

Research Article

Adaptive Livelihood Strategies Among Households After the Closure of Fluorspar Mining Company in Keiyo South Sub-County, Elgeyo Marakwet County, Kenya

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A B S T R A C T

The establishment and existence of the Fluorspar Mining Company created direct and indirect employment opportunities for the local population. However, the closure of mining activities within the mining area may have led to social and economic challenges for the local communities. These were widespread unemployment, poor nutrition, high crime rates and increased dependency. The study objective was to analyze the livelihood strategies among households in Keiyo South Sub-county Elgeyo Marakwet County Kenya. The study was informed by the theory of Redefinition of situation. Survey research design guided the study. The target population was all the households' heads in the study area. The sample size was 254 respondents. A multistage sampling technique was used. Data collection methods included questionnaires, interviews, and observation and focus group discussions as the main data collection tools. Quantitative data collected was analyzed in form of frequencies and percentages and presented in form of matrix tables, charts and graphs. On the other hand, qualitative data was analyzed thematically based on the specific research objectives. The results of the study show that mining is a major propellant of economic activities in most mining areas by creating wealth, providing jobs and stimulating business ventures for community members. Further, closure of the company acted as a major economic setback to the community as a whole. The study findings also show that majority 91(44.4%) of respondents earned an income of 4001-8000ksh while minority 7(3.4%) earned an income of between 0-500kshs. The average income per month after closure was too low since their main source of income was lost leaving them in despair. Communities and mineworkers should be involved in planning for company closure and all other matters that affect their livelihoods.

Keywords: Adaptive Livelihood, Strategies, Households' Closure Of Fluorspar Mining Company

Introduction

Globally, livelihood assurances and sustainability are key to human survival. However, any destruction of livelihood is likely to lead to serious psychological, social, physical suffering and even death. It becomes even worse when policy intervention is not put in place in time. Despite the impressive contribution of the mining sector to national government revenue, foreign reserves and other infrastructural development, many stakeholders still argue that the adverse effects of mining erode the benefits of mining (Assan & Muhammed, 2018).

Livelihoods of rural households are diverse across regions and countries, and within countries. While some rural households rely primarily on one type of activity, most people now seek to diversify their livelihood base as a way to reduce risk. In North America, raw mineral production is valued at approximately US\$ 70 billion. The industry employs approximately 1 million people (Plumpton, 2017). In Peru, the mining sector accounts for 50% of the country's annual export earnings. The mining industry's contribution to the Peruvian economy is represented by \$240m paid in taxes; \$400m spent on local purchases; \$280m in imported goods and accounted for over 11% of GDP (Pierola, Fernandes & Farole, 2015). In Sweden mining companies and the surrounding mining communities face a broad range of practical challenges that provide both possibilities and obstacles when it comes to social sustainable development (Abrahamsson, et al. 2016). The mining companies and communities in Sweden, to varying degrees, share these challenges with mining companies and communities in Australia, Canada, and several other similar countries. For example, mining often takes place in rural districts where regional growth depends on mining (as well as forestry and steel) (Fleming & Measham, 2015).

In Africa, mining is a major economic activity in many Sub-Saharan countries (Andriamasinoro & Angel, 2012). However, mining as an industrial activity takes place on the natural environment, disturbing areas around where it occurs (Tom-Derry, et al., 2012). Assan and Muhammed (2018) indicated that the livelihoods of mining communities in developing countries are structured around an assortment of agrarian activities and complementary subsistence occupations whose impact on the environment is negligible compared to mining operations. However, when mining companies displace these communities, they attempt to diversify the economy of the local people which is often unsuccessful because of lack of the requisite capacity among the indigenous people to take advantage of the formal employment opportunities resulting from the mining operations. Even though the mining sector reforms have contributed tremendously to macro-economic gains, the associated growth has had detrimental impacts

on indigenous communities such as land degradation, contamination, and chemical pollution (Quarshie, 2015).

Livelihoods and quality of life of the rural dwellers in Sub-Saharan Africa is affected or even controlled by a multiplicity of factors or contexts that make life for them almost a struggle for survival (Mensah, 2014). These factors border on economic policies, agro-climate, environment, socio-culture, demography, infrastructure, services, governance and so forth. In South Africa, where gold is the largest mineral foreign income earner, gold mining alone contributes 27.4% in mineral revenues.

