

Gold Mining and its Effects through the Lens of an Archaeologist: Experiences from the Prestea Area, South Western Ghana

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Abstract

Gold has a historical, economic and cultural heritage in Ghana's past. Over two millennia, its exploration, mining and trade has fascinated many. Mining and its associated effects on the environment have recently generated heated debates among stakeholders. Various research has been conducted on the subject; however, little ethnoarchaeological inquiries have been done in Ghana. This paper presents the effects of the mining industry from an ethnoarchaeological perspective at Prestea and its environs. The evidence shows the various effects of mining on both the natural environment and the socio-economic and cultural structures in the Prestea area of south-western Ghana.

Introduction

Ghana has a long tradition of gold mining with an estimated 2,488 metric tons (80 million ounces) of gold produced between the first documentation of gold mining in 1493 and 1997 (Kesse 1985: 183-186). As a result of the profits associated with gold, it continues to generate periodic gold rushes from both locals and foreign prospectors. This action no doubt has a telling effect on the natural environment, agriculture and water bodies.

This paper was written under the consideration of some key concepts that were relevant to the study namely; ethnoarchaeology, the paradox of plenty, archaeology and development.

Ethnoarchaeology

Whilst ethnographers study the present, archaeologists study the past. Both have one aim in common; to understand and explain human culture and society. Ethnoarchaeology is an ethnographic approach to the study of contemporary, living human societies that seeks to identify behavioural realities that structure the potential archaeological record

(Gould 1989). To understand and answer questions of the past, we often need to look at the present.

The researchers decided to use ethnoarchaeology in the area of the Ankobra river and Prestea surroundings, as a research method rather than pure archaeological excavations. This was done at the time to avoid confrontations with concession mine owners and small-scale miners. David and Kramer (2001) noted that; "ethnoarchaeology is less threatening to authorities than archaeology... its results have been far less subject to political manipulation".

The ethnoarchaeological research observed traditional mining, its effects on both the natural and cultural landscapes. The research used both formal and informal interviews, direct observations in the study area.

The researchers also quizzed some of the miners about finding ancient burials during their mining expeditions, and they affirmed seeing a couple in the forested places of the research area. Also, the oral tradition of the people of Awudua has it that some of their

forebears were buried at a particular spot at Awudua Dada.

The Paradox of Plenty

The paradox of plenty or natural resource curse refers to the irony that countries with rich non-renewable natural resources, tend to have less economic development compared to states with few natural resources.

It is assumed that the exploitation of natural resources in low and middle-income countries might bring about economic freedom and development. This, however, has not been the case for African countries. In the 1950s and 1960s, there emerged debates about natural resources being more of an economic curse rather than a blessing in developing countries (Ross 1999: 2). Some scholars believe the resource curse is not universal but affects certain regions under certain conditions (Venables 2016: 161; Ross 2015: 240). The term natural resource curse was first used by Richard Auty in 1993 to explain and describe how countries rich in natural resources are unable to use that wealth to boost their economies and how these countries had lower economic growth than countries without a wealth of natural resources.

Also, it has been noted that conflicts sometimes occur over the control and exploitation of resources and the allocation of revenue. There are a number of resource conflict situations that have emerged in some parts of Africa, (also in Latin America, South-East Asia and the Pacific) as a result of the control and exploitation of diamond, oil and gold (Ross 2004). These cases include; the “Blood Diamonds” in Sierra Leone, Angola and Cote D’Ivoire, The Niger Delta ‘oil’ Conflicts in southern Nigeria, the emerging conflict from gold exploitation known as *Galamsey*

(‘unlicensed’ artisanal gold miners) in Ghana and *Orpailleurs* (artisanal gold miners in Francophone countries in West Africa) in Mali and Burkina Faso.

