Pelita Perkebunan 38(1) 2022, 70–82
DOI: 10.22302/iccri.jur.pelitaperkebunan.v38i1.496
ISSN: 0215-0212 / e-ISSN: 2406-9574

Assessing the Impact of Illegal Small-Scale Mining (*Galamsey*) on Cocoa Farming and Farmer Livelihood: A Case Study in the Amansie West District of Ghana

Najat Osman[1)], John Tennyson Afele[1)], Eunice Nimo[2)], David Ofoe Gorleku[1*)], Louisa Adomaa Ofori[1)], and Akwasi Adutwum Abunyewa[1)]

[1)]Department of Agroforestry, Kwame Nkrumah University of Science and Technology, Kumasi – Ghana
[2)]School of Natural Sciences, University of Bangor, UK
[*)]Corresponding author: gorlekuofoea@gmail.com
Received: 13 February 2022 / Accepted: 10 March 2022

Abstract

Cocoa and gold are significant contributors to the gross dormestic product of Ghana which makes both commodities key parts of the Ghanaian economy. Unfortunately, in Ghana, most cocoa-growing communities are the hub of illegal small-scale mining commonly known as *galamsey*. It is alleged that cocoa farmers sell their farmlands for galamsey; however, given that cocoa farming is the primary source of income for many households in rural Ghana. This research aimed at investigating the motivations for galamsey and how the practice impacts cocoa farming and the environment as well as farmer livelihood. The study was undertaken in Amansie West District in the Ashanti Region of Ghana where both cocoa farming and illegal mining operations coexist. The data for the study was collected using structured questionnaires. Cocoa farmers were purposively selected as respondents in two cocoa-growing communities. Data were obtained from 90 purposively sampled respondents through snowballing. Data collected were analyzed with Statistical Package for Social Scientist software. The results revealed that cocoa farmers face challenges due to *galamsey* such as; labour shortages, water pollution, competition for land amongst others. Also, cocoa farms, especially those downslope, get flooded whenever it rains as a result of uncovered galamsey pits near farms and cause black pod disease, early dropping of immature pods and stunted growth which ultimately reduce the output of cocoa farms. Farmers revealed that this affected their source of income adversely since the majority of them mainly depend on cocoa farming for their livelihood. They also reported a loss of green space and land degradation as some environmental hazards posed by galamsey. Information gathered from tenant farmers revealed that it is mostly landowners who give out their lands for galamsey. The major reasons that encourage galamsey were identified as higher short-term income, financial problems (40%) due to unemployment, and poor cocoa yield (26%).

Keywords: galamsey, cocoa, Ghana, livelihood, mining

INTRODUCTION

In almost every rural household in Ghana, cocoa (*Theobroma cacao* L.) is the most common cash crop cultivated (Nimo *et al.,* 2021). Cocoa provides food, income, employment, industrial raw material, and resources for poverty reduction (Peprah, 2015). It has been reported that Ghana is the world's second-largest producer of cocoa globally (Boateng *et al.,*2014; Afele *et al.,* 2021). In 2016, it generated about 52% of the world's

total, along with Côte d'Ivoire. Three-quarters of Ghana's overall cocoa output comes from about 800,000 cocoa households (Maguire-Rajpaul *et al.,* 2020). Cocoa production in Ghana is currently concentrated in seven regions: Ashanti, Bono Ahafo, Eastern, Volta, Western North, and Western Region (Ghana Cocoa Board, 2018). Cocoa production is critical to Ghana's economy; it is the country's first agricultural export, a major cash crop, a source of foreign exchange, and a source of tax revenue (Aneani *et al.,* 2017). The cocoa sector employs around 60% of the agricultural sector's total labor force. Most cocoa farms in Ghana are small-scaled, between 2 to 3 ha, and this averages a 400 kg ha^{-1} yield (Asare *et al.,* 2017; Afele *et al.,* 2021). Ghana produces the best quality cocoa (Sulaiman & Boachie-Danquah, 2017) due to the tremendous role of some two million smallholder farmers (Ntiamoah & Afrane, 2011). Galamsey is a major hurdle to cocoa development. It is described as the extraction of minerals without the use of appropriate tools, a mining license, an exploration and mineral transportation permit, or any other document that would allow the mining operations to be legal (Aneani *et al.,* 2017). Galamsey, meaning "gather and sell" has increasingly become a serious problem in the mining areas in Ghana. Environmental destruction, such as deforestation and land degradation, as well as water and air pollution, are all consequences of the problem. It reduces cocoa yields and thus causes economic instability by destroying the topsoil that supports plant growth or a whole cocoa farm (Bach, 2014). Galamsey is often practiced as a result of poverty, unemployment, and a lack of implementation of regulations in the small-scale mining industry (Amponsah-Tawiah & Dartey-Baah, 2011). Also, the inability of farmers to raise enough funds during off-seasons for the purchase of inputs like fertilizers and fungicides, as well as hire laborers, compels some of them to sell farmlands to illegal miners. Although small-scale mining was legalized as the preserve of only Ghanaians in 1989 (MLNR, 2017), foreign nationals have found their way into the industry with advanced technology causing significant destruction of natural resources and farms (Burrows & Bird, 2017). Their activities endanger livelihoods by polluting the environment and contaminating it with heavy metals including mercury and cyanide, which can enter the atmosphere, contaminate freshwater sources, cause a decline in fish stocks, and reduce crop yields. All of these things will, in the end, have an effect on the farmers' and other people's livelihoods in these societies (Aneani *et al.,* 2017). The study report is useful in resolving major problems related to illegal small-scale mining, cocoa production, and livelihoods. The study aimed to assess the impact of illegal small-scale mining (*galamsey*) on cocoa farming and farmer livelihood in the Amansie West district by assessing the impact of illegal small-scale mining (*galamsey*) on cocoa farming and farmer livelihood, evaluating the environmental risks of illegal small-scale mining on farmers and developing a greater understanding of why farmers give up their land for galamsey activities.

