MINING *and* ENVIRONMENT

An Assessment of Mining Companies' Compliance with Environment, Health and Safety Regulations and Standards in Kwale, Kilifi and Taita Taveta Counties in the Coast Region of Kenya

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Foreword

This assessment is a deliberate effort by Human Rights Agenda to find a way of improving compliance with environmental standards and regulations of mining companies through environmental and corporate accountability initiatives. The assessment was aimed at mapping and establishing an entry point towards community involvement in environmental compliance enforcement of mining companies in the three Counties of Kwale, Taita Taveta and Kilifi. The assessment was also to establish the level of compliance of mining companies to environment, health and safety regulations and standards. It was conducted through participatory approach involving gathering information from mining sector stakeholders in the three counties which included candid interviews with hotel management of mining companies and chief officers and County executive committee members in charge of the relevant department of mining, environment and natural resources; and administration of structured questionnaires to community-based organizations engaged in mining. Desktop review was conducted to establish the relevant legislation, policy and regulatory frameworks in the environment and mining sectors.

The assessment study involved looking at critical issues of the mining sector that provide a basis for environmental compliance and corporate accountability. The issues analysed include environmental compliance, legal and regulatory mechanisms, land and community interactions, and distribution/mapping of mining companies and entities. Preliminary results show that the small scale mining activities dominate the mining sector, with the mining site owners not abiding to any regulation, policy or standards. Small scale miners who operate as associations or CBO in Taita Taveta County are ignorant of the existing regulations and standards, the reason they are exploited by middlemen. The medium size mining companies are breaking the environment, health and safety regulations with impunity. There are no umbrella associations or CBO in the mining sectors in Kwale and Kilifi; instead they operate as individuals with impunity in environment, health and safety compliance. There is thus need to educate and sensitize the community on mining and environment, health and safety compliance so as to enforce compliance to standards and regulations through establishing community–based structures. HURIA shall dedicate itself to providing leadership, advocacy and mobilization of stakeholders to ensure environmental corporate accountability is inculcated into the best practices of mining companies.

I sincerely thank all the stakeholders who contributed in one way or the other for the successful completion of this study that informs on the level of compliance of mining companies with regulations and standards on environment, health and safety.

Mr. Yusuf Lule Mwatsefu
Executive Director, HURIA

Acknowledgement

HURIA wishes to acknowledge with gratitude those who participated in the assessment study on the mining companies' compliance with environment, health and safety regulations and standards in Kwale, Kilifi and Taita Taveta Counties. Special thanks go to the Chief Officers in the three counties who spared time in their busy schedules to grant interviews to the consultants. Warm gratitude goes to the small scale miners for their openness and invaluable information incorporated in this study. HURIA acknowledges the contribution from community-based organizations, the chamber of mines, Coast branch in Taita Taveta for the invaluable advice.

More importantly, we wish to dedicate a special acknowledgement to Dr. Maarifa Mwakumanya for undertaking this informative study and guiding the invaluable contributions from research assistants during the data collection exercise. Lastly, the whole exercise would not have been possible without the financial support from the Swedish International Development Agency (SIDA) through Act Transform Change (ACT).

Ms. Beatrice Sidi Mohamed
Programs Manager
HURIA

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List of Abreviations/Acronyms

CBO	Community Based Organization
CMK	Chamber of Mines of Kenya
CORP	Community Own Resource Persons
CSR	Corporate Social Responsibility
DSP	District Strategic Plan
EA	Environmental Audit
EIA	Environmental Impact Assessment
GL	Government Land
ICBD	International Convention on Biological Diversity
IEC	Information Education Communication
IGA	Income Generating Agencies
KDDP	Kilifi District Development Programme
MENR	Ministry of Environment and Natural Resources
NGOs	Non-Governmental Organizations
NLC	National Land Commission
NPA	National Plan of Action
RRMA	Riparian Resources Management Area
SWOT	Strengths, Weaknesses, Opportunities and Threats
TSHC	Technical Sand Harvesting Committee

Executive Summary

The assessment was conducted to 30 small scale and large scale mining companies in Kilifi, Kwale and Taita Taveta Counties. A total of 10 large scale and 20 small scale mining companies mainly distributed in the mineral belt of Kasighau, Kishushe and Mwatate in Taita Taveta County, Kuranze, Maumba - Shimba hills area and Waa in Kwale County and Jaribuni, Gongoni, Ganze and Tezo in Kilifi County. The assessment study involved all the relevant stakeholders in the three counties, which included communities living adjacent to mining companies, mining workers, mining company managers, the CBOs and NGOs involved in mining and the Chief Officers of county governments departments of environment, natural resources and mining. The wide range of stakeholders was purposely selected to ensure relevant and adequate information was generated to identify mining companies and evaluate their status of compliance with environment, health and safety regulations and standards in the mining sector. The study was also to establish how communities can be engaged in enforcing mining companies' compliance with regulations and standards and the best practices that can be emulated or adopted by companies for the protection of the wellbeing of the people. The assessment study was conducted through site visits, administration of questionnaires and organizing interview with the relevant stakeholders. The assessment had a success rate of about 95% of the targeted respondents.

The study identified all the mining companies in the three counties. The companies involved in mining had mining and/or prospecting rights from relevant department of geology. It can be revealed that the small scale miners in Taita Taveta operated as both CBOs and as Individuals with help from family members. In Kwale County, the individual small scale miners were mainly found in Kuranze. In Kilifi County individual small scale miners were mainly in the limestone quarrying and sand harvesting. It was noted that the operations of the mining companies, both the large and small scale companies, were not being supervised and regulated to ensure they were properly registered and abide by laws, regulations and standards. As much as the mining companies had mining and/or prospecting rights, some especially the small scale miners were not registered with NEMA, the County government or the registrar of companies.

The medium and large scale miners had EIA/EA document and licenses to operate as mining companies. None of the small scale mining companies has conducted the mandatory EIA or EA and therefore no management plan for the impact of the mining activities. The small scale miners were generally ignorant of the EIA/EA regulations and guidelines. It was evident that majority (83%) of the mining companies did not carry out the mandatory environmental impact assessment for the projects. This is followed by none compliance to environmental audit requirements as stipulated on the EIA/EA regulations and guidelines of 2003. It shows that mining companies' level of compliance is low, attributed to lack of strict enforcement and supervision by the government agencies. This heaps of debris that litter large areas mining sites altering the landscape, which subsequently become a source of dust and water pollution. 73% of the mining companies did not have any measures to manage the waste generated.

There was massive clearance of vegetation to pave way for mining with trees cut in disregard for the ecological services they provide. Excavations and digging caused tunnels that are risky since they can collapse and bury the miners alive. The abandoned pits were open and adjacent to the existing live pits, which posed eminent danger to the workers. Animal and insect habitats have been destroyed leaving the land bare with abandoned mining pits and dried stumps of trees. There was little restoration or rehabilitation effort to the destroyed biodiversity, which subsequently subjected the bare land to erosion. Clearing of vegetation eventually contributes to the effects of climate change such as erratic and unreliable rains causing floods and/or severe drought. The small scale mining companies lacked the institutional capacity to operate autonomously in the sector. More often than not, individuals charged with the day-to-day running of such institutions have neither the administrative know-how nor financial management skills. They literary work in disregard to the existing regulations and standards, hence, endangering the welfare of the workers.

Mining companies world-wide have established systems of best practices in the management of the environment, health and safety regulations and standards. This is to enhance company productivity and to reduce on cost of environmental degradation and on health and safety costs. It was observed that compliance to regulations and standards was generally low, especially with the disorganized small scale miners. However, the medium and large companies have displayed some best practices that can be emulated by all. Some of the best practices are as follows;

S/No	Best practices
1	Regular training of workers to instill the sense of health and safety at workplace
2	To adapt to modern machinery and technologies in mining
3	compliance to regulations and standards
4	Equitable benefit sharing
5	Reward for individual compliance
6	Allocating equal land for prospecting
7	Registration of prospectors to allow for accountability
8	Refilling of quarries and open pit
9	respect for human dignity
10	Formulating company regulations, policies and quality standards
11	Community-company liaison committees to jointly address environmental challenges
12	Establishing Environment, health and safety management structure
13	Regular consultative meeting between community and stakeholders on environmental justice
14	Updating and regular review of guidelines and develop procedures
15	Rehabilitation/Restoration of exhausted mines and quarries
16	Display of quality manuals, statements and missions on strategic places in the company premises
17	Allow company documents to be open to public review and scrutiny

The comparative best practices will see the mining sector rejuvenated to be a source of economic development in mining areas with the community welfare being a priority issue in the company operations.

There appeared to be a growing awareness on the contribution of the mining activities to individuals and at the regional development, making more local communities to invest in the mining sector. If the communities are strengthened and empowered with training and education, natural resources management information and facilities, they can be engaged adequately in the mining sector. communities needed to be involved in all the activities going on in their area and should also benefit from any business that has displaced them or had any kind of benefit accrued from the land used as they are the close stakeholders. Communities need to be empowered through education and awareness campaigns. Such initiatives should be focused on environmental injustice redress and benefit sharing of the mining resources. In environmental injustice redress, the communities should be able to enforce compliance with the environment, health and safety regulations and standards.

The community empowerment initiatives can be done through community liaison committees as well as established livelihoods that would subsequently empower communities financially. Advocacy, awareness and sensitization strategies should be employed to create an informed community on issues of environmental compliance, environmental justice and human rights. Establishing social networks can be an avenue for sharing information and integrity best practices in the mining sector. It can be recommended that ddeliberate mechanism need to be employed to streamline the mining sector, resettlement and compensation to affected communities must be looked into to include recognition of rights, values and cultures of the affected communities living in the mineral rich areas, the existing structures within the community such as civil society, faith-based organizations and other community leaders must be brought on board in a well-defined structure as bona-fide stakeholders in the sector to revamp its usefulness, the small scale miners and the community must be educated on the dangers of environmental degradation and compliance with the health and safety regulations and standards and strengthening of the existing institutional structures to allow for self regulations.

Chapter ONE

Introduction

1.1 Overview of the Mining sector in Kenya

Kenya's mining industry contributes a small part of the annual GDP mainly from non-metallic minerals such as soda ash, fluorspar, kaolin and some gemstones. Kenya has proven deposits of titanium, gold and coal, and is estimated to hold significant deposits of copper, niobium, manganese and rare earth minerals. The local share of mining revenue helps to diversify and expand the economy. However, Kenya needs to attract investors in the mining industry to boost economic development.

Kenya has such precious minerals as gold, which is produced primarily by artisanal miners in the west part of the country and other several small greenstone belts. Iron ore deposits are mined in several parts of the country for use in the domestic manufacture of cement from small localized deposits. However, large scale potential mining is emerging on the heavy mineral sands deposits and rare earth minerals in Kwale. Prospective deposits of coal have been found in Mui basin in Kitui, while Oil and gas prospecting and exploration which have intensified in the recent past, have the potential for developing the hydrocarbon sector in Kenya. The discovery of economic reserves of oil in Turkana and some part of the coastal region, off the coast of Mombasa, have invigorated the oil and gas exploration with a potential to strike commercial reserves in the near future. The mineral ore belts of Taita Taveta, the Rift valley, the coastal region and western Kenya have shown the potential for economic development.

As in many other mineral rich countries in sub-Sahara Africa, Kenya is making revisions to the regulatory frameworks in the mining sector with the aim of protecting the environment, ensuring compliance with regulations and standards in the sector and equitable benefit sharing of proceeds from the mineral resources. For instance, Tanzania, which is the Africa's fourth-largest gold producer, raised royalties on gold exports in 2010 to 4% of gross export value from 3% of netback value, taking into consideration the production costs. The review of the regulatory framework needs to take into consideration the involvement of mining communities and how benefits can trickle down to the grassroots levels and at the same time provide some incentives for infrastructural development.

1.2 Mining in the coastal region

Mining accounts for only 2% of the economic development of the region, with principal economic activities at the coast include tourism (45%), ports and shipping (15%), agricultural industry (8%), fisheries (6%), agriculture (5%) and forestry (4%).

Various types of minerals are found at the Kenyan coast. Some of these occur in

significant quantities and only a few are being exploited. Mineral deposits that occur in economic quantities include salt, coral rock, titanium, pyrochlore, barites, gypsum, iron ore and clay. Lesser minerals are apetite, galena, and manganese. Some of the sand deposits in the Kwale that are currently exploited by Base Titanium Resources include Ilmenite, Rutile and Zircon. Zircon is a zirconia silicate.

Extensive limestone deposits occur along the coastal area from the Tanzanian border in the south to Malindi in the north. A 70 m thick and 4–8 km wide band of limestone runs parallel to the coast. Older limestone units occurs further inland in the north of Malindi but only a few isolated exposures of limestone are found between Malindi and Lamu. Exploitation of limestone is widespread and depends on local variation in the limestone's texture, composition and market demand.

Coral limestone, the basic raw material for cement production, is excavated in shallow, heavily mechanized, opencast mines adjacent to the factories. Weathered shale and iron ore are also required as secondary raw materials for the production of cement. Shale is available in large quantities in the Mombasa area, and is mined in open pits near Nguu Tatu, west of Bamburi. Iron ore is obtained from Kilifi. Small quantities of pozzolana and gypsum, which are also needed in the cement production process, are mined in small quantities in Kilifi County around Ganze and Jaribuni. In Tiwi, limestone is used to manufacture lime.

Coral rocks that are excavated and shaped into coral blocks for building are available in large quantities in Manda Island of Lamu County. The production of coral blocks currently meets local demand in Lamu County, providing a livelihood to many people employed as excavators of building blocks and in the construction industry. Coral blocks are also mined at Roka, Bofa and Mtondia in Kilifi County, with great demand in Malindi and Mombasa.

Sand, important building material, is mined in many areas along the Kenyan coast, including Tiwi in Kwale County, Mazeras and Junda on the Kisauni side of Tudor creek and Ng'omeni. Silica sands used for glass manufacture are mined in Arabuko Sokoke in Kilifi County and in the Msambweni area of Kwale County. Clay, which is used for brick manufacture, is mined in the Port Reitz area of Mombasa. Ballast is mined at Kokotoni along the Mombasa–Nairobi road in Kilifi County. It is used for construction works in Mombasa and other towns in the Coast. The rare-earths, niobium and iron ore resources exist in the Mrima Hills of Kwale County. The exploration is underway and there are challenges in exploited the rare earth materials because Mrima hills is a nature reserve.

Titanium mining at the south coast is projected to elevate the contribution of the mining sector to a GDP of 3%from 1%. Other titanium mining companies have expressed their interest in exploring the heavy mineral deposits in the North Coast in Malindi and Kilifi. There are also other mineral deposits like lead, copper and zinc around Mkang'ombe in Kwale County.

1.3 Oil and gas exploration

Oil and gas exploration is going on along the Kenyan coast. Analysis of hydrocarbon potential, however, is difficult from the limited data available. However, the most promising areas along the Kenya coast are the Lamu Basin and the Malindi area. Good source and reservoir rocks for hydrocarbon deposits have been observed along the Kenya coast, with conditions becoming more favorable offshore. There are interests in the offshore Lamu Basin and initial exploratory wells have been sunk about 70 km off the Lamu coast.

