

Small-Scale Mining in the East Akim Municipality: A “Resource Curse” in Disguise?

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Abstract: Mineral resource deposits abound in the East Akim Municipality, and mining in the area is dominated by small-scale mining. This study examined the socio-economic menace that small-scale mining has bequeathed to individuals and catchment communities in the East Akim Municipality. The concurrent nested mixed method design was adopted for the study. A total of 260 respondents comprising 50 miners, 200 non-miners and 10 opinion leaders were sampled through systematic and purposive sampling techniques from four communities, namely; Kibi, Apapam, Adadientem and Ahwenease in the East Akim Municipality. Systematic sampling was used for sampling respondents from households in the communities for survey. A three-point Likert-scale questionnaire of Cronbach’s alpha coefficient (α) of 0.76 was used for the survey while semi-structured interview guide was employed for interview. This study concludes that small-scale mining is both a blessing and curse to the East Akim Municipality, but the negative repercussions are a heavy burden for individuals, households and catchment communities.

Keywords: Mineral, resources, small-scale, mining, land, reclamation, curse

1. Introduction

The East Akim Municipal Assembly is one of the municipalities in Ghana where small-scale mining operations are substantially prevalent. Small-scale mining in Ghana describes the process of extraction of minerals deposits, most commonly gold and diamond, by miners who work in small or medium sized operations, using rudimentary techniques with minimal capital investment and little consideration of environmental issues. It is a global economic activity which is viewed differently by various scholars due to the diversity within the sector. Although it is an economic activity for livelihood by individuals, it is mainly illegal [1]; [2]. Illegal mining activities and its related challenges are on the increase in recent times in the municipality [3]. It poses threats to many communities located within the municipality. The rapid exploitation of mineral resources in the municipality is a threat to the present and the future generations. It is therefore crucial to examine the menace of small-scale mining operations on the socio-economic lives of people in the East Akim Municipality, and to mitigate its effects.

Efforts made by previous and current Governments of Ghana (GoG) to address these and other related challenges have led to the enactment of the Small-Scale Gold Mining Law, PNDC law 218, in 1989. Although, efforts by the current GoG to legalize the sector have improved the efficiency of operations, environmental and socio-economic problems as well as land-use conflicts continue to exist and are becoming increasingly unmanageable in mining communities in Ghana [4], and the environmental challenges of small-scale mining still continues unabated especially in the East Akim Municipal. Previous studies on small-scale mining have placed emphasis on environmental consequences [3]; [5]; [6]. This study contributes to the existing macro-discourse on the consequences of small-scale mining, but it shifts emphasis from environmental-consequences to consequences of small-scale mining on livelihoods. The study is guided by the Entitlement Theory by Robert [7]. This is used for this study to analyze the effects of small-scale mining on people’s livelihoods and the environment. The theory explores what jus-

tice tells us about holdings or what can be said about and done with the property people own when viewed from a principle of justice [7]; [8]. This theory is meant to assess the holdings of any given person at any given time, and determine which of those holdings, if any, are possessed justly by that person. The entitlement theory comprises of three main principles:

- A principle of justice in acquisition: This principle has to do with the initial acquisition of holdings. It is an account of how people (miners) first come to own common property (land, mineral deposits), what types of things can be held, and so forth. Thus, if something is acquired justly, then it is just to own it.
- A principle of justice in transfer: This principle explains how one person can acquire holdings from another, including voluntary exchanges and gifts. If someone who justly owns something freely transfers that property to another, then it is just for that other person to own it, provided that it does not leave others worse off.
- A principle of rectification of injustice: This involves how to deal with holdings that are unjustly acquired or transferred, whether and how much victims can be compensated, how to deal with long past injustices done by a government, and so on. If someone unjustly owns something, then the situation ought to be rectified, for example by restoring the property to its rightful owner [8].

The Entitlement Theory holds that a distribution is just if everyone is entitled to the holdings they possess under the distribution. However, this does not apply to everyone in a society as some people steal from others, defraud them, or enslave them, seizing their product and preventing them from living as they choose, or forcibly exclude others from competing in exchanges. In this situation, the third principle of rectification is needed to correct such unfortunate occurrences [9]; [10].

The framework shows how small-scale mining operations, if legally and justly carried out, can positively affect the livelihoods of people in the East Akim Municipality. On the other hand, if it is unlawfully and unjustly carried out, it can

have negative implications for people and the environment. It is noteworthy that most of the small-scale mining activities carried out by miners in the municipality are illegal and without regard for the environment.¹ This illegal mining activity is frowned upon by the laws of Ghana; it is unjust.