In Kenya the establishment and existence of the mining companies creates direct and indirect employment opportunities for the local population and generates prospects for starting new businesses and expanding existing ones further contributing to both poverty reduction and economic growth by enriching livelihoods. Moreover, mining projects provides livelihood assurances and develops basic infrastructure facilities such as schools, dispensaries and recreational facilities among others in the mining areas thus replacing social dimensions of households. However, closure of fluorspar mining activities in the year 2016 which used to produce substantial tonnes of fluorspar mineral for export have led to social and economic challenges to local communities resulting in widespread unemployment, poor nutrition, high crime rates and increased dependency. In addition, there is need therefore to understand livelihood strategies among the communities affected by the mine closure. It becomes even worse when policy intervention is not put in place in time. Despite closure of fluorspar mining company in Kenya, little if any, has been done on its effect on the livelihoods of households as well as impacts of the mining activities on the environment. In view of this, the study investigated how the closure of mining companies has affected livelihoods, strategies adopted and gender relations among households in Kenya. Therefore, the current study shades light and provides information on the consequences of mining closure on livelihood strategies among households within the mining area. This information provides bridge to existing knowledge gap on closure of fluorspar mining company and livelihood strategies among households in Keiyo south sub-county Elgeyo Marakwet County Kenya.

Theoretical Review

This study adopted the theory of Redefinition of the Situation by William Thomas (1994). According to the theory human beings start with the way they are and when they find that they are not comfortable, they change their cognition, their attitude and finally their behaviour. The communities in Keiyo South Sub-County re-orientated themselves to adjust to the new situation by adopting coping strategies. These coping strategies helped them meet their necessities of life such as capabilities, assets

(material and social resources) and activities required for a means of living.

Methodology

The study was carried out in Keiyo South Sub County, Elgeyo Marakwet County, Kenya. It is endowed with arable land, waters from River Kerio and Fluorspar at Kimwarer which had been closed. Mining of fluorite by the Kenya Fluorspar Company was the largest industry in the former district before its closure. This research adopted the use of pragmatist design as it allows for combination of both qualitative and quantitative strategies within various phases of research procedure. This paradigm was considered appropriate for this study since the research was anchored on both qualitative and quantitative techniques.

This study employed the use of mixed methods approach. The choice of mixed methods research in this study allows the triangulation. Triangulation allows one to identify aspects of a phenomenon more accurately by approaching it from different vantage points using different methods and techniques. The study targeted two wards Soy North with 479 households' heads and Soy South with 367 households' heads sparsely populated.

The study used 30% of the target population to derive the sample size of 254. The researcher purposively selected two wards from the six wards in Keiyo South Sub-county. Cluster sampling was used to select the villages from the two selected wards forming 31 clusters. Proportionate sampling was used to get the number of households to be selected from each cluster. A simple random sampling was used by researcher to select households for study from each cluster giving equal chances of being selected. Further, simple random sampling was used to select the household's heads in reference to respective number in each cluster.

The study used survey interviews key informants interview, focus group discussion (FGDs) and direct observations as the main method of data collection. The collected data was analyzed using both quantitative and qualitative methods. Quantitative analysis entailed the use of descriptive statistics such as percentages and frequency distribution tables. Qualitative analysis involved identifying major themes emerging from the data collected and relating them to the research objectives. Thematic analysis emphasizes pinpoints, examines, and records the themes within the collected data. Themes and patterns across data which sets a basis that is important to the descriptions of a phenomenon that is associated to specific research questions. Qualitative data was presented by use of themes denoted by narrations and tabulations on responses in verbal form and pictures found in the area of study.

The researcher sought permission from the respondents

and the key informants just before embarking on the interview. This was achieved through informed consent to participants. The researcher also kept the information given with confidentiality of which the respondents did not feel threatened. Consent for household members participating in the study was sought verbally during the course of data collection. The results of the study were provided to relevant authorities and to the interested participants.

Findings

The objective of this study was to analyze the livelihood strategies adopted by Keiyo South Sub-County communities who had benefited from fluorspar mining company after its closure. This was done in order to understand how the communities cope up with the effect of closure of the mining company.

Meeting the Household Economic Needs After the Closure of the Mining Company

The study sought to find out how the respondents met their economic needs after the closure of mining company. Table 1 presents the study results.