Chapter TWO

Methods and Data Analysis

2.1 Methodological approach

The assessment study on the level of compliance of mining companies to regulation and standards involved collection, evaluation and analysis of information and data obtained from the mining sector stakeholders and field visits. The assessment employed a participatory approach to identify and profile all the mining companies in the targeted counties. Appropriate survey design and methodologies on how to effectively undertake the assignment were developed and shared with the client. The aim of the assessment was to come up with a comprehensive and all inclusive compliance report that will inform the status of compliance with regulations and standards by mining companies and to influence advocacy strategies for compliance and improvement of redress mechanism in the mining sector. The approach of the assessment also involved;

(i) Field visit and profiling/mapping of mining companies to establish the biophysical and socioeconomic environmental conditions of the mining sites. Mining sites and mining companies were identified and a sample selected depending on the severity of the mining sites in terms of environmental degradation. This was done through prior inventory of the sites by asking stakeholders from the areas. The small scale miners associations for Taita Taveta County helped to identify the sites for the study. The office of the chief officer in charge of natural resources and mining in Kwale and Kilifi helped to identify the study mining sites. Mining companies were identified according to level of operations, i.e. whether it was a small scale, medium or large scale companies. The level of operation of the companies was obtained from the information from the relevant County office and the department of geology in the three Counties.

(ii) Establishing the licensing status of the mining companies with the relevant government agencies. This was done by visiting the department of geology and Chamber of Mines offices to establish which of the mining companies was dully registered. It was also verified by field visits where the respondent was to confirm whether the company was registered. The questionnaire tool also captured the registration status of the companies during the study.

(iii) Establishing the mining companies' compliance to regulations and standards in practice and by having the relevant tools (EIA/EA reports, policies, facilities to enforce standards) and environmental, health and safety management structure. Visited NEMA offices to find out which mining companies had submitted EIA/EA reports and whether the companies had been issued with licenses to operate. This was verified in the field by requesting to see any compliance document for the operation of the mining company.

(iv) Interviewing the communities to establish the impact of mining and non-compliance of mining companies to regulations and standards on the socioeconomic and environmental wellbeing. This was done through administration of questionnaire tool to communities adjacent to mining companies and documenting the incidences as given by the respondents.

(v) Establishing how communities can legally enforce compliance by mining companies to regulations and standards. The suggestions were sort from the various stakeholders involved in the assessment study on how communities can be fully engaged in the enforcement of compliance to regulations and standards by mining companies.

(vi) Interviewing the management of the mining companies to establish the challenges and threats on enforcing and complying with relevant regulations and standards.

(vii) Determining the best practices by mining companies in environmental management and health and safety. This was done through interviews with company managers and through observations where best practice was evident.

The study covered three target counties (Taita Taveta, Kwale and Kilifi Counties) where mining and mineral prospecting is currently going on. In addition to seeking to establish compliance with regulations relating to environmental conservation, health and safety, the assessment also sought to establish whether the regulations and standards set by the regulator (National Environmental Management Authority – NEMA) are adequate and engage participatory enforcement by the communities.

Figure 1: A visit to the mining sites in Kishushe by the assessment team

2.2 Significance of the assessment

This assessment stemmed out from an earlier study conducted by HURIA, which found out that while there was reasonable compliance by a mining company with environmental regulations and standards regarding emission of pollutants to the environment, communities adjacent to mining sites continued to suffer from ill health with medical professionals having ascertained that the symptoms complained of are as result of pollutants attributable to mining activities. In view of this, it was reasonable to surmise that the standards set by the regulator with regard to air quality were not sufficient to safeguard the health and safety of the public – and hence the urgent need to assess the compliance of mining companies' with regulations and standards, with a view to initiating compliance enforcement strategies to safeguard human health.

It has been further observed that communities' plight on environmental concern has been largely perpetuated by weaknesses on the EMCA 1999 legal framework and other standards. For instance, the Environmental Impact Assessment and Audit Regulations of 2003 provide the need to involve the community in conducting Environmental Audits. However due to ignorance or lack of knowledge most communities do not participate on Environmental Audits. It can be noted that section regulation 34 (1 &2) of the legal notice No. 101 of the Environmental (Impact Assessment and Audit) Regulations, 2003, allows companies to undertake self-environmental audits. This regulation essentially defeats the essence and credibility of the process and is oftentimes non-inclusive and non-participatory opening a floodgate of corruption and maladministration by the companies to be subjected under EAs. Self-Auditing permits companies to conceal irregularities and non-compliance to Environmental standards.

It is against the foregoing background that this assessment was conducted to influence change and initiate discussions on the applicability of the current standards and regulations to which mining companies comply with, with a view to developing community enforcement mechanisms to improving communities' levels of health, safety and environment in the mining sector.

2.3 Specific objectives

The specific objectives of the study were;

(i) To identify and profile/map out mining companies (Large and small scale) in the target areas

(ii) To identify the Environment, Safety and Health compliance standards in the mining sector

(iii) Provide a comparative analysis of the best practices among companies in complying with standards and regulations in the mining sector with a view to identifying and benchmarking on none-compliant companies

(iv) Establish the level of compliance of mining companies to standards and regulations (Company, national and international standards)

(v) To establish whether environmental and health and safety regulations and guidelines engage community participation in enforcement of the same.

Figure 2: Interview with a mining worker in Kishushe, Taita Taveta County

2.4 Specific Tasks

This assignment followed the following steps:

(i) Identification and mapping out of companies in the mining sector and analysis of their health, environment and safety practices;

(ii) Assist HURIA in developing best practices on environment, health and safety through stakeholders consultation

(iii) Conducting field survey of mining sites in the targeted areas

(iv) Organizing consultative meetings with stakeholders in the mining sector with a view of establishing best practices and adherence to standards and regulations by mining companies

(v) Holding a validation workshop with stakeholders

(vi) Submitting an assessment report on the compliance of mining companies to regulations and standards.

2.5 Specific Deliverables

The specific deliverables of the assessment were;

(i) A final Report on the extent to which mining companies are complying with regulations relating to environment, health and safety A description of the methodology used in undertaking the exercise

(ii) Identified best practices in complying to standards and regulations on health, safety and environment.

2.6 The Scope of work

This assignment focused on determining the extent to which mining companies comply with regulations and standards relating to environment, health and safety. It was also focused on whether communities were adequately engaged in the enforcement of the standards and regulation. The study/assessment was sufficiently participatory by engaging the mining companies in the target counties, the communities around the mining sites and other interested and affected parties in the mining sector. The assessment was conducted in Taita Taveta, Kwale and Kilifi counties with stakeholders including Members of the Communities, specifically communities living adjacent to mining sites, large and small scale miners, political leadership including the County leadership (Chief Officers and County executive members), public officials and Kenya Chamber of Mines.

2.7 Data/Information analysis

The findings of the assessment study were arrived after the data and information from the field was synthesized and analyzed. The data was analyzed using SPSS software and Microsoft excel computer programme. The analysis was basically quantitative in nature and presentation was done in graphical as well as in table forms. The analysis focused on the general legislative and regulatory framework in the mining sector, the distribution of the mining companies and compliance with the regulations and standards of companies operating in the three counties of Taita Taveta, Kwale and Kilifi. Finally the assessment also involved determining ways in which communities can enforce compliance with regulations and standards to mining companies. The assessment report was validated and has been widely disseminated to ensure sufficient support to build efforts for compliance with regulations and standards through stakeholder consultative meetings and advocacy strategies.

Figure 3: Interview with one of the managers of a mining company in Mwatate

Chapter THREE

Legal, Policy and Institutional Framework

3.1 Background Information

The Kenya government is revising the Mining Act of 1940 into the new Mining and Minerals Act which is on the floor of the national assembly. The mining bill 2014 requires that all prospecting licenses to have an initial duration of four years and renewals to be granted for up to seven years in total, plus provisions. Exploration licenses are transferable. Legal policy and regulatory frameworks are being reviewed to harmonize the mining industry statutes with other sector-specific statutes. The Kenya Chamber of Mines (KCM) formed in 2001 is an active player in the mining sector that was formed to influence policy and regulatory formulation and review to regularize the mining sector. The KCM in conjunction with the Kenya Geological Society have been promoting mining activities in Kenya. It can be noted that many of Kenya's mineral deposits lie under property that are settled and privately owned. However, private property ownership is protected by the constitution as the minerals beneath the earth belong to the state. The fixed policy on royalty stipulates how fees and royalties will be calculated on a formula that will be differentiated according to the type of mineral. The ministry of mines also plays a role for providing a level ground for the industry players, to tighten enforcement and regularize prospecting and mining licensing procedures.

While the country's legislation is fairly comprehensive, creating regulations designed to protect the varying ecosystems and covering important sectors like the Environmental Impact Assessments and waste management, implementation faces a number of serious challenges. The National Environmental Management Authority (NEMA) has primary responsibility for implementing environmental safeguards measures in Kenya, although many agencies, including civil society, private sector and other government agencies have responsibilities enforce compliance in one way or the other.

Kenya has over 77 statutes which relate to environmental concerns. Most of the statutes are sector specific, covering issues such as land use, occupational health and safety, water quality, wildlife, public health, soil erosion, air quality among others. The mining sector in Kenya contributes a significant small amount of revenue to the country, but is envisaged as growing to be a leading sector in the near future when various policies and legislations are enacted. A more positive perspective of the mining sector is gradually changing as more precious minerals are discovered in various parts of Kenya. For instance, coal discovery in Mui Basin in Kitui and the drilling of oil in Turkana County are already showing signs of development with infrastructure development in the areas. However, the mining sector activities have not been coordinated very well as there are many unregulated small artisanal mining groups that do not adhere to environmental policies and guidelines. The major setback in policy implementation is due to fragmented stakeholders and overlap of responsibilities between agencies on oversight functions. The sand and limestone mining has been observed to have far much reaching impact on the environment without much enforcement of regulations and standards in these activities.

3.2 Legal Framework

The mining sector legal framework has been in operation since the 1940s when the Mining Act Cap 306 came into effect. The legal frameworks have not provided the direction for harmonious operation of the sector, with stakeholders agitating for the review of the Act. The national minerals and mining policy which was to inform the enactment of the review of the 1940 Act was initiated and at the moment the Act is being enacted to come up with a new minerals and mining act. The Mineral and Mining bill is at an advance stage in the legal formulation process. The Constitution of Kenya 2010 has provided a basis for engaging stakeholders to be and upholding the doctrines of clean and safe environment in any operation, thus safeguarding and protecting the environment.

All un-extracted minerals are the property of the state according to the Mining Act 1940. The exploration and exploitation in Kenya is controlled by the department of Mines and Geology, which also undertakes geological surveys, geo-scientific research and the general regulation of the mining sector. The gemstone and jewellery sub-sector is regulated under the Mining Act Cap 306, the Trading in the Unwrought Previous Metals Act Cap 309, and the Diamond Protection Industry Act Cap 310, of the Laws of Kenya. Sectoral laws have also supported and emphasized on environmental conservation and protection.

3.2.1 The Constitution of Kenya, 2010

The Constitution of Kenya 2010 has dedicated a whole Chapter 5 on Land and Environment and has declared that every person is entitled to a clean and health environment. The Constitution ensures that there is a sustainable and productive management of land resources as well sound conservation and protection of ecologically sensitive areas. Article 42 of the Kenya constitution, states that every person has the right to a clean and healthy environment through environmental protection for the benefit of the present and future generations. The constitution gives rights to citizens to the protection of their health, safety and economic interest. Violation of this article leads to environmental injustice to the communities. The Constitution of Kenya 2010 in 70 (1-3) vests the right to enforcement of environmental rights to citizens and any one environmentally aggrieved person can apply to a court for redress and does not need to demonstrate that the person has incurred loss or suffered injury.

3.2.2 The Environment Management and Co-ordination Act, 1999

The Environmental Management and Coordination Act (EMCA) address environmental matters relevant to sustainable mineral exploration and exploitation in Kenya by making relevant provisions. The Act establishes national environmental principles to provide guidance and coherence to good environmental management. The Act also makes provisions dealing with issues that cut across all sectors of environmental protection and management including environmental policy, environmental

planning, protection and conservation of the environment. Further, EMCA provides for the duty to safeguard and enhance the environment. In other words, every person entitled to enjoy the right to a clean and healthy environment has a duty to protect the environment and promote sustainable development. This, in essence, is important in that it binds the government and investors seeking to explore or exploit minerals in Kenya to protect the environment. The Act compels the government to ensure that all natural resource exploitation agreements it enters into safeguard and protect the environment of Kenya.

The Standards and Enforcement Review Committee (SERC), a committee of NEMA under Section 70 of EMCA, is charged with the responsible of formulating environmental standards, methods of analysis, inspection, monitoring and technical advice on necessary mitigation measures. NEMA through this committee has issued the following regulations among others which have a bearing on the mining sector with regard to compliance with national requirements:

(i) The Environmental (Impact Assessment and Audit) Regulations, 2003. Legal Notice No. 1

(ii) The Environmental Management and Coordination (Water Quality) Regulations, 2006, Legal Notice No. 120

(iii) The Environmental Management and Coordination (Waste Management) Regulations, 2006. Legal Notice No. 121.

3.2.3 Water Act, 2002

The Act vests the water in the State and gives the provisions for the water management, including irrigation water, pollution, drainage, flood control and abstraction. It is the main legislation governing the use of water especially through permit system. Part II, section 18, of the Water Act 2002 provides for national monitoring and information system on water resources. Following on this, sub-section 3 allows the Water Resources Management Authority (WRMA) to demand from any person or institution, specified information, documents, samples or materials on water resources. Under these rules, specific records May require to be kept by a facility operator and the information thereof furnished to the authority. This act also has provisions for the protection of water against any form of pollution, including pollution from mining activities.

3.2.4 Occupational safety and health services Act, 2007

This act establishes provisions for the health, safety and welfare of persons employed in factories and other places of work and covers the following areas;

(i) Registration of the workplaces

(ii) Health, general provisions

(iii) Machinery safety

(iv) Chemical safety

(v) Welfare, general provisions

(vi) Health, safety and welfare, special provisions

(vii) Special applications

(viii) Offences, penalties and legal proceedings

The mining sector is not left out in this and therefore need to adhere to the law. There is need to protect the welfare of the workers by providing appropriate tools and facilities for their work, protective clothing as well as provide a working environment that ensures the workers safety and security. It emphasizes on the registration of workplaces with relevant authorities so that activities can easy be monitored and evaluated for protection of the environment and welfare of workers.

3.2.5 Factories, building operations and other places of work Act, Cap 514

The factories act makes provisions for health, safety and welfare of persons employed in industries and other places of work. Part IV of the act covers health issues. This includes the state of cleanliness, types of workrooms, refuse management, employee space requirements, ventilation and sanitary conveniences. Part V covers safety; operations and maintenance of machinery, fencing requirements, storage of dangerous substances, training and supervision of workers. Part VI deals with welfare issues; drinking water supply, washing facilities, sitting areas and first aid provisions. Mining projects require adherence to this act for the welfare, health and safety of the mining workers.

3.2.6 Employment Act 2007

The Act constitutes minimum terms and conditions of employment of an employee and any agreement to relinquish vary or amend the terms set shall be null and void. The act stipulates that no person shall use or assist any other person, in using forced labour. Clause 5 of the act states that its shall be the duty of the Minister, Labour officer, the National Labour Court and the subordinate labour courts to; Promote equality of opportunity in employment in order to eliminate discrimination in employment Promote and guarantee equality of opportunity for a person who, is a migrant worker or a member of the family of the migrant worker lawfully within Kenya. No employer shall discriminate directly or indirectly, against an employee or prospective employee or harass an employee or prospective employee on the following grounds; race, colour, sex, language, religion, political or other opinion, nationality, ethnic or social origin, disability, pregnancy, mental status or HIV status. An employer shall pay his employees equal remuneration for work of equal value

Part IV Rights and duties of employment and the provisions of part VI constitute basic minimum and conditions of contract of service. The employer shall regulate the hours of work of each employee in accordance with provisions of this Act and any other written law. Subsection (2) of section 27 states that an employee shall be entitles to at least one rest day in every period of seven days. An employee shall be entitled not to less than twenty-one working days of leave after every twelve consecutive months. As envisaged in the act any worker is entitled humane conditions and terms and that the act discourages child labour. The mining sector needs to observe this act as it provides essential legislation to protect the environment under which the workers are exposed to.

