

Institutional Response to Mining in Forest Reserves in Ghana: A Case Study of the Atewa Range Forest Reserve

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ABSTRACT

Mineral exploration and utilization contribute to national development but threaten the environment. Besides, illegal mining in forest reserves has been a global concern due to its harm to environmental resources. Perhaps, the [formal and informal] institutional perspective on curbing this menace has been narrowly discussed. This study echoes recent discussions on unlawful mining activities in Ghana's forest reserves, focusing on the Atewa Range Forest Reserve, as it explores the institutional partnership and potential roadblocks to fulfilling their mandates. A mixed study approach was employed. The study concluded that institutional networks to manage forest resources have been ineffective due to poor collaboration. This is mainly due to non-compliance with mineral laws by culprits as a result of the absence of key regulatory institutions at the local level. The study recommends that the establishment of key regulatory agencies at the local level could curb this menace.

Keywords: mining, institutional partnership, illegal mining, forest reserve

INTRODUCTION

Forest reserves are considered to naturally regulate the alarming global warming menace through the emission of carbon sequestration ([14]; [22]). The observations made among sub-Saharan African countries reveal the recent upsurge of illegal mining activities depleting endowed resources ([8]; [40]), and the Atewa Range Forest Reserve in Ghana is of no exclusion. This is because the reserve was classified as "The Crown Jewel of Ghana's Biodiversity" ([5]), due to its excellent biological resources— distinctive upland forest vegetation, as well as rich mineral wealth— bauxite and gold ([10]; [9]). The rich nature of the reserve has compelled the Government of Ghana (GoG), in a bid to industrialize, to draw more value (through exploitation and utilization of mineral deposits) from the reserve. This is considered to have exposed the reserve to illegal mining activities causing irreplaceable damage to the forest ([7]), and through these unsustainable practices, the principles of the global sustainable goals (SDG-13, 14, and 15) are undermined. Also, the issue of unlawful mining activities persists possibly because the ability of institutions to persuade or influence societal norms and beliefs to shape actions and

outcomes has been destabilized and these institutions have remained powerless in the fight against the menace. In effect, the menace has been a critical battle for successive governments to fight and win amidst the diverse initiated preventive mechanisms, which have invariably proved unsuccessful. Several studies have looked into the causes and impacts and little is known from the institutional perspective to tackle this menace. Therefore, this study seeks to explore the roles of institutions in mining in forest reserves. We did this by identifying the institutional channels of operation, examining their effectiveness, and determining the barriers to these platforms. We also explored two specific objectives: Identification and Effectiveness of Institutional Partnership Plans and Barriers to Institutional Partnership Plans.

In light of this, this study conceptualizes institutions as established or created organizations, bodies, or agencies ([20]; [12]) that are believed to influence how humans perceive and utilize resources ([2]; [27]). This study propounds that there seems to be a disconnection between the policy directives of each institution established to execute their mandates and the common objectives of instituting their network with other institutions to collectively manage natural resources. Hence, this study concentrates on the institutional failure contributing to the menace, with attribution made to undefined roles interplayed by each institution in the management of mineral resources. This study is organized into five sections namely, introduction, literature review, methodology, results and discussion, conclusion, and recommendations.

LITERATURE REVIEW

Institutional Theory of Resource Management

Institutions play a crucial role in resource use, management, and protection as they consist of humanly crafted rules and norms that shape resource management ([1]; [40]; [16]). It is further stated that analytical types of resource management institutions include states, markets, and communities ([1]), and their institutional arrangements can be seen as a result of the self-interested actions of groups of politically powerful individuals ([17]; [42]). The sustainability of resource institutions over time depends on how well they allow group members to adapt to changing circumstances ([1]; [15])

Conceptualized Institutional Framework on Mining in Ghana

Per the mining and mineral regulations of Ghana, Fig. 1 illustrates a conceptualized institutional framework on mining in Ghana (see Fig. 1). These institutions per this study are classified into formal and informal agencies, with each performing a unique function in the chain. The formal institutions are further classified into three, namely executive, ministerial, regulatory, fiscal, monetary, and revenue-generating agencies. The informal institutions are classified as supporting stakeholders.