The people of East Akim Municipality have high expectations about how the natural mineral resources, such as gold, diamond and bauxite deposits in the area, will help propel the municipality to economic growth and development. It is believed that the mining of these mineral deposits will have direct or indirect effect on livelihood in the catchment communities. However, it is likely that the discovery and exploration of mineral deposits might cause damage to livelihood of people and the environment. Therefore, it is questionable if small-scale mining is a blessing or curse in the municipality. It is also questionable if small-scale mining is a viable or sustainable economic activity in the municipality. This is because of the aggregate of the adverse implications of small-scale mining on livelihoods and the environment. A critical examination of the balance sheet of the aggregate of the effects of small-scale mining on livelihoods in East Akim Municipality affirms what is described as the "Resource curse" or the Dutch Disease [11]. This refers to the relationship between an upsurge in exploitation of natural resources and a decline in the manufacturing sector [11]. The term is used to describe countries, which have plentiful resources but are still experiencing acute poverty in terms of socioeconomic development [11]. In countries with rich natural resources, the wealth has failed to promote prosperity among the people. On the contrary, the rich natural resources rather triggered conflicts, insecurities, unstable government and corruption [12]. In East Akim Municipality, it is questionable if small-scale mining is a viable or sustainable economic activity. This is because of the adverse implications on livelihoods and the environment.

Some studies have identified the adverse impact of small-scale mining on livelihoods and the environment [6]; [13]; [14]; [15]; [16]. Some of these adverse implications include destruction of forest cover, destruction of farms, disturbance of the natural habitats of game species, water pollution, air pollution, noise pollution, and land degradation [17]. In Ghana, the environmental impacts of small-scale mining activities have been identified by researchers [15]; [17].

Concerning land degradation, small-scale mining damages the lithosphere in mining communities in Ghana. This leads to the destruction of tracts of agricultural land. It is contended that the small-scale mining sector is strongly associated with widespread land degradation, loss of biodiversity, natural resources and deforestation [15]. Besides, dug out pits during small-scale mining are not reclaimed, and previously vegetated areas are degraded, an act which consequently induces erosion and subsequent siltation of water bodies [6]. In typical mining communities in Ghana, lands which are virtually devoid of vegetative cover after mining operations are quite common to be found in many small-scale mining zones throughout the country [18]. It is argued that extensive areas of land and vegetation in Tarkwa mining area have been cleared to make way for surface mining ac-

tivities [13]. It has been observed that open pit mining concessions have taken over 70% of the total land area of Tarkwa. It is estimated that at the close of mining, a mining company would have utilized 40-60% of its total concession space for activities such as heap leach facilities, tailings dump and open pits, mine camps, roads, and resettlement for displaced communities [13]. This explains why land as a natural asset is considered essential in the mining activity. These activities have the potential of causing negative effects on the livelihoods of people living within the catchment area of the mines. It is without doubt that small scale gold mining activity has caused significant damage to the landscape on which these activities takes place.

Apart from the damage to the lithosphere, small-scale mining impact on the hydrosphere as it pollutes water bodies. Small-scale mining causes serious river and stream pollution and change water courses as a result of excessive siltation. Most small-scale mining operations increase sedimentation in rivers, especially through the use of hydraulic pumps and suction dredges, which sometimes leave scars on the landscape. Others add poisonous chemicals to rivers, making them unsafe for human use [17]; [19]. One of the main environmental and health hazards caused by small-scale mining in Ghana is the widespread release of mercury. The mercury that is used to extract gold is usually released directly into the environment by activities of the miners. The released mercury enters the drainage system and the food chain through the soil and ends up in humans where it causes problems to many individuals. The use of mercury in small-scale mining techniques has health and environmental consequences. Prolonged exposure to mercury can cause permanent brain damage and may induce vomiting, diarrhea and sensory impairment on people. Mercury is discharged into the environment either by dumping wastes directly into rivers or by releasing mercury vapors into the atmosphere when the compound is burned. Mercury is often used to separate the metal from the ore and is generally handled by people with little or no awareness of its risks or training to minimize risks. Elemental mercury is now known to spread very effectively from diverse sources to both terrestrial and aquatic systems. Most of the activities of small-scale miners are meant to reduce the water table or divert watercourses away from the mining sites. This disturbs and disrupts the natural watercourse which eventually leads to surface water pollution. A study conducted in Tarkwa mining areas in Ghana identified four main problems of water pollution [13]. These are chemical pollution of ground water and streams, siltation through increased sediment load, increased faecal matter into water bodies and dewatering effects [13].