This conflict associated with the *galamsey* menace in Ghana have been attributed to several factors such as; the involvement of some shady influential people (chiefs, politicians, opinion leaders and the police), lack of effective monitoring by the Minerals Commission who have oversight over mining, negligence of some landowners and the lack of will by government to enforce stringent laws against irresponsible mining. Furthermore, the destruction of the natural environment, the loss of lives (miners), health-related issues, the breakdown in socio-cultural values and increase in social vices are some aftermaths of *Galamsey* in Ghana.

Could these be some of the reasons for the apparent disconnect between abundant natural resources and economic development in Ghana and some parts of Africa?

Archaeology and Development: A Reflection

Although development has brought about improvements in medical care, communication systems, housing, hydroelectricity and roads, it has, on the other hand, led to an increasing peril to the archaeological past as sites are destroyed as a result of major projects. In less industrialized countries, the consequences of economic development have often included widespread deforestation and the devastation of large tracts of hitherto undisturbed natural and historical landscapes (Kankpeyeng and DeCorse 2004).

Usually, economic development first comes to mind when development is mentioned. This is a bias that must be critically interrogated. Development is not only about improved

'cultures', victories against large-scale epidemics, and famine or malnutrition. Neither is it only about building schools, constructing roads and big dams. For development is much more than just a socio-economic endeavour; it is a perception which models reality, a myth which comforts societies, and a fantasy which unleashes passions (Sachs 1992: 1).

Common knowledge and everyday knowledge involuntarily brings the two terms, archaeology and development, into conflict (Marliac 1997:324). If archaeology is perceived to evoke research that is quite free and academic with a scent of adventure, development evokes problems of famine, deforestation and floods. These images, however stereotypic (especially in developing countries), express a general opinion against a "useless science" and for a "useful science" which springs to mind when one is concerned with solving the serious national problems (Marliac 1997:324). Often, archaeologists are reproached, as their cousins in ethnology, sociology, history and linguistics, for sometimes being a waste of time and expensive. To resolve problems of development, only exact sciences and engineering sciences are of any use; the others, including the arts or social sciences, to which archaeology belongs, offer only a constantly renewed discourse whose usefulness is debatable (Marliac 1997:324).

What can archaeology claim to do in our particular case with regard to improvements to the problems of developing countries? For most policy and lawmakers in Ghana, not much. So much so that the discipline rarely appears in important sponsored projects. This may be due to colonial or post-colonial governments which set goals by the criteria of economic development, being a product of the introduced system of politics and often

having no interest in traditional culture except where it can be used to contrast with present circumstances (Miller 1980:1).

For archaeology to be more meaningful to society, it must not only be integrated as part of the developing system but also cross the boundary to become recognized with many important aspects of traditional life.

Archaeology can help support local self-confidence and rebuild a shattered respect for traditional knowledge and achievements. It can complement oral tradition and add new conceptions to the past (Miller 1980:1). It can provide an important source of local materials for educational curricula, as well as play its traditional role in the fields of academia, aesthetics and tourism. Archaeological excavations can continue to hypnotize outsiders' interest by revealing and uncovering the works and relics of the ancestors and also become another weapon in solving disputes over land ownership and migration (for instance).

In order for African governments to provide a holistic and an encompassing development for its people, the cultural dimension of development should be seriously considered in major national decision-making. The archaeologists' role in achieving this would be crucial. In solving the emerging issue of irresponsible mining in Ghana, it would be necessary to also involve archaeologists in order to broadly consider the cultural dimensions that have been ignored by environmental advocates and traditional authorities.

The overall aim of the study was to investigate the gold mining industry and its effects on the natural, socio-economic and cultural environments in the Prestea area from an ethnoarchaeological point of view

Materials and Methods

Study area

The study was conducted in the Prestea area (with special focus on communities such as; Awudua Dada (old Awudua), Bondaye, Awudua, Prestea and parts of the Ankobra river. Geologically, the area is underline by the Birimian rock series. The vegetation of the area is equatorial rain-forest. Based on both historically and recent archaeological survey of the area, the middle Ankobra Valley around Awudua, Awudua Dada and Bondaye is honey-combed with ancient gold mine trenches which are the legacy of local miners of the Iron Age (Anquandah, 1999:4). Also, the first mining concessions to be granted in the then Gold Coast were taken in 1877 by Monsieur Pierre Bonnat of France, a man widely considered as the “Father” of mechanised mining in Ghana (Dzighbodi-Adjimah and Nana Asamoah 2009 :7; James 1937).