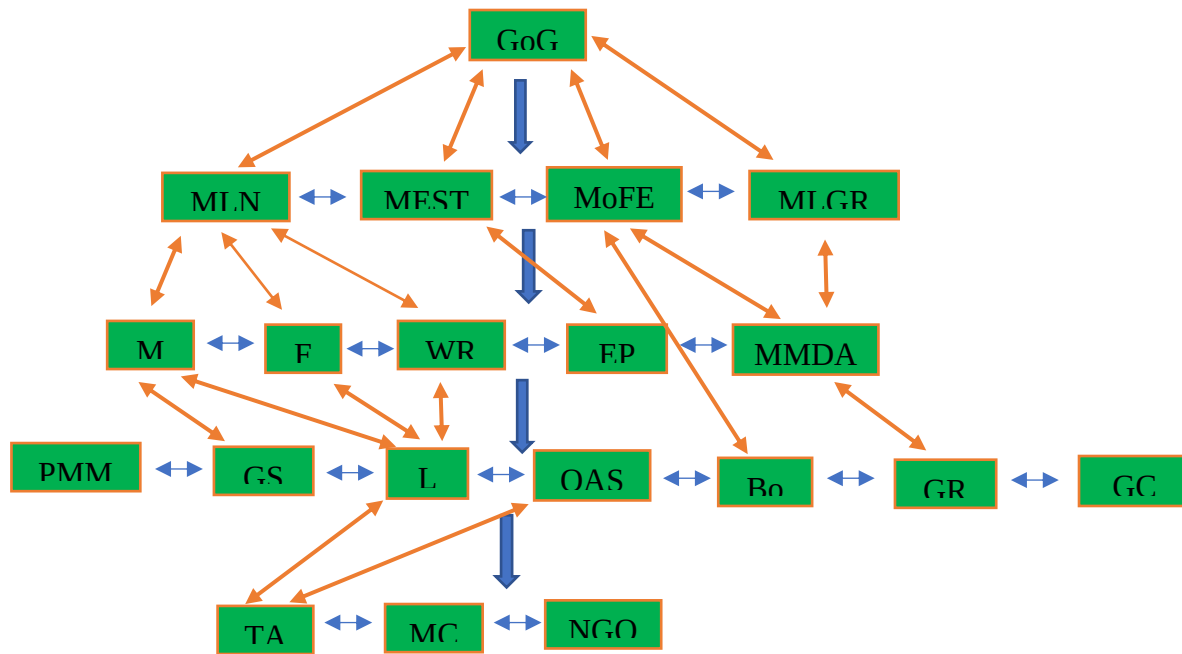


Fig.1: Conceptualized Institutional Framework on Mining in Ghana

Source: Author's own construct, 2021

The Executive and Ministerial Institutions

The Government of Ghana (GoG) as a Body (institution) exercises overall responsibility for all mineral resources ([28]; [35]; [38]). The agencies namely the Ministry of Lands and Natural Resources (MLNR), Ministry of Environment Science and Technology Innovations (MESTI), Ministry of Finance and Economic Planning (MoFEP), and Ministry of Local Government and Rural Development (MLGRD) constitute the Ministerial Institutions and are responsible for the management of mineral resources regarding policy decisions. The Mineral Commission (MC), Forestry Commission (FC), Water Resources Commission (WRC), Environmental Protection Agency (EPA), and Metropolitan Municipal and District Assemblies (MMDAs) constitute the Regulatory Institutions and are responsible for the enforcement and compliance of environmental principles towards safe mining practices. The Precious Mineral Marketing Company (PMMC), Geological Survey Department (GSD), Lands Commission (LC), Office of Administration of Stool Lands (OASL), Bank of Ghana (BoG), Ghana Revenue Authority (GRA) and Ghana Chamber of Mines (GCM) constitute the Fiscal and Revenue Collection Institutions and are responsible for monetary components due the state. The Traditional Authorities (TAs), Mining Communities (MCs), and Non-Governmental Organizations (NGOs) also constitute Local Institutions and are responsible for ensuring social responsibility agreement implementation.

Key Regulatory Institutions Governing Mining in Atewa Forest

The key regulatory institutions as mandated by the mining laws, [35] and [38] to oversee mining operations in Ghanaian forest reserves such as the Atewa Reserve include the Minerals Commission (MC), Forestry Commission (FC), Water Resources Commission (WRC), Environmental Protection Agency (EPA) and Metropolitan, Municipal and District Assemblies (MMDAs). Ideally, district branches of these agencies should exist within the Atewa district to combat unlawful mining practices in the reserve, but agencies exist.

