BUSINESS ETHICS – SEMINAR WORK

"Gold Mining in Ghana; the Beauty and Ugliness of it"

EMMANUEL PAUL KANE

M200269

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Tomas Bata University in Zlín
Faculty of Management and Economics

ABSTRACT

There is little doubt that natural resources such as gold, diamonds, bauxite, and crude oil deposits can considerably contribute to Ghana's economic growth and development. Ghana's progress has been aided by the mining industry. For the people who live in towns where minerals are discovered, mining provides both benefits and risks, just like any other industry. The government, adjacent towns, and mining firms can either exacerbate or enhance the lives of community residents depending on how these environmental and health implications are addressed.

Ghana's developmental progress has been aided by the mining industry. For the people who live in towns where minerals are discovered, mining provides both benefits and risks, just like any other industry. The government, adjacent towns, and mining firms can either exacerbate or enhance the lives of community residents depending on how these environmental and health implications are addressed. The current study examines the environmental and health effects of mining in Ghana, combining existing research with the co-authors' recent discoveries on the causes, status, trends, and repercussions of mining in Ghana. The study examines data on mining's environmental and health effects, such as water pollution, forest degradation, soil nutrient depletion, wildlife habitat destruction, and quality reductions and hazards to human health.

The current study examines the environmental and health effects of mining in Ghana, combining existing research with the co-authors' recent discoveries on the causes, status, trends, and repercussions of mining in Ghana.

The work reviews data on environmental and health impacts of mining such as pollution of water bodies, degradation of forest resources, depletion of soil nutrients, destruction of wildlife habitat, and reduction in quality and threats to human health.

Mineral exploitation contributes significantly to economic growth and development in most world economies. In Africa, Ghana is the first largest gold producer, contributing to about 9.7% of the country’s GDP. The mining sector in Ghana consists of both small-scale and large-scale mining, each of which has varying environmental impacts. This paper provides an exposition on the environmental impacts of mining activities in Ghana. The paper mainly focused on the mining activities in Ghana. The data collection involved both primary and secondary sources

INTRODUCTION

Ghana's gold mining industry is a major business; In 2020, the country produced 5 million ounces of gold (Nevada Division of Minerals - Major Mines of Nevada 2019 publication). Mineral wealth is a valuable resource that can be exploited to boost economic growth and support infrastructural development, such as the construction of schools, hospitals, and road networks. Mining has played a significant part in the development of Ghana, which ranks first on the African continent in terms of gold production. Ghana is also endowed with abundant mineral resources. Due to substantial gold deposits in the southern districts of *Obuasi*, *Tarkwa*, and *Preistea*, it was originally known as the Gold Coast. Following independence in 1957, Ghana became known as Ghana, and the extraction of gold and other minerals continues, contributing significantly to economic development.

Mining employs almost 300,000 people and amounts for around 9.1% of Ghana's gross domestic product (GDP). Despite the positive contribution of mining to Ghana's socioeconomic progress, the negative effects of mining activities are growing. According to one study, "mine has a dismal track record in terms of contributing to ecological development, with few communities benefiting and mining sites suffering long-term negative impacts."

Many mining corporations have recently taken steps to offset the consequences of their previous activities by developing detailed impact assessment studies and ways for coping with mining's negative effects, as well as contributing to infrastructure development. The majority of Ghana's mining villages have suffered from air and water pollution, as well as other forms of environmental deterioration, as a result of mining operations. The majority of residents in mining communities are poor and live in rural areas with limited access to essential services such as health care and clean drinking water.

OBJECTIVE

The goal of this seminar paper is to examine the ethical issues on the environment, people and other stakeholders that occur as a result of Ghana's mining industry. The ultimate purpose of this paper is to identify mining-related actions and policy choices in Ghana that will improve environmental quality and human health.

STAKEHOLDERS

The long tradition in the extractive sector has enabled Ghana to build an institutional framework and organizations to support the mining industry. The key organizations include the *Ministry of Mines and Energy,* the *Minerals Commission,* the *Geological Survey Department,* the *Chamber of Mines,* the *Mines Department,* the *Environmental Protection Agency, Lands Commission, Land Valuation Board and* the *Forestry Commission*. These organizations provide support to ensure optimal exploitation of the country's natural resources.