The data source for this research was primary data and secondary sources. The data collection method included; ethnoarchaeological approaches such as – interviews, observations, archaeological reconnaissance survey and excavations. A total of thirty (30) people were interviewed, these people included; artisanal miners, farmers, traditional authorities and opinion leaders. The authors also directly observed the sub-surface, underground, dredging and alluvial mining activities by small-scale miners.

Furthermore, the research showed to some extent the effect of the mining activities on both the landscape and cultural materials. The study was conducted during the dry seasons of November to December in 2010 and January 2011.

Mining in the Prestea area

The mining of gold in Ghana involves various methods and techniques. The occurrence of gold may reveal gold particles embedded in an anthill and termite heaps (Summers 1969, Phimister 1976a and 1976b). The growth of certain plants particularly, *red cherry*, is characteristically associated with gold-bearing soils (Molomo 1992: 79; Kumah 2012: 69; see Daaku 1970). Gold can also be found by following alluvial deposits through to the placer deposits and finally to the auriferous reef.

There are numerous ways of extracting gold. The various mining techniques among the people of the research area (Fig. 1) were: placer mining or “panning”, shallow pit surface mining and deep shaft mining.

Alluvial Gold Mining

Substantive erosion of the Birimian and Tarkwian gold belts caused a series of residual and alluvial placer gold deposits ideally suitable for mining (Hilson 2002: 63).

Significant placer deposits are found along terraces, floodplains, channels and river beds of the Ankobra, Offin, Pra, Birim and Tano Rivers (Fig. 2), where mainly Birimian gold deposits, following several episodes of erosion, have been eroded and re-deposited.

As a mining technique, the washing of alluvial gold most likely predated the extraction of gold from reefs. As the demand for gold increased during the Trans-Saharan and Trans-Atlantic Trades, it is possible that miners turned to the reefs, in the process developing more sophisticated prospecting and mining methods.

“Panning” for alluvial gold along banks of these major rivers, such as Ankobra, Tano, Pra, Offin and Birim and along ocean shores

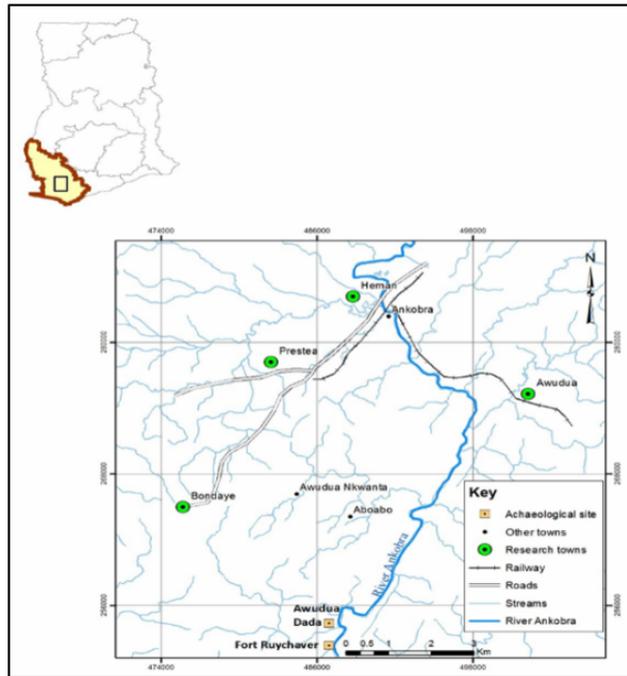


Fig. 1: The Study Areas

to estuaries was the work for ancient people in these areas on a small scale. Shortly after rains, most rivers and streams in the area tend to produce a lot of gold (Bosman 1705; Dumett 1987). This is due to the washing away of gold deposits up streams. Separation of the gold dust from the sand and gravels is an extremely tedious task. It requires repeated

washing of given amount of river-bed sand for even the smallest amount of pure gold to be isolated. Historically, women in Wassa, Denkyira and Asante were actively involved in the panning process (Garrard 1980; Dumett 1987). However, the researchers observed men panning along the Ankobra in 2011 and