Another adverse effect of small-scale mining is air and noise pollution. Atmospheric effect is yet another environmental problem of small-scale mining. Mining activities discharge particulate matter into the air which becomes dangerous to human health. Thus, sulphide dioxide (SO₂), nitrogen dioxide (NO₂) and carbon monoxide are of major concerns in mining areas. Some of these pollutants that affect the air quality have been identified as airborne particulate matter, emissions of black smoke, dust, noise and vibration. It has been observed that dust particles of less than 10 microns pose health threats to the people of the Tarkwa mining area [13]. All fine dust at a high level of exposure has the poten-

¹The small-scale mining activities of illegal miners is known as *galamsey* in Ghana.

tial to cause respiratory diseases and also increases the condition of people with asthma and arthritis. Dust from gold mining operations has a high silica content, which has been responsible for silico-tuberculosis in the mining area [13]. The release of dust through digging and clearing of land cover are some of the causes of atmospheric impacts of small-scale mining. In view of this, there is a need for the adoption of retorts when miners were observed burning amalgam freely, thereby, causing harm to the immediate environment [18]. High-pitched and other noise in mining communities is known as a cause of damage to the auditory systems, cracks in buildings, stress and discomfort to people and animals alike [13]. The noise also adversely affect animal population by terrify them and hinder their mating processes thereby causing them to have abortions.

There are also negative health impacts of small-scale mining. There is scholarship on the impact of mining on the health of both mine workers and the people within the surrounding communities of the mines [20]. In the view of Stephens and Ahern (2001), mining remains one of the most hazardous occupations in the world, not only in terms of short term injuries and fatalities, but also due to long term impacts such as cancers and respiratory conditions. Health and safety risks differ according to where the mines are, what products are mined, who is involved and what processes are used in the exploitation. In different countries, women and children may be involved in mining and depending on what product is being mined, mining conditions and the degree of risks changes at the mines [20]. Respiratory Tract Infections (RTIs) are the most studied and problematic of health impacts for mine workers. It is believed that the long-term effects of these mining related problems are diseases such as cancers and mental health impacts for workers. However, injuries are important safety issue confronting mining communities. In small-scale gold mining, especially underground mining, miners dig only to a limited depth and tunnels supported by wooden logs. Hand dug tunnels and shafts created are shallower and smaller than those of commercial mining companies, with no logistical supports. This makes them prone to various dangers such as pit collapse and landslides. Therefore, the risks of fatal accidents are high, particularly in underground mines [18]. In addition, the mining operations change the nature of the environment through creation of open pits that accumulates stagnant waters that supports malaria vector growth [13].

Other mining and environmental related diseases include skin disease, diarrhoea and Sexually Transmitted Diseases (STDs). A report by AngloGold indicated that HIV/AIDS and malaria are the public health threats facing the company during their mine in Africa [21]. AngloGold Ashanti estimates indicated that in 2004, HIV/AIDS prevalence rate was 30.24% amongst its South African workforce in small-scale mining. In 2003, this was estimated to be 29.95% and 4,248 cases of Sexually Transmitted Infections (STIs) were treated by the AngloGold Health Service. Besides, malaria remains the most significant public health threat for AngloGold Ashanti's mining operations in Ghana, Mali, Guinea and Tanzania [21]. Some scholars examined whether the very high HIV prevalence recorded in Swaziland and Lesotho, 26% and 23.2% respectively, could be partially explained by the massive numbers of migrant miners who were employed

in South Africa mines during the past century [22]. Their results show that there is the likelihood of HIV infection to increases for individuals employed in the mines in the age range between 30-44 years old. The study also showed that women who have husbands or cohabiting partners in the mining sector are also more likely to be tested HIV positive [22].

2. Materials and Method

The concurrent nested mixed method design was adopted for the study. In the analysis of the data, the study relied largely on the quantitative research approach with less utilization of the qualitative method. The target population for this study was 1,200 people from four communities, namely; Kibi, Apapam, Adadientem and Ahwenease in the East Akim with the household as the unit of analysis [23]. A total of 260 respondents including miners and non-miners were selected from the four communities. The researcher used a modified systematic random sampling technique where the needed sample size for each of the communities was first identified. The researcher divided the total population of each community with the sample sizes to obtain the sampling fraction or sampling interval. The sampling fraction was then used as the constant difference between subjects upon which respondents were selected.