3.2.7 National Land Commission Act No 5 2012

Relevant functions of the National Land Commission (NLC) related to Community Land include managing and administration of unregistered trust land and unregistered community land, develop and encourage alternative dispute resolution and traditional dispute resolution mechanisms over land conflicts, ensure that all unregistered land is registered within 10 years and investigate historical land injustices and review grants of public land. The NLC has started implementing its legal mandate and has instituted a commission to look into historical land injustices in the country.

The National Land Commission Act establishes the statutory foundation for the National Land Commission, granting it broad functions and authorities in land governance. In addition to affirming the National Land Commission's management authority over public lands, the Act also grants the Commission responsibility for, among other things, advising the national government on a comprehensive program for land title registration, initiating claims for historic injustices, encouraging the

application of alternative and traditional dispute resolution mechanisms, managing and administering all unregistered trust land and unregistered community land on behalf of the county government, developing and maintaining an effective land information management system at national and county levels, and monitoring and oversight over land use planning. Many mining sites are on community land which requires registration under the act to resolve the conflict witnessed in the mining industry.

3.2.8 Land Registration Act No 3 of 2012

It is an Act of Parliament to revise, consolidates and rationalizes the registration of titles to land, to give effect to the principles and objects of devolved government in land registration, and for connected purposes. The act establishes a community lands register to be kept in each land registration unit, but no registration of community lands transactions before new Act. It identifies specific items that must be included in community land register. This act requires the registrar to issue certificate of title or lease for registered Community Land (CL). The Act prohibits Registrar from registering any instrument that disposes of community land except in accordance with Community Land law. The mining activities therefore must observe these regulations

3.2.9 The Land Act, No 6 of 2012

It is an act of Parliament that gives effect to Article 68 of the Constitution, to revise, consolidate and rationalize land laws; to provide for sustainable administration and management of land and land based resources, and for connected purposes. The Land Act provides a piece of legislation structured to enhance land governance and rights in accordance with the Constitution. The Act recognizes three categories of land (public, community and private), and gives parameters for conversions between these categories. The Land Act contains guiding values and principles, incorporating a comprehensive list of land governance principles from the Constitution. The Act also identifies transparency requirements and public safeguard provisions for public land allocations, and provides for clear protections for landholders and interested parties in the context of compulsory acquisition. If the Act is to be implemented to the later, will uphold the values of transparency by highlighting the methods of acquiring a title deed as stated in Article 7.

3.2.10 The Environment and Land Court Act, No. 19 of 2011

An act of Parliament to establish a Superior Court to hear and determine disputes relating to the environment and the use and occupation of, and title to, land. The superior court on Environment and Land was established to exercise jurisdiction throughout Kenya and shall pursuant to section 26, ensure reasonable and equitable access to its services in every county. In Article 13 (1) and (2) the court shall have powers to hear and determine disputes related to environment and in accordance with article 162 (2)(b) of the constitution. The Act also recognizes the need to have alternative dispute resolution mechanisms in accordance with Article 159(2) (c) of the constitution. The implementation of such mechanisms need to be facilitated and empowered to deliver justice. The act provides a legal redress to disputes in the mining sector

3.2.11 The Mining Act 1940

This is an act of parliament that was established to consolidate the law relating to mining. The act is being repealed and to be replace with the proposed Mining and minerals act. Under this act a mine includes any open-cast mining, place, excavation or working whereon, wherein or whereby any operation in connection with prospecting or mining is carried out. Every clause in the Mining Act of 1940 is silent or deliberately designed to exploit the communities living in or around the mining areas while vesting overriding powers in the Commissioner of Mines and the minister in charge of mining to manipulate the sector. Like the proverbial bully who commits a physical assault and proceeds to pay the victim to seek medical attention, the Act gives illegal miners the opportunity to break the law and buy their freedom at the most affordable rate.

Clause 5 (1) for instance reads:

> *"Except as in this Act provided, any person who prospects or mines on any land in Kenya shall be guilty of an offence and liable to a fine of two thousand shillings or to imprisonment for a term not exceeding six months and to the forfeiture of all minerals obtained in the course of such unauthorized prospecting or mining, or, if such minerals cannot be forfeited, to the payment to the Government of such sum as the court assesses as the value of such minerals."*

This law has glaring loopholes which have not only been abused by unscrupulous dealers time and again, but lacks in rationale as it fails to protect the interest of the community which the minerals have been discovered.

3.2.12 The Mining Bill 2014

Part VI of the Bill (general provisions on mineral rights) Clause 45 states the preference in employment. The holder of a mineral right shall give preference in employment to citizens of Kenya as stated in section (1). Large scale operators shall among other obligations under this bill are to only engage non-citizen technical experts in accordance with such local standards for registration as may be prescribed in the relevant law, work at replacing technical non-citizen employees with Kenyans, within such reasonable period as may be prescribed by the Cabinet Secretary, provide a linkage with the universities for purposes of research and environmental management, where applicable and necessary facilitate and carry out social responsibility to the local communities.; and implement a community development agreement.

Clause 48 of the Bill directs a mineral right holder to have a preference of the local products in the conduct of prospecting, mining, processing, refining and treatment operations, transport or any other dealings in minerals give preference to the maximum extent possible;

(a) To materials and products made in Kenya;

(b) To services offered by Kenyan citizen; and

(c) To companies or businesses owned by Kenyan citizens.

Part xi, clause 149 section one directs the right holder not exempt a person from complying with any law concerning the protection of the environment. Section two states that a mineral right shall not be granted to a person under this Act unless the person has obtained an environmental impact assessment license, social heritage assessment and the environmental management plan has been 'approved

Clause 150 of the Act; the right holder is not exempted from compliance with the provisions of the Water Act, 2002 concerning the right to the use of water from any water resource. 151. (1) compels the right holder to Occupational Health and Safety Act, 2007 concerning the safety of workers and mine operations.

Clause 152 is dedicated to land use and directs the right holder to use the land in accordance with the terms of the permit or license and shall ensure,

(a) The sustainable use of land through restoration of abandoned mines and quarries;

(b) That the seepage of toxic waste into streams, rivers, lakes and wetlands is avoided and that disposal any toxic waste is done in the approved areas only;

(c) That blasting and all works that cause massive vibration is proper!), carried out and muffled to keep such vibrations and blasts to reasonable and permissible levels in conformity with the Environmental Management and Coordination Act; and

(d) That upon completion of prospecting or mining, the land in question shall be restored to its original status or to an acceptable and reasonable condition as close as possible to its original state.

Clause 154 (1) states that an applicant for a prospecting license, a retention license or a mining license shall provide a bond or some other form of financial security called an environmental- protection bond sufficient to cover the costs associated with the implementation of the environmental and rehabilitation obligations of the holder under this Act. This clause will enhance environmental protection and conservation as it compels mining companies to set aside some money for environmental restoration.

3.2.13 The Forest Act, 2005

The Act enforces the conditions and regulations pertaining to logging, charcoal making and other forest utilization activities. To ensure community participation in forest management, the Kenya Forest Service collaborates with other organizations and communities in the management and conservation of forests and for the utilization of the biodiversity. Section 43 (1) provides that if mining, quarrying or any other activity carried out in the forest, where the activity concerned is likely to result in forest cover depletion, the person responsible shall undertake compulsory re-vegetation immediately upon the completion of the activity.

3.3 Regulatory and standards Framework

The regulatory framework in the mining sector is guided by regulatory provisions from other sectors. The sector is not operating in unison, but operates within the existing regulations in the country, and therefore need to adhere to regulations and standards to protect the environment and for the welfare of the mining workers.

3.3.1 Environmental Management and Coordination (Water Quality) Regulations and standards, 2006 (Legal Notice No. 120)

The regulation came into force in July 2007. It provides for the sustainable management of water used for various purposes in Kenya. The regulation requires that the proponent applies for an "Effluent Discharge Permit" annually for discharging process wastewater either into the environment, aquatic environment or public sewers. The regulation contains discharge limits for various environmental parameters into public sewers and the environment as well as the maximum discharge limits of various environmental quality parameters. The water policy recognizes the need for urgent mitigation measures such as rehabilitation of water catchments areas and safeguarding biodiversity, construction of dams and pans in the dry areas to enhance rain water harvesting, sinking boreholes and embracing efficiency methods of water use.

These regulations are described in Legal Notice No. 120 of the Kenya Gazette Supplement No. 74, September 2006. The regulation applies to drinking water, water used for agricultural purposes, water used for recreational purposes, water used for fisheries and wildlife and water used for any other purposes. This includes the following:

(i) Protection of sources of water for domestic use;

(ii) Water for industrial use and effluent discharge;

(iii) Water for agricultural use.

The regulations outline:

(i) Quality standards for various sources of domestic water;

(ii) Quality monitoring for sources of domestic water;

(iii) Standards for effluent discharge into the environment;

(iv) Monitoring guide for discharge into the environment;

(v) Standards for effluent discharge into public sewers;

(vi) Monitoring for discharge of treated effluent into the environment.

3.3.2 Water Quality regulations and standards 2006 (legal notice 121)

Water Quality Regulations apply to water used for domestic, industrial, agricultural, and recreational purposes; water used for fisheries and wildlife purposes, and water used for any other purposes. Different standards apply to different modes of usage. These regulations provide for the protection of lakes, rivers, streams, springs, wells and other water sources. The objective of the regulations is to protect human health and the environment. The effective enforcement of the water quality regulations will lead to a marked reduction of water-borne diseases and hence a reduction in the health budget.

The regulations also provide guidelines and standards for the discharge of poisons, toxins, noxious, radioactive waste or other pollutants into the aquatic environment in line with the Third Schedule of the regulations. The regulations have standards for discharge of effluent into the sewer and aquatic environment. While it is the responsibility of the sewerage service providers to regulate discharges into sewer lines based on the given specifications, NEMA regulates discharge of all effluent into the aquatic environment.

The regulations provide for the creation of a buffer zone for irrigation schemes of at least fifty (50) m in width between the irrigation scheme and the natural water body. Standards for irrigation water are given in schedule nine of the regulations. All firms or persons discharging effluent into the aquatic environment are required to submit quarterly discharge monitoring records to NEMA based on prescribed procedures of sampling and analysis.

Everyone is required to refrain from any actions, which directly or indirectly cause water pollution, whether or not the water resource was polluted before the enactment of the Environmental Management and Coordination Act (EMCA) gazetted in 1999. It is an offence to contravene the provisions of these regulations with a fine not exceeding five hundred thousand shillings.

3.3.4 Environmental Impact Assessment and Audit Regulations (2003) Legal Notice No. 101

The Environmental Impact Assessment and Audit Regulations state in Part III Rule No. 6 that an environmental impact assessment study shall be conducted in accordance with the terms of reference developed. Part III Rule 16, takes into account environmental, social, cultural, economic, and legal considerations, and shall:

(i) Identify the anticipated environmental impacts of the project and the scale of the impacts;

(ii) Identify and analyze alternatives to the proposed project;

(iii) Proposed mitigation measures to be taken during and after the implementation of the project;

(iv) Develop an environmental management plan with mechanisms for monitoring and evaluating

(v) The compliance and environmental performance which shall include the cost of mitigation measures and the time frame of implementing the measures

The Proponent should commission the environmental impact assessment study in compliance with the EMCA, 1999. The environmental management and monitoring plan laid out in this report should be adhered to by the Proponent.

3.3.5 Environmental management and coordination (conservation of biological diversity) regulations 2006

These regulations are described in Legal Notice No. 160 of the Kenya Gazette Supplement No. 84, December 2006. These regulations apply to conservation of biodiversity which includes conservation of threatened species, inventory and monitoring of BD and protection of environmentally significant areas, access to genetic resources, benefit sharing and offences and penalties. Additionally, these links provide for the local enforcement of the International Convention on Biological Diversity (ICBD).

3.3.6 National policy on natural resource information management, 2007

The policy provides a national framework for handling natural resource data and information. This includes generation, access and utilization of natural resource data and information aimed at enhancing the sound management of natural resources and aid national development planning. It also encourages integrated environmental information management and reporting whereby the information from different institutions and organizations is gathered from different ecosystems such as forests, agro-ecosystems, savannah, and freshwater, marine and 130 coastal ecosystems. The data is collated, analyzed and the resulting information shared to support sound decision-making. Data enables the prediction of occurrences, land use changes, different patterns and trends. This has enabled better environmental governance and alleviation of adverse effects on mining activities.

3.3.7 Waste management regulations and standards, 2006 (legal notice no.121)

Waste Management Regulations are meant to streamline the handling, transportation and disposal of various types of waste. The aim of the Waste Management Regulations is to protect human health and the environment. Currently, different types of waste are dumped haphazardly posing serious environmental and health concerns. The regulations place emphasis on waste minimization, cleaner production and segregation of waste at source.

The regulations have classified various types of waste and recommended appropriate disposal methods for each waste type. Under the Waste Management Regulations, NEMA licenses transporters, incinerators, landfills, composers, recyclers and transfer stations. Facilities to be licensed include local authorities, transporters and handlers of various types of waste. The licensing employs a risk-based approach by concentrating on facilities considered to pose a high risk to the environment.

The Waste Management Regulations also provide an opportunity for investment in various aspects of waste management and provide regulations and standards to protect the environment and the mining worker.

3.3.8 National sand harvesting guidelines, 2007

Section four establishes the technical sand harvesting committee at the county level to be responsible for;

1. The proper and sustainable management of sand harvesting within the county in respect of which it is appointed.
2. Designation of authorized sand harvesting sites on riverbeds, lakeshores, seashores, farms, government or trust land, subject to the provisions of the Constitution of Kenya and Mining Act, Forest Act and any other relevant legislations, and define the extent of each Riparian Resource Management Association's (RRMA) area of operation.
3. Performing any functions as may be prescribed by the District Environment Committee.

The guidelines provides for the Technical Sand Harvesting Committee (TSHC) to monitor the rehabilitation of all designated sand harvesting sites and their adjacent environment (access roads, riverbanks, catchment areas among others) to ensure environmental sustainability.

3.3.9 The environmental management and coordination (Noise and Excessive vibration pollution control) regulations, 2009

The general prohibitions of the regulation states that no person shall make or cause to be made any loud, unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. In the determination whether noise is loud, unreasonable, unnecessary or unusual, the following factors may be considered:

(i) time of the day

(ii) proximity to residential area

(iii) whether the noise is recurrent, intermittent or constant

(iv) the level and intensity of the noise

(v) whether the noise has been enhanced in level or range by any type of electronic or mechanical means; and

(vi) Whether the noise can be controlled without much effort or expense to the person making the noise.

Part 14 of the regulation states that where defined work of construction, demolition, mining or quarrying is to be carried out in an area, the authority may impose requirements on how the work is to be carried out including but not limited to requirements regarding -

(i) Machinery that may be used, and

(ii) The permitted levels of noise as stipulated in the Second and Third Schedules to the Regulations.

The relevant lead agency shall ensure that mines and quarries where explosives and machinery are used are located in designated areas and not less than two kilometers away from human settlements. Any person carrying out construction, demolition, mining or quarrying work should ensure that the vibration levels do not exceed 0.5 cm second beyond any source property boundary or 30 m from any moving source. Part 15 provides for the need of conducting an Environmental Impact Assessment by the proponent of projects such as construction, demolition, mining or quarrying work.

3.4 Policy framework

The policy framework guides the operations of the mining sector for the protection of the environment and the welfare of the people.