In Ghana, the Minerals and Mining Law of 1986 establishes the overall legal framework for mining. This law established the royalty and corporate tax rates in this business; however, as Ghana transitioned to a constitutional system, it was revised in 1994 and 2005. The reforms aimed to reduce corporate tax and royalty rates while also reducing the length of mining leases. In addition, following the legalization of small-scale mining, three new mining laws were enacted. The Small-Scale Gold Mining Law, the Mercury Law, and the Precious Mineral Marketing Corporation Law were the three laws in question. The Small-Scale Gold Mining Law regulates small-scale gold mining registration, licensing, and the development of assistance centers.

The Precious Minerals Marketing Corporation Law provides formal marketing services for small-scale gold and diamond miners and promotes commerce in precious metals, diamonds, and jewelry in and beyond Ghana, while the Mercury Law legalizes the purchase of mercury for mining purposes.

The Ministry of Lands and Natural Resources and the Mineral Commission are the two key authorities in Ghana with direct supervisory and oversight responsibility for the mining sector. In Ghana, the Ministry of Lands and Natural Resources is in charge of all mineral resource exploration. It develops policies and issues mining and mineral exploration licenses. The Mineral Commission, created under Article 269 of Ghana's 1992 Constitution and the Minerals Commission Act of 1986, is the country's primary regulatory body for mining. It is responsible for enforcing the Mining Act, recommending mineral policy, supporting mineral development in the country, and advising the government on mineral-related problems. It also ensures that mining and mineral laws and regulations are followed. It falls within the Ministry of Mines' jurisdiction.

The Environmental Protection Agency, the Geological Survey Department, the Mines Department, the Lands Commission, and the Chamber of Mines all assist these institutions. The Environmental Protection Agency (EPA), which was founded in 1994 by the Environmental Protection Agency

Act, is in charge of all environmental matters in the United States. This agency develops and implements environmental policies and ensures that environmental laws and regulations are followed.

The EPA's Mining Section oversees the mining industry directly, with main responsibilities include processing environmental licenses and certificates, monitoring mining activities, conducting environmental assessments, investigating mining-related complaints, and raising environmental awareness. The Geological Survey Department assists the government and the mining industry with geological studies. The Mines Department is in charge of ensuring that mining businesses comply with health and safety inspections regulations. The Lands Commission keeps legal records of all mining permits that have been issued and reviews all new applications. The Chamber of Mines is a trade group for mining firms that is responsible for responding to the immediate needs of all stakeholders within its jurisdiction.

Small-scale mining was deemed unlawful and unregulated in Ghana before 1989. The government endeavored to modernize and formalize the sector as part of the Economic Recovery Programme (ERP) by enacting the Small-Scale Gold Mining Law (PNDC Law 218). Despite this progress, only a few small-scale mining craftspeople are officially recognized. As a result, the majority of artisanal miners are unregistered and work illegally, making it impossible to monitor their activities and enforce mining restrictions. Despite the fact that the Minerals Commission needs persons to register in order to be granted specific operating zones, the bureaucratic nature of the registration procedure frustrates many of them.

TYPES OF MINING

The mining sector of Ghana is divided into two broad approaches due to differences in mode of extraction, legality of operation, quantity extracted, and extractive volumes: large-scale legal mining and small-scale illicit "*galamsey*" mining.

Large-scale mining, often known *as lawful mining*, accounts for more than 95 percent of total mineral production and employs around 2.5 million people worldwide. There are roughly 16 gold mines, one bauxite mine, and one manganese mine in Ghana, which are operated by 19 significant mining corporations. These businesses are mostly privately owned, with the government holding a 10% free share and an optional 20% stake. Ghana's government is devoted to advancing the interests of these large-scale mining firms.

NEGATIVE CONSEQUENCES OF MINING

In most mining operations, there are three stages: mining, processing, and mineral conveyance, and water is used in all of them. Large-scale mining necessitates the use of sophisticated technology, and water is utilized to cool cutting edges and prevent friction ignition. For these operations, water is frequently carried from neighboring watercourses. Surplus mining water can be processed and reused, or it can be dumped into surrounding bodies of water. However, most mining corporations simply release untreated water back into rivers due to the high cost of treatment.

HEALTH IMPACT

According to Ahern and Stephens, mining remains one of the world's most dangerous occupations, not just in terms of short-term damage and death, but also in terms of long-term effects such as malignancies and respiratory diseases such as silicosis, asbestosis, and pneumoconiosis. A disaster struck the residents of Dunkwa-on-Offin in the central area, when a "galamsey" pit collapsed in along the Offin River, burying several people. That single accident claimed the lives of almost 100 miners. Approximately 136 "galamsey" machinists were working in the pit when the tragedy occurred on June 27, 2010, according to reports. The rescue attempt, which was impeded by rushing water from the Ofin River, retrieved about 13 bodies. Attaso, near Kotokuom in the Ashanti Region, had another catastrophe, with at least 12 "galamsey" workers trapped in a collapsed pit. The pit yielded nine bodies, which were recovered.

The Ghanaian Times reported an upsurge in kidney illness cases, and according to Dr. Amoako Atta (director of the Komfo Anokye Teaching Hospital's renal unit), illicit miners' usage of mercury is a contributing factor. Mercury was found in the environment as a result of its use in the gold recovery process, where the inorganic form of the metal is either washed into rivers or quickly evaporated into the atmosphere, according to a study done by the Centre for Environmental Impact Analysis. The mercury levels measured in fish were three times greater than those considered safe by the US Environmental Protection Agency (USEPA). Chemicals in the river can also be detrimental to the skin and the human body as a whole. The renal system, neurological system, gastrointestinal tract, and respiratory system are all affected by mercury. Small-scale mining operations in Ghana are predicted to release 5 tons of mercury each year, according to one assessment. Buruli ulcer is endemic in communities near mining activities in Ghana, suggesting

that proximity to artisanal and small-scale gold mining (ASGM) is a risk factor for this disease, as seen by the greater prevalence of Buruli ulcer in the *Amansie West District*. In a case-control study in Ghana, an increased risk of infection was not linked to direct engagement in mining or contact with mine pit water, but land use changes related with ASGM operations, such as streambed disturbances, have been hypothesized as a mechanism for the spread of Buruli ulcer.

Illicit substances (marijuana and cocaine) are commonly used as stimulants to assist workers to work longer and harder, especially among AGSM miners in Ghana. Hearing loss and silicosis are two more health and social consequences of mining activities, which are caused by blasting and drilling events and the resulting noise and dust, which have become irritants in mining areas. At *Kyekyewere*, near *Dunkwa*, sixteen "*galamsey*" operators, including two women, were confirmed dead when a chunk of earth collapsed on them, according to the Ghana News Agency. They were thought to have disregarded instructions to keep away from a remediated mining site. Hundreds of miners have perished in Ghana as a result of unsafe working conditions and unregulated land digging at illegal mining companies.

ECONOMIC IMPACT

There could be as many as six million artisanal miners worldwide if all mining activities in Africa and Asia are counted. While specific estimates for the number of small-scale miners in Ghana are unknown, it is estimated that around 100,000 Ghanaians are lawfully involved in the industry. Ghana's mining sector earns 41% of the country's foreign exchange and is the country's largest foreign exchange earner. Gold now generates over US $600 million yearly, accounting for 90% of total mineral productivity, and has displaced cocoa as Ghana's main source of foreign cash. Increased mining investment as a result of Ghana's economic changes has various advantages. Mining is the country's primary source of foreign cash, giving a significant amount of government revenue, a source of income, and social infrastructure to the populace, as well as direct and indirect employment and community development in mining areas.

ENVIRONMENTAL IMPACT

The environment and natural resources are vital to the Ghanaian people, as their livelihoods rely on continual and direct connection with the environment. Land, agricultural, water, air, and noise pollution are among the environmental impacts and natural resources addressed in this study for

measuring the impacts of mining activities in Ghana, as these have a significant impact on people's quality of life in Ghana.

WATER POLLUTION

Mining has an impact on freshwater because of the extensive use of water in ore processing, as well as contamination from mine waste discharged into the environment and seepage from tailings and waste rock impoundments. Human activities such as mining are increasingly threatening water sources. "Water is mining's most prevalent victim," according to some. The environmental legacy of mining activities that were carried out with little or no consideration for the environment is becoming more widely recognized. Mining depletes, diverts, and potentially pollutes water resources by its very nature. Acid mine drainage, heavy metal contamination and leaching, processing chemical pollution, and erosion and sedimentation are the four main forms of mining impacts on water quality.

Water resources in the Obuasi Municipality have been found to be severely depleted, according to studies. The majority of streams, rivers, and other sources of water have been polluted with chemicals or have dried up. According to the Obuasi city development report, mining and other human activities have polluted all of the major streams and rivers (*Kwabrafo, Pompo, Nyam, Jimi, Akapori, Wheaseammo,* and *Kunka*). There are no fishing activities in the *Kwabrafo* River, according to Yeboah's discussion with an agricultural extension official, because all fish species have died off owing to toxification. There have also been complaints regarding the boreholes' upkeep and the quality of the water that is pumped from them. Residents in *Sanso* and *Abompe*, for example, complained about poor-quality water pumped from the borehole, alleging that it had been poisoned by subterranean chemicals.

Small-scale miners typically work along riverbanks, eroding riverbanks and causing them to overflow during severe rains. Recent flooding in mining areas has been caused by this circumstance. Water floods uncontrollably into nearby homes and surroundings, ruining property and human lives. To create a place for mining operations, the natural routes of most rivers and streams are altered and, in some cases, obstructed. While stream diversions in regions of established large-scale mining take environmental factors into account, the extent to which these considerations are taken into account is debatable. Some stream diversions are required for development, however factors including the greatest likely flood occurrence, diversion channel

dimensions, and flow issues must all be considered. These restrictions are not strictly monitored or enforced, and small-scale miners' diversions are random and ad hoc. The natural path of the river has been greatly disrupted due to mining activities near the river, according to stakeholders in *Tarkwa*. According to a key informant from the Ghana Water Company at the *Bonsa* intake locations, "the dirt is heavily scraped and processed for gold, after which trash is abandoned in and around the river," as reported by several stakeholders. The river has also been reported to be opaque brown in hue, which the respondents claim was not the case previously. Due to the pure color of the water, some residents around the river reported that in the years prior to illicit mining activities along the river, farmers used to drink the river water straight without treatment.

In the *Tarkwa-Nsuaem* Municipality, *Prestea Huni Valley* District, and *Cape Coast Metropolis* in Ghana, the Centre for Environmental Impact Analysis (2011) produced a study on "Human Health Risk Assessment and Epidemiological Studies from Exposure to Toxic Chemicals." Oral ingestion and dermal contact with water and soil/sediments samples, as well as oral ingestion of cassava contaminated with toxic chemicals such as arsenic, cadmium, cobalt, copper, lead, manganese, mercury, and zinc, resulted in elevated levels in whole blood and blood serum in residents in the *Tarkwa-Nsuaem Municipality* and *Prestea Huni Valley* District, as compared to residents in the *Cape Coast* Metropolis.

Unfortunately, the *Pra, Ankobra,* and *Birim* Rivers, as well as other water sources on which people along these lengths of the river rely, are highly contaminated, and local communities can no longer rely on them. Domestic water supply is a high priority for most countries with a high human development index (HDI), but water for agriculture is a high priority for countries with a low HDI due to food security and water availability difficulties. Small-scale mining operations, particularly illegal mining, have an impact on water quality and raise the cost of water treatment for water companies that treat water for public consumption. When pollution is severe enough, substantial amounts of chemicals are required to treat the water, which can compromise the quality of drinking water delivered to the public, leaving water corporations with no choice except to shut down operations.