Table 1. Meeting the household economic needs after the closure of the mining company

	Frequency	Percentage
Farming	133	64.9
Self-employment	27	13.2
Formal employment	45	21.9
Total	205	100

The study results in Table 1, showed that the respondents were able to meet their economic needs by resorting to farming evidenced by 133(64.9%), 27(13.2%) became self-employed while 45(21.9%) were employed. This implied that after the closure of mining company the households adopted other livelihood strategies in order to sustain their livelihood and meet their economic needs. The household diversified their farming such as growing of tomato, millet, maize, beans and groundnuts. This was adopted by the household in order to reduce on food insecurity. This was because agriculture has to generate household incomes and stimulate the growth of productive off-farm activities in rural areas like Keiyo South Sub-County. To achieve these goals for agriculture, several strategies have been pursued. Therefore, there is need for other stakeholders to encourage these households in Keiyo South Sub-County to adopt more productive practices, especially the wider use of improved varieties, fertilizer, disease and pest control, pricing policies, and marketing policies and institutions and the extension services can be the main instrument in obtaining much higher yields through known techniques. Another livelihood strategy adopted by households in Keiyo

South Sub-County was charcoal burning in order to earn and income. The households reduced food consumption patterns from three meals a day to two and some cases were one. After reduced income some household changed type of school, changed health sources and reducing recreational activities.

In Keiyo South Sub-County communities practiced small scale farming. Some households have been employed in the civil service which is an important income-generating activity besides casual and contractual jobs. Moreover, a number of people are employed by the rural access roads programme. For people who want casual labour, opportunities exist, for example, fencing, weeding, harvesting and constructing a hut, which are paid per day's work (or predetermined sum of money). In monetary terms, these casual jobs and local contracts are readily available opportunities. Some people own transportation business (public service vehicles) and bodaboda services. Others are in self-employment, such as small kiosks, shops and selling honey.

Livestock Keeping

A 52 old man reported that;

"after the closure of fluorspar mining company and losing jobs, we opted for livestock keeping in order to sustain our household needs for example school fees for our children, health expense and community engagement for example ceremonies."

This gave an impression that after the closure of fluorspar mining company households had no option but to come up with alternative strategies to sustain their livelihood. The region is ASAL, therefore, livestock keeping become an adaptive measure. The main types of livestock reared in this region include cattle, sheep, goats, poultry, rabbits, pigs, donkeys, and bees keeping. The milk income level in the valley is considerably lower than that of the escarpment and the highlands.

The residents practiced poultry farming which were local chicken under free range management system with minimum feed supplement and moderate housing structures. However, marketing is a major constraint in the commercial poultry sector whereby farmers fail to get good returns to sustain the enterprise and the households due to long distance to competitive markets. Eldoret town and hotels in Iten town are the main market outlets for poultry and products from the region. The pig keeping was not popular in the region due to low management skills and market constraints. The few animals kept are by the institutions in the area. The pigs kept are crossbreed Landrace and Large White. There is no group in the area that is seriously involved in value addition of honey except the Keiyo South Sub-County Development Authority (KVDA), which served a limited area in the valley and this was the

reason why most of the bee-keepers sold their honey in crude or semi-crude form.

A minority of households in the lowlands sell honey. Most households use it for home consumption, for medicinal purposes to make a local honey brew, and as a delicacy. Honey processing was done by Rokocho honey refinery centre owned by the KVDA. The bee-keepers are also embracing modern methods of beekeeping, such as use of the KTBH. Cattle production activities in Keiyo are in accordance with the three distinct topographical features, namely, the highlands, the escarpment, and the Keiyo South Sub-County. This was due to differences in altitude and rainfall amounts.

A group of community members noted that;

"KVDA has provided us with alternative source livelihood after the closure of mining company by proving us beehives that we keep until it's ready for harvesting. They also come in to harvest honey and pay us our dues."

From above sentiments it is evident that KVDA has provided an alternative livelihood strategy to households in Keiyo South Sub-County in terms of generating income through sell of honey.

The KVDA are running several projects which have employed many people. These projects include Arror multipurpose project, mango processing plant, honey processing plant, lower Turkwel irrigation, greenhouse technology and meat processing.

Introduction of greenhouse technology and promotion of aquaculture as an alternative source to food security by KVDA has boosted livelihood among the residents because they can buy subside food from KVDA.

