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Managing land use disputes in mining areas in Sub-Saharan Africa

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Abstract

Mineral extraction, one of the major and important economic activities in Sub-Saharan Africa, lies at the centre of land use disputes in the region. This paper examines the induced mining land use disputes in Obuasi, Ghana, in Sub-Sahara Africa, considering stakeholder perspectives. A mixed-method approach was used, combining qualitative and quantitative research methods in data collection and analysis. Data was collected through the administration of questionnaires and structured interviews involving 92 respondents. Thematic analysis and statistical analysis were performed to provide a comprehensive understanding of the issues. It was found that mining land use disputes in Obuasi are rooted in unequal benefit sharing, unfair compensation processes, and land access modes that prioritize mining companies over landowners. It also had to do with the weak implementation and enforcement of existing regulatory frameworks. This resulted from the low awareness among landowners and the government's inaction in holding powerful actors accountable, which led to limited effectiveness in the prevention and management of mining land use disputes. Targeted interventions include creating regular stakeholder forums, setting up open grievance reporting systems, and practicing transparent compensation mechanisms with independent valuation.

Keywords

Land Dispute, Mining Areas, Landowners, Obuasi, Sub-Saharan Africa

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Introduction

Land disputes are among the greatest challenges in governance, and they traverse societies everywhere on the globe. They come about because of limited land and population growth (Iswantoro, 2021). They occur as a result of competing claims, boundary disagreements, survey errors, and differences in land use objectives (Krawchenko & Tomaney, 2023). Land disputes range from border disagreements between neighbors to complicated multiparty conflicts. Land inheritance disputes are quite frequent in Sub-Saharan Africa. Bugri (2008) reported that community's conflict over public land use and management, making the issue complex. Economic value, appreciation worth, and productivity of land are all vital to people, society, and states. This importance contributes to rising conflict over land, particularly among emerging economies where the management of land collapses due to incongruous administration strategies (Boafo-Anang et al., 2021).

Sub-Saharan African mining clashes with indigenous land use, which is controversial. Large-scale operations clash with local land rights, setting up a dilemma between economic progress and social justice (Hilson, 2019). Artisanal and small-scale mining (ASM) complicates matters, as it offers livelihoods but might lack legal and environmental protections. Hirons (2014) notes that there are disputes wherever ASM operators and large mining firms lay claim to the same mineral fields.

Several communities still do not receive fair compensation for land acquisition and traditional access to resources amidst policy changes (Lange, 2011). Traditional leaders have a central role in negotiating between the communities and mining companies but are undermined by the level of sophistication that characterizes modern mining activities (Nyame and Grant, 2014). Mining activities cause environmental degradation through soil and water pollution, deforestation, and landscape changes, adding to these disputes (Kitula, 2016). Land conflicts in Ghana hamper socioeconomic development and cause instability. Boundary and property disputes are exacerbated by weak resolution (Wehrmann, 2008). 80% of the land is traditionally owned, and state laws are slowly integrated into the system (Akrofi, 2013).

Obuasi district in the Ashanti region of Ghana has been highly impacted by mining activities on land use patterns (Okoh, 2014). Before mining, the area was mainly cocoa farms and subsistence agriculture (Ofosu-Mensah, 2012). Surface mining has sparked competition with traditional agriculture, which has led to conflict among companies and locals. Resettled farmers are given inadequate compensation and resettlement packages, which create

feelings of injustice and economic uncertainty (Owusu-Koranteng, 2008).

Poverty and unemployment drive members of communities to engage in illegal small-scale mining on lands meant for legal mining. This leads to frequent conflicts between communities and mining companies, sometimes resulting in violence and loss of lives and property (WACAM, 2008). Despite studies in Obuasi on the impact of mining on land use and community viability, there exists a key research gap on land use conflicts in mining communities, particularly in terms of stakeholder consultation and governance. Despite World Bank assistance, land administration in Ghana is beset by inefficiency, inaccuracy of information, and poor coordination. Ghana's multiculturalism, which was an asset, complicates the management of land conflicts due to competing cultural perceptions and practices (Osei-Bagyina, 2012 & Okoh, 2014).

This paper sought to identify not only the issues but also the management of mining land use disputes in Obuasi, in the Ashanti Region, Ghana. The purpose of the study was to find answers to the following questions: (i) What are the root causes of mining land use disputes in the town of Obuasi; (ii) What is the relationship between stakeholders (primary, secondary, and key) involved in mining land use disputes and their roles; and (iii) how are existing regulatory frameworks on mining land use able to effective address and prevent land use disputes?