Minerals Commission (MC)

The district offices of the Minerals Commission basically perform or implement directives from its national headquarters. Locally (at the district levels), its Inspectorate Division undertakes responsibility for promoting, regulating, and managing the exploitation of the mineral resources at Atewa. Additionally, the district office through its Inspectorate Division performs inspection of the environmental, health, and safety of mining activities at Atewa to ensure compliance with the mining regulations ([36]; [38]). Moreover, the local office undertakes monitoring and evaluation of mining activities at Atewa but this is often performed possibly due to some constraints that impede their activities and programmes. These constraints could lead to the menace of illegal mining in the Atewa Range Forest Reserve. Again, it has also served as a hindrance to undertaking other duties such as advocacy and education which could sensitize indigenes of Atewa on the need to sustainably exploit the resources; research, and development that could result in a more scientific method of mineral exploitation in the district, and law enforcement which could curb illegal mining and its related issues such as land grabbing and land alienation.

Forestry Commission (FC)

The Atewa Range Forest Reserve is principally managed by the Forestry Commission (FC), with its Forest Services Division (FSD) Atewa District. The district, as part of its mandates, grants permit through its head office to concessionaires with harvesting rights (permit) especially timber firms in and around Atewa district who have satisfied requirements for logging timber species. Perhaps, these franchises given to concessionaires' have paved the way for illegal logging and chainsaw milling menace in the forest causing species (timber) extinction. Again, they embark on the development of the forest through plantation projects (timber planting) as interventions to restore the degraded forest (lands) and also increase commercial or industrial timber production in the forest. Moreover, they perform monitoring operations in the forest by teaming up with some security personnel to ensure the protection of the forest and its wildlife conservation. This is to hunt and punish culprits such as illegal loggers/chainsaw millers, hunters, and galamsey operators who flout forest laws. Periodically, the district office undertakes wildfire campaigns especially, during the dry season to sensitize Atewa communities on its consequences on their forest ([31])

Water Resources Commission (WRC)

The Water Resources Commission is mandated to protect the buffer zones of the Birim, Densu, and Ayensu rivers from pollution since they take their source from the Atewa Forest. This is carried out periodically through "ecological monitoring" activities to fetch for non-permit users (offenders) and also ensures that permit users conform to the regulations. It is believed that this effort has yielded no positive results because Ayensu, Birim, and Densu rivers have been polluted with toxic chemicals such as cyanide and mercury mainly by illegal miners commonly known as *galamsey* operators.

Moreover, they liaise with other regulatory bodies notably the Forestry Commission (FC) and Environmental Protection Agency (EPA) to ensure that a miner has met and forfeited all requirements before issuing a water permit. Additionally, they liaise with the EPA to carry out an Environmental Impact Assessment concerning the forest. Furthermore, the commission conducts research into water resources including the Birim, Ayensu, and Densu rivers within

the Atewa environments, and suggests plans for their utilization, conservation, development, and improvement but this is often achieved since the Commission lacks the needed resources. The Commission also approves and issues drilling licenses to individuals who need access to water in their homes or premises. This license is often not adhered to by indigenes of Atewa since they lack education on it ([39]).

Environmental Protection Agency (EPA)

The Environmental Protection Agency generally carries out Environmental Impact Assessment (EIA) on the Atewa environment, and with regard to mining, a concession that a miner has acquired and ensures environmental requirements, but in liaison with other stakeholders notably the FC, WRC, and the Atewa District Assembly to ensure that a miner has forfeited all payments before issuing environmental permit. Again, their liaison enables them to undertake checks on mining firms operating in and around the Atewa Forest and ensure that they adhere to the environmental regulations.

