and Critical Social Analysis*, 56(2), 236-264. https://doi.org/10.1080/27706869.2024.2372898

Werner, K. (2016). Zambia: Governance and natural resources. *Governance Review, 13*(2), 32-52. https://doi.org/10.7202/1039239ar

Worlanyo, A. S., and Jiangfeng, L. (2021). Evaluating the environmental and economic impact of mining for post-mined land restoration and land-use: A review. *Journal of Environmental Management*, *279*, 111623. https://doi.org/10.1016/j.jenvman.2020.111623

Zota, A. R., Schaider, L. A., Ettinger, A. S., Wright, R. O., Shine, J. P., and Spengler, J. D. (2011). Metal sources and exposures in the homes of young children living near a mining-impacted Superfund site. *Journal of exposure science & environmental epidemiology*, *21*(5), 495-505. https://doi.org/10.1038/jes.2011.21