Supported farm forestry through raising and sale of 10 million assorted tree seedlings to institutions, individual farmers and Non-Governmental Organizations (NGOs) for planting within Cherangany and other catchments. Increase in land under irrigation by 500 ha. in existing irrigation projects at Tot, Arror and Ptokou/Sangat to improve food security in the region. Production of 6,000 beehives for community empowerment by improving the quality of honey produced in the region. Construction of 10 (ten) small dams and 90 (ninety) water pans spread within the Keiyo South Sub-County region. Establishment of three additional community empowerment projects i.e. fish farming in Weiwei, green houses in Kerio Roses and Lodwar. Establishment of Livestock Improvement Programme in Chemeron, Baringo County.

KVDA has also roll out seed nursery project the area that encompasses different varieties of fruits seedlings such as pawpaw, bananas, mangoes among others. These projects have created self-employment especially to the youths.

Alternative Employment Opportunities

One of the youths noted that;

"After the closure of fluorspar company, we had no option but to look for employment either formal or self-employment in order to sustain our livelihood."

This gives the impression that after the closure of mining company people had to look for coping strategies in order to sustain their lives. They look for employment elsewhere and some practice self-employment. Since majority of households in the study area are poor, there was a need to achieve economic growth through the use of their productivity such as self-employment after the closure of mining company. Failure of fluorspar mining company to provide employment after its closure severely handicaps the community economic effort. Therefore, low income groups are numerous in the study area, hence can create surpluses in highly productive sectors, and then use those surpluses to alleviate their poverty by means of welfare and relief payments. This coping strategy was adopted by the households with the need to protect and enhance the assets and income streams.

One of landscaping experts reported that;

"After the closure of fluorspar mining company, I used my learned skills of landscaping in other parts where could get earning to feed my family."

This implies that the personal skills and social networks can provide employment, safety nets in times of distress, and routes to savings and remittances used for investment purposes when the formal employment sectors do not help anymore. There was a need, therefore by household to find ways of assisting the households to increase the range and quality of their productive opportunities and livelihood choices. The creation of productive employment opportunities is one of the most serious challenges facing households in Keiyo therefore they had to come up with self-employment strategy. A central component of the larger efforts towards economic growth, poverty reduction, and increased employment is the strategy for the balanced development of rural areas. Improved productivity and output in self-employment which is essential for overall economic growth is closely linked to services and inputs provided from accessible urban areas.

Agricultural Activities

One of small-scale farmers reported that;

"We had no option after closure of the fluorspar company, but to actively participate in agricultural activities in able to cater for our daily needs"

This shows that agriculture was the largest source of gainful employment in among the majority of households after

the closure of fluorspar mining company. This is a central to the economic development of the households and requires a long-term strategy for employment creation and transformation of the economy. Agricultural performance is crucial for the households because it provides vital ingredients for economic transformation, such as demand, foreign exchange, raw materials, food, and labour. As part of their diversified livelihood strategies, nearly all households in Keiyo are engaged in some crop production. Farming is the basis of life for most people, although the degree to which they depended upon agriculture varied across the household capability. Furthermore, the types of crops that can be grown, the amounts that can be produced, and the use to which they are put varies in the three ecological zones.

One of the farmers reported that;

"The main crop being planted is the maize which is the staple food"

This implies that the staple food in the study area is maize, which has been grown in the area as a source of food. Maize tends to be the staple crop for people in the study area. The residents opted for growing maize because they are less susceptible to damage from crop pests, such as weaverbirds, than is millet and sorghum.

In addition, another respondent noted that;

"The reason for planting maize here is that it requires less labour during planting, weeding, harvest, and processing than those other grains; it is a labor-saving crop compared to the indigenous grains".

This implies that after the closure of fluorspar mining company the household opted to plant maize because it was less costly during its production. Also, the crops helped the household in food security. Maize has also acquired a higher monetary value than millet and sorghum and the Keiyo farmer responded to widening market opportunities. Moreover, maize serves the dual purpose of being a commercial crop as well as being a subsistence crop. Though maize is considered as a food crop, it is a cash crop as well for it is an important money earner for both small-scale and large-scale farmers.

A 50-year-old woman revealed that;

"When the mining company closed, we had to look for alternative means of generation income. As a family we had to plant millet which is friendly to this environment and widely used to brewBusaaandchang'aa."