MATERIALS AND METHODS

Study Site Description

The Amansie West District was carved out of the former Amansie District in 1988. The district shares common boundaries with eight districts namely: Atwima Nwabiagya and Atwima Mponuah to the west; Bekwai Municipality, Amansie Central, and Obuasi Municipal to the east; Atwima Kwawhoma to the north, and Upper Denkyira and Bibiani to the south. The district serves as a regional boundary between Ashanti Region on one side and the Central and Western Region on the other side. Specifically, the district is

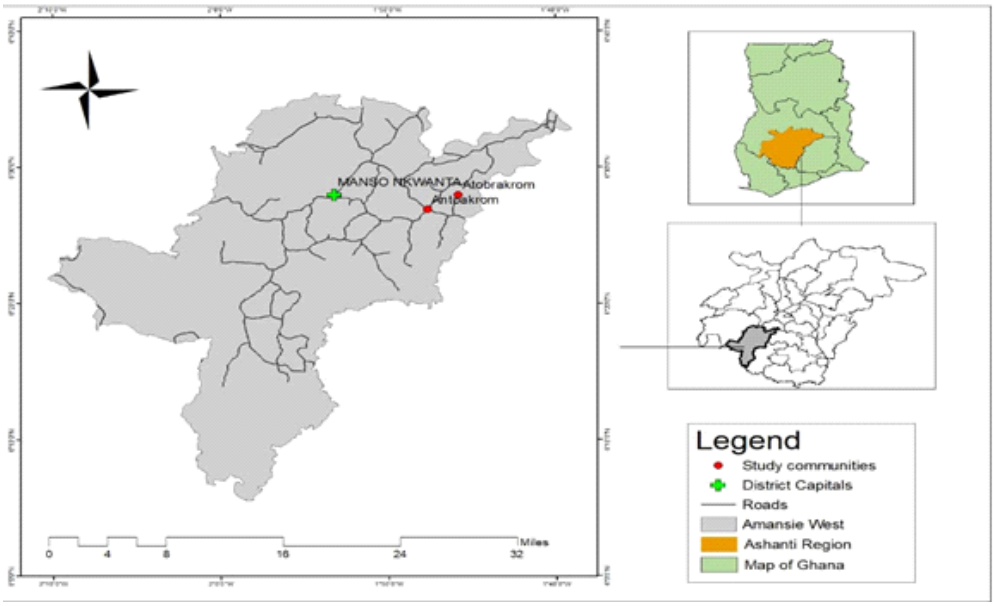

Figure 1. A map of Amansie West District highlighting communities of interest

located within latitude 6.05° West: 6.35° North: 1.40° South and 2.05° East (MoFA, 2021).

The climate of the district is wet semi-equatorial. It has a double rainfall maximum regime with the major rainy season occurring between March and July. The minor rainfall season occurs between September and November. Mean annual rainfall ranges between 855 mm and 1,500 mm. This climatic condition is suitable for the cultivation of cash and food crops such as cocoa, citronella, oranges, plantain, and vegetables to feed the agro-based industries in the district and beyond (MoTA, 2021).

The vegetation of the district is mainly of the rain forest type and exhibits moist semi-deciduous characteristics. This makes the land very fertile and suitable for agricultural investments. Food and cash crops such as cassava, rice, maize, cocoa, citrus, oil palm, citronella grass, and others are widely grown in the area. As a result the bad practices such as shifting cultivation, slash and burn methods of farming, illegal mining, and illegal logging have gradually destroyed and replaced the forest by a mosaic of secondary forest (MoFA, 2021).

Among the resources identified in the district are potentially rich mineral (gold) deposits. Areas with such deposits include Bonteso, Gyeninso, Mpatuam, Essuowin, Tontokrom, and others. Quite a large area of the district has been acquired and concessions by some companies who have been licensed for prospecting (MoFA, 2021).