Literature Review

The dependency theory, developed in the mid-20th century, provides explanations of the relationships between industrialized and developing nations that are highly relevant to mining land use conflicts. The theory describes the flow of resources from 'periphery' (developing) countries to 'core' (industrialized) countries, generating poverty cycles. The periphery in mining contexts are local communities, and the government agencies and mining corporations are the core. Harris (2024) elucidates that the majority of former colonies hold the colonial history responsible for economic troubles, which had endowed them with scant capital and reliance on foreign firms, typically disadvantaged local populations in mining disputes with multinational corporations. Conflicts arise due to conflicting priorities: mining companies are determined to extract resources and local people utilize land for agriculture and culture. Local people incur severe negative externalities like pollution and health risks without an equivalent economic gain. The majority of large mines employ experienced external recruits with minimal contribution towards local development (Garvin et al., 2009). Mining affects communities via market (employment, enterprise) and fiscal (taxes, royalties) channels. Although these could be in favor of communities, the mining operators normally appropriate the largest share of benefits (Chuhan-Pole and Dabalen, 2017).

Conflict theory, which has its foundations in Marxist theory, analyses power struggle over limited resources. In the context of mining, it demonstrates the complex interaction among mining companies, host communities, and states. The theory focuses on how social inequality and economic interests shape conflict. Large powerful mining companies are often pitted against marginalized host communities, leading to exclusion and discrimination in decision-making. Ecological issues such as deforestation, biodiversity loss, water contamination, and erosion increase conflict (Dikgwatlhe and Mulenga, 2023). Government policymaking can be utilized to instigate conflicts through discriminative policies or end them using fair practices (Chuhan-Pole and Dabalen, 2017). Control of resources lies at the core of the conflict, with powerful groups attempting to gain control of quality resources against weaker groups that are reliant on them.

The stakeholder theory, formulated by Freeman (1984), offers a framework for understanding mining conflicts by considering the interests of all the stakeholders. It involves stakeholder identification, assessment of their legitimacy and power, and formulation of engagement processes. Stakeholders include local communities affected by mining, mining companies, government regulators, environmental NGOs advocating for rights, and investors seeking returns. Stakeholder salience prioritizes them based on importance, power, and urgency. The local communities have customary claims to land but are typically not as strong as governments and mining companies (Mitchell et al., 1997). Strengthening the local communities by involving them in consultations and providing them with legal representation is the key to resolving conflicts. Interdependence is a two-way street; thus, the well-being of every stakeholder is interconnected; as such, good community relations are essential for long-term mining company survival.

Corporate Social Responsibility (CSR) generates stakeholder trust. Mining firms can invest in local development to offset their negative impacts and render themselves more reputable. Effective CSR aligns the goals of a business with societal and environmental aspirations, such as engaging stakeholders in planning and implementation (Que et al., 2019). The United Nations Declaration on the Rights of Indigenous Peoples emphasizes that indigenous peoples must give free, prior, and informed consent before mining can take place (United Nations, 2007). This is aligned with stakeholder theory's principle of inclusion and respect for the interests of all stakeholders.

These theories describe the land use conflict in the mining industry. Dependency theory demonstrates economic inequalities and resource exploitation, while conflict theory illustrates conflict and power inequalities. Stakeholder theory offers conflict resolution and interest management instruments. Appropriate resolution entails the resolution of economic dependencies and power imbalances, as well as effective decision-making with all stakeholders in resolving their rights and interests.

Legal frameworks are crucial in resolving Ghana's mining land disputes and promoting sustainable development. The Minerals and Mining Act 2006 (Act 703) regulates mineral rights, licensing, and corporate duties. Mining companies are required to acquire licenses from the Ministry of Lands and Natural Resources, conduct environmental assessments, engage communities, employ residents, and fulfill financial obligations. The key regulatory bodies are the Environmental Protection Agency (EPA), which gives environmental regulations, and the Minerals Commission, created by Act 450 (1993), which regulates the sector and offers advisory services on policy. Mining companies are also mandated to advance local development in their operational areas through health, education, and infrastructure projects under the Mining Community Development Scheme (Minerals and Mining Act, 2006 (Act 703)).

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Good institutions and good instruments are necessary for good regulatory systems in developing countries (World Bank, 2002). Conflicts regarding mining land can be solved once the stakeholders are aware of their roles. The interrelationship of the factors that influence mining land disputes in Obuasi, including stakeholder roles, economic dependencies, and regulatory mechanisms, as seen in Figure 1, is presented in this study.