Taking the 2010 population projections of the East Akim Municipality based on the 2010 Population and Housing Census (PHC), the researcher calculated the sampling interval for the study. In this regard, the population figures of the various communities were used and 80 respondents each were selected from Kibi and Apapam and 50 respondents each selected from Adadientem and Ahwenease, respectively. This was done by dividing the total population of each community by the proposed sample size to obtain the sample interval upon which the respondents were selected. Systematic sampling technique was employed by using a sampling interval of three with every fourth house included in the sampling process. The linear and nucleated layout of housing units enabled the use of a uniform sampling and this ensured that the sampling interval was drawn from across each community in the study area.

In all, the researcher sampled 260 respondents from 260 households from the four selected communities for the study. The sample comprised 50 miners, 200 non-miners and 10 opinion leaders. The 50 miners were distributed as follows: Kibi – 13, Apapam – 13, Adadientem -12, and Ahwenease - 12. The 200 non-miners were drawn from the following: Kibi - 60, Apapam – 60, Adadientem – 40, and Ahwenease – 40. The 10 opinion leaders were: assembly men/women – 3, community leaders – 3, miners – 2, and non-miners - 2. The systematic sampling technique is justified because it is easier, simpler, and more economical to apply. It also gives an assurance that the population is evenly sampled [24]. A sub-sample of 10 respondents were selected purposively for in-depth interviews. These were assemblymen, community leaders and other community members who were either miners or non-miners.

A three-point Likert-scale questionnaire was used to gather data from the 260 respondents. The researcher relied on the

Likert type questionnaire because they are useful in generating frequencies of response amenable to statistical treatment and analysis. Internal consistency was tested on the questionnaire by means of Cronbach alpha reliability analysis via the Statistical Package for Social Sciences (SPSS) software

version 26, and this yielded a Cronbach’s alpha reliability coefficient (α) of 0.76. The data were described using descriptive statistics (frequency count, percentage and mean).

3. Results

Table 1: The socio-economic menace of small-scale mining in East Akim Municipality (n = 260)

Statement	Responses			\bar{X}
	A	U	D	
*Destruction and loss of forest and farmlands	234(90)	21(8)	5(2)	2.88
*Pollution of water bodies and discoloration of water, & destruction of aquatic life, natural habitat of animal species	256(98)	0(0)	4(2)	2.96
*Presence of uncovered, dangerous and disused mine pits	257(99)	0(0)	3(1)	2.97
*Small-scale mining accounts for the spread of malaria and other diseases (STDs) in the area	242(93)	0(0)	18(7)	2.86
*High cost of living (rent, food, etc)	224(86)	21(8)	15(6)	2.80
Absenteeism and school dropout	148(91)	104(6)	8(3)	2.53
High rate of divorce and teenage pregnancy rate among the youth	104(40)	106(41)	50(19)	2.20
High crime rate, insecurity, drug abuse among the youth	174(67)	22(31)	55(21)	2.38
Other general negative effects (air & noise pollution)	161(91)	8(3)	2(3)	1.92
Overall mean				2.61

Key: A –Agree; U – Undecided; D – Disagree; \bar{X} – mean

Note: * Major negative impact of small-scale mining;

The figures in parentheses are in percentage.

The major negative impacts of small-scale mining in the East Akim Municipality are: presence of uncovered, dangerous and disused mine pits (n= 257, 99%, \bar{X} =2.97), pollution of water bodies and discoloration of water, destruction of aquatic life and natural habitat of animal species (n=256, 98%, \bar{X} =2.96). Other significant adverse impacts are: destruction and loss of forest and farmlands (n= 234, 90%, \bar{X} =2.88), spread of diseases such as malaria and STDs (n=242, 93%, \bar{X} =2.86), and high cost of living with regard to high rent and cost of food (n= 224, 86%, \bar{X} =2.80).

The study found major and minor adverse impacts of small-scale mining in the East Akim Municipality. The main negative impacts include presence of uncovered, dangerous and disused mine pits, pollution of water bodies, destruction of aquatic life and natural habitat of animal species, destruction and loss of forest and farmlands, spread of diseases such as malaria and STDs, and high cost of living. The minor effects include, but not limited to, school absenteeism and dropout, increase in divorce and teenage pregnancy, increase in crime and insecurity. These findings are buttressed by excerpts of interview responses which give credence to the menace of small-scale mining in the municipality. These findings are supported by interview data below.