Research Design, Sampling, and Sampling Technique

The research took the form of a case study and was conducted in two communities in the Amansie West District (Antoakrom and Atoborakrom). These communities were selected purposively due to the production of both cocoa and ongoing activities of illegal small-scale mining. Purposively, cocoa farmers were selected as respondents in each community. Data were collected through the administration of structured questionnaires. Purposive sampling technique was used to select respondents who owned or worked on

cocoa farms. Some of the departments in the district such as the Amansie West District Agricultural Development Unit (AWDADU) and the District Assembly were visited where the researcher was directed to the Cocoa Health and Extension Division (CHED) Office to obtain more information and to establish contact with farmers in the communities. A formula was used to determine the sample size $n = N/(1+Ne^2)$ (Israel, 1992) where n is the sample size, N is the population size and "e" is the sampling error. Population size (N) = 900, the sampling error was 0.1 and sample size was 90.

Data Collection and Analysis

Primary and secondary data collection were employed in the survey. Primary data was collected through the administration of open and close-ended questions. The questionnaires focused on demographic characteristics of respondents, educational background, marital status, among others. Secondary data was used extensively to view literature of existing reports and publications. The questionnaires were explained in the local dialect for the illiterates to understand and respond to questions without any difficulties.

Microsoft Excel was used for data cleaning and data analysis was done by use of the Statistical Package for Social Scientist (SPSS) version 20.0.

RESULTS AND DISCUSSION

Respondent Characteristics

Cocoa farming in the study area is a male-dominated activity with 76.7% of the respondents being males and 23.3% being females. A large number of the respondents (72.3%) are married, 22.2% widowed, 4.4% divorced, and 1.1% single. Concerning age distribution, the most extensive category of responses fell within 41-60 years which represented 62.2% of the total responses. Almost all the respondents (83) representing 92.2% are natives of the town whereas the rest of them (7.8%) were immigrants mainly there due to marriage (3.3%) or for agricultural purposes (4.5%). A majority (42.2%) of the respondents have no formal education or are illiterates. Results obtained indicated that 81 respondents representing 90% of the total are breadwinners of their families with a bulk of them (56.7%) having a family size of 6-10.

Bulk of farmers in rural Ghana are males and mostly with families who depend on them. This is clearly shown in the results obtained

Table 1. Distribution of farmers by their demographic characteristics in Amansie West District

Variables	Categories	Frequency	Percentages
Gender	Males	69	76.7
	Females	21	23.3
	Total	90	100.0
Marital status	Single	1	1.1
	Married	65	72.3
	Divorced	4	4.4
	Widowed	20	22.2
	Total	90	100.0
Age, years	30 – 40	27	30.0
	41 – 50	26	28.9
	51 – 60	30	33.3
	61 – 70	7	7.8
	Total	90	100.0
Native	Yes	83	92.2
	No	7	7.8
	Total	90	100.0

from the survey. A study by Boateng *et al.* (2014) on cocoa farmers in the Atiwa District of Ghana revealed that cocoa farming is male-dominated, with families to cater for. Male dominance in the field of cocoa farming could also be attributed to the exertion of physical energy required in cocoa cultivation correlating to the findings of Afele *et al.* (2021) who related this occurrence to the workload involved, discouraging females from engaging in it.

The number of farming years was categorized into four-year groups: 1-10, 11-20, 21-30, and 31 years and above with corresponding percentages of 6.7%, 55.6%, 22.4%, and 13.3% respectively. A bulk of the respondents had farms sizes ranging from 6-10 and 11-15 acres representing 38.9% each, followed by 16-20 acres representing 16.6%, with the rest of the percentage (5.6%) of farm sizes ranging from 1-5 acres. Most respondents (48.8%) recorded an average annual yield of 11-20 bags. Respondents' ownership statuses of cocoa farms were recorded as follows; farm owner, tenant farmer, family land. A large percentage (45.6%) of them owned farms, 36.7% of them were cultivating on farms owned by others and 17.7% produced cocoa on family farmlands as indicated in Table 2.

All farmers indicated cocoa farming as their main source of income, however, they mentioned other livelihood sources as indicated in Table 3. These include driving, tailoring, cereals, and cassava amongst others.

From the field survey, it was recorded that all farmers received subsidiary fertilizer from the government, however, they still pointed out other challenges in producing cocoa as shown in Table 4. These include low fertility, lack of access to credit, and pest and disease infestation.