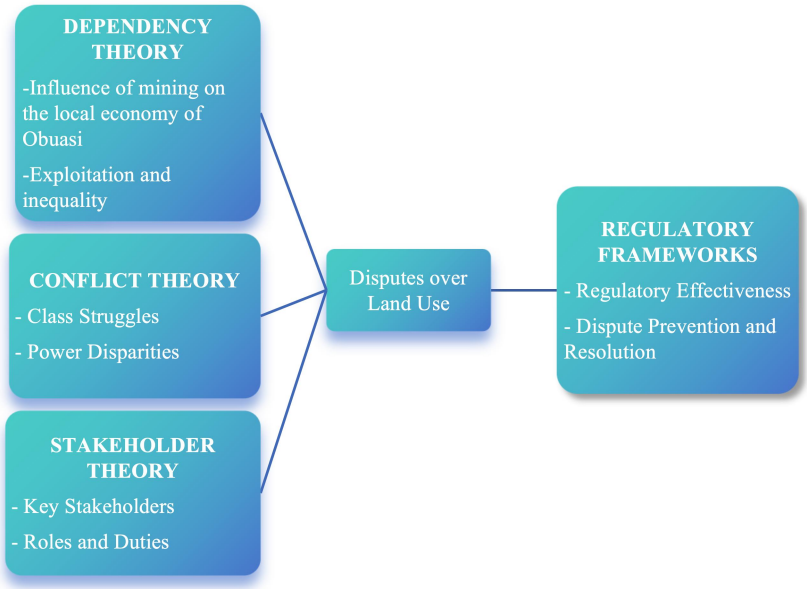

Figure 1: Conceptual Framework

Source: Authors' construct

Methodology

Obuasi is a mining town and administrative capital of the Obuasi Municipal in the Ashanti Region with a population of 104,297 comprising 51,885 males and 52,412 females (Obuasi Municipal Assembly, 2024). The Obuasi Municipality lies between latitudes 5 º35N and 5 º65N, and longitudes 6º35'W and 6º90'W. It covers a total land area of 162.4 square km. It is situated in the South-Western part of the Ashanti Region. The Municipality is located 64 km from Kumasi and bounded by Akrofoum District to the south, Obuasi East District to the east, Amansie Central to the west, and Adansi North District to the north. It has hilly terrain, with most of its hills rising over 500 meters, and consists of thirty-two communities. Obuasi is the largest town in the municipality, where we have the Obuasi Gold Mine, currently Anglo Gold Ashanti (Obuasi Municipal Assembly, 2022). The majority of people live there and practice farming amidst the rich mineral resources, and the youth are engaged in illegal small-scale mining, galamsey (Obuasi Municipal Assembly, 2024).

The study employed a mixed-method approach which combines the qualitative and quantitative research methods. This approach is especially beneficial because it balances the drawbacks of quantitative and qualitative research while utilizing their advantages. While qualitative research focuses on comprehending complicated, contextual, and frequently subjective human experiences, quantitative research is frequently connected with numerical facts, objectivity, and generalizability. Notwithstanding its advantages, the mixed-method approach is not without its drawbacks. The complexity of this methodology necessitates thorough planning and proficiency in both qualitative and quantitative research paradigms to successfully merge diverse data types (Creswell & Plano Clark, 2018). Moreover, the process can be labor-intensive and demanding in terms of resources, given the need to gather, examine, and elucidate substantial datasets from various origins (Bryman, 2015).

Sampling allows for data to be evaluated in a study by selecting a representation of an entire population (Radhakrishnan, 2014). Sampling can be done using probability sampling techniques or non-probability sampling techniques. Probability sampling techniques ensure that every member of the population has a known and equal probability of being selected, thereby enhancing the representativeness of the sample concerning the entire population. These techniques encompass simple random sampling, systematic sampling, stratified sampling, and cluster sampling (Taherdoost, 2016). Non-probability sampling techniques, conversely, do not afford all individuals an equal likelihood of selection, potentially resulting in biased samples but facilitating practical data collection when probability sampling is not feasible. These techniques include convenience sampling, purposive sampling, quota sampling, and snowball sampling (Etikan & Alkassim, 2016).

Among the sampling techniques, non-probability sampling was considered more suitable for this study. To get different points of view on land use dispute management related to mining at Obuasi, snowball sampling was employed in the data collection process. The snowball sampling uses referrals from current or well-known participants to gather other participants required for research. The samples are chosen with the specific intent of being able to provide other participants to achieve the study's objectives (Leedy & Ormrod, 2016). Through the snowball techniques, views were sought from primary, secondary, and key stakeholders who have directly or indirectly played a part in mining land use disputes at

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Obuasi. Their inclusion was because they have a first-hand understanding of land use disputes at Obuasi. Landowners, members of traditional councils (Akokere, New Edubiase, and Dompoase Traditional Councils), government authorities, youth/environmental/advocacy groups, and staff/management of mining companies were the targeted populations.

Records obtained from local government authorities showed that an average of 600 land permits have been issued between 2018 and 2023. To determine the sample size needed for this study, a confidence level of 95% and a margin of error of 0.1 was used. The equation for determining the sample size (Yamane, 1973) was:

$n = \frac{N}{1+(e)^2}$ Where n is the sample size, N is the population size, and e is the margin of error.

$n = \frac{600}{1+(0.1)^2}$ $n = 80$

Therefore, the sample size for landowners in this study was 80 respondents. These respondents' part was used to gather the quantitative responses needed for the study. In addition to quantitative responses from the landowners, qualitative responses are sought from members of traditional councils, government authorities, youth/environmental/advocacy groups, and staff/management of mining companies. Three (3) respondents each were sampled from the targeted population.

Primary and secondary data were sourced to complement each other in this study. The secondary data included information from research articles, policies, reports, regulations, and books that offer information on mining land use disputes in Obuasi. Primary sources offered direct and raw on-field knowledge, and secondary sources aided in the analysis of findings and summaries that complemented the viewpoints gathered through primary sources (Leedy & Ormrod, 2016). The primary data were the responses directly gathered from the sampled population through questionnaires, interviews, and field observations. The complementary use of primary and secondary data sources aided in validating and cross-referencing research findings with each other the elements of the conceptual framework used in this study. Additionally, the questionnaires employed in this study were to elicit quantitative/numerical information from study participants, with interviews and field observations used to elicit in-depth discussions on the theories (dependency, conflict, and stakeholder), mining land use disputes, and regulatory frameworks with stakeholders who are involved in these disputes. Questionnaires and interviews aid the research in comparing and contrasting responses to the same questions, enabling an effective data analysis method (Leedy & Ormrod, 2016).

Quantitative data gathered through questionnaires were sorted into a spreadsheet for statistical functions to be performed in Microsoft Excel 2016. Also, this aided in the visual and tabular display of results obtained. The statistical functions provided valuable insights for summaries on mean, standard deviation, and frequency distributions of data obtained from respondents, as well as explored the effectiveness of existing regulatory frameworks in addressing and preventing mining land use disputes. Qualitative data obtained through interviews were transcribed for relevant themes to be identified. Based on recognized trends in the data, the data were categorized into useful codes by determining the relationships in the dataset, using NVivo 12 software. They enabled the data to be understood at a deeper level by representing a cognitive advance, distilling the essence of the facts, and providing a means to discern more profound details on the causes of disputes, the relationship between stakeholders, and the impact of conflicts on society.

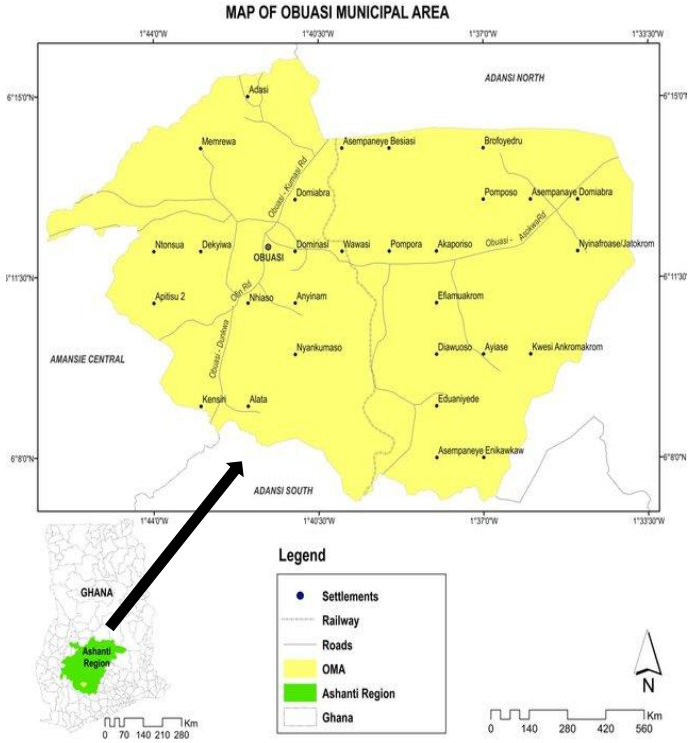

Figure 2: Map of the Study Area

Source: Abdulai, 2015

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Results and Discussion

Demographic Characteristics

This study surveyed 80 landowners in Obuasi, Ghana, who are directly affected by land use regulations. The population is relatively young, with 72.5% under 40 years old: 38.75% aged 18-29, 33.75% aged 30-39, and smaller percentages in older groups. Education levels are high, with 66.25% having post-secondary education and 33.75% completing basic education. Most respondents (54) are indigenous, while 16 are non-indigenous, and 10 are native non-residents. The predominance of young, educated locals suggests a strong awareness of land regulations. These demographics provide key insights for resource allocation, land policies, and development programs in Obuasi.

Land Ownership

Land is an important development resource that sustains livelihoods in agriculture, construction, and mining. Table 1 shows land ownership characteristics, such as mode of acquisition and customary council ownership. Most of the landowners possessed the land recently: 38 respondents (nearly half) owned it for 1-5 years, 14 for less than one year, 16 for 6-10 years, and 13 for more than a decade. Strong demand for land suggests economic development or urbanization. Acquisitions cover purchases (67.5%), followed by inheritance (27.5%), while gifts (3.75%) and barter (1.25%) are uncommon, suggestive of a monetized land market. Land is controlled by three traditional councils: Akokerri (42.5%), Dompoase (36.25%), and New Edubiase (21.25%), with the most important being Akokerri. Acquired lands are put to diverse uses, chiefly construction, cultivation of crops, and animal rearing, depicting mixed economic activities in Obuasi.

Table 1: Characteristics Of Respondents Showing the Years and Mode of Land Acquisition and The Traditional Council in Charge.

Characteristic	Frequency (n)	Percentage (%)
Years of Land Acquisition		
Less than a year	14	17.5
1 - 5 years	38	47.5
6 - 10 years	16	20
More than 10 years	12	15
Total	**80**	**100%**
Mode of Land Acquisition		
Through barter	1	1.25
Through gift	3	3.75
Through inheritance	22	27.5
Through purchase	54	67.5
Total	**80**	**100%**
Traditional Council in charge of land		
Akokere	34	42.5
Dompoase	29	36.25
New Edubiase	17	21.25
Total	**80**	**100%**

Source: Authors' Construct.

Root Causes of Mining-related Disputes

It is imperative to understand mining land use conflicts in terms of their underlying causes in order to devise appropriate solutions. Knowing the causes enables the tackling of the root cause instead of symptoms. As indicated in Table 2, the respondents cited main causes of mining land use conflicts in Obuasi. The most prominent cause, cited by 31 respondents, was land access modes. Compensation procedures (21 respondents) and benefit sharing (19 respondents) were also of great concern. Six participants named the stakeholder engagement model, and three named the social investment model. These results call for specific interventions to rectify land access, compensation, and benefit-sharing arrangements in Obuasi.

Table 2: Count Of Respondents Identifying the Most Significant Causes of Mining Land Use Disputes in Obuasi.

Causes of Mining Land Use Disputes	Count of Respondents
Benefit sharing	19
Compensation processes	21
Land access modes	31
Social investment approach	3
Stakeholder engagement framework	6
Total	**80**

Source: Authors' Construct.

Accessibility of land is crucial for construction, agriculture, and business, enabling economic growth and social stability (Yekple et al., 2024). Access to land in Ghana is controlled by cultural, legal, and economic systems, with a mix of formal and informal systems.

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The Land Act 2020 (Act 1036) was enacted to revolutionize land administration, requiring all acquisitions to be registered with the Land Commission to ensure transparency and minimize conflicts. Customary lands, which constitute over 80% of Ghana's land (Bugri & Yuonayel, 2015), are governed by the Act, which demands fairness and accountability. These are not always implemented in practice. Pointing out an experience witnessed, one respondent narrated:

"Sometimes, the landowners are not completely involved in some land decisions; like, there will be conversations going on between the traditional authorities and the mining companies. Then, later we will be informed about the decisions they've made which will require some landowners to give up their lands with some form of compensation. The [mining] firms are able to gain and access the land quicker than us individuals who will have to go through a lot of long processes."

Another respondent stated:

"There has been a case where a piece of land that was already sold to an individual was sold again to a mining company. The landowner was not happy with it at all."

These traditional leaders tend to readily offer mining firms easy access to land due to expected economic benefits, sidelining the landowners in decision-making. This lack of consultation creates mistrust and resentment. Landowners cherish their rights and survival means, but traditional leaders favor long-term alliances or community development. Landowners, traditional leaders, and mining firms harbor tensions. Disputes also arise among families with communal land interests since other members may unilaterally sell or lease land for mining, particularly for small-scale mining. A respondent stated:

"An individual gives out the land for money without involving the other family members who have equal rights over the land."

Act 1036 specifies that customary lands are held together by a stool, skin, clan, or family and demands group permission to utilize or sell the land. When individuals take unilateral actions in disregard of the rights of others, they contravene customary arrangements, which generate mistrust and conflicts. Members who are excluded may feel disenfranchised or exploited, which results in intra-family conflicts and conflicts with buyers of the land. Another significant conflict arises from compensation processes. Equitable compensation guarantees those who are losing land use rights to mining are dealt with justly, either through money or substitute land, under agreed terms (Kidido et al., 2015). One landowner said concerning compensation processes:

"One mining company has made it clear that all lands underground belong to them and that they acquired it from the chief. After mining or when they want to mine, they engage the chief directly. Meanwhile, someone was already farming on that land, and the person was putting the land to good use. A large part of the compensation for the land goes to the chief, while the one who was farming gets something small or nothing."

This statement was corroborated by a member of Akokerri Traditional Council:

"I have encountered land use disputes between the mining company and local landowners. This is often due to unclear boundaries, lack of consultation with the community, and inadequate compensation."