3.4.1 The national wildlife conservation and management policy, 2012

The goal of the Policy is to create an enabling environment for the conservation in perpetuity, Kenya's rich diversity of species, habitats and ecosystems for the wellbeing of its people and the global community in accordance with the Constitution. The Policy points out the need to identify and implement compatible land uses and fair distribution of benefits derived from wildlife including from both non-consumptive and consumptive uses of wildlife; and the

need for an integrated approach to wildlife conservation and management in order to minimize human–wildlife conflicts. The policy calls for the protection and conservation of the wildlife biodiversity in mining areas. This strengthens the existing policies on biodiversity conservation, which the mining companies have an obligation to protect and conserve and find ways of managing the restoration of the mining sites.

3.4.2 National environmental policy 2012

The goal of the policy is to advance quality of life for current generation without compromising the quality of life of future generations through sustainable management of the environment and natural resources. The Policy promotes and supports the use of innovative environmental management tools such as incentives, disincentives, total economic valuation, indicators of sustainable development, SEA, EIA, Environmental Audit, and payment of environmental services in environmental management.

The policy is clear on the need for all-inclusiveness in the process of environmental management and protection. The mining companies can take the advantage of incorporating the local communities into environmental management through livelihood options as well as educating them on their role in enforcing compliance as a means of self-audits.

3.4.3 The national minerals and mining policy, 2010

The overall objective of the policy is to sustain mineral resources development so as to maximize on accruing benefits while maintaining Kenya as an attractive investment destination. The policy also provides an overarching framework for the development and management of mineral resources as defined in the Kenya Constitution, 2010. The policy is as well aligned to other sectoral policies such as energy policy, environment policy, water policy and land policy.

The policy proposes the creation of four main institutions; The Kenya Geological Survey responsible for geological mapping and mineral exploration, The Kenya Mineral and Mining Authority to regulate the minerals and mining sector, The Kenya Mining Corporation which will be the Government arm for investment in the mining sector and the Mining Disputes Resolution Tribunal to deal with disputes in the mining sector. The policy sets organs that can be utilized for sustainable harnessing and utilization of mineral resources and set the redress mechanisms in the mining sector.

3.4.4 National education for sustainable development policy

Education of the general public around the mineral rich areas is critical for them to understand the benefits, opportunities and effects of the mining activities. This policy is crucial in preparing people for a resettlement exercise and in order to receive less resistance. The policy, among other issues, ensures sustainable management of the environment and natural resources, such as unique terrestrial and aquatic ecosystems, for national economic growth and improved people's livelihood and well-being.

3.4.5 National land policy 2010

This policy addresses the critical issues of land administration, access to land, land use planning, and restitution of historical injustices, environmental degradation, conflicts, unplanned proliferation of informal urban settlement, outdated legal frameworks and information management. Section 3.4.3, Articles 125-131 addresses the environmental management principles emphasizes on harmonization of policies and regulations to be in line with EMCA 1999 and its regulations and legal notices with regard to general environmental guidelines and environmental assessment and audit.

3.4.6 Resettlement/land acquisition policy framework

The objective of the policy is to outline the manner in which the people in areas where minerals have been found to be relocated to other areas.

3.4.7 Land reclamation policy

This policy was not drafted by the ministry concerned with mining and minerals in Kenya rather it is a product of the Ministry of Water and Irrigation. Nevertheless, it has been included here since it affects the mining sector especially on the aftermath of mining activities and not on the onset of mining. For instance, in mining from limestone and even sand, huge holes are left behind that become hazardous to the environment.

3.4.8 National occupational safety and health policy (June, 2010)

This policy aims at promoting safe and healthy environment in places of work especially mining sector which not only uses dangerous chemicals in extraction of minerals but also exposes the workers to health hazards like dust.

3.4.9 Draft mining policy

The draft mining policy outlines seven principles which include: transparency, access to justice, public participation; inter-generational equity; International cooperation in the management of mineral resources, environmental protection, observations of social and cultural values, equitable access to mineral resources and benefit sharing and value addition to raw minerals as a means to increase returns for the people of Kenya. The principle of public participation should have been applied at the formulation process of the mining policy as well as in the various aspects of the policy in making provision for access to information on mining and mineral resources, grant of rights, and constitution of regulatory bodies among other processes. The objectives need to be tied in with principles and values.

The policy falls short of creating a regime that is accountable, the proposed constitution of the board leaves out small scale miners. People affected by mining operations should be given a 16 equal platform within the policy whether they are small scale miners or large scale miners. The draft policy also addresses the issue of displacement and compensation.

The policy says that this is an issue of importance to corporations; it says that the government will provide assurances, including that the issue of compensation will be sorted out. The policy provides no elaborate provision for social security and resettlement of persons. It also provides for dispute resolution tribunal. It provides that the same person, commissioner of mines and geology is the grantor of licenses and also resolves disputes. It creates contradictions between role of NEMA and role of commissioner of mines and geology.

3.5 Institutional Framework

3.5.1 Mines and Geology Department

The main institution tasked with mining in Kenya, previously under the Ministry of Environment and Mineral resources which now falls under the Ministry of Mining. Under the Mining Act, Cap 306, the department is mandated to carry out geological survey and research of geo-scientific database and information; administration of legislation relating to mineral resources development; mineral and mining policy formulation; advising government on mineral policy matters; supervision of quarry and mine safety; and security of commercial explosives.

In 2010, in a bid to strengthen the mining sector, the government began institutional reforms in the minerals and mining sector

by proposing the restructuring of the department of mines and geology to create four main institutions.

Kenya Geology Survey,

Kenya Minerals and Mining Authority,

Kenya Mining Corporation

Mining Disputes Resolution Tribunal

These institutions are meant to improve the efficiency and effectiveness in mineral resources management and policy implementation. However under the draft Geology, Minerals and Mining Bill, the above institutions were combined to form the Kenya Geology, Minerals and Mining Authority, the Minerals and Mining Board and the Mining Disputes Review Tribunal.

3.5.2 Geology, Minerals and Mining Authority

Exercise supervision and coordination in all matters relating to geology, minerals and mining and to be the principal instrument of the government in implementing all policies relating to geology, minerals and mining. The authority has the mandate to inter alia conduct geo-hazard investigation, mapping and monitoring. The authority is also mandated to monitor and ensure that mining takes into account local and community values. According to section 79 of the Bill, the Minerals and Mining Board is empowered to make recommendations to issue a mining license if it is satisfied with the following conditions:

(i) The area of land over which the mining license is sought is reasonable having regard to the applicants proposed programme of mining operations;

(ii) The applicant has adequate financial resources, technical competence and experience in the mining industry;

(iii) The applicant has obtained an Environmental Impact Assessment license in respect of the proposed mining operation;

(iv) The applicants' proposals with respect to employment and training of Kenyan citizens are acceptable

(i) Review of regulations and standards in the mining sectors

3.5.3 Kenya Chamber of Mines

The Kenya Chamber of Mines endeavors to lobby from the government, for communities and stakeholders with respect to mineral related issues and the development of this mining industry. It is mandated to lobby for the creation, maintenance and improvement of mineral business environment for the successful development and benefit sharing of the mineral industry players in Kenya as a whole. KCM together with Kenya government is putting in place a mining policy and revising the outdated Mining Act 1940 in order to encourage development of the mineral industry in the country.

Members ranges from cement manufacturers, construction and real estate, equipment suppliers, event organizers, exploration companies, gem dealers, learning institutions, logistic and support service, mining companies service providers and small scale miners

3.5.3 Relevant ministries

The ministry of mining and ministry of environment, water and natural resources are key ministries in the formulation of policies and guidelines in the management of minerals and other natural resources. The Ministry of mining undertakes various functions aimed at enhancing growth of the mining sector in the country as guided by the executive order No. 2 of 2013. The sector has the potential to significantly contribute to national and local growth. Over the last decade the amount of minerals extracted and exploited has been increasing. Previously, mining activities in the country were handled by the Ministry of Environment and Natural Resources through the Department of Mines and Geology.

Chapter FOUR

Results

4.1 Introduction

Kenya has diversified interests in the mining sector, which has attracted numerous leading mining companies in the world. International mining companies have been given prospecting and mining licenses to exploit the potential mineral base in the country. Large known companies include the Base Titanium Inc., African Barrick Gold Exploration (Kenya) Ltd, Cortec (Pty) Ltd, Geofirm East Africa Ltd and E.A. Gem Traders Ltd, Kenya Fluorspar Co. Ltd, Mui Basin Mining Co. Ltd among others. However, the sector is still dominated by small scale mining companies, many of which are not registered. The unregistered mining firms operate in unsustainable environmental conditions leading to environmental degradation and poor wellbeing of the workers.

4.2 Profiling Mining companies

4.2.1 Mining in Taita Taveta County

The major mining activities in the County revolve around gemstones and industrial minerals in Kishushe in Wundanyi, Mwatate and Kuranze in Kasigau. There are over 100 licensed prospectors and miners, among them eight major companies involved in gemstone mining in the County (Table 1). Iron ore with traces of gold in the iron ore is mined in Kishushe area of Wundanyi constituency. Gemstone mining is the dominant activity in the County with most mining fields run by small scale mining groups. Other mining related activities in the County include quarrying for building stones which takes place in Taveta and Mwarungu area of Wundanyi, quarrying for murram and ballast, and sand harvesting.

Taita Taveta is one of the leading producers of minerals produced in Kenya. Most of the gemstones and industrial minerals are found in the Mozambique belt, which covers Taita hills, Mwatate, Kasigau, and Kuranze areas among others, while the Tertiary Volcanic belt covers Taveta region. Some of the gemstones found in the area include Tsavorite, red garnets, green garnets, yellow garnets, ruby, green tourmalines, yellow tourmalines, change colour, blue sapphire, pink sapphire, amethyst, peridot, iolite, spinel, rhodolites and kyanites. The County is home to more than 40 high value gemstones. According to geological experts, Tsavorite and ruby are highly sought after globally, with the County being the main source of the minerals worldwide. Some of the industrial minerals found in the County are iron ore, limestone, marble, magnetite, asbestos, graphite, Kaolin clay, and mica. Deposits of copper and cobalt are also found in the area (Fig. 1).

Royalties and benefit sharing between the investors, the County and national governments, and the communities have to be addressed to reduce conflict between them. This redress strategy will ensure that sustainable exploitation of mineral resources becomes a key driver of the County economy, contributing immensely towards poverty alleviation.

4.2.2 Mining Companies in Taita Taveta County

Table 1: **Mining Companies in Taita Taveta County**

S/No	Name of Company/ Firm	Contact person	Location	Minerals extracted	Level of operation
1	Chawia Minerals (CBO) Mkengereni SC Mwenegere Men's light SC Wanedu Sc	Senja Chaunganya, Chairperson, Chawia minerals 0735190519 0700853525	Mkuki Ranch, Mwachabo location, Mwatate	Tormaline, Green garnet	Small Scale
2	Jipe small scale miners	Joshua Mwamburi 0720561719	Kishushe	Tormaline, Green garnet	Small scale
3	Chui Small Scale miners	Gerald Mwakima 0705773885	Kishushe	Tormaline, Green garnet	Small scale
4	Jerusalem Mining Company	Austin Bakari 0735406785 0719489449	Kishushe	Gemstone, Iron ore, green garnet, Ruby, Saphire, Tormaline	Small scale
5	Mwatate Small Scale miners Association	Mcharo Gabriel 0722731460 mcharogabriel@mail.com	Kabanga, Mwatate	Green Garnet, Rhodolite, Tormaline, Ruby	Small Scale
6	Alui General Service	Bakari Kalema 0722843029	Kishushe	Red garnet, Acomarine, kanite	Medium Scale
7	Brayogo Safaris Ltd	P.O. Box 615-254 Voi okenog@gmail.com	Voi	Green Garnet, Rhodolite, Tormaline, Rubbie	Medium scale
8	Wanjala Mining Company	P.o. Box 3174-00200 Nairobi Mr. Mahmood Kassam, P.O. Box 81516-80010 Mombasa Tel: 0733616, 0722727999	Kishushe	Iron ore, magnetite and haemetite	Large scale
9	Charming Gem, Nairobi	Kiran Shah	Kasigau	Garnets, Sapphire, Ruby	Medium Scale
10	Baraka Mining & Minerals Ltd	P.O. Box 196, Voi	Mwatate	Green Garnet	Medium Scale
11	Bridges Exploration Ltd.	P.O. Box 49192, Nairobi	Mwatate	Green Garnet &Tourmaline	Medium Scale
12	David Visram	Nil	Mwatate	Tsavorite, other garnets	Medium Scale
13	Kutima Investments Ltd.	Soul Mwangolo 0722711362 smwangola@hotmail.com	Mwatate	Tsavorite, other garnets	Small Scale
14	Kikisa Ltd.,	P.O. Box 48786, Nairobi	Mwatate	Ruby, Sapphire	Small Scale
15	Gemkit Enterprises Ltd	P.O. Box 63344-00619, Nairobi	Kuranze	Ruby, Sapphire, Green Garnet &Tourmaline	Small Scale
16	John Gitonga Kihara,	P.O. Box 28258, Nairobi	Kuranze	Ruby, Green Garnet &Tourmaline	Small Scale
17	Geo-Exploration Mining Co. Ltd Sapphire	P.O. Box 48181, Nairobi	Kuranze	Sapphire, Green Garnet &Tourmaline	Large scale
18	Thamani Gems,	Majala Mlagui P.O. Box 9991-00100, Nairobi Majala.mlagui@gmail.com	Voi and Mwatate	Gemstones	Medium Scale
19	Mkuki Gems and Jewelry, 0722255197	PO Box 62241 – 00200 Nairobi. cmuchira@mkukigems.com	Mwatate	Gemstones, Garnets, Sapphire, Ruby	Small scale
20	Tsavolite Mining Co. Ltd	Micheni. 0721525178. travolitemining@yahoo.com	Kishushe	Tsavolite, Garnets, Sapphire, Ruby	Medium scale
21	Bocrest Gem Enterprises Ltd	Princley House, Moi Ave, City Centre, Nairobi, +254202245196	Kuranze-Kasigau	Tsavorite, Garnets, Sapphire, Ruby	Medium Scale

4.2.3 Mining in Kwale County

The mineral potential of Kwale has been recognized for long and it is now that large scale mining activities are emerging. Silica sands are exploited in large quantities in Msambweni, while heavy mineral deposits such as rutile, ilmetite, zircon among others are mined in Maumba and Shimba hills. Small scale gemstone mining is taking place in Kurunze, on the boundary with Taita Taveta County. Limestone quarrying is carried out near the shoreline in Waa location. The table 2 below shows the distribution of minerals of economic value in Kwale County.

Table 2: **Distribution of minerals with economic value in Kwale County**

Type	Location
Titanium	Nguluku/Maumba/Shimba Hill
Gemstones	Kuranze
Rare earth elements	Mrima Hills/Samburu
Silica Sand	Msambweni/Ramisi/Tiwi
Zinc and Lead	Mkang'ombe
Baryte	Lunga Lunga
Coal	Maji ya Chumvi
Sandstones	Mariakani
Coral	Coastline
Oil/Gas	Onshore/offshore

Source: Ministry of lands and UNCRD (2011).