Table 2. Land size and ownership status of cocoa farmers in Amansie West District

Variable	Categories	Frequency	Percentage
Land size (acres)	1-5	5	5.6
	6-10	35	38.9
	11-15	35	38.9
	16-20	15	16.6
	Total	90	100.0
Land ownership	Farm owner	41	45.6
	Rented farms	35	36.7
	Family land	16	17.7
	Total	90	100.0

Table 3. Other livelihood sources of cocoa farmers in Amansie West District of Ghana

Livelihood sources	Frequency	Percentages
Cultivation of cereals + livestock	5	5.6
Cultivation of plantain	6	6.7
Cultivation of citrus	9	10
Cultivation of cassava	6	6.7
Cultivation of vegetables + plantain + cassava	9	10
Cereals and cassava	5	5.6
Plantain and cassava + livestock	12	13.3
Trader	5	5.6
Driver	5	5.6
Seamstress/tailor	4	4.4
Citrus farming + driver	4	4.4
Vegetable + annual crops cultivation	3	3.3
Trader + vegetable and annual crops cultivation	6	6.7
Palm fruit + annual crops	8	8.9
Cereals + vegetables + annual crops	3	3.3

Impact on Cocoa Production

A greater percentage of respondents (96.6%) revealed their dissatisfaction with cocoa yield. This was elaborated in the cocoa trends as follows; decreasing, unstable and stable as indicated in Table 5.

Respondents, (71.1%) indicated that there has been a reduction in the cocoa producing trend. This is to say that the number of bags they harvest annually has declined. Others (24.5%) reported that it was unstable and only a few (4.4%) stated that it was stable. Respondents associated trends to several factors such as inadequate finance, poor farm management, pest and diseases, and bushfire. However, 77.8% of farmers additionally attributed the reduction of their cocoa yields to the presence of galamsey activities in the community and gave several reasons to justify their claims. Cocoa farmers revealed that whether galamsey is done on farms or off farms, cocoa farming is still adversely affected, indicating inadequate labor, competition for land, flooding of farms, destruction of parts of farms, difficulty in accessing farms, and pollution of water source for farming as constraints posed by galamsey. This is in agreement with Laari's (2018) work. According to tenant farmers, the majority of landowners, in their quest to make "quick" money sell parts of their lands to galamsey operators. The farmers mentioned is a big challenge to them since farming activities do not correlate with that of galamsey. The parts of the land sold for galamsey activities means that the cocoa trees found on that part must be cleared to make way for galamsey which leads to a decline in the number of trees that produce pods. They also mentioned unprecedented floods occurring on cocoa farms whenever there is a downpour as a result of the uncovered pits filled with water. Farmer's downhill also complained bitterly of facing that challenge as reported by Gyimah (2019) in his work in the Amenfi West District. Farmers also lamented that farms could be flooded for days which stunts the growth of cocoa and causes black pods disease and this lowers output since a significant proportion of pods rot even before they mature in some cases.

Table 4. Challenges encountered by cocoa farmers in producing cocoa in the Amansie West District

Challenges	Frequency	Percentage
Low fertility/ old lands + inadequate access to credits + pest and diseases	11	12.2
Inadequate labor + pest and diseases	18	20
Pest and diseases + inadequate labor + galamsey	15	16.7
Inadequate access to credit	10	11.1
Pest and diseases + inadequate access to credit	17	18.9
Inadequate access to credit + inadequate labor	9	10
Inadequate access to credits + pest and diseases + galamsey	10	11.1

Table 5. Reported trends in cocoa production by cocoa farmers in Amansie West District

Variable	Categories	Frequency	Percentage
Cocoa trends	Decreasing	64	71.1
	Unstable	22	24.5
	Stable	4	4.4
	Total	90	100.0

Table 6. Factors affecting cocoa farming in Amansie West District of Ghana

Factors	Frequency	Percentages
Inadequate finance to invest in farms	12	13.3
Poor farm management + inadequate labor	6	6.7
Pest and diseases	4	4.4
Bush fires	1	1.1
Inadequate finance + pest and diseases	13	14.4
Poor farm management + pest and diseases	10	11.1
Inadequate finance + poor farm management + pest and diseases	11	12.2
Galamsey + poor farm management + pest and diseases	18	20
Inadequate finance + pest and disease + galamsey	15	16.7

Respondents associated the trends in cocoa farming to several factors such as inadequate finance to invest in farms, poor farm management, inadequate labor, pest and diseases, bushfires, and galamsey. This is displayed in Table 6.

Impacts on Cocoa Farming

Seventy out of the ninety respondents brought up the fact that galamsey affects cocoa farming adversely. They indicated inadequate labor, destruction of farmlands among others as some of the factors posing a challenge to cocoa farming as shown in Figure 1.

As said by Karl Marx, labor is the fundamental and active factor of production. In every production firm, cocoa farms inclusive, labor is required to maximize output. Holding all other things constant, the more laborers there are on a farm, the more output will be derived since there will be more people to weed, prune, watering crops, and do other activities that ensure effective management of farms. Respondents gave an explanation to how galamsey has adversely affected labor available to work on cocoa farms which is consistent with the results in the literature of Aneani *et al.* (2017). The presence of galamsey operations, according to the respondents, has limited their access to labor for farming activities. According to the farmers, galamsey undoubtedly yields more money which influences the higher wage they pay laborers daily which also drives people's willingness to work on farms as evident in the findings of Laari (2018).