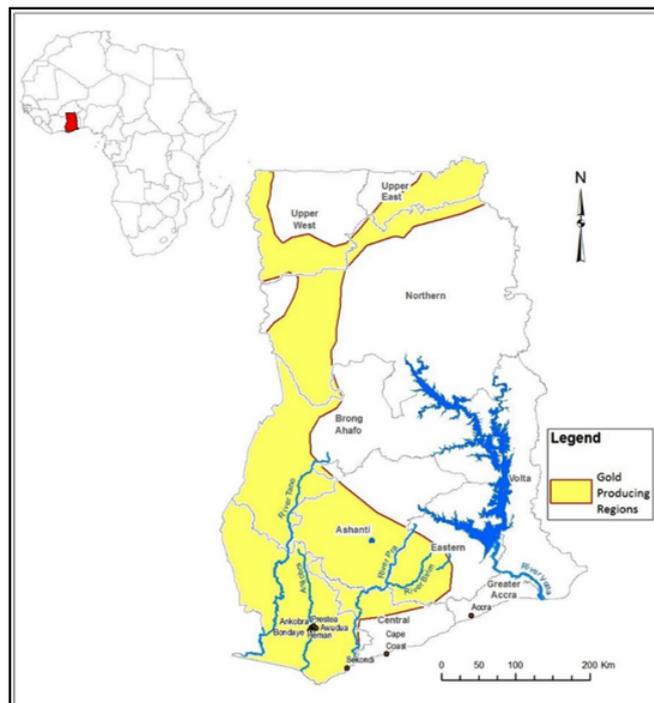


Fig. 2: Gold producing regions and rivers associated with major gold deposits (Modified from Hilson, 2001)

2012. Garrard (1980: 359) maintains that, “... the panning process entails a circular motion in a series of stages required successively small bowls or trays known as Akorow, Posie, Aposna and Tokrowa, until at last all the gravel and sand is washed away, leaving only the fine gold grains at the bottom of the pan”. These types of bowls and trays were seen used by alluvial miners on the Ankobra (Fig. 3 & 4).



Fig. 3: The washing of sand from the Riverbed to trap alluvial gold at the Ankobra River, near Awudua Dada (Photo by D. Kumah, 2012)



Fig. 4: Placer mining in the River Ankobra. The locals noted this spot to produce a lot of alluvial gold in the dry season (Photo by D. Kumah, 2012)

Dredging

The Ankobra river is known to be one of the hotspots for dredging. Dredging for gold first appeared in the early 1900's when massive,

multistory machines capable of dredging vast quantity of sediments at the bottom of water bodies were used. The sediments were then shifted to locate the gold. Dredging in Ghana is not only restricted to rivers that are noted for gold but also for diamond.

Usually, during the dry seasons (December – February), dredging and mining groups exploit the Ankobra river for gold (Fig. 5). This is because the water level would have reduced making it suitable for dredging activities. One of the shocking scenes observed by the researchers was miners diverting the course of the river with heaps of sand and scooping the bed of the river with excavators (Fig. 6).



Fig. 5: Dredging in the River Ankobra during the dry season (Photo by D. Kumah, 2012).



Fig. 6: Miners diverting the course of the river and scooping for alluvial gold (Photo by D. Kumah, 2012)

It must be noted that gold dredging causes a serious environmental impact. It disrupts the underwater environment especially in rivers and streams that bear fish. From the ethnographic research gathered, some people living in towns like Bondaye, Nsuta, Prestea and Gambia (a mining camp), are of the view that the Ankobra was not producing fish as it used to and they attributed this to the dredging activities in the river (Fig. 7).



Fig. 7: The Polluted Ankobra river after dredge mining in 2015 (Photo by E. Atubouah, 2015)

Shallow-Pit Mining

Shallow-pit sub-surface digs, locally known as *mmoaboa*, was the most common form of indigenous gold mining and probably the principal source of gold dust and nuggets produced in the Akan states and exported overland to the north and south to Europe over the centuries. Most of the gold deposits worked in pre-colonial times were generally soft and close to the surface oxide ores, and the outcrops of major reefs rather than the deeper and harder quartz and sulphide ores (Dumett 1987:13).

Shallow-pit mining is the commonest and widely used method of mining by both local and Chinese *galamsey* operators in the hinterlands of Prestea, Awudua, Bondaye, Awudua Dada and Herman.

Normally, the surface was opened in small holes, dug by individuals, or in large excavations, dug by families (Dumett 1987:13)

or even entire villages working together in turn (Addo-Fening 1976; Anin 1987). In some pre-colonial Akan societies – Akyem Abuakwa for instance, it is reported that gold mining was a communal endeavour (Addo-Fening 1976: 34-35).

Deep level reef mining

For a long time, there was debate among 19th-century European observers as to the

technical expertise of African pre-colonial reef gold miners. European travellers and colonial administrators considered gold mining activities by Africans as *primitive* and *inefficient* (Dumett 1987:14). Africans were regarded incapable of sinking deep shafts, using timbering, cutting adits and tunnels, or of extracting deep levels of reef gold. Although it is true that most pits were dug in soft sub-surface sedimentary deposits, it would, at the same time, be incorrect to assume that no deep-level mining was undertaken or these traditional miners using indigenous methods were incapable to cut into the hardest conglomerate or quartz reef.

Deep shafts in various shapes and sizes, ranging from square, chimney type, large enough to occupy one person, a rectangular type supported by lagging, angled types with steps cut in, and long snake-like tubes which bend to follow the line of the reef (Dumett

1987: 14). In the area, a typical intermediate-sized mine was the bell-shaped or bottle-shaped excavation (known as nkron in Twi), narrow at the top but widening at the lower levels into a dome-shaped mining chamber (Dumett 1987: 15; Kumah 2012).

Deep level reef mining was extremely strenuous, but miners gradually would chip away until they carve out a mining-chamber of about 15.24 to 18.28m into the heart of the lode. Sometimes when the ore is hard, explosives like dynamite are used. The oral tradition, ethnographic information confirmed the researchers' observation of deep level reef mining at a small village called 'Gambia' near Awudua Dada and also in Prestea (Fig. 8).



Fig. 8: Deep level reef mining at Prestea (Photo by WACAM^a 2012)

Results and Discussion

Mining Operations

Field study confirms that there are two major types of gold mining operations in the research area of the Western Region of Ghana.

Large-Scale Mining

Large-scale mining is undertaken by multinational mining companies that have been given license by the Ministry of Mines and Energy to operate in the country. The Prestea area has three mining companies engaged in underground and open-cast gold mining and manganese mining. There are two main types

of mining employed by large-scale mining companies: underground mining and or opencast mining (Fig 9).

Small-Scale Mining

Small-scale (artisanal) mining has been defined differently around the world (Aryee,



Fig. 9: Open Cast Mining in Prestea (Photo by WACAM 2012)

Ntibery and Atorkui 2003: 131). Small-scale miners are people, individuals or small groups who depend on mining for a living and who use rudimentary tools, for example; picks, chisel, sluice and pans (Aryee, et al. 2003: 131). However in Ghana, small-scale mining has been defined by law as, "mining by any method not involving substantial expenditure by an individual or group of persons not exceeding nine (9) in number or by a cooperative society made up of ten or more persons" (PNDC Law 218, 1989).

