

Research Article

Environmental Impacts of Illegal Gold Mining and Its Threat to Ecotourism Development in the Amansie South District

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Abstract

The study interrogates the environmental impacts of illegal gold mining (IGM) and its threats to ecotourism development in the Amansie South District of Ghana. Environmental degradation as a result of illegal mining is a threat to the livelihood of individuals, ecotourism development and countries and the attainment of sustainable development goals (SDGs), especially Goal 15 (to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss). Illegal gold mining is not new in Ghana, but miners' introduction of heavy machines is destroying forest and water resources. The study's main objective was to interrogate the environmental impacts of illegal gold mining (IGM) in Ghana and its threat to ecotourism development. To achieve the objective of the study, the qualitative research approach was used. Exploratory and descriptive research designs were employed for the study. A total of 26 representatives from government agencies, community leaders, and illegal miners in the Amansie South District Assembly in the Ashanti Region of Ghana were interviewed. For the different research objectives, content and thematic analyses were conducted. The study found that illegal mining has resulted in the destruction of the natural environment, especially forest and water resources, undermining ecotourism development. Local communities should be educated on the long-term environmental impacts of illegal mining and the benefits of ecotourism to the local economy and sustainable development. This research work adds to the existing literature on the environmental impact of illegal mining and contributes to the ongoing discussions on the threat of illegal mining to the environment in Ghana.

Keywords

Development, Environment, Illegal Mining, Law Enforcement, Sustainable, Ecotourism

1. Introduction

The livelihood of individuals and the survival of states around the world are threatened by environmental degradation. The survival of many societies, and the biological support systems of the planet, are at risk [1]. Consequently, environmental protection has become a key part of the UN SDGs. For example, the aim of SDG 15 is to “protect, restore and promote sustainable use of terrestrial ecosystems, sustainably

manage forests, combat desertification, and halt and reverse land degradation and biodiversity loss [1]. Achieving SDG 15 is critical for the attainment of no poverty, zero hunger, good health and well-being, and climate action as spelled out in SDGs 1, 2, 3, and 13 respectively. It is also important for ecotourism development which the UN has identified to support social welfare and economic security [1]. The green

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theory advocates for long-term ecological protection against short-term political interests that undermine the environment and sustainable development [2]. Concerns about the destruction of the environment have heightened the fear of activities of illegal mining in Ghana.

Crawford and Botchwey submits that although small-scale mining (SSM) and illegal mining (known locally as *galamsey*) are not new in Ghana, the contemporary proliferation of foreign miners and the use of heavy equipment/machines such as excavators, bulldozers, and trench drills, among others, are causing serious damage to Ghana's forest and water resources [3]. Large areas of land are dug and excavated in a few days because of the use of modern machines and capital. This mechanization has served as an incentive for local miners to partner with foreign investors because it comes with high revenue [4].

Traditionally, small-scale and illegal miners use basic tools such as pick-axes, shovels, and wheelbarrows in mining. The destruction of land, while noticeable, was small compared to the recent pattern of foreign participation in IGM in Ghana [5]. It must be noted that unregistered small-scale mining undertaken by Ghanaians popularly known as *galamsey* is unlawful. The Minerals and Mining Act 2006 (Act 703, Section 83a), reserves artisanal and small-scale mining (ASM) for Ghanaian citizens [6]. It is therefore illegal for foreign nationals to participate in SSM activities in Ghana as owners. It is instructive to note that foreign gold miners have been accused of taking over alluvial gold mining from Ghanaians. This has also contributed to conflicts between Indigenous miners and foreigners over rights to mining sites [7].

Nonetheless, in some cases, Ghanaian miners front for the foreign nationals. Ghanaian miners apply for mining licenses from the Minerals Commission (MINCOM) and form partnerships with foreign investors and miners [8, 9]. Even though in many cases, Ghanaians have mining permits to operate SSM and legally own small-scale mines, the mines are controlled by foreign investors [10, 3] and [9] indicate that migrant miners have, therefore, been integrated into the widespread IGM sector. Ghana is thus, fast losing its natural resources for many reasons and faces issues of environmental degradation. Small-scale mining (SSM), illegal logging, fishing, and wildlife trade, robs the state of precious natural resources and ultimately of development benefits and livelihood.

The study area for this work was the Amansie South District Assembly (ASDA). According to [11], IGM is pervasive in the district with community members forming partnerships with some foreign nationals including ECOWAS citizens, Chinese, Indians, and Russians. Challenges in dealing with illegal mining include weak enforcement of laws, poor road network, and the lease of family land to SSM. The ASDA is unable to deal decisively with illegal miners because of inadequate resources both human and logistics. These challenges have bolstered illegal mining in the district [11]. This study, therefore, seeks to interrogate the environmental im-

pacts of illegal gold mining (IGM) and its threats to ecotourism development in Amansie South District, Ghana.

The study provides a detailed understanding of the environmental impacts of illegal gold mining (IGM) in the Amansie South District and highlights how environmental degradation directly undermines tourism potential and sustainable economic opportunities. In addition, it explores the potential of ecotourism as a sustainable economic alternative to illegal mining, contributing to the broader discourse on balancing development and environmental conservation. Finally, the study enhances the understanding of academics, environmentalists, development advocates, and policymakers and provides a foundation for informed interventions in IGM-affected areas. Using a qualitative research approach, the researchers conducted the study to understand the environmental impact of IGM and its threats to ecotourism development in the Amansie South District in Ghana. The study answers the questions; what are the environmental impacts of illegal gold mining (IGM) in the Amansie South District? and how IGM affects the viability of ecotourism in the Amansie South District.

2. Literature Review

2.1. Theoretical Review

This study uses the green theory to explain the importance of environmental conservation in achieving long-term sustainability. According to [12] and [13], the green theory is a more relatively modern theory in international relations. It focuses on environmental conservation as a result of the emergence of environmental problems and human impact on the environment [13]. The green theory redefines issues such as environmental conservation in terms of the protection of the ecology for the long term rather than the current political interests [14] which often undermines environmental protection. The green theory is ecocentric and puts the natural environment ahead of people. Ecocentrism prioritizes healthy ecosystems and the environment because they are critical for human health and well-being [15, 14] indicates that

“air and water pollution can cross borders and climate change cuts across all borders and populations. Simply, human populations are ecologically interconnected. This is the reason why we deal with transboundary and global environmental concerns collectively, setting aside national self.”

Environmental protection gives rise to shallow and deep ecological views. [16] notes that the right of all forms (of life) to live is a universal right that cannot be measured from an ecological standpoint. No one species of living creature has a greater claim to life and development than any other. [17] adds that the earth does not serve as a means for humans to freely exploit. This is explained by deep ecology (ecology-centered thought) which holds that the survival of any part is dependent upon the well-being of the whole [18, 16]. It

recognizes that healthy ecosystems are critical conditions for human health, well-being, and survival. The green theory is important to this study because it explains the need to pursue sustainable development which protects the environment and caters to the needs of present and future generations. There is therefore, the need to protect forests and river bodies from illegal mining and pursue long-term environmental goals such as developing ecotourism in forest reserves as an alternative source of livelihood for rural communities. [19] and [20] underscore the relationship between tourism, sustainability, and green practices with an emphasis on how tourism can be managed to minimize ecological footprints. This knowledge is an essential part of ecotourism and green theory. In this regard, forest management should be a priority in environmental policy and governance.

2.2. Conceptual Issues

2.2.1. Managing Ghana's Forests for Sustainability and Conservation

Forests play an important role in the economic development of Ghana and the lives of Ghanaians, especially rural dwellers. It is a source for export to countries in Africa, Europe and Asia. In Ghana, key forest exports include sawn wood, plywood, and veneers [21, 22]. Deforestation and forest degradation are two major concerns for conservation and sustainable forest management. Agricultural expansion, logging (legal and illegal), urban expansion, infrastructural development, and mining are the major causes of deforestation and forest degradation [23]. These have caused the shrinkage of Ghana's formal forestry sector which was estimated at 9.17 million hectares in 1995 to 5,768,678 hectares in 2017 [24]. Given this decline, successive governments have taken a host of measures to enhance forest resource management in Ghana. According to Oduro, one of the important strategies adopted by the government to manage forests and meet the growing demand for timber resources in Ghana is plantation development [25]. The government has also been promoting ecotourism in forest reserves as a means to protect the forest from illegal mining [26]. Despite these programmes to protect forest resources and to attain sustainable development, Ghana's forest resources continue to be exploited by illegal mining, causing environmental degradation and water pollution in rivers Pra, Oti, Offin, and Ankobra, among others. Environmental degradation is a threat to Ghana's efforts to promote ecotourism as a tool for sustainable development. According to the 2019 composite budget of ASDA, the district is undertaking studies and documentaries on tourism sites in the district, and ecotourism development is key in this regard [11].

2.2.2. Ecotourism

According to [27-29], ecotourism is a form of tourism involving responsible travel to protected areas. It supports conservation efforts by funding protected areas and improving

local economic development for the well-being of the local people [29, 27] adds that ecotourism promotes environmental education. Ecotourism focuses on socially responsible travel, personal growth, and environmental sustainability [28]. Ecotourism typically involves travel to destinations where flora, fauna, and cultural heritage are the primary attractions. Ecotourism is intended to offer tourists an insight into the impact of human beings on the environment and to foster a greater appreciation of natural habitats. Ecotourism aims at minimal environmental impact on the areas visited [27].

In addition to the protection of the natural environment, ecotourism also promotes socio-economic benefits for the communities of the area visited [28]. It must be noted that ecotourism development supports social welfare and economic security. According to [29], responsible ecotourism programmes include those that minimize the negative aspects of conventional tourism on the environment and enhance the cultural integrity of local people. Therefore, in addition to evaluating environmental and cultural factors, an integral part of ecotourism is the promotion of recycling, energy efficiency, water conservation, and the creation of economic opportunities for local communities [30]. For these reasons, ecotourism/green tourism often appeals to green theorists.

In summary, ecotourism provides incentives for ecological conservation aimed at local economic development. The Ghanaian government has thus, been promoting ecotourism as a tool for the attainment of sustainable development goals, especially in the areas of food security, environmental protection, climate change mitigation decent work and economic growth, responsible consumption, and production. For example, in March 2022, the Forestry Commission of Ghana launched the Ecotourism Handbook. The handbook seeks to support, promote, and advertise the country's ecotourism sites and streamline products and facilities for tourists [26]. According to [11], the Amansie South District 2019 composite budget and the medium-term development plan (2019-2022), seek to identify, undertake studies and document tourism sites in the district. The biodiversity and ecosystem of the district predispose it to ecotourism development. Nevertheless, small-scale illegal mining has become a threat to ecotourism development in the district.

2.2.3. Small-scale Illegal Mining and Its Impacts on the Environment in Ghana

Yeboah indicates that small-scale illegal mining activities in Ghana have evolved and grown steadily over the past two decades from artisanal mining into a more organized and mechanized sector [8]. In 2018, the Minerals Commission report indicates that SSM contributed 43% of the total gold production in Ghana. This growth has been linked to the involvement of foreign investors and the introduction of technologies and heavy earth-moving equipment like bulldozers, excavators, crushing machines, and suction equipment [3, 9]. Unlike in the past, today, mining is not only taking place on land but on riverbanks and riverbeds. This has caused con-

tamination to major water bodies nationwide [31].

In the last decade, both domestic and foreign illegal mining operations have increased [3, 8]. Despite the mandate given to government ministries, departments, and agencies to enact laws, and bye-laws and to manage the environment, the rate at which Ghana is losing its forest resources as a result of IGM is alarming [4]. The loss of these resources will impact negatively on Ghana's quest of achieving the SDGs one, two, three, six, twelve, thirteen, fourteen, and fifteen. [32] and [19] argue that political leniency and corruption in the enforcement of laws have resulted in the booming of the SSM sector. Regulation has, therefore, become highly difficult over time as a result of the involvement of foreign nationals in unregulated small-scale mining. Thus, IGM has resulted in environmental degradation, water pollution, and damage to biodiversity [33, 8] and [16] identify several impacts of IGM activities in the Amansie South District. Notable among the impacts of IGM activities on the natural environment include: deforestation, loss of biodiversity, and impacts on land resources and water bodies. These are detrimental to ecotourism development in the district.

3. Research Methodology

A qualitative research approach was employed for this study due to the nature of the variables. Qualitative research assumes that the world is socially constructed [34]. With regard to this study, qualitative research stresses the importance of recognizing subjectivity, not only that of the researched but also that of the researcher [35]. The main reason for adopting a qualitative research design for this study is that the study aimed at achieving a deeper understanding of the environmental impacts of IGM and its threat to ecotourism development in Ghana. The qualitative research design is employed by using non-random sampling techniques in key informant interviews. This is because there was the need to interview officials to understand the environmental impacts of IGM.

An exploratory descriptive research design was employed in the study. The use of exploratory research design helps to identify new areas of knowledge and a deep understanding of the environmental impacts of IGM. The study also uses descriptive design because it entails a systematic collection and presentation of data on the environmental impact of IGM in Ghana. It offered the researcher the opportunity to analyse IGM. This study used observation and an interview guide to interrogate the environmental impacts of IGM. The targeted population for this study was Amansie South District Assembly (ASDA). The in-depth interview method and purposive sampling procedures were used to select twenty-six (26) participants for key informant interviews. It is believed that these respondents could provide the best information to help address the research objectives because of their knowledge of the subject under study.

The study relied on responses from interviews with

Chiefs/Opinion leaders, Officials of the Amansie South District Assembly, assembly members, and the Forestry Commission. Others include officials of the Minerals Commission and illegal miners. Observations of mining sites and forest reserves were also done to validate responses from the interviews. The qualitative data were analyzed manually using thematic analysis. The data for this study came from audio recordings, notes, and photographs taken during the collection of data. Data collection and management went hand in hand. The researcher transcribed the recorded interviews with the help of the field assistant at the end of the field gathering. The data was examined in depth at this time to aid in conclusive coding. The main limitation of the qualitative methodology used in this work is that the study cannot be generalized. The seeks to raise awareness about the environmental impacts of galamsey and its threat to ecotourism development. To ensure the reliability and validity of findings, observation was done to validate responses obtained through interviews. The findings of this research are derived from the data collected from interviews conducted with important stakeholders and observations.

Ethical approval was obtained from the Ethics Committee of the School for Graduate Studies, University of Cape Coast (UCC), Ghana before the interview (data collection). Specifically, the approval letter was signed by the Administrator (Dr. Samuel Asiedu Owusu) of the Institutional Review Board to undertake this research project. The approved consent letter number is ID (UCCIRB/CHLS/2021/04. The consent issuing committee is made up of Prof Sarah Darkwa and Dr. Samuel Asiedu Owusu, UCC, and evidence of the consent letter is available upon reasonable request. Again, the study obtained the consent of the selected participants. Thus, a physical visit together with an ethics approval letter and a written consent form was made available to these participants in advance before data collection. All participants agreed and signed a form to indicate their consent to participate in the interview and subsequent publication of the report after seeing the ethical approval letter.

4. Results and Discussions

This section of the study seeks to explore the environmental impacts of IGM activities in Ghana. The study found that IGM was causing serious devastation to the natural environment, especially the destruction of water and forest resources. Based on interviews and observations conducted for this study in the Amansie South District, several impacts of IGM activities were identified. Notable among them include deforestation, loss of land resources, and damage to water bodies, and to biodiversity.

4.1. Deforestation

The study found that IGM contributed to the destruction of forest resources through excavation works. Trees, plants, and

the topsoil in the Amansie South District had been cleared from mining areas and this had destroyed the natural environment and forest resources. Figure 1 shows the degradation of the forest reserve by illegal miners at Manso Adubia.



Photo credit: Fieldwork, 2021

Figure 1. Degradation of forest reserve by illegal miners at Manso Adubia.

The results from the interviews conducted for this study showed that illegal mining had destroyed portions of the rainforest in the District. It was also revealed that various tools used by illegal miners for their operations tended to destroy the rainforest. An assembly member stated, “the use of excavators in gold mining contributes significantly to the loss of forest resources in the district”. An official of ASDA stated:

CIIM activities in Amansie have destroyed our forest reserves. Some plant and animal species are extinct. Miners use excavators and other heavy equipment in carrying out their operations. These equipment have contributed to the loss of forest areas in the Odaho and Aboaboso Forest Reserves. These forest reserves used to be ‘no-go’ areas for even local hunters but now illegal miners go there, sometimes at night to carry out their operations. If care is not taken, we will lose all our forest reserves in less than ten years.

In order to validate the findings from interviews conducted for this study, observations were done in Odaho, Apanprama and Aboaboso Forest Reserves. It revealed that large areas of forest lands had been cleared for IGM illegal miners as shown in Figure 1. Parts of forest reserves in Odaho and Aboaboso had been rendered bare through the excavation of the land by illegal miners. The findings of this study are a departure from the tenets of the green theory. This theory sees the protection of the environment as critical for the attainment of the SDGs.

4.2. Damage to Land Resources

IGM in the Amansie South District has resulted in substantial damage to the landscape and vegetation cover. Considerable areas of land and vegetation in communities such as Manso Adubia, Agoroyesum, Aboaboso and many others had been excavated by illegal miners. Respondents in this study indicated that IGM had affected the ASDA by contributing to the degradation of agricultural land. This ultimately affected agricultural productivity. IGM activities in ASDA were destroying forest reserves. This affected the livelihood of forest-dependent communities. Agricultural lands had not only been degraded but there was a loss of land for farming activities as shown in Figure 2.



Photo Credit: Fieldwork, 2021

Figure 2. Illegal gold mining site at Aboaboso Forest Reserve.

Furthermore, responses from Assembly Members, Chiefs and Officials of ASDA revealed that there was a drastic change in drainage patterns within the mining communities as a result of the destruction of forest lands. Most of these communities tended to experience flooding anytime there was a heavy downpour of rain. What is more, erosion had largely taken place, leading to siltation and increased sediment loads in the river beds. A Chief remarked:

Illegal mining has destroyed our farmlands. We used to have large tracts of cocoa farms but illegal miners have destroyed them. Our land was good for rice farming and we used to have maize and plantain farms but today we do not produce these products in large quantities anymore. We now have to rely on foodstuffs from other communities. Oh yes, now we get most of our foodstuffs from the Denkyira areas because our farmlands have been destroyed. If care is not taken, there will be famine in the next decade.

Interviews and observations done for this study show that illegal mining, especially the introduction of machines, has caused devastation to land resources in the ASDA. Mining activities had also led to the release of toxic substances into water bodies. Surface water was also contaminated by the washing of mineral-laden soil in water bodies. There had also been the destruction of aquatic organisms because water

bodies have become inhabitable to such aquatic animals. These findings support studies by [3, 4]. According to them, the mechanization of illegal mining is causing devastation to land resources. Here, large areas of land are dug and excavated in a few days because of the use of modern machines and capital. Thus, the threat of illegal mining in the district if not checked, would affect the government's efforts in achieving SDG 15. Failure to attain SDG 15 would be detrimental to climate change mitigation (SDG 13), take urgent action to combat climate change and its impacts), action and the entire global goals (Agenda 2030).

4.3. Damage to Water Bodies

The results from the interviews and observations indicated that water sources had been destroyed by the influx of illegal small-scale miners in the district. The study found that the Amansie South District Assembly had been investing in the construction of boreholes in the communities as an alternative source of water for domestic and commercial use. According to respondents, before the advent of the use of heavy machines in SSM in the district, the main sources of water for the communities were largely streams and rivers. Communities relied on streams and rivers for water for domestic purposes such as cooking, brewing and drinking.

An assembly member stated, "illegal mining activities has really destroyed our sources of water. Today, we rely mostly on water from boreholes because the streams and rivers are now unsafe for domestic use". An Official of the Assembly added, "the colour of the water has changed; our streams and rivers now taste very bad, and smell bad. I can tell you that the prevailing situation is too bad". Further, a Chief stated that illegal mining activities have led to the drying up of water bodies, with some streams becoming muddy. The Chief explained:

Illegal mining has destroyed our main water bodies. We have rivers Offin and Oda in this district. These rivers were our main sources of water for domestic purposes. Now we cannot rely on these rivers for water. I can tell you that today; illegal mining activities in the district have impacted negatively on these river bodies.

An official of ASDA mentioned:

Illegal mining constitutes a major threat to our sources of water. Illegal miners are very much aware of the danger their activities pose to our water bodies but they seem not to care about the situation. Now because the water bodies are unsafe for drinking, we have to spend more money to buy either sachet or bottled water (Pure water) to drink. How many people can afford to buy pure water each time they want to drink water? This is an unfortunate situation for most of our communities.

The state of some of the water bodies in the district can be shown in Figures 3 and 4.

To further prove the extent of harm illegal mining posed to the water bodies in the district, a research participant who was

also an illegal miner remarked:

..... the use of mercury in the extraction of gold by illegal miners is destroying water bodies and their resources. High concentration of mercury destroys water quality and it is dangerous for all living things.

Figures 3 and 4 show that some illegal mining at Aboaboso and Manso Adubia communities has caused devastation to water bodies especially rivers and streams in the district. It was found that rivers and streams had been destroyed by excavation works by miners who mined in water bodies. Streams and rivers have thus become muddy and at the point of extinction. They are unhygienic for domestic purposes. This, coupled with the use of mercury in mining, has forced communities to rely on boreholes for potable water. Treated water continues to be an option for some people within the district. It is important to note that the pollution of water bodies by the use of mercury in mining causes kidney damage and affects the nervous system [7].



Source: Fieldwork, 2021

Figure 3. Pollution of River Offin due to IGM activities.



Photo credit: Fieldwork, 2021

Figure 4. Impact of IGM on a stream at Manso Adubia.

These findings affirm that of [7] who explained that small-scale alluvial mining and, in particular, illegal mining activities have caused serious environmental problems in-

cluding the destruction of water bodies in Ghana. The CSIR–Water Research Institute adds that mercury for processing gold is one of the causes of pollution to water bodies. This has become a serious health threat for the majority of the population living in these areas. The current situation of water bodies calls for the need to step up programmes to protect them to achieve SDG 6.

4.4. Damage to Biodiversity

IGM can have a devastating impact on the biodiversity of the mining area. This is because illegal mining leads to a massive habitat loss for the diversity of flora and fauna ranging from soil microorganisms to large mammals. In the views of the respondents, endemic species were most severely affected because the slightest disruptions in their habitat resulted in extinction or put them at a high risk of being wiped out. Also, respondents indicated that chemicals released through illegal mining activities could wipe out entire populations of sensitive species.

Responses from the interviews revealed that forest reserves that were hitherto untouched by humans were now invaded by illegal miners. This has led to damage to biodiversity since many animals and plants have lost their natural habitats. An officer from the Forestry Commission complained, “animals are forced to move from their habitat and some even die. Plant species are destroyed by illegal mining activities”. Another respondent from the Forestry Commission bemoaned, “We are losing precious species as a result of illegal mining. Birds are losing their homes and some species cannot be found in this area. This is very dangerous for both present and future generations”. It affects the government’s initiative to promote ecotourism in forest reserves as a tool for local economic development. Figure 5 presents a picture of the degradation caused by IGM in the district.



Photo credit: Fieldwork, 2021

Figure 5. Degradation due to IGM at Manso Adubia.

These findings also affirm that of [33]. They argue that foreign (Chinese) involvement in unregulated small-scale IGM has resulted in environmental degradation, water pollution, and damage to biodiversity. These have negatively impacted ecotourism in Ghana. The situation in Ghana presents a huge challenge to the realization of SDG 15. A key component of SDG 15 is the need to ensure the availability and sustainable management of water.