Furthermore, the Agency performs periodic monitoring of environmental activities such as mining within the Atewa environment and also controls environmental pollution (air) of the Atewa environment. Again, the Agency conducts and promotes studies and research for the improvement and protection of the Atewa environment and also maintains sound ecological systems. The Agency further plans for the environment and organizes educational programmes to sensitize community members on the need to prevent environmental pollution, thus improving and conserving the environment, as well as enforcing environmental laws-imposing and collect environmental protection levies ([30])

Metropolitan Municipal District Assemblies (MMDAs)

Ghana currently has 261 MMDAs including the East-Akim Municipal and Atewa District Assemblies. These two political, and administrative districts manage the Atewa Forest with a Chief Executive appointed by the GoG ([28]; [34]). These assemblies are expected to house and collaborate with other regulatory agencies such as the MC, FC, WRC, and EPA in the district to issue permits to mining firms upon the mining firm meeting and observing all requirements, but the Researcher's field observation revealed that some of the regulatory bodies and other mining stakeholders remain non-existence in the district, for which one has to seek for information at the regional level or national office. The East-Akim Municipal and Atewa District Assemblies also ensure that mining firms operating in the Atewa Forest observe the mining regulations by carrying out routine inspections and monitoring activities by their environmental department. They further seek to ensure individual, community, or district endorsement or objection of mineral permits and to confirm, through District Environmental Committees, that mining activities are conducted in an ecologically acceptable manner along with providing economic and social infrastructure from mineral royalties ([38]; [34]).

The Fiscal Monetary and Revenue Collection Agencies at Atewa

These bodies are responsible for the monetary and mineral revenue collection at Atewa.

The Ghana Revenue Authority (IRS/CEPS/VAT)

The Ghana Revenue Authority at Atewa is responsible for collecting mineral revenues due to the State from mining firms at Atewa ([32]). They also apply, collect, and manage the

appropriate tax regimes from mining firms operating in the Atewa Forest and ensure its optimization for national development.

The Administrator of Stool Lands (OASL)

The Office of the Administrator of Stool Lands at Atewa facilitates the collection and payments of mineral royalties from mining activities at Atewa and enables fair distribution to stool lands. The OASL also ensures the sharing of compensation payments to individuals and communities affected by mining actions in Atewa and its use ([29]).

Other Sector Stakeholders in Atewa

According to [38], these institutions also play key roles in the mining sector. They include the Lands Commission, traditional rulers, mining communities, and Non-Governmental Organizations.

Lands Commission (LC)

The Lands Commission at Atewa manages all public lands in Atewa including the Atewa Forest in partnership with the Forest Commission. They determine the level of compensation to individuals or communities affected by mining operations in Atewa and impose and collect levies from land proceeds through its Land Valuation Division. To curb the prevalence of all practices of land racketeering such as illegal land sales, multiple land sales, and land encroachment at Atewa, the Commission cooperates with other bodies to inculcate directives and discipline into the land economy. The Commission promotes public awareness and community participation in sustainable land management and development within the Atewa district ([33]; [37]).

The Traditional Authorities / Rulers at Atewa

The Traditional Authorities constituted the paramount chief of Akyem Abuakwa and some stools chiefs of Atewa. These stakeholders are classified as the custodians of the Atewa Forest ([21]) and grant a miner the permission to mine in Atewa Forest upon the miner meeting their requirements i.e., Social Responsibility Agreements (SRAs). The Traditional Rulers at Atewa encourage community members to supervise mining operations in Atewa and also ensure that mining is practiced in compliance with the laws and regulations, but this idea is not observed, rather they (indigenes) are the main drivers of change to the illegal mining actions in Atewa. The Traditional Rulers at Atewa are liable to utilize mineral proceeds for community projects social such as schools, hospitals, and pipe-borne water and market centers.

Mining / Local Communities

Mining operations are carried out in some communities fringing the Atewa Forest to the extent that these communities need to be resettled by mining firms. These communities, through their chiefs' release lands for mineral utilization in exchange for compensation ([5]), but are affected immensely by the activities of the mining operations such as pollution of Densu, Ayensu, and Birim rivers, air pollution, land degradation, land encroachment, land grabbing and community resettlement. The communities in Atewa, therefore, have the responsibility to protect their environment against illegal mining practices but they are the main drivers of change to the menace of illegal mining in Atewa.

Non-Governmental Organizations (NGO's)

Presently, there are few Environmental NGOs who are offering benevolent aid to affected individuals and societies by mining practices in Atewa. These NGOs observe the implementation of state policies regarding mining within Atewa ([18]; [6]). They even provide better aid to Atewa communities to the extent of giving relief items. In addition, NGOs undertake educational campaigns to sensitize Atewa communities on the adverse nature of mining aside from its economic benefits to the Atewa communities; empower the Atewa indigenes to develop their living standards, and stand as watchdogs in ensuring that proper measures or regulations are adhered to by mining firms by way of contributing to sustainable development. They serve as pressure groups to ensure transparency in the sharing of mineral prospects that is due to an individual or a community.