Respondents listed at most one of the following as their source of water for farming; rainfall and rainfall+ stream/river. A greater number of them (75) representing 83.3% of the total said they depended solely on rainwater for farming purposes. The remaining (15) respondents representing 16.7% said they depended on not only rainwater but also on water from the stream/river for farming activities. Table 7 represents results gathered from responses of respondents during the field survey. Respondents who said that they depended on other sources of water apart from rainfall further went ahead to inform us of the specific threats posed to cocoa farming due to the quality of water sources for farming.

Cocoa farming, just like any other type of farming requires water in optimum quantity to operate successfully. For most rural farmers in Ghana, rainfall is what they mostly depend on (Choudhary *et al.,* 2015). However, in some cases, farmers depend on other water sources such as streams or rivers to water crops just as in the case of 16.7% of cocoa farmers who were interviewed. They indicated that this has become more of a problem as a result of the erratic rainfall pattern correlating to the findings of Oyekale (2021) who reported that low productivity prevails in cocoa production partly due to changes in some weather

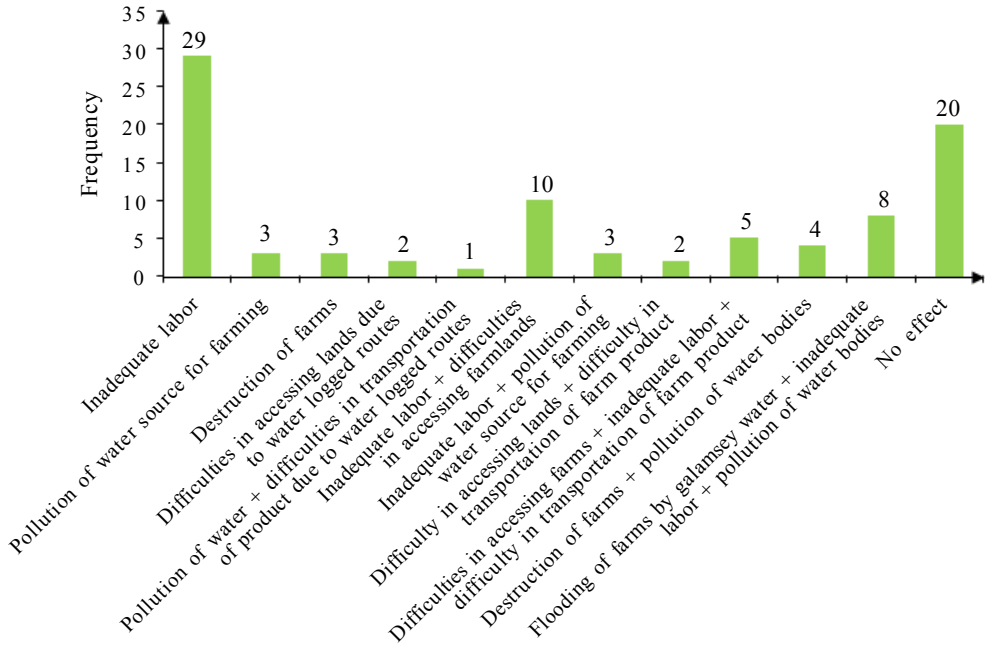

Figure 1. Impacts of galamsey on cocoa production factors in the Amansie West District

Table 7. Water sources for farming and threats to these sources by galamsey in Amansie West District

Variables	Categories	Frequency	Percentage
The main source of water for farming	Rainfall	75	83.3
	Rainfall+ stream/river	15	16.7
	Total	90	100.0
Galamsey is a threat to the source of water	Yes	15	16.7
	No	75	83.3
	Total	90	100.0

conditions. Also, some farmers observed that, spraying of cocoa trees with pesticides that were mixed using the polluted water resulted in low output since the trees do not produce a lot of pods as reported by Boateng *et al.* (2014). Unfortunately for them, farms are very far away from homes, and it's very expensive transporting clean water to farms.

The respondents were asked to indicate whether they faced any constraints with land availability. Their responses were, agreed strongly (55.6%), agreed (34.4%), and disagreed (10%) pointing out that they compete with galamseyors for land. The majority (92.2%) went ahead to mention that it has withdrawn people from farming in the communities. Yet 4.4% reported otherwise (no) and 3.3% indicated that they had no idea at all as to whether it has withdrawn people from farming in the communities.