This means that people continue to grow millet especially for use in brewing beer as alternative source of income to sustain their livelihood. However, older informants routinely stated that they grow much of these millets than they did in the past. The reasons they give for this change in the

amount of millet planted centre on the greater amount of work they require and its tedious nature.

Another respondent revealed that;

“Apart from planting maize and millet planting of Irish potatoes was an afterthought due to the prevailing situation in this area after the closure of mining company.”

The study findings mean that Irish potatoes were grown in the area because they are suitable to the climate and soils in the study area. The Irish potatoes are popular in these areas not only because of its commercial value, but also due to the fact that it matures in a shorter period than other available crops. It needs very little labour and the yields are very high. Finally, potatoes like maize serve the dual purpose of being a commercial as well as subsistence crop. The distribution between “cash” and “food” crops is often an artificial one imposed by the observer.

Although agriculture is the most important means of making a living for most of the households of the study area, by no means do these activities exhaust the range of possibilities. Households in all the study area try to do other things in addition to growing crops and keeping animals; however, their ability to do so varies. The heading “small-scale income-generating activities” subsumes a variety of possibilities, including casual labour (kibarua).

Income-Generating Activities

A group youths reported that;

“The closure of mining company forced us to look for kibarua such weeding in farms, collecting fire hoods, transportations, stocking of hood for charcoal burning and sand harvesting. This has helps to substation ourselves in terms of providing our parents and young families.”

This means that after the closure of fluorspar mining company, the youths and other households’ members are trying to do other income generating activities in addition to growing crops and keeping animals in order to sustain their livelihoods. Therefore, they have opted to small-scale income-generating activities subsumes a variety of possibilities, including casual labour (kibarua). Kibarua is a day labour or piece of work paid either in cash or in goods such as sugar or salt,” beer brewing and sale, charcoal burning and sale, craftwork, such as the making of sisal ropes, and the making of decorated calabashes (used for milk) from guards. However, it should be noted that the degree to which households depend upon casual labour for income generation was inversely correlated with elevation. Thus, the average amount of money that household members earned and the degree to which they depended upon casual labour for economic survival was greater in the valley than on the escarpment or in the highlands.

One of the youths reported that;

“I have resorted to play hide and seek game in the forest of burning charcoal in order to survive this harsh state of life after the closure of mining company. Although its illegal I try my luck because I have no other option left to sustain my family.”

This means that some residents in the study area have opted to illegal means of survival in order to provide the basic needs in their households. They have resorted to burning and sale of charcoal which is undertaken primarily by males, due to the greater availability of trees. In normal situation, a person has to possess a license in order to burn trees to make charcoal; in reality, few people actually do. As it leaves the valley, the price steadily increases.

A 55year old woman reported that;

“Life had been difficult after closure of mining company and the brewing of busaa has enabled me take my children to school and also my grandchildren. Have been able to feed my family with the earning from the brewing and selling of busaa and chang’aa brew.”

From the above statement its evidence that other income generating activities adopted by the household members after closure of mining company is the brewing of busaa and chang’aa. Although officially proscribed, the brewing and sale of traditional beer (busaa) has since been commercialized as a source of income. Currently busaa is a substantial source of income, especially for women. This beer is often used to compensate the members of a communal work party and today, the workers who come to perform labour during critical periods in the agricultural cycle are still rewarded with busaa

A 57-year-old woman noted that;

“After the closure of fluorspar mining company my child lost his job and we were dependent on him. Therefore, I had to look for other means of survival to vent by making craftwork in order to raise income to feed myself and grandchildren.”

This gives an impression that despite craftwork is limited in the study area some household’s members practice as source of income. The craft activities being carried out in the study area was making ropes from sisal fibres and calabashes from guards as a minor supplementary source of income. This activity was mostly done by women.

One of the businessmen indicated that;

“After the closure of the mining company likely we had some money that enables me to startup a goat business. I buy goats cheaply here at Keiyo South Sub-County and supply them on the highlands, where I sell at higher prices. This has enabled me to provide for my family in terms of medical expenses, school fees and entertainment.”

This finding shows that households who had made some savings during their term of employment ventured into entrepreneurship after the closure of mining company. They were able to organize production and were ready risk in the business. Like people in rural communities elsewhere in the developing world, households in study area do many different things in order to survive; they diversify rather than specialize their economic enterprises.