A 14-year-old miner who is a Junior High School pupil at Adadeantem remarked:

My parents said they don’t have money to pay my school fees, I have nobody but when I go to mine, I get money to do many things I want. I can buy my shoe and also pay my school fees when I go to do ‘galamsey’ with my friends. This response is the fate of many of the affected children in the studied communities, as they all have similar concerns.

In another scenario, a non-miner who is a woman at Apapam narrated her marital problems, which she claimed arose because she married a migrant small-scale miner she did not know that he was already married. In her own words, she said:

I did not know the man has a wife at home. He told me he has never married and will take me home during the Easter celebration. If I had known, I would have advised myself. But what can I do? I don’t have a job and all the burden is now on me. He will leave to regret, I promise.

The above quotation is an apt example of how women are treated badly by migrant “galamsey” operators in the catchment communities. In addition, some marriages in the communities also break down when the men leave the mining communities to work in other places, thereby leaving their wives behind and engaging in new relationships.

Small-scale mining activities have also impacted negatively on the cost of living of people in the East Akim Municipality. It has led to hikes in rent and prices of food crops. A respondent vividly captures this view when she said:

A single room accommodation at Kibi is rented for GH¢ 400, which is similar to that of Accra. In most cases, people are evicted from their rented apartments if miners come from other areas in urgent need of accommodation for mining. A typical incident occurred at Apapam where alien miners were made to pay higher price for accommodations which were already occupied by local people. Similarly, a finger of plantain also cost GH¢1.20 at Kibi, making life more expensive. Thus, the prices of commodities in the studied communities are comparatively higher as expected of a farming community. This situations makes life difficult for the ordinary people who struggle to make earns meat.

A discussion of the negative effects of small-scale mining in East Akim Municipality cannot be complete without a dissection of the effects of small-scale mining on the ecosystem and lives. In East Akim Municipality, small-scale mining has led to the destruction of land, rendering it unsuitable for agricultural activities. In other cases, the numerous uncovered pits of small-scale mining activities have served as death-traps for people and animals. An opinion leader, who is an Assemblyman of Apapam had this to say:

Small-scale miners are destroying our land for us because the land takes several years to recover when destroyed. Anywhere they find their gold, they go in for it and destroy our natural forest and farms that we survive on. Our lives are threatened by these people (small-scale miners) because they don't have respect for any individuals or any group of people. Few years ago, two people lost their lives in one of the pits left uncovered by the miners at Kibi. People fall into them always when they go to farm. Just last year one of the students of ABUSCO drowned in one of the disused pits near one of their dormitories. Even part of the school compound is being dug for gold. We can only negotiate with them to reclaim the land after use and pay compensation to affected farmers, because some of our youth depends on the mining for survival. This could be the way, I believe. If these illegal miners are not driven away, the whole community will one day be filled with such dangerous pits and people's lives will be in danger.

4. Discussion

The study identified the presence of uncovered, dangerous and disused mine pits as one of the major negative environmental effects of small-scale mining in the East Akim Municipality. The existence of the pits poses threat to human life. This is because they serve death traps for both human beings and animals alike. Also, the pits serve as obstacles to farmers because they block most of the footpaths leading to people's farms. Furthermore, the pits make farming unattractive since the terrain becomes uneven for efficient farming practices. Besides, the top soils are being scooped off through the mining activities thereby causing soil erosion. This eventually results in a low crop yield for farmers. The finding feeds into Jamasmie's argument that disused mine pits serve as a major threat to human lives in mining communities in Ghana [25]. Jamasmie (2003) argued that hundreds of miners have died in Ghana as a direct consequence of poor safety conditions and uncontrolled digging of land at illegal mining operations.

The study revealed that pollution of water bodies, destruction of aquatic life and natural habitat of animal species as another major negative effect of small-scale mining in the East Akim Municipality. This is because poisonous chemicals such as mercury and cyanide used by the miners pose serious threat to human beings, fishes and other aquatic animals. Many inhabitants of communities in the municipality depend on the Birim River as a major source of potable water and fish for consumption. Thus, the Birim River and other smaller streams are heavily polluted as a result of the small-scale mining operations. **The contamination of water bodies in the area often leads to outbreak of diseases such as cholera and diarrhea.** This observation confirms the

views of other researchers who identified outbreak of cholera in the East Akim Municipality following unhygienic practices by small-scale gold miners [26].