Impacts on Livelihood

All respondents agreed to the fact that galamsey is a source of employment and income generation to community members. Comparing the income of farmers to that of the galamseyors, respondents (78.9%) reported that galamseyors are better than them in terms of standard of living but the response from the rest (21.1%) contradicted what the others

Table 8. The impacts of galamsey on livelihoods in Amansie West District

Impacts	Frequency	Percentages
Get more money from galamsey + invest more in farms	21	23.3
Assets acquisition	15	18.7
Assets acquisition + children attend better schools + invest more in farms	9	10
Get more money from galamsey + open new businesses	16	17.8
Misuse of money	8	8.9
No acquisition of assets	5	5.6
Get more money from galamsey + assets acquisition	10	11.1
Misuse of money + no acquisition of assets	6	6.7

said. Furthermore, they gave reasons for their chosen answers as shown in Table 8.

In most rural households in the district, cocoa farming is the predominant occupation. Most farmers and their families depend on cocoa farming as their main source of livelihood in terms of income and derive a lot of other benefits from it, hence should be protected, maintained, or improved upon. It is evident in the findings of Boateng *et al.* (2014), who indicated that through cocoa farming, farmers can cater for their families, pay their wards school fees, and build houses in some instances. Furthermore, cocoa farming which is the mainstay of most of these rural dwellers has been affected adversely by galamsey as indicated by respondents. They mentioned that a decline in the yield has resulted in low income. This contradicts the findings of Laari (2018), who revealed that galamsey employs some farmers especially the young tenant farmers who during the dry season when their farm's yield and earnings are usually quite poor face difficulties in supporting their families. In their search for other means of survival, resort to working at mining sites where they are paid daily wages which they use to supplement their income. Respondents (78.9 %) disclosed that some people who participate in galamsey activities invest the money in businesses, some build houses or buy buses for people to work with (Trotro) and some enroll their wards in better schools. The rest of them (21.1%) mentioned that the majority of them misuse the money and do not acquire any assets at all.

Impacts on the Environment

With the issue of galamsey activities happening on farms, 94.4% of the respondents attested to the fact that it is true. They went further to mention how galamseyors get access to farmlands as follows; through chiefs (5.6%), through farmers (71.0%), through chiefs/farmers (17.8%). When asked other sites of galamsey operations, 71 respondents reported "near water bodies" representing 78.9%, 7 reported "community outskirts" representing 7.8%, and 12 of them (representing 13.3%) reported that they occur at other places either than where the others indicated such as abandoned lands in the community.

All respondents, regardless of their stands on galamsey mentioned that galamsey poses a threat to the environment. They stated problems such as water pollution (48.9%), destruction of farmland (30.0%), and loss of green space (21.1%).

With regards to the environmental implications posed by galamsey, all respondents regardless of their stance on galamsey, agreed that it is a great challenge. As already indicated, galamsey operations have led to the destruction of farms, water pollution, and loss of green space. This is similar to the results of Ocansey (2013) who reported that galamsey operations have resulted in land degradation, with crops destroyed and soils contaminated. Galamsey operations according to the respondents have polluted the rivers and other watercourses that were sources of water for household uses. This is confirmed

Table 9. How galamsey operators get access to farms and other sites of operations in Amansie West District

Variables	Categories	Frequency	Percentage
Do some galamseyors operate on farms?	Yes	85	94.4
	No	5	5.6
	Total	90	100.0
Access to farms	Through chiefs	5	5.6
	Through farmers	64	71.0
	Chiefs/farmers	16	17.8
	No idea	5	5.6
	Total	90	100.0
Other sites	Near water bodies	71	78.9
	Community outskirts	7	7.8
	Others	12	13.3
	Total	90	100.0

Table 10. Galamsey implications on the environment in the Amansie West District

Variable	Category	Frequency	Percentage
Environmental implications	Destruction of farms	27	30.0
	Water pollution	44	48.9
	Loss of greenspace	19	21.1
	Total	90	100.0

in the work of Laari (2018). After extraction of the ore, the miners wash it in the water bodies to obtain the mineral itself, and in doing this muddies the water bodies. Some miners wash it at the mining sites, however, after their operations, they channel the wastewater into the water bodies which changes the color and quality of the water. Also, most at times, galamsey operators cut trees down on a particular landscape to make way for their operations. This is similar to the findings of Adjei (2017) who stated in his work that the unauthorized operations have led to the destruction of significant expanses of forest cover, resulting in a change from dense to sparse vegetation cover. Their actions clearly show that they do not care about the state of the environment. Secondary information obtained from respondents indicated that some miners in their attempt to escape from security personnel deployed unannounced in these areas, leave pits uncovered corresponding to the results of Bansah *et al.* (2018). However, some stated categorically that miners are unconcerned about the environment and are solely concerned with making money. Some respondents raised concerns about the irreversible dangers galamsey has on the farmlands. They revealed that some of the abandoned lands are still covered with stagnant water making it unfeasible for agricultural usage. Laari (2018) in his work reported that deep excavations abandoned by galamsey operators render some areas inaccessible and dangerous for farmers and their livestock.