5. Conclusion

The study found that the use of heavy machines by illegal miners has caused large-scale devastation to the natural environment, degradation of farmlands, and pollution of water bodies, particularly rivers that serve as sources of potable water for communities in the Amansie South District. Government’s efforts to promote ecotourism, especially as a tool for local economic development have been undermined by IGM in the Amansie South District. With the green theory, this result contradicts the principles of the theory, which advocates for sustainability, ecological balance, and social equity other than short-term economic interests.

The study, therefore, recommends that government should enforce relevant laws and regulations. Local communities should be empowered to lead enforcement actions and invest in ecotourism to harmonize development with environmental sustainability. In addition, local communities should be educated on the long-term environmental impacts of illegal mining and the benefits of ecotourism to the local economy and sustainable development. This awareness by the local people will help in preventing illegal entry into forest reserves and promote sustainable mining practices. In addition, the government should build technology centres in mining areas to provide technical assistance to small-scale miners.

Also, the government should provide affordable sources of funding to small-scale miners to prevent Ghanaian concession owners from partnering with foreign investors who currently provide funding and equipment/machines to support local miners. The government should take a critical look at the use of heavy machines in small-scale mining because of the destruction it causes to the natural environment. The ASDA should be encouraged to start reforestation and afforestation programmes and also form community watchdogs to protect illegal entry into forests and promote ecotourism among communities in the district. Further studies should be done to understand the cost of illegal mining on local communities taking into consideration social and economic dimensions.

In terms of theoretical and practical implications of the study, the green theory focuses on environmental conservation and promotes the adoption of environmentally friendly practices. The theory sees illegal mining as an injustice to nature and undermines long-term sustainability efforts. According to [31], illegal mining is a pursuit of short-term economic goals instead of long-term sustainability. It is thus, driven by profit motives, regardless of the ecological costs. Biodiversity, rivers, forests,

and other natural resources are destroyed. The study highlights the environmental impacts of IGM, and its threat to ecotourism development and emphasizes the importance of long-term environmental sustainability underpinned by the green theory. Educating the local people on the benefits of ecotourism to the local economy and sustainable development is key in combating illegal mining. [36] notes that empowering local communities contributes significantly to enhancing grassroots enforcement efforts. Furthermore, public awareness campaigns are vital to raise awareness about the environmental, economic, health, and social costs of illegal mining among local communities. The United Nations states that educational initiatives should inform citizens about the long-term benefits of sustainable mining practices and the adverse effects of illegal operations on their livelihoods and environment [37].

A key implication of this study is to encourage the adoption of environmentally friendly technologies and practices among small-scale miners. Ensuring that small-scale miners have access to the necessary resources and training can mitigate the negative environmental impacts of gold mining [31]. Additionally, immediate restoration and rehabilitation efforts are needed to address the degradation of forests and water bodies caused by illegal mining. Initiatives such as community participation in enforcement actions, reforestation projects, and the clean-up of polluted water sources are essential to restore affected areas. Practically, this study contributes to achieving Sustainable Development Goals (SDGs), particularly goals one, two, three, twelve, thirteen, fourteen and fifteen [37]. The study's emphasis on long-term sustainability, ecotourism development, and the need to end IGM aligns with the green theory. In summary, this study offers actionable insights for policymakers, academics, and environmentalists aimed at a balance between economic and environmental goals. The study uses a qualitative methodology and cannot be generalized. The results of this study can, therefore, be contextualized.

Abbreviations

ASDA	Amansie South District Assembly
ASM	Artisanal and Small-Scale Mining
CSIR	Water Research Institute
ECOWAS	Economic Community of West African States
FAO	Food and Agriculture Organisation
IGM	Illegal Gold Mining
MINCOM	Minerals Commission
OEC	Observatory of Economic Complexity
SDGs	Sustainable Development Goals
SSM	Small Scale Mining
UN	United Nations

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Author Contributions

Richmond Yeboah is the sole author. The author read and approved the final manuscript.

Data Availability Statement

Data is included in the manuscript.

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Conflicts of Interest

The author declares no conflicts of interest.

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