The study identified destruction and loss of forest and farmlands due to small-scale mining activities in the East Akim Municipality. In other words, small-scale mining activities in the municipality are linked to the depletion of natural capital stocks such as land, forests, marine and water resources and air quality. The activities of the miners tend to destroy and degrade the forest ecosystems. The natural habitat that plants and animals survive in is being destroyed and livelihood activities such as farming, gathering of firewood, hunting for bush meat and logging for timber are threatened by illegal mining activities. It is also believed that the inefficient use of natural resources on the environment has resulted to such serious environmental and health problems that affect the wellbeing of many individuals and households. These findings are parallel to the views of other researchers who pointed out that small-scale mining activities generate many kinds of environmental damages [7]; [8]; [13]; [15]; [16]; [17]; [27]. These findings further buttress the findings of other researchers who found that, small-scale mining sector is strongly associated with widespread land degradation loss of biodiversity, natural resources and deforestation [6]. They further indicated that, in most small-scale mining areas in Ghana, dug out pits are not reclaimed, and previously vegetated areas are not re-graded, thereby inducing erosion and subsequent siltation. For instance, it has been revealed that extensive areas of land and vegetation in Tarkwa mining area have been cleared to make way for surface mining activities [13].

These findings are validated by other researches on small-scale mining-related issues. It is argued that gold mining in Ghana on small-scale bases helps the general economy at the national level but at the local level, individual communities are faced with numerous social and environmental problems including destruction of farmlands [27]. A study also confirms this assertion as the findings from this study show that poverty is pervasive and endemic in mining communities [13]. There is no gainsaying that mining companies have taken over vast lands for their operations in most of the mining communities, depriving such communities of their chief sources of livelihoods being the land and other natural resources. Relating the findings to the livelihood of people in East Akim Municipality, small-scale mining operations have led to the degradation of the natural capital stocks that are available for people to earn a living. The persistent destruction of forest cover causes serious low crop yields and loss of biodiversity which affects the livelihoods of respondents. This is because the land which is supposed to be used for agricultural activities is being destroyed for mining purposes. Besides, the majority of the youth who are supposed to be engaged in farming have resorted to work in the small-scale mining sector and have abandoned farming as a means of livelihood. These claims are confirmed in a report by the East Akim Municipal Assembly which indicated that small-scale mining is inherent with ultimate challenges of destruction of forest cover and farmlands in the mining areas [28]. In addition, water, dust and soil pollutions also cause widespread health related diseases as most of the chemicals used in mining enters the soil thereby causing food poisoning.

These problems are emphasized by the principle of rectification of injustice espoused by the entitlement theory as reviewed in the literature. Based on this principle, if someone unjustly owns something, then the situation ought to be rectified by restoring the property to its rightful owner. According to the principle of rectification of injustices, such lands or farms are supposed to be returned to their rightful owners but this is not the case. Due to this, most of the respondents become worse off as a result of the mining activities. The Entitlement Theory only applies if the original acquisition is just, and the transfer of it is also just. But, much of the mining concessions for small-scale miners in communities within the East Akim Municipality were transferred unjustly by chiefs and politicians to the miners; only state institutions are responsible for giving mining license to miners in Ghana ([7]; [8]).

The study found that small-scale mining accounts for the spread of diseases such as malaria, STDs and RTIs in the East Akim Municipality. This finding has been confirmed in a report by the East Akim District Health Management Team (DHMT), Kibi, which indicated that the municipality is faced with several environmental related diseases as well and accidents at mines as a result of small-scale mining operations [29]. Thus, small-scale mining negatively affects the health of people in mining communities. This has also been confirmed by other researchers, who averred that small scale mining leads to the pollution of water bodies in mining communities, which eventually affects their health status. This implies that small scale mining causes a lot of health related problems to both miners as well as non-miners in many communities. Other studies have linked other health related diseases such as skin disease, STDs and RTIs in mining communities to small-scale mining activities [13]; [18]. These findings are similar to those of other researchers who examined the impact of mining on the health of both mine workers and the people within the surrounding communities of the mines [20]. Stephens and Ahern (2001) concluded that mining remains one of the most hazardous occupations in the world, not only in terms of short term injuries and fatalities, but also due to long term impacts such as cancers and respiratory conditions like silicosis, asbestosis and pneumoconiosis.