4.2.4 Mining Companies in Kwale County

Table 3: **Mining Companies in Kwale County**

S/No	Name of Company/Firm	Contact person	Location	Minerals extracted	Level of operation
1	Base Titanium Ltd. http://www.basetitanium.com	Power Factor Complex, PO Box 1214 – 80400. Diani Beach Road, Ukunda, Kenya. cfloren@basetitanium.com	Maumba, Shimbahills Ukunda, Kenya	Titanium Rutile, ilmetite, zircon	Large Scale Mining company
2	Cortec Mining Kenya Ltd.	Cortec (Pty) Ltd. PO Box 67845-0200 – 254 Nairobi. cortec@global.co.za	Mrima Hill	Niobium rare earth minerals	Large scale prospecting company
4	Kenya Calcium Products Ltd	Off Lunga Lunga Rd, Kwale +254 622031869	Waa	Hydrated lime and other limestone products	Large scale
5	Geofirm East Africa Ltd.	PO Box 28969 – 00200 Nairobi. 0715395505. isaac@geofirm.co.ke	Mkang'ombe. Maji ya Chumvi	Coal, Zinc and Lead	Large scale prospecting company
6	Napass Gems Ltd	Mr. George Kamau, Tel. 254-720-215712, Nairobi, Kenya	Kuranze	Gemstones, beryl Aquamarine, Kyanite,Sapphire, Tourmaline, Amethyst, Topaz, Citrine, Agate	Medium scale
7	Twins Horse Mining Co	TWINS HORSE MINING COMPANY (254) 43 - 36023 (+254-(254) 43 - 36023), Wundanyi	Kuranze	Kyanite, Sapphire, Tourmaline, Amethyst	Medium Scale
8	Joseph K. Mbiriri	Voi Community mining Company Wundanyi.	Kuranze	Gemstones, beryl Aquamarine, Kyanite, Sapphire, Tourmaline	Small scale
9	Harisson Dodi & Sons	Harrison Dodi and Sons Company Limited 3, P.O. Box 69964, Nairobi.	Kuranze	Kyanite, Sapphire, Tourmaline, Amethyst, Topaz,	Large scale
10	Nadan Mining Co	Ms. Immah Kimuyu Nadan Mining Company Limited P. O Box 414, Voi, Coast Province, Kenya Zip/Postal Code: 80300	Kuranze	Gemstones to make African beads jewellery and handicrafts	Medium scale
11	Lillian M.Gems	No. 1459/1 - 10 Machungwa "A" Kasigau Ranch Taita Taveta County, Mombasa.	Kuranze	Kyanite,Sapphire, Tourmaline, Amethyst, green garnet	Medium scale
12	Jerusha Mdamu Ltd	Kasighau	Kuranze	Tsavorite, Ruby, Tourmaline	Small Scale

4.2.5 Mining in Kilifi County

In Kilifi County, the minerals currently being exploited are; barytes found in Vitengeni, Galena as gypsum at Roka west of Malindi, Limestone mined east of Mariakani, and crude salt from Gongoni to Marereni. Lead, Zinc and Silver exist near Kinangoni, Manganese in Chasimba, Dzovuni and Bamba. Titanium is found around Arabuko Sokoke Forest but has not been exploited. Mercury near Vitengeni, Zircon is found in north of Kilifi Township and Monazite found between Kilifi town and Vipingo. Gympsum is mined from sedimentary deposits at Tezo-Roka. At Jaribuni, iron ore is being mined to supply the cement factories at Bamburi and Athi River in Kaloleni. Sand for building is mined Mazeras, Sokoke and Ngomeni areas. Silica sands for glass manufacture are obtained from deposits in Arabuko-Sokoke (Kilifi).

Salt is recovered from seawater where extensive salt works have been established at the Gongoni-Fundisa area and Kurawa. The total area dedicated to salt production is over 5,000 hectares which yield an average of over 170,000 tons annually. Presently, there are eight operational salt works in Kenya, occupying more than 7,922 ha of tidal swamps between Ngomeni and Kurawa. Solar salt production is expanding to other areas such as Lamu, and the impact is expected to be more severe.

4.2.6 Mining companies in Kilifi

Table 4: **Mining companies in Kilifi County**

S/No	Mining Company	Contact Person	Location	Minerals extracted	Level of Mining
1	CDA Roka site	CDA Roka Site P.O. Box 1322 Mombasa. 02208009196	Soyo soyo	Coral Block	Medium Scale
2	CDA Soyo Soyo site	CDA Soyo Soyo P.O. Box 1322- 80100 Mombasa. 0729270556	Zowerani	Coral Block	Medium Scale
3	CDA Zowerani Site	0729270556	Zowerani	Coral Block	Medium Scale
4	Coast Development Authority	Moshi Investments Ltd. 0712316882	Kilifi	Coral Block	Medium Scale
5	Coast Treasures Ltd	nabil@solfinsolutions.com P.O. Box 10624-80101, Bamburi	Kauma/Ganze, Kilifi	manganese Ore, Ballast	Medium scale
6	Coastal Quarry	Bavin 0727464631	Jaribuni	Coral blocks, Ballast	Large scale
7	Coastal Quarry	Coastal Quarry 0727464631	Kilifi	Coral blocks, Ballast	Large scale
8	Duma Crushers Ltd	Duma Crushers Ltd. P.O. Box 400 Malindi 0722345381	Jaribuni	Coral blocks, Ballast	Large scale
9	Duma Crushers Ltd	Hussein Sande P.O. Box 1499, Malindi. 0721570864	Ganze	Coral blocks, Ballast	Large scale
10	Harji Patel Kilifi Jaribu Quarry	Harji Patel P.O. Box 1829 80100 Mombasa 0727295246	Bahari	Coral blocks, Ballast	Large scale

S/No	Mining Company	Contact Person	Location	Minerals extracted	Level of Mining
11	Jaribuni Quarry Ltd	Pankas Vaja P.O. Box 89157 Mombasa 0722708225	Jaribuni	Coral blocks, Ballast	Medium scale
12	Jaribuni Quarry Ltd	Jaribuni Quarry Ltd P.O. Box 89157 Mombasa 0702040501/0722708225	Mombasa	Coral blocks, Ballast	Medium scale
13	Jaribuni Quarry Ltd	Pankas Vaja P.O. Box 89157 Mombasa. 0722708225	Jaribuni	Coral blocks, Ballast	Medium scale
14	Jewe Stone Ltd	Jewe Stone Ltd P.O. Box 302400 Malindi 0727827265	Malindi	Coral blocks, Ballast	Medium scale
15	Joki agencies ltd: John Kinuthia	Joki Agencies Ltd P.O. Box 16394-00610 Nairobi. 0722575563/0722266559	Soyo soyo/ Zowerani	Coral blocks, Ballast	Medium scale
16	Kaniti Jetha	Hizano Ngala 0722411009	Jaribuni	Coral blocks, Ballast	Medium scale
17	Karisa Ramji and Sons	Karisa Ramji 0725423182	Ganze	Coral blocks, Ballast	Medium scale
18	Kilifi Coral Works Att.	Coast Development Authority P.O. Box 1322-80100 Mombasa 0729270556	Mombasa	Coral blocks, Ballast	Small scale
19	Kilifi Jaribuni Timbo	Harji Patel P.O. Box 1829 80100 Mombasa 0727295246	Jaribuni	Coral blocks, Ballast	Medium scale
20	Kilimanjaro Investments	David Esmail Sodna, P.O. Box 98728 Mombasa 0727988589	Mariakani	Coral blocks	Medium scale
	Krystalline Salt Limited	Mombasa Sales Office P.O Box 84411 – 80100 GPO Tel. 3435453/25 Fax 3434493/6. Email: msa@kaysalt.com, sales@kaysalt.com	Gogoni, Malindi	Salt	Large scale
21	Lee Construction Ltd	Mr. Malonza Albanus P.O. Box 28969 Nairobi 0721569158	Ganze	Coral blocks	Small scale
22	Machine Mawe Ltd	Machine Mawe Ltd. P.O. Box 76 Kilifi 0728999804/0721838086	Mtondia/Kilifi	Stone Quarrying	Small scale
23	Magarini Tegemeo project	0711242421/ 0721276061	Magarini	Coral rock quarrying	Large scale
24	Mazeras quarries	0726276596	Mtwapa/ Mwapula	Ballast Quarrying	Large scale
25	Moshi Investments	Kengulf Properties Development Ltd 0700808166	Kilifi	Coral quarrying	Medium scale

S/No	Mining Company	Contact Person	Location	Minerals extracted	Level of Mining
26	Motion city	Motion City P.O. Box 11087 Nairobi. 0728613974	Soyo soyo	Coral block	Medium scale
27	Mr. Osoro	Chrispine Oduor, P.O. Box Kilifi. 0722739482	Kilifi	Coral block quarrying	Small scale
28	Muhamed Hassan	Ahmed Abdi 0729309220	Kokotoni	Coral block quarrying	Small scale
29	S.S. Mehta And Sons Ltd	SS Mehta P.O. Box 41247 Mombasa. 0702874834	Jaribuni	Coral block quarrying	Small scale
30	S.S. Mehta	Musa 0726167194	Jaribuni	Coral block quarrying	Small scale
31	Shree Laxmi concrete	Shree Laxmi Concrete quarry P.O. Box 1043 0713330830	Jaribuni	Coral block quarrying	Small scale
32	Shree Sahjan and Vijay	Praful prafu 0720426049	Jaribuni	Coral block quarrying	Small scale
33	Shree Sahjan and Vijay Enterprises Ltd	Shree Sahjan 0720426049	Ganze	Coral block quarrying	Medium scale
34	Smoky Hill Ltd	Smoky Hill Ltd P.O. Box 618 Kilifi. 0721838086	Kilifi	Coral block quarrying	Small scale
35	Smoky Hill Ltd	Macmillan P.O. Box 618 0722755449	Kilifi	Coral block quarrying	Small scale
36	Sokota Investment Ltd	P.O. Box 2198, 80100 MSA. Tel. 0720959069	Magogoni/ Mwapula	Iron Ore, manganese	Medium Scale
37	Sokota Investment Ltd	P.O. Box 2198, 80100 MSA. Tel. 0720959069	Chonyi area	Iron Ore, manganese	Medium Scale
38	Sokota Investment Ltd	P.O. Box 2198, 80100 MSA. Tel. 0720959069	Mwapula	Iron Ore, manganese	Medium Scale
39	Soul Mine Metals	Hamed Kioga 0724166598	Ganze	Iron ore	Medium Scale
40	Stout Mineral Resources Ltd	P.O. Box 45427-00100 Nairobi	Mwangundo Area, Kilif	Manganese ore	Large Scale
41	Surya Development	Surya development 0723647046	Jaribuni	Iron Ore	Medium Scale
42	Surya Development Ltd	Surya Development Ltd. 0723647046	Kilifi	Iron Ore	Medium Scale
43	Surya Development Ltd	Surya Development Ltd P.O. Box 82261 Mombasa 0733-7901886	Ganze	Coral block quarrying	Medium Scale
44	Taves Connections Ltd	P.O. Box 93275-80100 MOMBASA	Vitengeni/ Madambani	Industrial minerals	Medium scale
45	Vipingo Timbo Att.	Vipingo Timbo 0723703328	Kilifi	Coral block quarrying	Small scale

4.2.7 Some of the minerals from the three Counties

Figure 4: Minerals from Kwale, Taita Taveta and Kilifi Counties

4.3 Compliance with eenvironment, health and safety regulations and standards

4.3.1 Awareness on regulations and standards

The small scale miners interviewed in all three counties were not aware of any regulations and standards guiding the operations of the mining sector. Asked whether they could identify any regulation, standards or policies governing the sector, they were unable and therefore not aware of the existence of any such regulations (Fig. 5). Occupational health and safety regulations were not adhered to by the small scale miners as they neither had the

Act and policy documents nor showed any health and safety practices at the mining sites (Fig. 6). This is evidenced by mining workers without personal protective equipment and the state of environmental degradation on the mining sites. Company environmental policies, policy statements and safety and health best practices are evident in some large companies. Fig. 6 shows mining workers without any protective gear.

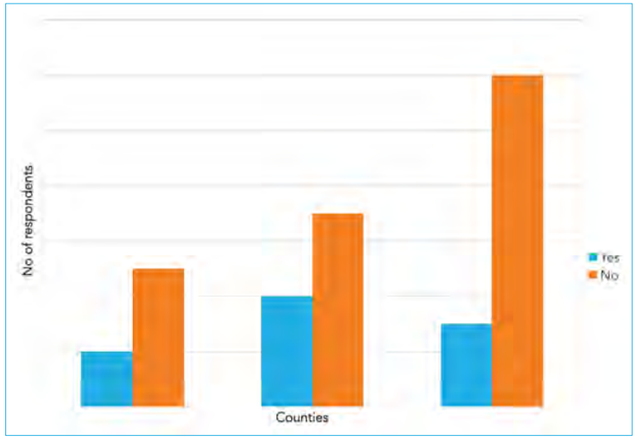

Figure 5: Adherence to regulations and standards

Figure 6: Mining workers without personal protective gear

Safety rules and regulations developed by the large scale mining companies are best practices and strategies for health and safety compliance. These best practices have reduced the occurrence of occupational accidents and diseases. The large scale companies recorded zero number of accidents, while the small scale miners recorded about 5-8 injuries in the last six months due to falling in the pits and by flying rock particle during diatomite blasting. Small scale miners have no strategies for safeguarding the health and safety of the workers. Evidence of awareness on relevant regulations and standards include the availability of EIA/EA reports, national and international policy and regulatory documents and the relevant legislative documents. Complains on environmental degradation and benefit sharing injustices leveled against mining companies are indicators of the low level of compliance with environment, health and safety regulations and standards. None of the small scale mining companies have any of the relevant legal, policy and regulatory documents at their disposal. The best practice could be the small scale miners association to organize awareness and sensitization forums to educate members on the existing legal, policy and regulatory frameworks in the mining sector.

Communities living adjacent to mining areas are to a large extent not aware of the existing regulations and standards, as well as how they can be involved in the enforcement of compliance by mining companies. Communities should be empowered to participate fully in the formulation and enforcement of regulations and standards, to reduce the adverse effect of environmental degradation on their wellbeing.

4.3.2 EIA/EA reporting

An environmental impact assessment is a formal process used to predict the environmental consequences, both positive and negative, of a project prior to decision making in the implementation of development project. It proposes measures to deal with impacts to acceptable levels to protect humans from environmental degradation emanating from the project activities. Environmental impact assessments protect the environment by providing a sound basis for effective and sustainable development. The purpose of the assessment is to ensure that decision making considers the environmental impacts when deciding whether or not to proceed with a project. The International Association for Impact Assessment (IAIA) defines an environmental impact assessment as the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development projects prior to a decisions being taken and commitments made. EIA is unique in that it does not require adherence to predetermined environmental outcome, but rather requires decision making process to account for environmental values and to justify those decisions in light of detailed environmental studies and public comments on the potential environmental impacts. Environmental impact assessments commenced in the 1960s, as part of an increasing environmental awareness. EIA reporting is a technical evaluation intended to contribute to an objective decision making process in development project planning and implementation.

In Kenya Environmental Impact Assessment (EIA) is one of the tools for environmental management under EMCA 1999 and is overseen by NEMA. It is a procedure for evaluating the likely impact of a proposed project activity on the environment. According to regulation no. 18 of EIA/EA regulations and guidelines, the tool ensures a health and safe environment in the project area. The Second Schedule identifies projects that require an EIA prior to commencement. These include projects that will have major changes in land such as mining and quarrying. The Environmental Impact Assessment and Audit Regulations sets out the issues that an EIA study should primarily address itself to in order to ensure sustainable development

The mining project proponent is expected to comply with the EIA/EA regulations and guidelines to guarantee a safe and healthy environment to the people living adjacent to the mining areas.

