

Measuring the negative effects of illegal mining on water bodies in Ghana (A case study of Kenyase in the BrongAhafo Region)

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ABSTRACT

Mining activities accelerate the rate and degree of changes in the natural environment. These activities modify landscapes and can have short and long-term impacts on communities and water resources due to their physical degrading nature, as well as the use of chemicals and other harmful substances. The purpose of this study is to examine the negative impact of illegal mining on water bodies, to assess the health implications and to evaluate the economic outcomes using Kenyase district in the BrongAhafo Region of Ghana as a case study. Again, it looks at the role played by authorities concern such as the Environmental Protection Agency (EPA) and the Ministry of land and Natural Resources in protecting the land and water bodies in Ghana. The study reveals that farmers and inhabitants in the communities face several challenges ranging from pollution of water bodies, spread of diseases, erosion and climate change, low crop yield and land degradation. The study further gives suggestions and recommendations to avert illegal mining to safe our land and water bodies.

1. Objectives

The main objectives of the study are to:

1. Examine the negative impact of illegal mining on water bodies in Kenyase.
2. To assess the health implication and risk as an outcome of the contamination of water bodies.
3. To evaluate the economic ramification as a result of illegal mining.

2. Introduction

Ghana is endowed with many natural resources such as gold, manganese, bauxite and diamond. Coakley (1999) posited that, Ghana places an enviable position in the mining sector in Africa being the second largest gold producer apart from South Africa, the 3rd largest producer of aluminum metal and manganese ore and produces considerable amount of bauxite and diamond. The mining sector plays a significant role in the Ghanaian economy as it attracts more than half of foreign direct investment (FDI), generates more than one-third of all export revenues, is the largest tax-paying sector in the country and makes a significant input to gross domestic product (GDP) as well as employment creation.

Ghana's mining production is largely driven by gold, contributing more than 95 per cent of the country's total mineral revenue (Ghana Chamber of Mines, 2015). The other commercially exploited minerals in Ghana include manganese, bauxite, and diamonds. Besides, the country is also gifted with many more under-exploited deposits of iron ore, limestone, silver, columbine-tantalite, feldspar, quartz and salt (Ghana Chamber of Mines, 2006). In spite of the gargantuan benefits of mining, unapproved and authorized mining activities has some dire negative consequences on the economy of any nation. Majer (2013) posited that reports of destruction of

forest, loss of habitation and biodiversity as a result of mining activities has been documented.

Agencies and authorized bodies such as ministry of lands and natural resources and Environmental Protection Agency (EPA) has been slow in their work to salvage this all important canker that has plague our country. They attribute this to lack of financial resources, human resources, lack of equipment and threat to the security of the personnel by the illegal miners.

Mining is said to be illegal when it is practiced without permit or in unapproved areas like the forest reserves, game reserves or near water bodies, even with a secured permit (World Bank Group Department, 2002). Illegal mining locally known as "galamsey" in Ghana, has been given a lot of media publicity lately, and has created public concern on the immeasurable damage it has caused to forest cover and water bodies. Barning (2002) contend that, illegal mining is a practice that involves rudimentary techniques of mineral extraction, highly manual processes, hazardous working conditions, and frequently negative human and environmental health impacts.

Adjei (2012) contend that, mining activities affect the rate of contamination of water resources due to their physical degrading nature, as well as use of chemicals and other harmful substances. This implies that the quest to explore mineral resources, whether small or large-scale, poses a threat to the water resources (surface and groundwater resources). This view appears to be supported by Gardner et al. (2015) who postulate that, the use of water in mining has the potential to affect the quality of surrounding surface water and groundwater which is often cited as a major concern among stakeholders. Along the same lines Galaz (2005) deliberates that mining operations, whether small or large scale, often involve the use of water which impacts water resources, even in the long term after the closure of the operations.

Similarly, the Commission of Human Rights and Administrative Justice (CHRAJ) in 2008 emphasized that, many rivers and streams which hitherto, provided water for the mining communities have been destroyed, polluted or dried up.

Illegal small-scale mining has been identified as a major factor militating against sound environmental practices in the mining industry through the discharge of mercury and other pollutants into streams and rivers. This is consistent with the study of Nasirudeen, (2015) who indicated that, However, the 'reckless spillage of cyanide by large mining companies also contributes enormously to the pollution of rivers and streams within these areas, thus posing threats to human existence and aquatic life. It is against this background that this study sought to examine the negative effect of illegal mining on river bodies in Kenya in the BrongAhafo region of Ghana.



Pictures of illegal mining (galamsey) sites

3. Research Methodology

The qualitative or interpretivism paradigm is selected as a research philosophy and approach. Remenyi et al. (2005) posits that qualitative paradigm hold distinctive perspective aimed at advancing expertise, concentrating on descriptive and subjective paradigms in dealing with arduous circumstances. The study is applying descriptive research design based on secondary data. The data collection tools used were journals, books, reports, articles and websites.

4. Findings

This study reveals important empirical results that make a significant contribution to clarifying the question of illegal mining on water bodies.

1. The study reveals that one major negative impact of illegal mining is the pollution of water bodies. Water bodies are polluted with mud, mercury and cyanide.
2. Illegal mining poses challenges such as pollution of rivers and water bodies both surface and underground which serve as sources of drinking water and for irrigation in many mining communities.
3. Another problem associated with illegal mining is the escalation of diseases as a result of unsafe drinking water.
4. Many communities in the rural areas, tend to use the same polluted rivers. They drink, bath and perform all tasks with the polluted water risking their lives and contracting diseases such as cholera, dysentery, fever, among others.
5. With the emerging threat of climate change, land degradation, deforestation, and preventable disasters, water availability and accessibility is going to be a key issue in the next couple of years.
6. With the rampant activities of illegal mining, many farms and agricultural lands are being polluted with traces of mercury and other chemicals; uncontrolled excavation of soil causes soil erosion, loss of and soil fertility.
7. Another important result of the study is that, it also leaves death traps for miners themselves and other individuals as a result of miners failing to land reclamation after mining.
8. The water bodies and land cannot be used for its original intended purpose

5. Suggestions

Ghana's highest potential for short to medium-term growth and development lies on mineral resource endowment, therefore more needs to be done in relation to sustainable mining practices.

1. Water is life and a universal basic right, thus it is recommended for water related planning. The country should double its effort in water accessibility through integrated water resource management at all levels of the economy. Thus any attempt to deny people of such precious resource should be tantamount to crime and infringement of human rights.
2. There is the need for both infrastructural investment and institutional change to address drought related stresses, flood events, water quality issues and growing demands for water.
3. It is thus recommended, for government, NGOs, environmentalist and all stakeholders to take keen interest to protect and preserve all our water bodies for sustainable development.
4. There is a need for broader structuring of mining laws and contracts by stakeholders to ensure that miners have the right requisites for their job.
5. Also the local residents in the mining areas should benefit substantially from mineral revenues to enable them to fight poverty and prevent them from irresponsible mining.
6. There should be public campaigns to educate the people against illegal mining.
7. