Topic: The Environmental Impact of Artisanal Gold Mining in Ghana: Unveiling the Silent Killer.

ABSTRACT

Ghana is richly endowed with gold and it did not take long for the colonial masters to recognize this and therefore decided to call the land the GOLD COAST. Gold has therefore been mined here since pre-colonial times.

Mining has a tremendous positive impact on the economy of many countries, and Ghana is no exception. The sector has provided enormous employment opportunities and income generation to the indigenes and some foreigners. It is worth noting that commercial scale mining provides employment and skills transfer to more than 2 million workers in Ghana.

Gold mining took many forms starting from the scooping of gold rich river beds for alluvial gold to the current day sophisticated surface and underground mining. Currently, gold mining in Ghana can be categorized into three main types, namely: alluvial mining, mining of shallow pits or surface mining, and deep shaft mining. Alluvial mining is most widespread, and practised along the banks of the Ankobra, Offin, Pra, Tano and Birim Rivers.

Mining in Ghana can also be classified into, Large scale mining, Small scale mining and Artisanal or Illegal gold mining popularly called Galamsey (an adulteration of the term “gather them and sell”).

These categories of mining have their individual levels of sophistication, where the large-scale mining usually involves sophisticated technology and labour-intensive underground mining, until recently, when attention in the sector is turning to capital intensive surface mining.

The small-scale mining sector uses less sophisticated techniques. According to the Minerals and Mining Act 2006 (Act 703) of Ghana, the sector is defined as the mining of gold by any effective and efficient method that does not involve substantial expenditure by an individual or group of persons not exceeding nine in number or by a co-operative society made up of 10 or more people.

The illegal gold mining sector, referred to as GALAMSEY is actually a small-scale gold mining practice. With the sector, the miners work under archaic and difficult working conditions and live in poverty, often receiving less than 9% of the retail price of the stones they extract.

The sector has evolved from the artisanal stage through the use of rudimentary equipment such as; shovels, pick axes and sluice boards to currently semi-mechanized operations involving the use of equipment such as excavators, bulldozers and washing plants.

The techniques involved in each method have their levels of associated effects which can be considered under: Socio-economic, Environmental and Health impacts, since these effects usually impact on human lives, soils, water and air. Loss of human lives is one critical concern as far as gold mining is concerned.

With soil, the main issues are destruction of farms and farmlands. Forest reserves are also currently under threat, as miners especially illegal miners venture into such areas without any authorization. Cash crop farms especially cocoa farms are being destroyed by these gold seekers.

Rivers and streams in the mining communities are being heavily polluted with mine wastes, depriving the indigenes of safe drinking water. Urban populations are equally threatened as it is becoming increasingly difficult for the Ghana Water Company to adequately treat such polluted water at reasonable cost for consumption.

Air quality is affected in many mining communities where rock grinding and use of explosives are rampant.

Several lives have been lost as a result of miners’ inability to use modern and safe techniques in mining. Pits usually give in leading to the death of several miners.

Though these effects are easily noticeable and given attention by the statutory institutions, heavy metal pollution especially mercury pollution which is one of the main environmental effects of mining, has little or no records of any such attention.

It is a known fact that heavy metals bioaccumulate in body tissues thereby disrupting the functions of vital organs and glands such as the heart, brain, kidneys, bone, liver, etc. They displace the vital nutritional minerals from their original place, thereby, hindering their biological functions.

They may enter the human body through food, water, air or absorption through the skin when they come in contact with humans in agriculture, manufacturing, pharmaceutical, industrial or residential settings.

Mercury, the main extractant used in small scale gold mining is usually abused most. The danger is, the metal speciates through many transformation processes in the environment and these are controlled by

various physical, chemical, and biological factors. Depending on the prevailing environmental conditions, inorganic mercury species may be converted to the many times more toxic methylated form, such as methylmercury, a potent neurotoxin that is readily accumulated by aquatic biota.

With these transformations well established for the metal, a common saying goes that, “MERCURY NEVER DIES”. Thus, the metal is rather converted to the more toxic and stable forms in the environment and persists forever.

It is observed that the critical target organ for elemental mercury is the adult and fetal brain, while the critical target organs for methylmercury are the brain and the kidneys. With this background information, mercury is known to cause the following effects in humans: Deterioration of the nervous system, Impairment of hearing, speech, vision and gait. It also causes involuntary muscle movements, chewing and swallowing difficulties, corrodes the skin and mucous membranes.

Ultimately, mercury contamination is known to result in the following conditions in fishes, birds and mammals: Reduced reproductive success, Impairment of growth and development; Liver and kidney damage and neuro-behavioral effects and Death.

This lecture seeks to draw attention to this missing link (Mercury pollution associated with illegal gold mining) by exposing the many ways in which heavy metal exposure affects human lives, and eventually leading to possible death.

The Lecture will draw attention to the fact that most of our mining communities are polluted with heavy metals, especially mercury and this is based upon the extensive field studies done in some of these mining communities.

Recommendations drawing attention to this menace and call to treat the issue with the seriousness it deserves will be made.