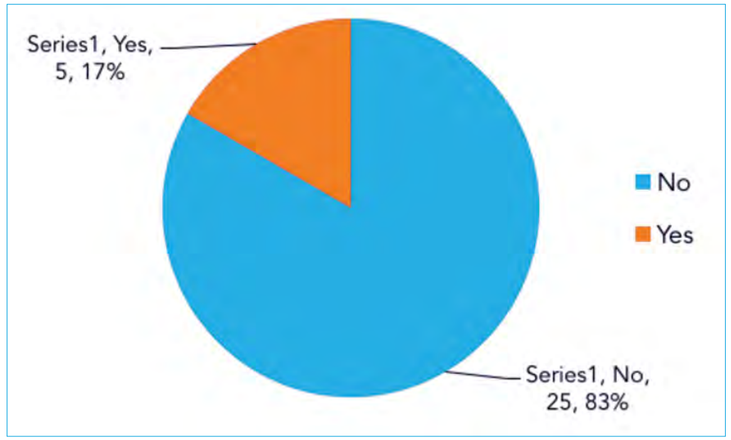

Figure 7: Preparation of EIA on Mining projects

From the figure above, it is evident that majority (83%) of the mining companies do not carry out the mandatory environmental impact assessment for the projects. This is followed by none compliance to environmental audit requirements as stipulated on the EIA/EA regulations and guidelines of 2003. It shows that mining companies' level of compliance is low, attributed to lack of strict enforcement and supervision by the government agencies. The companies prepare EIA/EA, but no agency makes a follow up the implementation of the suggested management plans.

Table 5: **Level of compliance with EIA/EA reporting of mining companies**

	Kilifi	Kwale	Taita Taveta	TOTAL
Nos. Mining companies	10	5	15	30
Without EIA/EA report	6 (60)	3 (60)	12 (80)	21 (70)
With EIA/EA report	4 (40)	2 (60)	3 (20)	9 (30)

Note figures in brackets are in percentages

The EIA regulations seem to be far much violated in Taita Taveta with 80% of the mining companies visited are without pre-assessment records on the environment, health and safety impacts of their projects. This mainly constituted the small scale miners who seem not aware of the environmental regulations. Kwale and Kilifi have 60% of the visited mining companies without any proof of having done EIAs prior to the commencement of the prospecting or mining activities. The magnitude of violation of the regulations in the three counties seems to be proportionate to the number of miners in each county. The large scale mining companies complied with EIA/EA regulations, probably due to strict international donor funding requirements.

It was also noted that where the EIA reports were available, they were not open for public scrutiny. They were also voluminous for the ordinary community member to adequately analyze to make a decision. For instance, most large companies have EIA reports in 8 volumes. The EIAs are not validated by the community and therefore they do not participate fully in the EIA process. In instances where the communities have been involved, their opinion is not considered for decision making.

4.3.3 Waste management

Waste management involves the collection, transportation and disposal of garbage, sewage, and other waste products. Waste management encompasses management of all processes and resources for proper handling of waste materials, from maintenance of waste transport trucks and dumping facilities to compliance with health codes and environmental regulations. Mismanagement of wastes results in pollution of the natural environment and may pose substantial danger to public health and welfare. The extent and nature of the waste management problem involved low collection ratio, that is, the proportion of the solid waste generated that is collected is low.

Solid waste management in mining sites is very low, with debris dispersed and littered all over the mining areas. Waste water splashed out anywhere. Oil spills from diesel compressors and trucks are evident in mining sites without proper disposal places. Small scale mining companies have no waste management plans at all.

When the respondents in the mining sites were asked to identify measures of handling waste, a mirage of responses are obtained, which clearly indicate that mining companies have little practice in waste management.

Workers are ignorant of the waste generated in the prospecting and processing activities. The small scale miners did not identify waste management measures. Refilling of abandoned pits, draining of wastewater through open drainage and recycling are some of the waste management measures identified by some of the medium and large scale mining companies.

Majority of the respondents do not follow any waste management regulations. 22 out 30 (73%) mining companies are not putting any measures to manage the waste generated. Only 27% (Fig 8) of the visited mining sites adhere to some regulations. This is evidenced by the heaps of debris that litter large areas of land and have altered the landscape, which subsequently become a source of dust and water pollution.

It is also observed that small scale miners do not have work plans to mitigate the waste generated, especially the debris and rocks fragments from the mines. The solid waste generated can be used as building materials and building of gabions to trap surface water from getting into trenches and mining tunnels in mining areas, however, care must be taken to ensure that there are no harmful substances in the waste materials. Waste water can be reused and eventual exposed off on established nurseries, while waste from explosives should be buried for safe disposal.

Table 6: **Responses on waste management measures**

Solid waste measures	Wastewater measures	Chemicals disposal	Biomedical measures	Others waste management measures
Collect and recycle	No water used	No chemicals used	None	Top soil (refilling, erosion control
No waste	No special method	None	Not aware	None
None	None	Not aware	Nil	Not aware
None, group still prospecting	Not aware	No specific methods	Nil	Planting of trees
Not aware	Reuse of water	Nil	Nil	Nil
Refilling the abandoned sites	Open drainage	Nil	Nil	Nil

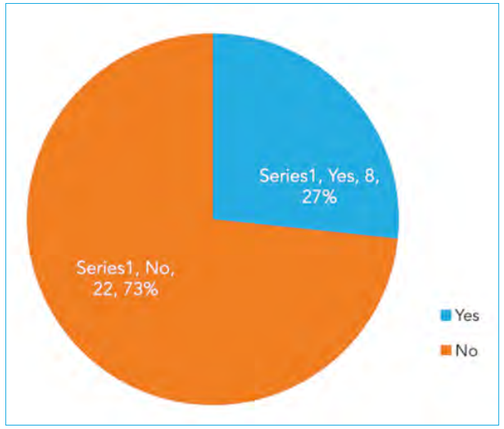

Figure 8: Adherence to waste management practises

The level of compliance with waste management regulations is low and therefore mining communities need to be educated and sensitized on the waste management matters.

4.3.4 Air pollution

Air pollution involves the introduction of particulates, biological molecules, or other harmful materials into the atmosphere causing adverse effects on humans and the ecosystem. The substance can be solid particles, liquid droplets, or gases which can be generated from the mining activities. People exposed to such pollution loaded areas have high exposure risk and therefore at a risk of being affected in one way or the other. According to the air quality regulation (2008), the objective of enforcing the regulation is to provide for prevention, control and abatement of air pollution to ensure clean and healthy ambient air with emission standards provided for various sources such as mobile and stationary sources. The legal instruments to enforce control of air pollution are the Public Health Act and the Factories Act.

The air quality issue is the dust produced by the working of open pits and by crushing and grinding operations. Workers and nearby communities can be affected by dust in the atmosphere. In addition, particle fall-out around mine sites can contaminate soils and water and damage vegetation. Mines are also a source of greenhouse gases gas emissions that have led to climate change. Poisonous gases such as sulphur-dioxide and radioactive elements are sometimes released from open cast operations. Smelting is known to produce amounts of air pollution pollutants, which cause severe local environmental damage as well as contribute to global phenomena such as acid rain and climate change.

In the assessment study the respondents claim that there on protective equipment such as dust and gas masks, overcoats and safety boots. A few are observed to have helmet to protect themselves from falling objects while in the quarrying tunnels. They are not protected from inhaling poisonous dust and gases from the mines. Therefore adoption of safe mining methodologies would be a better option, which shall control air pollution in the mining areas. Provision of personal protective equipment is essential, with adherence to regulations and standards as the ultimate panacea to the adverse effect of air pollution in mining areas and beyond. Mining companies can create buffer zone to capture dust and reduce the impact of pollution. Communities living adjacent to mining areas should be involved in developing mitigation measure to air pollution.

4.3.5 Noise pollution

It was observed that much of the noise in mining sites is generated from crushing machines, compressors and for limited extent from people working on the mines. Small scale miners did not mind much of the noise as they continued to go about their businesses. Large scale miners seemingly have elaborate environment, health and safety policies which have incorporated the prescribed regulations and standards into the work systems. Protective helmets, ear protection and gloves are used as part of their best practices

The regulations are clear as to the maximum permissible level of noise in mines and quarries. The noise and excessive vibration pollution control regulations (2009) states that;

> *…… no person shall make, continue or cause to be made or continued any noise in excess of the noise levels set in the first schedule to these regulations, unless such noise is reasonably necessary to the preservation of life, health, safety or property.*

Therefore violation of these regulations and the prescribed noise standards will affect the health and safety of the workers as well as the communities around mining sites.

4.3.6 Water quality

The quality of water in the mining areas is a time bomb waiting to explode. Water quality is in pathetic situation with a likelihood of outbreak of waterborne diseases. There is scarcity of water for mineral processing and domestic use, especially in the Taita Taveta mining areas. It is observed in Taita Taveta County that mining sites are located in the dry wilderness that is inaccessible, with no piped water or rivers. Water is obtained from Mwatate and/or Kasigau. The little water available has to be reused in an unhygienic manner which can easily cause outbreak of diseases to the workers. The reused water is dirty and turbid and is used for bathing (Fig. 9). In Kilifi County, water is available from rivers in Jaribuni and Ganze, The salt mines in Gongoni and quarry sites in Tezo have access to piped water. However, the used water is channeled through open drains into stagnant pools, becoming breeding grounds for waterborne vectors like mosquitoes.

Figure 9: Highly turbid water used for domestic and washing of mineral ores

In Kwale, the large scale mining companies have constructed dams for water storage. The water from the mineral processing factory is further treated before drained into streams. However, the dams constructed have obstructed the flow of the river, therefore denying communities downstream water for the traditional rice paddies. This has affected the sources of livelihood of the communities. The drier parts of the Kwale County in Kuranze, in Kinango sub-county, mining sites reuse water due to the scarcity of the commodity. The water quality is generally poor and therefore compromising the health of the mine workers.

There is need to improve the road network in remote mining areas to make it accessible and easy to transport water and other food items into the areas. Construction of dams in the dry remote mining areas will resolve the challenges of scarce water and provide safe and clean water for the mining workers and the communities. Adherence to water quality regulations and standards will ensure use of clean and safe water in the mining areas.

4.3.7 Biodiversity conservation

The general observation of the mining sites is that there is massive clearance of vegetation to pave way for prospecting and mineral processing. Trees are cut in disregard for the ecological services they provide. Animal and insect habitats have been destroyed leaving the land bear with abandoned mining pits and dried stumps of trees. It has been observed that there is little restoration effort to the destroyed biodiversity, which subsequently subject the bare land to erosion. Clearing of vegetation eventually contributes to the effects of climate change such as erratic and unreliable rains causing floods and/or severe drought. Fig. 10 shows

Figure 10: Landscape modification

some trees that have been cleared in an abandoned mining trench.

Mining companies should initiate strategies to restore or rehabilitate areas that have been cleared of vegetation, especially in abandoned sites. Such strategies may include tree planting in derelict mining sites. Availability of biodiversity information may also help mining companies to restore the degraded sites. However, complying with the conservation of biological diversity regulation 2006, land reclamation policy and the national policy on natural resources information management 2007, can help in the management of mining sites.

4.3.8 Physical degradation

Mining sites are characterized of abandoned mining pits and trenches and heaps of waste soil and rocks excavated from the mine pits. The landscape has been changed to an awesome state. Excavations and digging has caused tunnels that are risky since they can collapse and bury the miners alive. There are no refilling efforts, especially with the small scale miners. The abandoned pits are open and are just adjacent to the existing live pits, which poses eminent danger to the workers. The EIA/EA regulations require that abandoned quarries or mine pits are refilled or rehabilitate to safe guard the safety of the workers and the communities living adjacent to the mining areas. Figs. 11, 12 and 13 show abandoned and live mining sites with the altered landscape.

It seems that none compliance with regulations and standards is no doubt the major reason communities living in mineral rich parts of Kenya are some of the poorest. Taita-Taveta, Kwale, and Kilifi are renowned mineral rich counties yet they have very little to show in social and economic development. There is a myriad of compliance gaps in areas endowed with minerals, where the local populations and small scale mining groups disregard the law and regulations in practice.

Figure 11: Land degradation in Kasigau ranch mining sites

Figure 12: Land degradation in Machumgwa site in Kasigau ranch

These gaps range from lack of involvement of the local communities in the ownership and management of mineral resources, inequitable benefit sharing (among the communities living in mineral rich areas) to unfriendly policies against small scale mining companies.

Even though the existing legislation prescribes a 5% accruing benefits in royalties to the community, it does not define the community nor does it put structures in place to determine how the community should benefit without the likely meddling by unscrupulous members of the community and the political elite who are known to manipulate every available socio-economic gainful opportunity for self-satisfaction.

The small scale mining companies lack the institutional capacity to operate autonomously in the sector. More often than not, individuals charged with the day-to-day running of such institutions have neither the administrative know-how nor financial management skills. They literary work in disregard to the existing regulations and standards, hence, endangering the welfare of the workers. Consequently, despite working very hard to extract tangible minerals, the middlemen/women and behind the scenes operatives end up becoming the main beneficiaries. This perhaps, is the major reason mineral rich counties are rated as some of the most poverty stricken in the country.

The mining companies should have environmental management plans to ensure degraded sites are restored or rehabilitated. Reclamation policy and regulations on degraded sites can be applied to enhance

Figure 13: Abandoned and derelict mine field in Mwatate

the appearance of the degraded mining areas. EIA/EAs regulations and guidelines demand that degraded sites are restored or rehabilitated to create a more or less similar ecosystem to the previous one. The reclamation policy should provide guidance on how degraded mining sites can be reclaimed.

4.3.9 Land tenure in the mining areas

Generally mining in the three counties is carried out on private, community land or on community group ranches. The challenges of land ownership in coast region have made worst the land ownership in mineral rich areas. Unexploited mineral resources belong to the government, while land under which minerals are found is owned by individuals or groups. This scenario is a source of conflicts in mining areas. Table 7 below shows the distribution of land ownership in mining areas. The land currently under mining was initially under some local livelihood activities and the communities have since been displaced and resettled elsewhere disrupting their traditional livelihood. However, it is observed that the land was on livestock grazing, crop farming or livestock ranching or forest reserves. There is no evidence that there was official change of use of the land.

Table 7: Land ownership and tenure in mining areas

Land ownership	No of Mining companies
Gazetted Ranches (Kasigau/ Mwatate)	8
Community land	8
Private land	10
Leased land	3
Public/Government land	1
TOTAL	30

Individuals and CBOs prospecting and mining in group ranches are found in Mwatate and Kasigau. However, 8 in every 30 companies are on gazetted land. Members of these ranches are allocated land for prospecting and mining. It has been observed that medium/large scale miners are also members of these ranches. Otherwise 3 out of 30 mining companies operate on leased land. The land is usually leased to the mining companies by the government for a certain period of time.

Mining companies in Kilifi County operate on private land bought from communities or individuals, especially in coral stone mining and sand harvesting areas. In Kwale County, some mining companies operate on leased land, while the small scale miners in Kuranze operate on public land. It can also be noted that there is no commensurate for compensation for communities that have been displaced from their traditional homes. The communities that sold land to pave way for mining operations are not adequately compensated because of ignorance of the value of the land rich in minerals. In many instances, land valuation is done without involving the communities affected, and usually done at the market rate of the land only, disregarding the value of the minerals beneath the land surface.

Once the community sells land to an investor, there are limited interactions causing conflicts. Resettlement and relocation issues always cause conflict in mineral rich areas because of the challenges of land ownership, which have either delayed compensation or some genuine community members are not relocated or compensated adequately. Communities displaced by mining operations are not compensated based on the cost of the loss of livelihood sources and traditional and cultural value of the people.

Figure 14: Poor makeshift shelters at Kasigau ranch mining fields

The challenge of land ownership has caused mining workers to live in makeshift shelters (Fig. 14), with no permanent structures. This compromises the health and safety of the mining workers. However, the national land commission should move with speed to register the public land so that there could be smooth land transfers which will provide the miners with legal ownership of the land. This will enable mining companies to use the title deeds as collateral security to secure financial resources. Relevant regulations and policies such as the EIA/EA regulations and the resettlement and land acquisition policy should provide guidance on how communities in the mineral rich areas can be provided with adequately alternative land or resettlement areas.

4.3.10 Benefit sharing in the mining sector

Communities living around mineral exploitation areas ought to benefit from the proceeds from the mining activities. It is evident that this is not the case as poverty and destitution lingers around these areas. The new mining act being enacted should ensure that not only the benefits accrued reach the communities but also define structures that will see the benefits utilized for prosperity of the areas.