METHODOLOGY

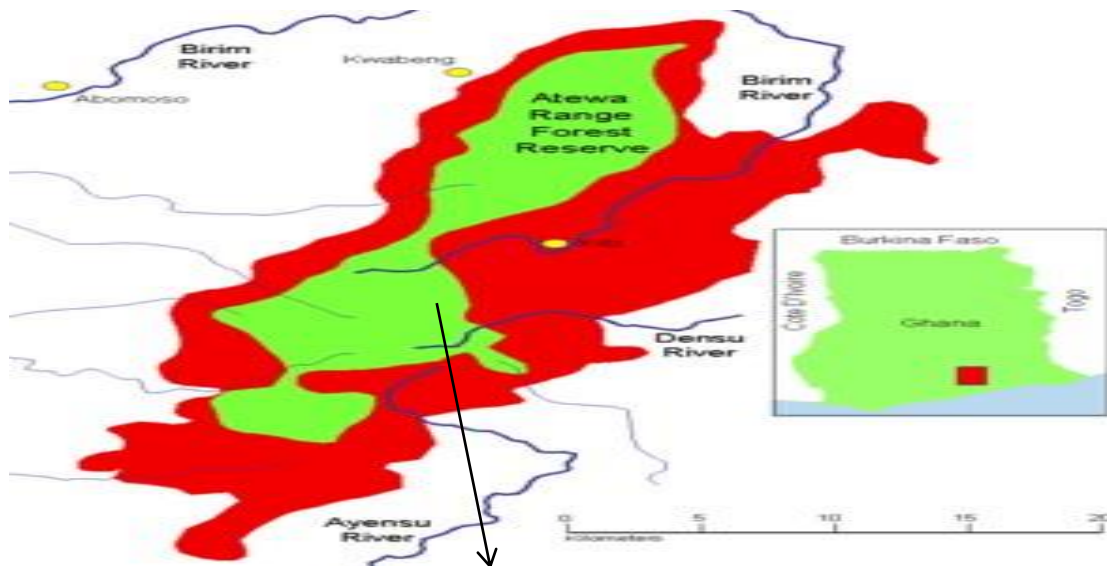
The Study Area: Atewa Range Forest Reserve

Location, Description and Size:

The research location was the Atewa Range Forest Reserve which is stretched out between two political administrative districts namely the East-Akim Municipal and the Atewa District Assemblies in the Eastern Region of Ghana. Atewa Range Forest Reserve covers a total land size of 23,663 ha. Atewa is unique because it contains the Land Evergreen Forest and over the last 90 years Atewa has been recognized as an important reservoir of biodiversity in 1926, it was gazetted, to be followed by a distinct biological protection area in 1994, then a hill Sanctuary in 1995 and as one of Ghana's 30 globally significant Biodiversity areas (GSBA) in 1999. It was listed as an important Biro Area in 2001 by Biro Life International (Global Green Environmental Network, 2003) runs roughly from north to south and is characterized by a series of plateaus. It lies between latitudes 5°58' to 6°20' North and longitudes 0°30' to 0°40' West. One of only two reserves in Ghana with Upland Evergreen Forest, Atewa represents about 32.5% of the remaining closed forest in Ghana. In addition to its high biodiversity value, Atewa is known to harbour mineralogical wealth including both gold and bauxite deposits ([5]).

Reasons for Selection of Study Area:

[5] has termed Atewa Forest Reserve (see Plate 1) as "The Crown Jewel of Ghana's Biodiversity" in that, the reserve has excellent biological resources as well as rich mineral deposits (mainly bauxite and gold). They further commented that the reserve has distinctive upland forest vegetation and as such, it is unfortunately under threat by illegal logging, hunting, and farming activities. However, bauxite exploitation is currently the key threat and it has ultimately, paved the way for illegal mining activities (galamsey). In the exploitation of the bauxite, it may be necessary to clear/fell the area and remove all the topsoil and overburden covering the bauxite. There is, therefore, the danger that the unique upland forest may be destroyed or at least be drastically reduced. At the same time, a considerable number of rare species may be threatened or endangered ([5]).



Atewa Range Forest Reserve.

Plate 1: Map of Atewa Range Forest Reserve. Source: Conservation International (2007).