Small-scale mining is an important and integral part of the economy of the Wassa people of south-western Ghana. The operators of small-scale mining with their method of extracting gold from these ores are not able to extract the maximum amount of gold unlike the large-scale miners. From an interview the researchers conducted with a local miner at Bondaye, he indicated that some of the

^aWACAM: Community Based Human Rights and Environmental Mining Advocacy NGO in Ghana

large-scale mining companies usually buy the winnings they have extracted their gold from. He said according to the mining companies, the artisanal miners because of the lack of expertise are only able to extract about 30 percent of gold from the ore. So these companies buy the waste and further extract the remaining 70 percent (Kumah 2012: 82).

The Archaeologist's perspective of the effects of mining

The steadily rising global demand for raw materials, industrial inputs, and energy have been the main drivers of the depletion and degradation of natural resources in the Middle East, South and South-East Asia (Cronin and Pandya 2009: 1) and Africa. The gold mining industry in Ghana, despite providing numerous jobs for thousands of local people and making tremendous contributions to foreign exchange earnings, has degraded the environment in a way that is increasingly becoming insurmountable. The dangers posed by mining ranges from the destruction of cultural materials, land degradation and contamination, mercury and cyanide pollution in water bodies and forest depletion.

Cultural material destruction

In the case of the Prestea area (especially Awudua Dada), when the researchers conducted an archaeological survey of ancient gold mines, cultural heritage materials such as pots, stone tools, glass bottles, that were used by earlier settlers of the area were found (Fig 10, 11a & 11b). Based on the configuration of the artefacts, it is obvious that they were retrieved from ancient mine pits which were close by. Some of the materials were partially or totally destroyed as result of the digging process of the miners.

This action, therefore, destroys both the contextual evidence and the artefacts itself, which are the very crucial data source for the



Fig.10: Local pot fragment from Awudua Dada (Photo by D. Kumah, 2012)



Fig 11a & 11b: European glass bottles and Ceramics from Awudua Dada (Photo by D. Kumah, 2012)

reconstruction of the history of the people by archaeologists. Test Excavations on the same site produced other material such as; local ceramics, iron slag, beads, European ceramics, smoking pipes, daub, faunal and floral remains. These artefacts have been dated between the 18th and 20th centuries (Kumah 2012: 160; Kumah 2013: 154-155).

In certain parts of Ghana while some miners target naturally occurring gold-bearing alluvial deposit, others also target archaeological middens, ancient burials (sometimes human remains is an indicator that they will find some finished gold objects) and features (Kankpeyeng and DeCorse 2004: 117).

Many indigenous communities in the past revere their burial places and mark them (with features – stones and vegetation) to prevent potential destruction of remains because of the respect for their ancestors. Currently, most miners are disregarding this African belief of ancestral veneration by digging these areas for gold and desecrating the dead. This act also results in the displacement of artifacts from their primary context which makes it difficult for archaeologists to use such datasets to reconstruct past lifeways.

Water Pollution

The drainage system in the research area is adversely affected by small-scale mining. Solid suspensions pollute rivers and streams during the sluicing process (Fig. 12). So is mercury which is commonly discharged into local water bodies during amalgamation.

Excavated pits (Fig. 13) are typically left unfilled and abandoned to become holders for water. Such areas become breeding grounds for mosquitoes and potential dangers to both humans and animals (Kumah 2012: 84).

Mercury is used in capturing the finest gold particles by artisanal miners. Mercury and lead, which are both toxic and bio-



Fig. 12: Water pollution as a result of the small-scale mining industry, from a mining camp at Awudua Dada (Photo by D. Kumah, 2012).



Fig. 13: An abandoned mining site filled with water and breeding mosquitoes, from a mining camp at Awudua Dada (Photo by D. Kumah, 2012)

accumulative, can threaten humans and wildlife in their natural states. Small-scale miners handle mercury with their bare hands and they inhale the fumes from the burnt mercury and dust from the crushing machines continuously into their bodies making them prone to mercury poisoning (Hilson 2001: 63) (Fig 14). Most miners in the Prestea area complained of coloured skin itching, insomnia and hypertension, all symptoms of mercury



Fig. 14: Extracting gold from the “black” with the aid of mercury at Prestea
(Photo by E. Atubouah 2015)

poisoning.

Land Degradation

The destruction of land in the Prestea area is usually caused by both large-scale and small-scale mining activities. While multinational companies are responsible for the degradation of forest lands on large scale with the aid of heavy machinery, smaller groups and individuals, on the other hand, do not also spare the environment.

Surface mining operations can have a much broader impact on the environment than underground mines because of the large amounts of vegetation, soil and rock that must be removed to expose the mineral ore. The removal of surface features by mining companies physically alters the landscape and can disrupt the ecosystem. Once removed, unstabilized piles of stored waste rock are prone to erosion, threatening local soils and waterways (Sweeting and Clark 2000: 18). Some of the effects of these mining companies in the area are the visible discharge of cyanide which pollutes both the land and water bodies (Fig 15).

Small scale miners leave behind “moonlike”



Fig. 15: The pollution of cyanide in the environment from Sankofa Gold Mines, Prestea
(Photo by D. Kumah, 2012)

landscapes consisting of unstable piles of waste, abandoned excavations and vast stretches of barren land (Fig. 16). Excavated mine pits destroy the landscape, farmlands and water bodies. When the vegetation cover is removed for a mining operation, the high levels of biomass contained in it are lost, and the fertile portion of the soil is exposed to heavy rainfall, which washes the soils into streams and rivers. Large tracts of agricultural lands are also destroyed as a result of excessive vegetation removal and disturbance of soil structure (Fig. 16). Growth-supporting topsoil is usually removed during mining, and the land is rendered virtually incapable of supporting plant growth, besides being left exposed to erosion (Aryee, et al. 2003: 135).

Socio-Cultural Effect

Mining alone has displaced over 30,000 people from 1990 to 1998, contaminated rivers, streams, destroyed farms and forestlands (Asnad 2003). Some of the socio-cultural effects in the area include; school drop-outs, migrations, a breakdown in indigenous knowledge systems and an alarming rate of social vices.

Due to the high revenue obtained from mining, a lot of children forfeit school to engage fully in the *galamsey* business. The



Fig. 16: Land degradation from small-scale mining on the road from Bondaye to 'Gambia' (Photo by D. Kumah, 2012)

researchers observed how some schools in Prestea, Awudua, Bondaye and Herman were virtually empty because most children were engaged in mining during school hours (see fig 17). There have been several public pleas from government officials to traditional rulers, opinion leaders and parents in these mining communities to encourage children to attend school.

Furthermore, the mining industry is one of the few industries that have seen people



Fig 17: A young boy operating a milling machine (*Chenfan*) used for trapping gold on a school day (Photo by D. Kumah, 2012)

with different ethnic, cultural and religious backgrounds living together in the same area. As noted by Werthmann and Gratz (2013: 11), "mining camps in Africa – as elsewhere – accommodate a heterogeneous and mobile population of varied social backgrounds". Labour migration within the West African sub-region has played a vital role in Ghana's mining industry. The industry witnessed the movement of people from Nigeria, Burkina Faso, Niger and Chad before independence (Nyame, Grant and Yakoleva 2009). In the Prestea area, there are a number of people from Burkina Faso, Togo, Nigeria, and Cote D'Ivoire actively involved in *galamsey*. Internally, many indigenous groups have been drifted in mining centres, lured, in part, by employment, economic opportunities and services that the industry provides (Nyame, Grant and Yakoleva 2009).

Without a doubt, most gold mining areas in Ghana over the years have witnessed an influx of people from various parts of the country. Populations of towns such as Tarkwa, Obuasi, Prestea, Abooso, Konongo, Damang, Kenyasi and Gbena have increased tremendously as a result of the gold mining activities in these towns.