A 32-year-old man reported;

"After closure of fluorspar mining company many casual laborers lost their source of livelihood and collecting and selling of scrap metals become an alternative source of income due to its demand and ready market."

This finding shows that due to closure of mining company, there were unutilized metals and equipment which was sold as scrap metals. This becomes source of income to some of youths who ventured into scrap metal selling business.

The study findings from focus group discussion revealed that the mining company used to employ numerous unskilled workers who are then trained and developed for mining operations. However, majority of these workers have not found employment in other industries after a mine closure. They have to settle for a severely reduced income through subsistence farming, charcoal burning, bodaboda business and livestock keeping. This has led to considerably lower quality of life. The study findings therefore indicated that retrenched mineworkers were reluctant to leave their communities at the mine sites. They prefer rather to wait for new owners to take over the mine, which may provide employment and uplift their standards of living.

After the closure the roles of men in the study area changed whereby, they engaged in horticultural produce, milking of cows, selling vegetable along the tarmac road, formation of merry go-rounds which were traditionally were performed by women.

A group community member reported that;

"After the closure of fluorspar mining company, we lost source of livelihood. Therefore, we had no option but to come up with other means of survival such as subsistence farming, casual employment and some of our household members going to bigger towns to look for formal employment."

The community adopted other means of survival which could sustain their family needs after the sudden closure of the mining company. They resorted to do subsistence farming where they grew maize, beans, millet, sorghum, sweet potatoes and groundnuts. The farming was done much for food and little surplus were sold for income generation.

The subsistence farming could not meet the family needs hence the household members had to look for casual jobs

in order to get the income to pay for expenses such as medical, school fees and contribution to the community ceremonies. They had to look for casual jobs such as sand harvesting, farm weeding, and collection of firewood for sell among others.

The community members who participated in FGD noted that;

"Part of KVDA projects is the making of seedlings such as mangoes and avocados that do well in Keiyo South Sub-County. This provided us with other sources of income and employment creation from the production and processing of these fruits."

In relation to community members responses above it can be noted that KVDA become one of alternative source of livelihood to community members after the sudden closure of mining company. They create employment to some community members to work on their projects such tree nurseries, bee keeping and irrigation. They also provided community members with training on growing of drought residence crops as well as supplying them with seedlings.

Furthermore, the household members had to look for self-employment in order to cope up with sudden loss of livelihood. They invested in small business such as kiosk, mitumba business, butcheries, groceries and bodaboda business. These businesses were carried by few members of the community in order to meet the daily needs of their family members and dependents.

Family members with skills and educated decided to look for formal jobs in other areas of the country. Some moved to Eldoret town and Iten town in search of formal employment in order to meet their basic needs and for their family members who were fully dependent on them.

The community members noted;

"Due to sudden loss of livelihood after closure of mining company, we had to invest on livestock keeping especially goats and indigenous cows who are adapt well to the weather of ASAL areas. These animals help us in terms of food and for income generation. We sell them in order to send our children to school and meet daily family needs as well as medical expenses."

The above voices show that the community members had to invest on livestock keeping due to conducive environment for rearing of goats and indigenous cows. This was an alternative strategy to relief them from dire poverty situation. These animals become source of income to meet family expenses as well as source of food. Rearing of these animals don't need much production cost because they just graze in open land and just need few maintenance expenses in terms of deworming and mineral supplements.

Further, the community members practiced poultry farming

as alternative source in income. These were mostly the indigenous chicken which requires less maintenance cost and was done by women. It was practiced for food and for sell at local markets such as Kabarnet.

A person's livelihood is comprised of 'the capabilities, assets (material and social) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.'

Conclusion and Recommendation

The study concluded that the mining communities can be able to meet their economic needs by resorting to other activities like diversification of farming, self-employment and seeking for employment. Motivations behind these choices can depend on households' characteristics (education, productivity, among others.), on the economic and environmental context (access to markets, access to land, quality of environmental resources, among others) and on preferences (profit-maximizing or safety-first approaches, among others).

There is need for mining companies to develop a contingency plan to mitigate the potential socio-economic consequences which leads to human suffering due to unexpected mine closure. This will assist in building resilience into the livelihood strategies of mineworkers and their dependents as well as surrounding communities dependent on these mining companies.

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