DATA COLLECTION

The research involved questionnaire administration and key informant interviews. Heads of regulatory institutions and staff members were interviewed for triangulation. Respondents were selected from two political administration zone districts (due to the location of the reserve) for fair representation. Heads were purposefully sampled based on their special knowledge base in the mining sector and positions. Furthermore, [23] educated that stakeholder sampling, a type of purposive sampling, includes classifying key stakeholders involved in the design or administration of a programme and those affected by the programme. This was done by using the expert knowledge of the stakeholder institutions and selecting the Heads in a non-random way as documented in [38]. Staff members were selected through convenience sampling, while community members were selected through simple random sampling.

Sample Size Determination

Due to the unknown general population size of the communities visited, the researcher used a sample of 30 ([3]) to explore views and triangulate responses from key stakeholders. Hence, 87 respondents participated in the study, including 19 institution heads, 37 staff members, and 30 community members.

Data Analysis and Presentation

The primary data (questionnaire) was briefly summarized and coded for input into the SPSS, after which results of selected variables were drawn based on descriptive statistics that were used where the frequencies were computed with percentages. Content analysis was employed to deduce data from the desk study. It was used to classify vital information needed from the relevant documents, especially the 1992 Constitution. Content analysis is an approach used to explore precise textual extrapolations from its basis ([19]; [26]).

RESULTS AND DISCUSSION

Objective 1: Identification and Effectiveness of Institutional Partnership Plans

Institutional Partnership:

When it comes to mining operations in forest reserves, all the partner institutions (see Figure Plate 3.1) were (100%) in assertion or agreement that they hold partnerships with one another. This partnership, according to them (stakeholder institutions) is mandated or supported by the mining laws ([35] and [38]) and it must be observed or adhered to.

“My institution has partnerships with sister institutions such as the Environmental Protection Agency, Forestry Commission, Water Resources Commission, and the District Assemblies when it comes to mining operations because of what is enshrined in the mining laws” (stated, a head of a regulatory institution)

“The MMDCEs of the assemble will first call to notify the chiefs of a pending or upcoming mining project and then we arrange for a possible meeting to discuss it” (stated, a Chief of a mining community)

This is beneficial since institutional partnerships, especially that regarding natural resource management when frequently held among actors, enable them to express their concerns about resource management and consumption ([13]). Furthermore, the procedure is observed in identifying solutions for the mitigation of the negative effects of the operations, particularly on impoverished and deprived populations and communities at large while also boosting the positive impacts on their development ([11])

Forms and Effectiveness of Institutional Partnership

This section (Fig. 2) was to identify the means or medium of partnership among institutional stakeholders regarding mining operations in the reserves and adherence to regulations.

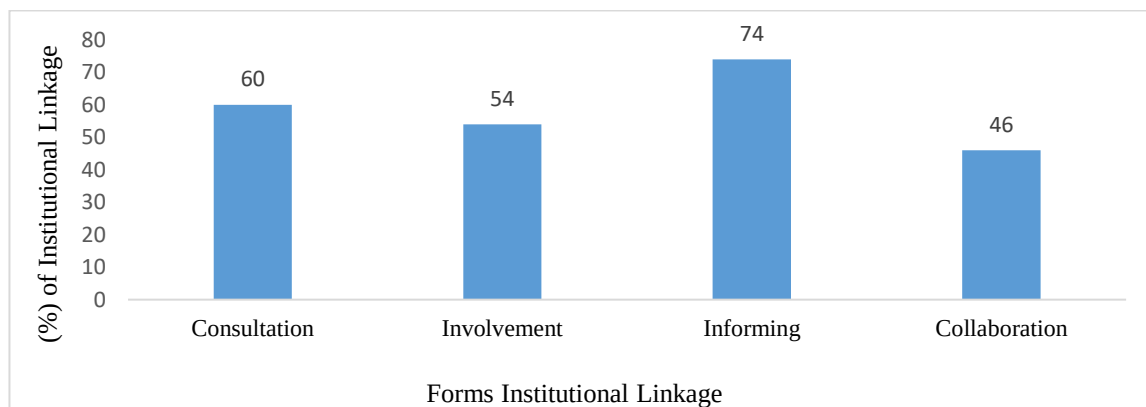


Fig. 2: Forms/Modules of Institutional Partnership *multiple response data

Source: Field data, 2022

The institutions are frequently (74%) informed of an upcoming or pending mining operation. The practice of serving or issuing notices to other institutions that a decision has been taken or will be taken about or concerning the grant of a miner's permit to perform any form of mining activities forms an integral part of the process of 'informing' other institutions based on the partnership module. The Minerals Commission, for instance, will merely notify the MMDAs that