Where active farmers are not consulted and offered minimal or no compensation, their livelihood and investment are disregarded, and this generates conflicts. Giving priority to chiefs or heads of stools, clans, or families for compensation negotiations overlooks the rights of landowners who survive on the land. Mining firms evade wider consultations, consulting only traditional leaders, which undermines trust and triggers conflicts. The uneven power dynamic, with mining companies taking over suboptimal resources underground, additionally pushes farmers away, intensifying grievances.

Besides access to land and compensation, benefit sharing is another main source of conflicts. Benefit sharing is the equitable distribution of profits, opportunities, or advantages from land resources among all involved stakeholders (O'Faircheallaigh, 2015). Proper benefit-sharing ensures social equity, respects local aspirations, and provides a sustainable land-use policy. In the real world, however, equitable distribution cannot always be ensured, thus leading to more grievances and tensions among traditional authorities, mining companies, and land users. One respondent noted:

"Lack of clear communication and engagement between mining companies and local communities. This then leads to misunderstandings and disagreements over land use and the benefits that should be shared with the community."

Unclear communication of land ownership, use rights, and agreements between mining firms and local authorities usually leads to confusion. Allocation of economic benefits, jobs, or infrastructure in a biased way leaves some groups out or underpaid. Failure to engage community members in negotiations breeds resentment and social tension. Mining firms deal primarily with customary leaders or government representatives, leaving local stakeholders feeling excluded. Conflicts over who gains from mining activities promote fragmentation, driven by confusing or unmet benefit-sharing agreements. These types of conflicts over land access, compensation, and benefit sharing are consistent with dependency theory, where landowners are dependent on the discretion of more powerful actors, and therefore economic dependency continues.

Compensation does not usually economically empower landowners but makes them depend on mining revenues or insufficient support. Conflict theory is present in land use conflicts, and it is concerned with power imbalances. Mining companies negotiate straight with traditional leaders to the disadvantage of landowners driving class conflicts in Obuasi's land management system. Unequal benefit sharing and unfair compensation benefit powerful actors, such as mining companies and traditional leaders, against landowners. This marginalization fuels the tensions and conflicts since the owners and people of the land believe that their interests are secondary to state and corporate interests.

Stakeholders Identification and Roles

Stakeholders are central to community development, promoting social equity, cohesion, and economic development through partnership (Costumado & Chemane, 2024; Hori, 2020; O'Hara et al., 2023). The identification of stakeholders in mining land use conflicts is key to successful resolution. Landowners in Obuasi cited traditional leaders (35 respondents), such as chiefs and councils, as the most influential. The other main stakeholders included the community members and landowners (21), mining firms (14), the government (8), and civil society organizations (2), as shown in Table 3.

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Table 3: The Most Influential Stakeholders in Mining Land Use Disputes

Influential Stakeholders	Count of Respondents
Government	8
Landowners	21
Mining companies	14
CSOs	2
Traditional leaders	35
Total	**80**

Source: Field Survey, 2024

In-depth interviews of the traditional councils, government authorities, and industry representatives yielded qualitative data. Through these interviews, the major themes were developed with focus on the need for synergistic efforts of the stakeholders towards conflict resolution and sustainable community building. One of the local government representatives named them as:

"Illegal miners, AngloGold Ashanti, Obuasi East District Assembly, Obuasi Municipal Assembly, traditional authorities, and the communities where AngloGold Ashanti has concessions."

One mining firm representative mentioned:

"Traditional authorities, Environmental Protection Agency, Minerals Commission, Obuasi East District Assembly, and AngloGold Ashanti."

One other member of New Edubiase Traditional Council listed:

"Traditional authorities, mining company, local communities, the government, and civil society organizations."

A respondent who is a landowner noted:

"The traditional authorities are the custodians of these lands. They are capable of preventing many land disputes by ensuring due land process and giving the appropriate land out to the right individuals or groups."

The most significant stakeholders are those individuals, institutions, or groups with an interest in decisions or projects. They are actively involved in planning and implementation, and their actions significantly impact results. Local stakeholders involve government institutions, business leaders, traditional leaders, civil society organizations (CSOs), and local individuals. Their participation draws in resources, knowledge, and legitimacy, fostering livelihoods, environmental security, and successful program results.

In Obuasi, traditional leaders were the most prominent stakeholders, and their importance in land use and conflict resolution was evident. Traditional leaders are custodians of the communal and ancestral lands and regulate land allocation to ensure adherence to protocols and resolve conflicts to promote fairness and transparency. Theirs is the role to safeguard land use rights for present and future generations. They also prevent land access conflicts through management of land processes, providing credibility and trust in agreements to other stakeholders, developers, or investors.

The locals and landowners are influential land-use decision actors. Landowners view land as cultural heritage and ancestral, not economic assets. Their involvement ensures fair compensation, clear land boundaries, and minimal resistance to development. Omitting or treating them unjustly creates tensions, which delay the projects. Landowners also contribute to economic growth by farming or property ownership. Some of them engage in illegal small-scale mining whenever access is compromised, fostering environmental degradation and conflicts.