Also, one of the characteristics that are usually associated with gold rush or boom towns is sex work. Laite observations of the American and Canadian gold rushes of the mid and late 19th century, and the gold mines of southern Africa and Kenya in the 20th century, noted that the presence of prostitutes was prominent as mining towns and mining industry developed (Laite 2009: 739). The Prestea area is no exception. The researchers observed the services of female commercial sex workers patronized at nightclubs and bars by male miners.

Environmental Impact Assessment (EIA) Vs

Cultural Impact Assessment (CIA)

Environmental activists over the years have advocated for Environmental Impact Assessment (EIA) to be carried out before mining activities can begin. EIAs usually consist of a technical evaluation of the environment (water bodies and lands), wildlife (plants and animals) that would be affected as a result of a major earth moving activity such as mining.

Though most EIA's in Ghana to some extent incorporate cultural assessments, some archaeologists, anthropologists and heritage experts (Apoth et al 2017; Apoth et al 2015, Gblekpor and Nkumbaan 2014; Kankpyeng and DeCorse 2004) are of the view that very little attention has been drawn to the destruction of cultural materials as a result of major earth-moving developmental projects in the country. Governments prioritized projects such as transportation, infrastructure, mining, and housing are mostly favoured, while no attention is given to how these policies might impact cultural and historical resources.

The Ghana Museums and Monuments Board (GMMB) which is the legal custodian of the government was established in 1969 to protect cultural heritage in the country (NLCD 387, 1969, p. 12; Kankpyeng and DeCorse 2004: 96). Many heritage scholars believe the 1969 decree is obsolete, lacks 'venom' and needs to be revised to meet the demands of the 21st century.

This has led to the proposal of a new Bill which will require companies involved in earth-moving and construction activities (including mining and road contractors) to allocate 0.001% of their project budget into a national fund for use of archaeological survey, salvage archaeology and other related heritage management programmes (Gblekpor

and Nkumbaan 2014: 313). The absence of such a law is causing mining and construction companies to destroy important sites.

The researchers in view of this, are therefore making a case for both EIAs and Cultural (archaeological / heritage) Impact Assessment (CIA). The CIA could salvage some materials before they are destroyed and lost. Cultural Impact Assessment in Prestea and other mining areas of Ghana could include; indigenous land use and tenure research, indigenous ecological knowledge research, archaeological investigations, documentation of oral traditions and histories, linguistic studies, toponymy and ethnographic studies and cultural landscape demarcation studies. It would also provide an inventory and assessment of significant historic / archaeological sites and in the long run provide bases for the framework for the protection of prehistoric and historic sites.

Conclusion

This paper identified the various mining methods employed in the Prestea area. Small-scale mining which uses the panning, shallow-pit mining, deep mining and large-scale mining. Unlike previous research conducted by some prominent scholars (Hilson 2001, 2002; Aryee, Ntibery & Atorkui 2003; Nyame & Yakovleva 2009) who examined the environmental effects of the gold mining industry on water, land and migration, the authors on the other hand, using an ethnoarchaeological and anthropological approach, gives a somewhat different perspective by accessing the socio-cultural impacts such as school drop-outs and sex work. It also uniquely examined the heritage impact of mining which is the constant destruction of ancient cultural artefacts and resources.

Finally, it is important that as a country, in our

quest for economic development, we should not only be concerned about environmental degradation but also the social, cultural, educational, migration and population implications associated with the gold mining industry not only in the Prestea area but also Ghana at large. The authors strongly believe that, in dealing with the issues of the effects of gold mining in Ghana, archaeologists should be involved in the process. This is because, archaeology is not just another university discipline which deals with the past, but it can contribute intangible values in national development which other disciplines cannot. The pride in one's past can only be facilitated if one is aware of the rich cultural heritage it has. This awareness can promote social and cultural confidence in achievements and also prevent errors and mistakes of the past.

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