Evidence gathered from the study indicates a link between small-scale mining and high cost of living which is a socio-economic issue in the East Akim Municipality. As a result of concentration of mining activities in the municipality, food and accommodation prices have risen beyond the reach of the ordinary person. Also, the study revealed social vices as minor negative impacts of small-scale mining in the East Akim Municipality. These include school absenteeism and dropout, increase in divorce and teenage pregnancy, increase in crime and insecurity. For instance, children of school-going age are pushed into menial jobs at the mines by their parents at the expense of their education. As a result, school dropouts and child labour are very common in the municipality due to poverty. This is because of single parenting due to divorce, which is a common social phenomenon in the area. There is also high rate of teenage pregnancy, leading to temporary marriages in the mining communities. The influx of miners into the mining communities results in teenage pregnancies and unplanned marriages because of immoral

acts. Young ladies in their teen ages mostly offer themselves to ‘galamsey’ operators for money, due to high rate of poverty in the mining communities. In so doing, they end up being impregnated by the miners, of whom the majorities are migrants. When the miners leave the communities after the mining operations are over, the affected women are not able to locate their whereabouts and are left to their fate. Besides, small-scale mining is regarded as a hazardous activity. Therefore, majority of the miners take drugs such as cocaine and other drugs as stimulants to enable them work beyond their limits. In addition, there is a high rate of insecurity, as people’s homes are being encroached upon by small-scale miners. Digging of pits and trenches and leaving them uncovered makes people unsecured in the municipality. In most cases, major roads linking various communities are encroached upon by miners and footpaths leading to peoples farms are blocked by the miners, thereby endangering the lives of residents. Besides, the security agencies also monitor and sometimes assaults people suspected to be ‘galamsey’ operators in the municipality making life more dangerous and frightening. These findings have been buttressed by the interview responses.

5. Conclusion

Based on the literature reviewed and the evidence from the study, it is concluded that small-scale mining is either a “blessing” or “curse” to the people of East Akim Municipality. However, the exposition is that it is more of a “curse” because of water pollution and environmental degradation, loss of biodiversity, natural resources and deforestation. Indeed, small-scale miners have plunged the municipality into a disaster zone because of negative impacts of their operations. It is recommended that;

- The Government of Ghana (GoG) through the East Akim Municipal Assembly, in liaison with Ghana Minerals Commission, should provide legal and organizational supports to streamline the activities or operations of small-scale miners in the municipality. Again, the GoG through the East Akim Municipal Assembly, in liaison with Ghana Minerals Commission, should fast track processes of acquisition of mineral rights, the right to renew, transfer and mortgaging mineral rights of small-scale miners in order to ensure the effectiveness of legal small-scale mining in the in the municipality. Even though limited capacities make this provision difficult to be realized, it is necessary to simplify the mineral trading licensing by decentralizing the licensing procedures and other related measures in the mining sector.
- The Government of Ghana (GoG) through the Ministry of Energy in liaison with the East Akim Municipal Assembly and law enforcement agencies should reclaim the degraded lands from small-scale miners. They should reclaim lost lands through tree planting exercises and the filling of dug-out pits in the affected communities. This will not only reduce the negative environmental and health impacts, but will also ensure the availability of land particularly to farmers for agricultural purposes.
- The Government of Ghana (GoG) through the Ministry of Agriculture and Minerals Commission, in liaison with the

East Akim Municipal Assembly, mining companies and individual miners should provide compensation packages for affected farmers who lost their farmlands through the activities of the mines.

- The East Akim Municipal Assembly, in liaison with the Ministry of Mines and Energy, the Minerals Commission, the Mines Department, the Environmental Protection Agency, Non-Governmental Organisations (NGOs), law enforcement agencies as well as community leaders should monitor small-scale mining activities to ensure that buffer lands and water bodies are not encroached upon by small-scale miners in the municipality. In view of this, miners should be offered prospective lands that are outside forest reserves by following the right procedures. They must be provided with clear guidelines on how to conduct their operations to ensure little or no harm to the environment and socio-economic wellbeing of individuals in their respective communities.

The East Akim Municipal Assembly, in liaison with the Environmental Protection Agency, NGOs, Ghana Health Service and Ghana Education Service, should periodically educate both miners and non-miners on the negative environmental, health and other social effects of small-scale mining activities.

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