LOSS OF AGRICULTURAL LAND AND VEGETATION

Andre and *Gavin* stated that gold mining in Ghana benefits the national economy, but that at the local level, individual communities face a slew of environmental problems, including agricultural

devastation. The Newmont Company's mining activities, particularly excavations in *Kenyasi*, have had an impact on the surrounding area, according to Opoku-Ware. In *Tarkwa*, "the massive scale of excavation has resulted in a complete change of land form suitable for agricultural and any other livelihood activity," according to the report. Although not all of the surrounding area has been damaged by mining activities in *Kenyasi*, the local mining corporation has set aside a considerable amount of arable and farmland for future mining. The majority of the farmers interviewed had lost their farmland due to mining. The Newmont Company's mining operations are limited to only a few regions, despite the fact that those areas have been excavated and vast pits built for mining.

Newmont has excavated three important pits, and masses of sand from the pits now blanket enormous sections of land that can't be used for anything else. According to the research, their actions are not supported by any expert assessment of gold-bearing land and rocks, and as a result, they destroy land resources. Domestic food production in the *Obuasi* municipality is insufficient to meet the demands of the entire region. Farmland in the vicinity has either been set aside for mining activities or has been deteriorated, according to respondents. The loss of top soils, trees, and vegetation with heavy gear excavating for gold resources has resulted in land degradation. This has depleted the soil's nutrients and rendered it unfit for agricultural use.

As a result, there is now very little farmland available for agriculture. Chemical contamination from mining activity has poisoned much of the remaining land. Due to mining activities, cyanide and arsenic are prevalent in land used for agriculture, according to an official from the Ministry of Food and Agricultural Directorate in Obuasi (surface mining). Because these lands are no longer productive, they are no longer exploited for such operations. **Sanso, Apetikoko, Dokyiwa**, and *Ahansonyewode* are among the communities affected. Tailings dams occupy large areas of land in localities like *Binsere, Kokoteasua, Abompe*, and others, in addition to the Yeboah study. These allegations were backed up by observations on the ground.

Farmers who have been displaced find alternate land by renting land or clearing surrounding forests. Even if farmers are able to obtain other land, their land holding status, farm size, and production may suffer. Farmers who were once landowners may become tenants and must cultivate smaller farmlands as a result of the loss of acreage.

AIR POLLUTION

Opoku-Ware reported that air pollution in the *Kenyasi* community mainly comes from the dusty untarred roads that are continually used by Newmont's heavy-duty vehicles for transporting machines and other equipment to the mine sites. Chemical gases, fumes and smoke are not readily visible at the mining site, but during blasting, dust fills the atmosphere for some time. Chemicals used in the blasting process are also released into the atmosphere and the community has been prohibited from using rainwater. Although Newmont has responded to the complaints of air pollution from dust and untarred roads by periodically sprinkling water on the roads, this is not done regularly. According to the majority of responders, the condition is connected to a rise in respiratory illnesses such as flu and cold (*catarrh*). "All fine dust at a high degree of exposure has the potential to induce respiratory diseases and disorders, and can aggravate the health of those with asthma and bronchial stiffness," according to the report.

NOISE POLLUTION

Most Ghanaians did not consider noise to be a kind of pollution until recently. The inconvenience it causes, however, has drawn the notice of local officials. Most companies that use heavy equipment now have noise pollution rules in place, and the noise emission levels of machines are routinely monitored. The Newmont plant site, on the other hand, makes very little noise. Noise pollution in the village is mostly caused by blasting at the mine, and this noise is so loud that building foundations in the *Kenyasi* community are constantly disturbed, and fractures can easily be seen on most of the community's structures. Respondents complained that noise from heavy duty trucks belonging to the Newmont Company is another major source of noise pollution in *Kenyasi*, and that these heavy trucks are destroying the few tarred roads in the area, and that the noise they make when passing through the community is an annoyance. Due to the frequent nature of this traffic, individuals in the neighbourhood are more upset by the noise from heavy duty vehicles passing by than the noise from the blasts, according to Opoku-Ware.