As expected, mining companies should deliver sustainable benefits to local, regional, and national stakeholders by sharing the benefits realized. Mining companies should focus on improving the welfare of the communities by considering environmental and social payments to society as means of spreading the gains from the sector. The mining sector should also consider benefit sharing as an independent entity which can provide opportunities for shared governance that can be sustained long into the future. The benefit shared can be in monetary through revenue sharing, preferential rates, property taxes, equity sharing / full ownership and development funds. The non-monetary benefit sharing may integrate project benefits into local development strategies, livelihood restoration and enhancement, community development and environmental protection.

There must be equitable benefit sharing of mineral resources base on the principles of ensuring integrity and right to environmental and natural resources and the access and right of commons to the conservation and promotion of natural resources. The local communities should be able to benefit from the existence of the mining projects b through enhanced livelihood and protection of the welfare of the people by protecting and managing the environment.

Appropriate mechanisms for redistributing costs and benefits in the mining sector must be defined to include purchasing agreements, financing and ownership arrangements. Cooperation in benefit sharing can help to create a friendly environment that could lead to broader cooperation. This can be achieved through effective national and county policy and regulatory frameworks and supportive initiatives. Benefit sharing involves assessing benefits to the entire area; local area, county and national level, and quantifying benefits to some degree.

The community benefit in the mining sector in the three counties was as shown in the table below.

Table 8: **Local community benefit sharing**

S/No	Community benefits
1	New roads network
2	Self-employment
3	Employment opportunities
4	Improved livelihood
5	Members allocated sites
6	5% of mining proceeds
7	Schools and other social amenities
8	Health Centres
9	Provision of water
10	Scholarships
11	Education and training
12	No Benefits

The kind of benefits that the communities in mining area get includes employment opportunities and improved livelihoods. However, in the real sense of the definition of benefit sharing, there are no financial gains for the communities from the mining companies. However, the large companies have elaborate corporate social strategies that benefit communities. Such strategies include education and training by providing scholarship for children from local communities for secondary and tertiary institutions. The small scale miners, in the contrary require some financial help buy mining equipment. This situation is aggravated by the ignorance of the local communities on their rights, how to pursue environmental justice and enforcing compliance to standards and regulations

Some of the company CSRs is defined as benefits to the communities. In the broad sense of benefit-sharing they are, but what the mining companies share with the local communities is at their discretion. It is evident that some of the benefits are misplaced, inappropriate and unjustified as they are not relevant to the environmental injustices caused to the communities. For instance, support for a social function, is not a redress to environmental injustices such as air and water pollution that the community is facing.

Figure 15: Rudimentary facilities used by small scale miners

Figure 16: Poor mineral processing equipments

The enactment of the mining and minerals bill probably provide a conducive environment for communities to be fully involved in the mining sector. The County government should enact mining and benefit sharing bills to regularize the sharing of mining benefits and to provide structures of the community that will claim the benefits from the mining companies. Community structures will also negotiate the benefits depending on the environmental cost incurred.

4.3.11 Conflict and conflict resolution mechanisms

Conflict is a disagreement arising from parties whose actions are resisted or unacceptable to each other. Conflict resolution, also known as reconciliation is a method and process of facilitating a peaceful ending of conflict and retribution. Often parties attempt to resolve conflicts by actively communicating information about their conflicting motives to the other party and by engaging in collective negotiation. Disputes can be resolved through cognitive resolution mechanisms where parties understand their conflict with beliefs, perspectives and attitudes or through emotional resolution by feeling about a conflict. The sources of conflict in the mining sector emanates from non-compliance to legal, regulatory framework.

Some mining companies operate on community or leased lands, the conflict associated with such ownership are always inevitable. The Fig. 17 below shows that all Counties have had a share of conflict in mining areas. Some of the conflict emanate from the displaced communities, poor compensation mechanisms, environmental degradation such as water and air pollution and local communities being excluded from the benefit sharing mechanisms. There seems to be more conflicts in Kwale and Taita Taveta, which in most cases is associated with the land ownership. As observed earlier Kilifi County has many of the mining companies operating on private land with less conflict, the only conflicts probably emanated from environmental degradation and boundary disagreements/ disputes.

Kwale and Taita Taveta Counties seem to have over 80% of occurrence of conflicts. This can be attributed to non-compliance with regulations and standards by small scale miners as well as the ill informed community. However, the incidences of fewer land conflicts do not amount to proper redress mechanism. It was actually observed that some of the conflicts have been there for long because of poor redress mechanisms or have not been addressed at all. Some of the redress mechanisms suggested by the respondents are as indicated in Table 5 below.

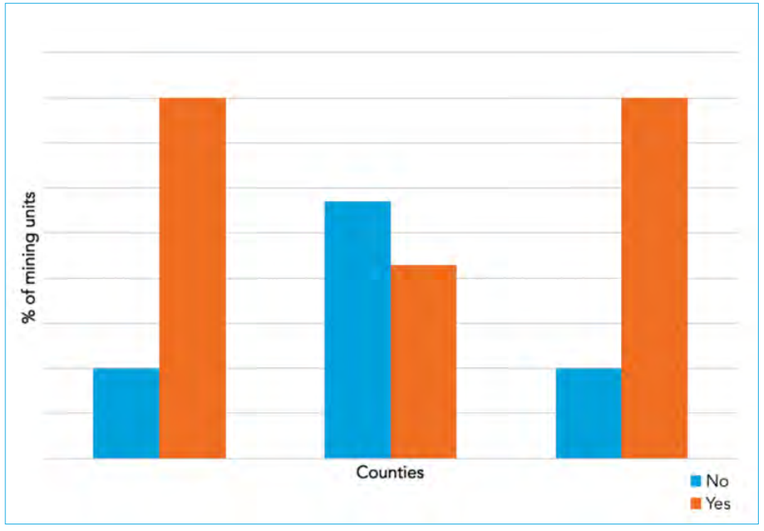

Figure 17: Occurrence of conflicts

Table 9: **Conflict resolution mechanisms**

S/No	Redress mechanisms
1	Follow rules and regulation of the miners associations
2	Referral to Chamber of Mine of Kenya
3	Educated members of society exploiting
4	Irregular award of licenses
5	Appropriate community benefit sharing mechanisms
6	Arbitration
7	Dialogue
8	Negotiations
9	Register Mazururas and other prospectors
10	Mediation
11	Legal redress

The table highlights some of the best practice redress mechanisms pinpointed by the stakeholders. There is diversity of conflict resolution options, which range from legal redress, arbitration to referral to the Chamber of Mines of Kenya. There are cases where conflict arises from unauthorized prospectors known as *Mazururas*. This is a case observed in Kasigau ranch where *Mazururas* are in conflict with land owners. This can be curtailed by registering prospectors and miners to make them pay land rents where they operate.

The best redress mechanism is adherence to the legal, policy and regulations and standards. Failure to follow regulations and standards may create long term contracted conflict and court battles, which are not healthy for the investors and the community. Alternative redress mechanisms should be explored, such as providing elaborate SCR strategies which involve the community.

4.4 Management and administrative structure

This addresses the fact that if there are no elaborate administrative structures to deal with corporate accountability and environmental injustices, then there is little compliance to standards and regulation which will be forthcoming. Organized management structures on environment, health and safety management will see some of the challenges of enforcement of regulations and standards reduced. The management structure is mandated to formulate, review and implement company specific policies, regulations and standards as well as to ensure the adherence to national and international regulations and standards.

Administrative structure bestows an individual or a company to be responsible for execution of some mandates on behalf of the mining company. In the absence of defined company environmental management structures, environmental management and protection will be a second thought to the mining companies. Small scale mining is run by individuals or CBOs, which are observed to have acquired rights as individuals companies managed by the sole proprietor, with assistance from family members.

Some of the large mining companies have environment, health and safety officers with defined mandates, thus such companies have defined measures to address environmental injustices that may occur. However, it was generally observed that the redress mechanisms are tilted towards the company's favour. If the redress mechanism is perceived not benefiting the company, then the injustice will not be handled as deserved. It is also observed that mining companies are not involving communities in environment, health and safety issues. This put level of risk of communities to be high. In case of poisonous gas emissions and contamination of water resources, for instance, the communities will not be prepared to deal with them such disasters.

4.4.1 Review of regulations, standards and guidelines

One of the mandates of the environment, health and safety department is to formulate and review company policies, regulations and standards, as well as procedures and guidelines to enforce compliance. Therefore, the absence of such management structure, formulation of policies and regulations will not be there. Company policies and regulations will be benchmarked with the national ones, and therefore adherence to company regulations and policies will be like enforcing national and international regulations. Individual and CBOs small scale miners hardly have rules and regulations to guide their operations. However, the rules and regulations available seemingly focus on immediate challenges such as conflict resolution and mining site ownership. Since the medium and large companies comply, to a certain extent, with the regulations and standards, they review and harmonize their company policies, guidelines and regulations with the national and international ones, in a fairly frequent manner, thus able to monitor and evaluate their operations and make amicable amendment to safeguard the welfare of the workers and to enhance productivity.

However, when companies were asked whether the existing legal and regulatory frameworks were adequate in addressing their grievances, all concurred that they did not and instead there is need to amend and review the legal framework. Table 6 below shows the perception of the respondents on the existing legal and regulatory frameworks

Table 10: **Perception of respondents on existing framework**

Existing Legislation	Existing Policies	Existing regulations and Standards
Denied opportunity to access support an therefore need review	Not fair to small scale miners	No idea
Laws favored the rich	Discriminating the local people	
Review the mining bill	Discriminate the local people	Enforcement procedures are difficult
The act (Mining Act 1940) does not recognize Small scale miners	Discriminate Small scale miners	Not aware
Don't know	Discriminatory	Expensive to implement some of the standards
Not consistent with reality	Needs to be reviewed	Poor enforcement mechanisms
	Need for enforcement of policy	Some standards are high to be achieved

The table shows that there is an attempt by the mining companies to understand the regulatory framework and perceive that there is need to review the framework to be compatible with the current demand and needs of the communities. It has been pointed out that the current framework only favours the large scale mining companies and the government, therefore the need to be reviewed to be in harmony with the Constitution of Kenya 2010 and the growing and changing needs of the people in the mining areas. There is urgent call for review of the licensing procedures, land ownership in mining areas, prospecting and mining rights issuance and conflict resolution mechanisms. As it is, the community appreciate that there is some level of public participation in discussing the Mining and minerals bill 2014, which they are optimistic that their views will be considered in the new act.

The communities in the three counties demand that they be fully involved in whichever form in the formulation, review and implementation of the law, policy, regulations and standards. This will guarantee cohesion and integration between the communities, government and the mining companies.

4.5 Challenges in the mining areas

The sector is challenged with a mirage of issues that sometimes tend to derail the prospecting and exploration processes. The challenges range from none-compliance with regulations and standards to the socio economic and human rights issues.

4.5.1 Environmental damage and pollution

Areas where mineral deposits are exploited often experience an expansion of new roads, housing and small businesses serving the mines and workers, consequently promising local prosperity. However, local communities have been bearing the costs of the adverse form of environmental damage and pollution, loss of traditional livelihoods, long term economic problems and deteriorating public health. The main beneficiaries in this sector are the investors and the central government, with little benefits passed back to the community. Environmental degradation is a violation of the rights of the communities around mining areas.

4.5.2 Displacement of people

Most communities in the coast have problems of land ownership such that they lack legal title deeds to the land they live on, even though they may have occupied the same lands for many generations. Mining companies which have leased land, have evicted without prior consultation, meaningful compensation, or adequate resettlement elsewhere. Large-scale mining is destructive to the landscape with traditional rural life disrupted, eliminating farming, fishing, small-scale forestry, and even any previous artisanal mining, thus communities have lost their traditional livelihoods.

4.5.3 Increased social ills

The loss of traditional ways of life and an influx of male migrant workers, usually living away from their families has led to increased alcoholism, drug abuse, prostitution, crime, and domestic violence. This is evident in Kuranze village with *Kibanda hasara* and *Kibanda potea* dens, which are evidence of how mining workers lose their hard earned money to prostitution, alcoholism and drugs. Such social evils have plagued many mining areas in the three counties.

4.5.4 Humiliation and exploitation by the mining companies

Communities in opposition to mining activities may encounter violent suppression by the companies themselves or by government forces working in conjunction with mining companies. At the work place people are subjected to inhumane conditions such lack of water and sexual abuse. There have been incidences in Kasigau ranch of women being stripped necked by an investor in search of hidden gemstones in private parts. In such situations, the workers are deprived of their human rights, a violation of the regulatory frameworks.

4.5.5 Impact of the challenges to the communities in the mining areas

People living in mining areas are literally poor. In Kishushe in Taita Taveta County, for example, the level of poverty and underdevelopment is evident in the sparse population. Residents still lack basic needs such as clean water for domestic and livestock consumption, shelter with health facilities being scarce and ill-equipped.

The same situation is replicated in Maumba, Kibwaga and Nguluku in Kwale County. Despite being endowed in mineral wealth, the same has not translated into tangible social and economic prosperity. The distribution of learning institutions in Kwale County is disproportionate and the mining areas are the most affected. Water is scarce and human-wildlife conflict is prevalent in the mining areas. The same story is told in Kilifi County where despite being the home of a number of mining sites, it also boasts the poorest constituencies in the country.

4.6 Challenges to compliance with regulations and standards

As much as mining companies and other mining entities need to comply with environment, health and safety regulations and standards, there are challenges to compliance, which include lack of expertise in the mining sector to enforcement during exploration and mining processes. Trained and experienced mining workers and empowered community can realize the enforcement of regulations and standards in the mining sector.

Table 11: **Challenge to compliance**

S/No	Challenges to compliance
1	Lack of experts in the mining sector
2	Lack of nearby health facilities and first aid
3	No emergency response by the government from the mining sites
4	No good road network in mining areas
5	Threat of contamination & diseases
6	human/wildlife conflict and snake bites
7	Lack of safety equipment
8	High cost of prospecting and mining ventures
9	Inadequate water
10	Communication (Roads and phone network)
11	Corruption in licensing and renewal of rights
12	Untrained workers
13	Archaic laws and regulations

Untrained or illiterate workers in the mining sector make it difficult to comply to regulations and standards as they are ignorant and hard to train on modern technologies. The high cost of the mining venture and corruption in the mining sector has made mining companies complacent of the mining regulations and standards. The archaic laws and regulations have actually aggravated the problem of none compliance due to contracting and conflict laws on environment management and governance. There is need therefore for training and education of the community and small scale miners to ensure monitoring and self evaluation of the compliance levels. This will enhance compliance with regulations and standards by mining companies.

4.7 Benefit of compliance with regulations and standards

There are benefits that are generated from being compliant with regulation and standards. It is one of the best practices to abide by the law and existing regulations. Some of the benefit are identified in Table 12 and include among others improved health and safety standards which subsequently reduce the cost of medical care and health insurance and proper environmental management which reduce the cost incurred in addressing environmental injustices in court or alternative redress mechanisms. The benefits can be translated into productivity and economic prosperity. The companies or mining units can capitalize on such benefit to exploit the mineral resources to the optimum without much environmental injustices, hence reducing cost of production. Table 12 shows the benefits of complying with regulations and standards.

Table 12: **Benefit from being compliant with regulations and standards**

S/No.	Benefit of compliance
1	Enjoy the pool of competent legal and environmental experts
2	Adoption to modern technologies and facilities
3	Stable economy and benefits
4	Improved management structure
5	Improved health and standard
6	Increased income as regulations will ensure no exploitation
7	Proper redress of conflicts and challenges
8	Opportunities for financial and Credit facilities
9	Opportunities for good business
10	Protect the welfare of workers
11	Reduce injuries and accidents
12	Proper environmental management and protection and avoid degradation
13	regular training and capacity building

The community also benefit from companies being compliant with regulations and standards in that the cost of environmental degradation will be low and there will be reduced conflicts because of the elaborate redress mechanisms applied in conflict resolution. The community will enjoy clean and safe environment and boost mining areas with infrastructure development.