Mining corporations are also major stakeholders. While they bring jobs and infrastructure to the economy of a local community, their operations have the effect of displacing people and interfering with living areas. Conflict is created when firms fail to engage landowners or provide adequate compensation. Environmental destruction heightens conflict when environmental practices are not prioritized. Mining firms can reduce conflict by carrying out corporate social responsibility (CSR) activities, engaging stakeholders in a transparent manner, and providing equitable compensation.

One of the major stakeholders of land use in mining is the national and local governments. It is vested with the role of formulating and implementing policies on land allocation, ownership, and environmental protection. Institutions such as the Minerals Commission, Environmental Protection Agency (EPA), and Lands Commission offer regulatory oversight and arbitrate when there are disputes. Good governance will reduce conflict in mining communities. Yet, poor enforcement, corruption, or placing economic gain over community well-being can exacerbate tensions. Communities become disenfranchised when the state prioritizes royalties and taxes over local concerns, undermining trust and increasing land use disputes.

Literature emphasizes the roles played by different actors in managing such conflicts. Government, mining firms, and communities, along with the EPA, Minerals Commission, and NGOs, are identified by Okoh (2014) and Famiyeh (2017) as major actors. Traditional leaders possess land protocols, while owners demand justice. Mining firms balance economic and environmental accountabilities. The actions of every actor contribute to managing mining land use conflicts, indicating the complexity in managing such conflicts.

Existing Regulatory Frameworks

Regulatory frameworks ensure fairness in land use, but 82% of respondents in Obuasi were unaware of existing frameworks for mining land use disputes. Despite many having post-secondary education, only 14% were aware, mentioning the EPA Act 1994 and the Minerals and Mining Act 2006. This highlights a gap in public knowledge.

The named regulatory frameworks by the survey respondents were corroborated by an official of the Obuasi Municipal Assembly:

"Currently, we have the Minerals and Mining Act 2006, and its amendment in 2015, the EPA Act 1994 (Act 490), and the Land Act 2020 (Act 1036). There are also Alternative Dispute Resolution (ADR) Mechanisms in place."

A member of the Dompoase Traditional Council stated:

"There are EPA guidelines, local customary laws, and the Land Act 2020 used to manage mining land use and any disputes that may arise from it."

The Minerals and Mining Act, 2006 (Act 703) is the main law governing mining in Ghana, bringing together the previous legislations into a single umbrella law. The Act seeks to balance the state, community, and investor interests and is concerned with dispute resolution, compensation for land use, and control of mining. The Act vests powers in the President to suspend mineral rights and compulsorily acquire land in the public interest of

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mining. Licenses and permits are subject to stringent conditions, such as Environmental Impact Assessments (EIAs) and reclamation obligations to enforce environmental and safety standards. This is meant to guarantee sustainability, reduce environmental degradation, and optimize economic returns in the form of taxes and royalties.

Redress for impacted communities is a strong feature of Act 703. The Act forces fair compensation for resettlement, loss of property, and loss of land use, considering land value, loss of livelihood, and cultural importance. Yet, valuation and beneficiary disputes continue to occur. The Act promotes Alternative Dispute Resolution (ADR) like negotiation and mediation to reduce expensive litigation. Regardless of these attempts, enforcement and stakeholder buy-in continue to be problematic.

The foundation of environmental regulation in Ghana is the EPA Act 1994 (Act 490), which creates the Environmental Protection Agency (EPA) to oversee environmental elements in mining. The EPA requires mining firms to secure environmental permits through the submission of Environmental Impact Assessments (EIAs), which describe risks and mitigants. The agency also has pollution controls that ensure that water, air, and land are not contaminated. In resolving environmental disputes, the EPA encourages communication and mediation between parties. Public hearings within the EIA process provide affected communities an opportunity to express concerns and influence decisions, fostering transparency and trust.

Alternative Dispute Resolution (ADR) mechanisms are critical in resolving stakeholder disputes, particularly where litigation is not possible. Some of the mechanisms used include arbitration, mediation, negotiation, and community dialogue. Arbitration provides legally binding decisions, while mediation procures mutually acceptable solutions using a neutral third party (Amoa-Abban, 2017). Mediation and negotiation, especially in land disputes, encourage compromise and establish relationships (Ibrahim et al., 2022).

Although regulatory mechanisms are in place, weaknesses in enforcement render them ineffective and increase the length of disputes. Respondents were also requested to rank the effectiveness of regulatory mechanisms in solving and managing mining land use conflicts, as indicated in Table 4.