CSR INITIATIVES

The Chamber of Mines has enacted a policy requiring member businesses to set aside a minimum of US$1 every ounce of gold earned, as well as one percent (1%) of their net earnings, for community development. Apart from conforming to this guideline, mining firms in Ghana also

participate in community-based sustainable development projects in their catchment regions on a voluntary basis. Mining corporations alone invested US$26 million in community sustainable development programs in various areas in 2012. To these mining companies, sustainability is significant when it comes to CSR initiatives. That is why most of their projects are in the long term. *Chirano* Gold Mine recently launched a US$ 5.5 million four-year malaria control programme to help bring down the disease in its operational area. The malaria control programme covered 13 communities in the catchment area of *Chirano* Gold mine.

The case is not different with AngloGold Ashanti as they also launched a malaria eradication programme earlier this year. The malaria eradication programme which was earlier scheduled to cover five districts in the Western Region now cover 40 districts across the country. The five districts including *Ahanta* West, *Tarkwa Nsuem*, *Prestea-Huni Valley*, *Ellembelle* and *Axim* was solely financed by AngloGold at a tune of US$ 9 million

Insecticide was sprayed inside buildings to eliminate malaria-carrying mosquitoes as part of the initiative. The Global Fund authorized US$130 million funding to enable AngloGold Ashanti to expand the plan over a five-year period, based on the success story in the five areas. By the end of the year, it is projected that over two million people would have benefited from the malaria control program.

In addition, the Ghana Manganese Companies Ltd provided US$200,000 to the University of Mines at Tarkwa (UMaT) to help build hostels. They also brought electricity to the *Tarkwa-Benso* hamlet and rebuilt feeder roads for the *Akyempim* residents.

Sandvik Mining invested US$590,000 on technical training at the UMaT and a little over US$62,000 between 2009 and 2011 to rebuild the Tarkwa Midwifery Training School's dormitory complex as part of their CSR program.

In the first quarter of 2013, Newmont Ghana supplied 1,250 solar lamps to basic school pupils living near their water storage facility and resettlement villages in the *Asutifi* North District of Brong Ahafo at a cost of US$ 25,000. As part of its social responsibility, Newmont built a two-unit nurses' quarters for the inhabitants of *Yawusukrom* at a cost of GH? 55,000. Gold Mines Bore holes have also been dug in communities that are part of Ghana's catchment region. The residents' lives have improved since they now have access to potable water. Goldfields Ghana has so far committed $20 million in various development projects in the communities where it operates.

Golden Star Resources' community development projects include the Golden Star Oil Palm Plantation (GOSPP) foundation, which aims to promote oil palm plantations in the company's catchment areas. Agri-businesses, according to Golden Star, may be used to alleviate poverty and create prosperity. Over 200 small-holder farmers and 242 part-time contract laborers now work for the GOSPP.

RECOMMENDATION

To reduce the environmental and health dangers created by mining in Ghana, *Mihaye* suggests the following:

(a) Collaboration among governmental agencies; to address the multifaceted challenges confronting the mining sector, an integrated approach involving all relevant stakeholders is required;

(b) Formation of small-scale mining associations; small-scale miners should form associations that interact regularly with all stakeholders in the mining sector.

(c) Alternative water sources; the various assemblies must offer alternative sources of treated drinking water for the affected areas; Miners should also be prohibited from mining near water bodies to prevent further pollution of surrounding rivers. This necessitates the tight enforcement of mining legislation to guarantee that suitable mining processes are followed;

(d) Environmental and health hazards education; in order to reduce the negative effects of small-scale mining on the health of mining communities and the surrounding environment, community members must be educated on environmental and health effects such as water pollution and land degradation caused by mine operations.

CONCLUSION

Mining is tremendously essential to Ghana's economy and a substantial contributor to its GDP, and it employs a large number of people. However, as outlined above, mining has a number of negative consequences. Malaria, skin infections, diarrhea, fever, colds, and catarrh are among the health effects of mining on nearby communities. HIV/AIDS infection can also be contracted by people who are participating in or affiliated with prostitution in mining areas. Noise pollution from mining centers, pollution of water bodies by chemicals such as arsenic, mercury, and cadmium from mineral refining, contamination of agricultural soils by heavy metals and other pollutants,

resulting in depletion of agriculture land, reduction in food productivity due to infertile land, and depletion of wildlife due to clearing of forests that serve as habitat for many animal species are some of the environmental impacts.

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