Motivation Lands for Galamsey

Respondents gave their opinion on what motivates farmers to give out their lands for galamsey. Forty-four percent mentioned financial problems as a reason. Twenty-six percent said it was a result of low yields from cocoa farms. The last group representing 28.9% mentioned that it was a result of both financial problems and low yields and 2.1% of cocoa farmers indicated that they had no idea what motivates farmers to give up their lands for galamsey operations.

The majority of them (94.4%) revealed their disinterest in giving out their lands for galamsey. However, a few of them (5.6%) showed interest in giving out their lands for galamsey. All respondents proceeded to give reasons for their response. Those who showed willingness (5.6%) indicated “quick and extra

money" as the main reason. The following results were obtained from those who were unwilling to give out lands for galamsey; "destruction of farmlands" (68.9%), "family property" (8.9%), and "galamsey money finishes quickly" that is unsustainable (16.7%) as displayed in Figure 2.

All respondents gave reasons to justify why some farmers give out part of their farmlands for galamsey. A bulk of the respondents (94.4%) revealed that they are not interested in giving out their lands for galamsey and went ahead to give reasons. Sixty-two out of the ninety respondents stated that galamsey destroys farmlands. The farm owners indicated that they would not sell even a part of their lands for galamsey operations since galamsey money doesn't last or "finishes quickly". It was explained by Laari (2018) and Boateng *et al.* (2014) that agriculture is more sustainable than galamsey, and those who sell their farmlands for galamsey will not be able to provide for their families in the long run. Moreover, 9.4% of those who are unwilling to give out farms for galamsey operations revealed that the farms are family properties and need to be cherished. Few of them revealed that even when farmlands are old and yield less, family members show their dissatisfaction when another member suggests that they sell the land and share the money. They mentioned that they never come into agreement and the process of convincing is long and time-wasting. This is seen in the findings of Laari (2018), who found that people feel farms are family assets inherited from the ancestors and must not be damaged to be handed on to future generations. It was also discovered that if people had enough money to invest in farms and had high-yielding farms, they would not choose galamsey. On the other hand, the participants were asked to express their opinions on some of the factors that would lead farmers to choose galamsey over cocoa farming. Higher pay from galamsey, poor cocoa yield, and financial constraints emerged as three significant attractions to galamsey, showing that cocoa pricing is low and not as appealing as galamsey.

The study recommends that farmers should be encouraged and trained to adopt alternative livelihood activities to augment incomes. As such it will help reduce complete dependence on cocoa farms and also the selling of cocoa farms to illegal miners. Galamsey destroys farmlands and cause unprecedented floods in the cocoa farms close to the mining sites which results in black pod diseases, stunted growth and ultimately low cocoa output.

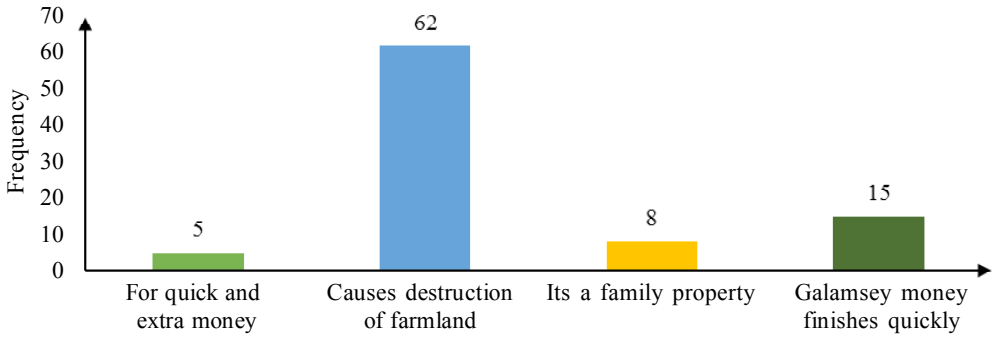

Figure 2. Willingness or unwillingness to give out farms for galamsey in Amansie West District

CONCLUSIONS

The key cause that motivates galamsey is the short-term benefits to persons who own lands. Unlike the benefits that come to those who are directly involved, galamsey actions have negative consequences for the entire community. Galamsey, in the end, worsens the condition of the affected people in mining communities by robbing them of long-term livelihoods. Farmers revealed that this affected their source of income adversely since the majority of them mainly depend on cocoa farming for their livelihood. Farmers revealed that this affected their source of income adversely since the majority of them mainly depend on cocoa farming for their livelihood. They also reported a loss of green space and land degradation as some environmental hazards posed by galamsey. Information gathered from tenant farmers revealed that it is mostly landowners who give out their lands for galamsey. The major reasons that encourage galamsey were identified as higher short-term income, financial problems (40%) due to unemployment, and poor cocoa yield (26%).