a miner's permit has been issued, and as such, much attention should be paid to it or treat it as urgent, and such notice will be served to other stakeholder institutions. Among the institutions, this system of communication remained the most effective. According to them, the numerous routes of informing partner institutions primarily involve electronic platforms such as e-mails, which are then followed by an official letter for documentation and reference purposes. Memos are occasionally distributed as a means of informing partner institutions. *"We mostly would send letters in a form of communique to sister-institutions through the use of the internet informing them of an implemented decision"* (stated, a head of a partner institution)

This system or practice of partnership, by observation, seems to work effectively among the key regulatory institutions and turns to disregard other partner institutions, especially the community actors, who are mostly affected by the consequences of the mining operations. The fact is that there could be a disconnection in the partnership structure since it is assumed that these regulatory institutions hold the power to sanction or not sanction a mining operation within a specific jurisdiction. In view of this gap in the partner institution's structure, illegal mining activities could probably spring up in the reserves.

Another partnership method, consultation (60%), entails obtaining authorization from other sister institutions before deciding regarding a possible mining operation. For instance, the Chief Executives of the MMDAs must obtain traditional authorities' consent before allowing a miner to operate within their jurisdiction. This platform seems to work somehow, especially when there is a great bond between partner institutions, and an implication is that the miner sometimes commences operations before other stakeholders, particularly traditional authorities interrupt the process, until disputes are settled. *"We sometimes have to stop or issue series of warning statements to some mining concessionaires regarding their operations because we may not be in the known of their operation, and before we realize, permitting issues have been sorted out without our knowledge"* (stated, a chief of a mining community)

The implication of the consultation process also turns to limit the powers of some partner institutions such as the non-governmental organizations, and the Ghana Chamber of Mines to cite a few due to how structured the partnership system works. Furthermore, the stakeholder institutions would involve (54%) of stakeholder's approval or cooperation in order to make decisions and implement the results. The Government, through the Ministry, and regulatory institutions, for instance, would convene a meeting with mining communities purposely to obtain their agreement based on yet-to-be-mined mineral deposits on their territory. The purpose of the meeting is to assure the community of the positive impacts of the project such as employment creation for various levels of skilled and unskilled people in their communities, and also the provision of social responsibility agreement projects depending on the needs of the community such as provision of market centers, construction of schools to cite a few. *"Sometimes, some people from the ministry and other agencies will invite us (chiefs and elders) into a meeting to tell us that, there is a mining company that is going to operate in our forest and that, the government will ensure that the company provides our communities with some social amenities, and so we should agree and sign or consent to that project"* (Stated, a chief of a mining community)

Ideally, this partnership module, in actual practice, seems to be the most perfect and effective style to integrate the views or perspectives of all partner institutions regarding possible mining

operations in forest reserves, nevertheless, it seems to work effectively among some partner institutions, at certain level of the institutional structure. It is therefore expected that the outcome of this module, in view of involving few partner institutions, could result in making other partner institutions inefficient in the course of executing their mandates within the whole institutional structure. This gap, perhaps, could also contribute to the menace of illegal mining in the reserves. Another module of partner institutions or entities would be to collaborate (46%), in the sense of bringing certain or other key stakeholders on board before making decisions regarding mining operations. This process is deemed to allow all partner institutions, to decide on whether or not to grant a miner a concession to operate in it, which probably could be as a result of their expectations. This module also seems to be the most practiced among partner institutions; however, it is the least implemented module in the whole institutional structure, which obviously has implications on the mining processes in terms of integrating the views of all partner institutions into perspective to enable a collective decision-making process.

Objective 2: Barriers to Institutional Partnership Plans

Encounter of Institutional Barriers:

The partner institutions unanimously agreed (100%) that they encounter some obstacles in their partnership structure with sister institutions as a result of enforcing or complying with rules governing mining in forest reserves. As a result, illegal mining activities in forest reserves have become a threat to the natural environment at large, mostly including the fringe communities.