4.8 Comparative analysis of best practices

Mining companies world-wide have established systems of best practices in the management of the environment, health and safety regulations and standards. This is to enhance company productivity and to reduce on cost of environmental degradation and on health and safety costs.

4.8.1 Best practices in compliance with regulations and standards

It has been observed that compliance to regulations and standards is generally low, especially with the disorganized small scale miners. However, the medium and large companies have displayed some best practices that can be emulated by all. Some of the best practices identified are shown in Table 11 below.

Table 13: **Best practices in the mining sector**

S/No	Best practices
1	Regular training of workers to instill the sense of health and safety at workplace
2	To adapt to modern machinery and technologies in mining
3	Compliance to regulations and standards
4	Equitable benefit sharing
5	Reward for individual compliance
6	Allocating equal land for prospecting
7	Registration of prospectors to allow for accountability
8	Refilling of quarries and open pit
9	respect for human dignity
10	Formulating company regulations, policies and quality standards
11	Community-company liaison committees to jointly address environmental challenges
12	Establishing Environment, health and safety management structure
13	Regular consultative meeting between community and stakeholders on environmental justice
14	Updating and regular review of guidelines and develop procedures
15	Rehabilitation/Restoration of exhausted mines and quarries
16	Display of quality manuals, statements and missions on strategic places in the company premises
17	Allow company documents to be open to public review and scrutiny

The comparative best practices will see the mining sector rejuvenated to be a source of economic development in mining areas.

4.9 Community participation in the mining sector

The Kenya Economic Report 2013 published by Kenya Institute for Public Policy Research and Analysis (KIPPRA) rates Taita Taveta, Kwale and Kilifi Counties at 55%, 73% and 66% respectively in the national poverty profile by county in the 2005/2006 year. The communities' lack of or limited involvement remains one of the biggest setbacks in the hitherto money minting sector. This is attributed to the massive lack of awareness among the community members who have been locked out of information regarding the industry either by design or default. Despite mining activities being undertaken in some of the remotest parts, County governments have little or no say at all in the exercise as mining squarely falls in the purview of the national government. The situation has been aggravated by the delay in enacting sound legislations on mining and public participation.

Another factor that has put pain to the involvement of the community in the management of mining affairs is the slow pace at which the county governments are developing legislation and formulating policies. Quite a number of mineral rich counties are yet to bring bills on citizen participation to their respective county assemblies. The bills if drafted, would give the citizens the opportunity to make their contribution which would logically include a proposal to provide massive and consistent public awareness and education to enable the public in the mining zones understand not only their rights, but also obligations in the entire process.

As things stand, the relevant communities are hardly aware of what mining entails. For instance, several small scale miners are ignorant on a number of significant policy issues as well as health, safety and environmental compliance. This state of affairs leads one to wonder how ignorant the pedestrian member of the community would be if the persons involved directly in mining are not informed of the basic regulation and policy matters. The situation is made worse by the fact that a good number of such small scale mining groups have not undertaken environmental and social impact assessment prior to engaging in the mining activity.

4.9.1 Community participation in Kilifi, Kwale and Taita Taveta Counties

It has been observed that all the small scale miners are either local of the three counties. However, mining activities have attracted migrant workers from all parts of the country as either buyers or agents in the minerals business. 85% of the medium and large scale mining companies are not from the three counties. There are a few international companies in the mining sector in the region.

There is a growing awareness on the contribution of the mining activities to individuals and at the regional development, making more local communities to invest in the mining sector. If the communities are strengthened and empowered with training and education, natural resources management information and facilities, they can be engaged adequately in the mining sector. Complying to relevant policies and regulations, the government and civil society organization can empower communities to be involved with the mining processes.

4.9.2 Community empowerment in enforcing compliance

In modern society, communities need to be involved in all the activities going on in their area and should also benefit from any business that has displaced them or has any kind of benefit accrued from the land used as they are the close stakeholders. However, to be able to benefit from such venture as mining, the communities need to be empowered through education and awareness campaigns. Such initiatives should be focused on environmental injustice redress and benefit sharing of the mining resources. In environmental injustice redress, the communities should be able to enforce compliance with the environment, health and safety regulations and standards. Table 14 shows the empowerment strategies to ensure communities participate in the enforcement of regulations and standards.

Table 14: **Community empowerment strategies**

S/No	Community empowerment
1	Sensitization of the community on their rights
2	sharing information in consultative meetings
3	Education on the socio economic and benefit sharing
4	Trained on environmental governance and law
5	Investors to educate the community
6	Transparency and accountability in the mining sector
7	Establishing social networks on environmental governance
8	Updating and sharing of information with community in the mining sector
9	Women participation in mining
10	Formation of community associations in mining
11	Reduce environmental and health hazards
12	Trained on life skills to control accidents and injuries on mining sites
13	Initiations of community driven alternative livelihood programmes
14	Encouraging communities buy shares and be part of the mining community
15	Advocacy on environmental justice

Empowering community is a deplorable avenue for enforcing compliance in the mining sector. Training and education on environmental law and governance shall enable the communities to enforce regulation on an informed platform. The initiative can be done through community liaison committees as well as established livelihoods that will subsequently financially empower communities. Advocacy, awareness and sensitization strategies should be employed to create an informed community on issues of environmental compliance, environmental justice and human rights. Establishing social networks can be an avenue for sharing information and integrity best practices in the mining sector.

CHAPTER FIVE

Conclusion and Recommendations

5.1 Conclusion

Compliance with regulations and standards in environment, health and safety is no mean job for the mining companies. Compliance comes with a cost, however, the benefit accrued to compliance surpass the cost of compliance, thus making economic sense to adhere to legislations and regulations. It can be concluded that the mining sector in the three counties are faced with a myriads of problems including compliance to regulations and standards. It was evident that the level of compliance in the mining sector in the coastal region is very low and there is dare need to enforce compliance for survival of the threatened humanity. Mining companies and mining units have no proper administrative structure that can handle adequately the issues of the environment, health and safety. They lack capacity to address grievances raise on environmental justice, the reason why long time conflict with communities stand unresolved

Communities in mining areas have been short changes in terms of being part and parcel of environmental injustice redress system and benefit-sharing mechanisms. Communities are poor with high level of poverty lingering, which have been compounded by ignorance and illiteracy. This scenario has made communities be compromised and face the injustices of being displaced from their ancestral homes, deprived of their traditional livelihood and being subjected to the cost of environmental degradation. There is need to empower communities to reap benefit from mining development ventures in their areas. There is need for strategic advocacy initiatives, sensitization and awareness at a higher than usual to create an informed community. Environmental governance and justice mechanisms should be translated into the community to be able to enforce compliance for their own benefit. An informed community will be able to handle compliance issues and address injustices in an amicable manner.

5.2 Recommendations

The following recommendations are made;

(i) Deliberate mechanism need to be employed to streamline the mining sector. The process must begin by adopting the internationally accepted practices in managing the mining sector. The sector can borrow a leaf from countries which have enhanced the living standards of their citizens by progressively utilizing the returns from the sector. The government must not only adopt a human rights-based approach while tackling issues that have been raised by the affected communities but must also ensure compliance to

regulations and standards that effectively address underlying socio-cultural issues. There is also need to review the existing legislation to address the challenges frustrating the community's quest to benefit from the mining sector.

(ii) Issues of resettlement and compensation to affected communities must be looked into to include recognition of rights, values and cultures of the affected communities living in the mineral rich areas. Such legislation and policies must also take into account the welfare of the youth, women and people with special needs. The yet to be enacted mining law should not isolate County governments as is currently the case. The county governments stand a better chance to understand the plight of the community. County governments can also play a pivotal role in managing conflicts arising between the community and investors as opposed to vesting the tasks in the national government.

(iii) The existing structures within the community such as civil society, faith-based organizations and other community leaders must be brought on board in a well-defined structure as bona-fide stakeholders in the sector to revamp its usefulness. The investors in the sector must also play their cards on top of table to avoid mistrust and suspicion emanating from the community especially on issues touching on environmental and social impact of their activities. Corporate social responsibility being an obligation of the investor must not be done without incorporating the views of the host community. Any attempt to undertake non-consultative Corporate Social Responsibility would only lead to conflict.

(iv) The incidents and reports of mineral discovery currently witnessed in various parts of country should be taken as a wakeup call to institutions and stakeholders in the sector to start thinking more positively and accord all the players the recognition and respect they deserve. If managed properly, the mining sector stands to be the panacea of social and economic challenges that have bedeviled the country since independence.

(v) The small scale miners and the community must be educated on the dangers of environmental degradation and compliance with the health and safety issues. The medium/Large scale mining companies which appear to be at an advanced level of compliance should be role models to the upcoming mining companies. Consultative meetings of the small and large scale miners be organized frequently as information sharing platform

(vi) There should be strengthening of the existing institutional structures to allow for self regulations. Such existing structures include the Small Scale Miners Association and the CBOs involved in mining. They should be empowered to conduct advocacy and sensitization campaigns to create awareness on the regulations and standards and the need for abiding by them. Community committee to be formed to be avenues for trainings and educational activities.

(vii) Mining companies to be compelled to have alternative livelihood programmes with communities that have been displaced from their traditional livelihood systems. Mining companied to be transparent and accountable in information sharing to the communities to reduce suspicion and avert any emerging conflict through appropriate conflict redress mechanisms.

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Appendices

Appendix i: Photos of mining activities

Appendix iia: General Study Questionnaire

Lead Researcher: Dr. Maarifa Ali Mwakumanya

An assessment of the mining companies' compliance with environment, health and safety regulations and standards

General Study Questionnaire

The mining sector in the coastal region has become an emerging source of revenues at all level of the social divide. It has been noted that to reap maximum benefit from the sector there is need for environment, health and safety compliance by the mining companies. It is on this basis that an assessment is being carried out to establish the level of compliance by mining companies are complying to environmental, health and safety standards in the coastal region. This assessment exercise is giving you a chance to express your opinion on the prevailing situation and it is on the basis of your responses that best practices, compliance guidelines and corporate accountability can be enforced for equitable benefit sharing and wellbeing of the people in the sector.

Please answer all questions as honestly and truthfully as possible. Your responses will be treated with utmost confidentiality.

Mining Company profile

Name of the Mining Company: .....

Location of mining site: .....

Nature of mining: .....

Minerals extracted: .....

Registration No: .....

Total acreage of the site: .....

Environmental Compliance

1. Is your mining company/site registered/licensed? (Tick where appropriate)

Yes ☐

No ☐

If Yes, Name the registration/licensing authority/Agency

.....

.....

.....

.....

If No, give reasons why you have not been registered or licensed?

.....

.....

.....

.....

2. Did you conduct an Environmental and Social Impact Assessment (ESIA) and regular Environmental Audit (EA)?

Yes ☐

No ☐

If yes, when was the initial ESIA and last EA conducted (Indicate the date and reference no.)

.....

.....

.....

.....

3. How do you manage the different types of waste?

   a. Solid waste

.....

.....

.....

b. Wastewater

c. Chemical waste

d. Biomedical waste

e. Other wastes (specify)

4. What guidelines, standards and regulations do you implement to manage your waste from the company processes?

5. How have you managed to contain air pollution and environmental degradation from the quarries and the factory? (If any)

a. Dust emissions

b. Foul smell

c. Gaseous emissions

6. Which standard procedures do you apply to minimize air pollution?

7. Where do you get water supply from for both domestic and industrial use? (Tick where appropriate)?

8. How do you manage wastewater discharge from the factory/site to avoid contamination?

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9. Which water quality standards do you refer to, International or National, and Why?

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Occupational Health and safety

10. Do you have and apply the Occupational Health and Safety (OHS) Act and Policy?

Yes ☐

No ☐

If yes, how have you implemented the policy guidelines?

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11. How do you control and manage occupational accidents and diseases at the workplace

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12. Do you have a health facility at your factory/quarry premises?

Yes ☐

No ☐

If Yes, how equipped is your health facility in terms of human and physical facilities?

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Land and community interactions

13. What is the nature of the land ownership? (Tick where appropriate)

(a) Private land

(b) Leased land

(c) Government land

(d) Community land

(e) Others (specify

14. What was the land used for before the mining activities?

a. Agriculture

b. Forest

c. Wasteland

d. Surface water bodies

e. Others (Specify)

15. How does the local community benefit from the mining activities?

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16. Have you ever had conflict with the local community?

Yes ☐

No ☐

If Yes, what was the nature of the conflict?

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If No, how do you address grievances raised by the local community?

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17. Are your corporate social responsibility guided by any rules, policies, standards or regulations?

Yes ☐

No ☐

If Yes, which are these? (Identify)

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18. How can the community be empowered as part of the grievance redress mechanism in the mining sector?

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Legal, regulatory/standards and policy issues

19. What administrative mechanisms have you put in place to ensure compliance to regulations and standards?

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20. How often do you review company guidelines/policies or operational procedures at the work place?

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21. In your opinion, do you think the mining sector is adequately addressed by the existing laws, regulations and standards?

Yes ☐

No ☐

If No, what can you say of the following?

(i) Existing legislation

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(ii) Policies

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(iii) Regulations and guidelines

(iv) Standards and operational procedures

22. Do you think the existing standards and regulations address community grievances adequately?

23. Which standards and/or regulations in the mining sector need urgent review?

24. Does the public have access to company documents or information?

Yes ☐

No ☐

If yes, what specific documents are publicly available? (list them down)

If No, why are the documents not accessible to the public?

General information

25. What are some best practices that you have inculcated into the regulation and standards compliance practices?

26. What are the challenges in complying with the environment, health and safety standards and regulations?

27. In your opinion, how can environment, health and safety standards and regulations compliance are optimally achieved?

28. How can compliance with environment, health and safety regulations and standards benefit communities in mining areas?

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29. How can the communities in mining areas be involved and empowered to ensure compliance to standards by mining companies?

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Appendix iib: Key informat interview guide

HUMAN RIGHTS AGENDA HURIA

Pwani UNIVERSITY

18th August, 2014

Lead Researcher: Dr. Maarifa Ali Mwakumanya

An assessment of the mining companies' compliance with environment, health and safety regulations and standards

Key Stakeholders' Interview guide

The mining sector in the coastal region has become an emerging source of revenue at all level of the social divide. It has been noted that to reap maximum benefit from the sector there is need for environment, health and safety compliance by the mining companies. It is on this basis that an assessment is being carried out to establish the level of compliance by mining companies are complying to environmental, health and safety standards in the coastal region. This assessment exercise is giving you a chance to express your opinion on the prevailing situation and it is on the basis of your responses that best practices, compliance guidelines and corporate accountability can be enforced for equitable benefit sharing and wellbeing of the people in the sector.

(To be administered by the researcher).

Respondent's Profile

Name of the Respondent: .....

Name of County: .....

Level of Education: .....

Position of Respondent: .....

Telephone No: .....

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1. The mining sector in the coastal region has become an emerging source of revenue at all level of the social divide. What is your take about this?

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2. How many Mining companies are there in the County? (Both licensed and unlicensed)

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3. What are the minerals extracted in the County?

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4. Give your comments on the compliance of mining companies with standards and regulations in the mining sector

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5. In your opinion, how can the communities around mining companies be involved or empowered to be part of conflict resolution mechanism in the mining sector?

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6. In your opinion, comment on the status of equitable sharing of benefits in the mining sector

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7. Suggest some of the appropriate grievance redress mechanisms in the mining sector

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