REFERENCES

Adjei, A. (2017). *The Impact of Illegal Mining (Galamsey) on Cocoa Production and Livelihood: A Case Study of Amansie West District*. MBA dissertation, University of Education. Winneba, Ghana.

Afele, J.T.; E. Dawoe; A.A. Abunyewa; Afari-Sefa & R. Asare (2021). Carbon storage in cocoa growing systems across different agroecological zones in Ghana. *Pelita Perkebunan,* 37(1), 32–49.

Amponsah-Tawiah, K. & K. Dartey-Baah (2011). Corporate social responsibility in Ghana. *International Journal of Business and Social Science,* 2(17), 107–112.

Aneani, F. & K. Ofori-Frimpong (2013). An analysis of yield gap and some factors of cocoa (*Theobroma cacao*) yields in Ghana. *Sustainable Agriculture Research*, 2(4), 117–127.

Aneani, F.; R. Adu-Acheampong & O. Sakyi-Dawson (2017). Exploring opportunities for enhancing innovation in agriculture: The case of cocoa (*Theobroma cacao* L.) production in Ghana. *Sustainable Agriculture Research*, 7(1), 33–53.

Asare, R.; B. Markussen ; R.A. Asare; G. Anim-Kwapong & A. Ræbild (2019). On-farm cocoa yields increase with canopy cover of shade trees in two agro-ecological zones in Ghana. *Climate and Development*, 11(5), 435–445.

Bach, J.S. (2014). *Illegal Chinese Gold Mining in Amansie West, Ghanaian Assessment of Its Impact and Implications*. Master Thesis, University of Agder. Kristianlands, Norway.

Bansah, K.J.; N.K. Dumakor-Dupey; B.A. Kansake; E. Assan & P. Bekui (2018). Socioeconomic and environmental assessment of informal artisanal and small-scale mining in Ghana. *Journal of Cleaner Production*, 202, 465–475.

Boateng, D.O.; F.N.Y. Codjoe & J. Ofori (2014). Impact of illegal small-scale mining (Galamsey) on cocoa production in Atiwa district of Ghana. *International Journal of Advanced Agricultural Research,* 2, 89–99.

Burrows, E. & L. Bird (2017). Gold, guns and China: Ghana's fight to end galamsey. *African Arguments*, Royal African Society.

Choudhary, A.; F. Verones; L. De Baan & S. Hellweg (2015). Quantifying land use impacts on biodiversity: Combining species–area models and vulnerability indicators. *Environmental Science & Technology*, 49(16), 9987–9995.

COCOBOD (2018). *Cocoa Livelihoods Program.* Ghana Cocoa Board.

Gyimah, N. (2019). Impacts of galamsey operations on agricultural land and livelihood of farmers: a case study of Affiena community in Wassa Amenfi West District

of Western Region, Ghana. *SSRN Report Paper*.

Israel, G.D. (1992). *Determining Sample Size*. University of Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Epis, Florida.

Laari, M. (2018). *Assessing the Impacts of Illegal Small-Scale Mining (Galamsey) on Cocoa Farming and Rural Livelihood: The Case Study of Amenfi West District in Ghana*. BA Thesis, Ashasi University, Ghana.

Maguire–Rajpaul, V.A; K. Khatun & A.M. Hiros (2020). Agriculture informations impact on the adaptive capacity of Ghana's smallholder cocoa farmers. *Frontiers in Sustainable Food Systems*, 4(28), 1–19.

MoFA (2021). *Amansie West District*. Ministry of Food and Agriculture.

MLNR (2017). *Project Appraisal & Implementation Document for the Multilateral Integrated Project*. Ministry of Lands and Natural Resources.

Nimo, E.; E. Dawoe & J.T. Afele (2021). A comparative study of carbon storage in two shade-types of cocoa and a teak plantation in the moist semi-deciduous forest zone of Ghana. *Pelita Perkebunan,* 37(1), 50–61.

Ntiamoah, A. & G. Afrane (2008) Environmental impacts of cocoa production and processing in Ghana: Life cycle assessment approach. *Journal of Cleaner Production,* 16, 1735–1740.

Ocansey, T.I. (2013) *Mining Impacts on Agricultural Lands and Food Security: Case study of towns in and around Kyebi in the Eastern Region of Ghana*. Bachelor Thesis. Turku University of Applied Science. Turku, Finland.

Oyekale, A.S. (2021). Climate change adaptation and cocoa farm rehabilitation behaviour in Ahafo Ano North District of Ashanti Region, Ghana. *Open Agriculture,* 6(1), 263–275.

Peprah, K. (2015). Sustainability of cocoa farmers' livelihoods: A case study of Asunafo District, Ghana. *Sustainable Production and Consumption*, 4, 2–15.

Sulaiman, I. & B. Boachie-Danquah (2017). *Investigating in Ghana's Cocoa Processing Industry: Opportunity, Risks and the Competitive Advantage*, Goodman.

0