Forms of Barriers to Institutional Partnership Plans

This section (Fig. 3) presents the various barriers forms that serve as hindrances to the partnership structure among the institutions.



Fig. 3: Barriers to Institutional Linkage *multiple response data

Source: Field data, 2022

The most contributory element that poses a hindrance to institutional partnership remains the “lapses in the law” (84%). This factor, according to the partner institutions persists due to the unclear or lack of clarity of role play by partnership institutions regarding mining operations and activities in the forest reserves. It was cited that for instance, the mining laws fail to state

whether or not there should be local or district offices of certain key institutions including the regulatory institutions to implement mining regulations at the local levels, especially in the mining districts or locations. *“Eventhough, though the mining laws define the roles of all partner institutions, it is unclear if, at the district level, offices of certain institutions should be put in place to facilitate mining processes”* (commented, a head of a partner institution)

In view of this, it is assumed that due to the absence of key regulatory institutions, at the local mining locations to enforce mining laws compliance, possibly contributed to the menace of illegal mining activities, which has been identified as a critical environmental issue causing destruction to the entire forest environment ([24]; [25]; [4]). The issue of lack of institutional willingness (60%) to implement or undertake certain tasks on behalf of other partner institutions has also hindered the process of institutional partnership. This factor emanates as a result of the inability of certain partner institutions to showcase or express their disposition to work on behalf of the whole institutional structure. The issue of monitoring mining activities to ensure compliance with mining regulations, for instance, seems to be mostly performed by the regulatory institutions, as stipulated in the mining regulations, however, some other partner institutions, for instance, the local actors such as the traditional authorities and chiefs of the mining communities, by observation have remained ineffective to perform that activity, hence contributing to illegal mining menace. Besides, the attributing factor could be linked with the disconnection of institutional partnerships. The act or practice of autonomy (55%) among some partner institutions remains another hindrance to the structure of institutional partnership. This is realized when some partner institutions, for instance, the government, the ministerial bodies, and key regulatory agencies, as expressed by some partner institutions exercise supreme powers in making decisions regarding mining operations and activities without the knowledge of other partner institutions including the traditional authorities and chiefs of the mining communities for instance. *“When it comes to mining decision-making, there seem to be some super powers who usually decide and impose unto us to accept and adhere to it, whether it will be in our interest or not”* (stated, a chief of a mining community)

The lack of facilitating institutions (46%) also seems to be a perturbing and critical challenge to the partnership structure. It was hinted that not every partner institution is willing to devote resources in terms of logistics and finances, just to cite a few to ensure compliance with the mining regulations. In a clear case scenario, the local actors including the chiefs of the mining communities, as well as the traditional authorities, possibly due to their inability to acquire or provide such support services. Again, it remains vague in the mining laws as to which partner institution should be providing any form of support services in the partnership web or structure. This perhaps, exposes the gap, enabling illegal mining operations to be conducted in the forest reserves. *“As it stands now, the mining regulations fail to stipulate, as to which institution, what kinds of support and how that support mechanism should be provided is enshrined”* (commented, a head of a partner institution)

Apart from the aforementioned factors, other (20%) factors that pose a threat or serve as hindrances to the institutional partnership as expressed by some partner institutions include lack of research and development, advocacy and education, donor support mechanisms, finances, and capacity building platforms. The inaccessibility of these factors contributes to the work efficiency and effectiveness among some partner institutions, hence possibly resulting in illegal mineral resource exploitations and utilization in the forest reserves, especially at Atewa.

CONCLUSION

This study has proved that the conventional institutional partnership mechanisms among partner institutions governing mining in the Atewa Range Forest Reserve have remained ineffective. This has contributed to the menace of unlawful mining activities which is a result of lack of or insufficient field monitoring and supervisory activities, community sensitization programmes on mining, and its implications both on the environment and society at large. Besides, the key regulatory institutions remain non-existent at the local level, especially at the mining locations, hence making law compliance a critical issue to bear

RECOMMENDATIONS

To prop up the institutional partnership framework governing mining activities in the Atewa Range and by extension to other forest reserves in the country, the study recommends the establishment of key regulatory institutions in the local setting, especially the mining districts or locations to enhance compliance with the mining regulations.

It also recommends the restructuring of the institutional partnership framework governing mining in the forest reserves with clearly defined roles and channels of collaboration, especially during the issuance of mining permits to include mining communities that could curb unlawful mining activities.

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