Table 4: Rate of effectiveness of regulatory frameworks

Rate of effectiveness	Count of respondents (n)	Percentage of respondents (%)
Neutral	31	38.75
Somewhat effective	26	32.5
Somewhat ineffective	10	12.5
Very effective	6	7.5
Very ineffective	7	8.75
Total	**80**	**100%**

Source: Field Survey, 2024

The interviewees rated their perception of government intervention in mining land use conflicts. As seen from Table 5, most rated the frameworks as neutral, revealing low awareness and weak application. Although a minority perceived them as effective, the majority were not aware, an implication of regulatory authorities' and CSOs' failure to sensitize the masses. This lack of awareness perpetuates power imbalances, in which powerful actors take advantage of uninformed landowners who at best gain only meager compensation for land loss.

Table 5: The Current Level of Government's Intervention in Mining Land Use Disputes

Perception of the current level of government intervention	Count of respondents (n)	Percentage (%)
Adequate	34	42.5
Insufficient	37	46.25
None	6	7.5
Too much	3	3.75
Total	**80**	**100%**

Source: Field Survey, 2024

The respondents were not satisfied with the government's handling of mineral land disputes, particularly in land compensation and environmental restitution issues. The majority stated that the government was not doing enough, leading to heightened mistrust and intractable conflicts. These findings reflect Hilson's (2002) and Cobbinah et al.'s (2020) research, which link poor dispute management to inadequate government intervention. The lack of strong integration of customary land issues also worsens coordination challenges. There needs to be more government intervention and more coordination with the local communities to allow trust establishment and conflict management.

Summary and Conclusion

This research provides a new analysis of the mining land use disputes in Obuasi through the interplay between systemic, institutional, and relational factors. The study presents surprising findings, particularly the lack of correlation between the level of education and regulatory awareness among landowners. Despite their post-secondary levels of education, most landowners lacked an understanding of important frameworks like the Land Act 2020 and the Mining and Minerals Act 2015.

The revelation of the role of traditional leaders in generating disputes is very important. While they are viewed as custodians of the land, their actions or inactions contribute to conflicts and point out their challenges in balancing external and community interests. The study effectively employs theories of dependency, conflict, and

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stakeholders in analyzing power dynamics and struggles over resource allocation.

It brings together quantitative and qualitative approaches, and the research methodology, though at times challenging to integrate, provides broad insights. The identified key issues in the study include unequal benefit-sharing, unfair compensation, and land access prioritization of mining companies. These findings align with global patterns in resource-rich regions, where powerful entities often benefit at local communities' expense. While the theoretical framework effectively identifies power imbalances as a central issue, it struggles to propose solutions where powerful stakeholders resist change, highlighting areas requiring further attention in mining community relations.

This research provides a perspective on mining land use disputes in Obuasi by examining the complex interplay of systemic, institutional, and relational factors: The disconnect between education levels and regulatory awareness among landowners. Despite many having post-secondary education, there remains a significant gap in understanding crucial frameworks like the Land Act 2020 and the Mining and Minerals Act 2015.

The role of traditional leaders in dispute generation was revealed. While traditionally viewed as land custodians, their actions or inactions often contribute to conflicts, highlighting the challenges they face in balancing external and community interests. The study effectively employs dependency, conflict, and stakeholder theories to analyse power dynamics, resource allocation struggles, and stakeholder engagement practices.

The study identifies key issues including unequal benefit-sharing, unfair compensation, and the prioritization of mining companies' land access needs. These findings align with global patterns in resource-rich regions, where powerful entities often benefit at the expense of local communities. While the theoretical framework effectively identifies power imbalances as a central issue, it struggles to propose solutions in contexts where powerful stakeholders resist change. This research contributes to understanding these complex dynamics while highlighting areas requiring further attention in mining community relations.

The land-use conflict at Obuasi requires far-reaching solutions that create a better framework that is more workable and equitable among different stakeholders concerned. Key suggestions to practitioners and policy thinkers revolve around the enhancement of stakeholder participation and transparency: regular forums including government agencies, mining companies, traditional authorities, landowners, and community members will go a long way in ensuring less powerful actors' positions in decision-making processes. The tensions can also be reduced and the landowners treated fairly by making grievance reporting channels accessible, and fair compensation mechanisms are put in place, authenticated by independent reviews. Land use management necessitates the strict application of regulatory frameworks, which is often characterized by severe sanctions in cases of non-observance for the sake of sanity. Complex legal frameworks should be simplified and communicated through various media to ensure better understanding among rural communities.

Public agencies and CSOs should focus on education and engagement campaigns to ensure that stakeholders understand and benefit from the regulations already in place. Further, strengthening the ADR mechanisms and their integration into the regulatory framework can better streamline dispute resolution, reduce dependence on litigation, and ensure greater harmony in relationships among stakeholders. Future research should dwell on the marginalized group's implications of mining land use conflicts, assessments of public participatory processes in terms of performance, and enforcement barriers. There is also the need for study to determine modern technologies such as Geographic Information Systems that have the potential to increase openness about land transactions and resolve disputes. These actions will help the country move into an inclusive approach and efficient management of its mining land-use challenges.

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Author Contributions

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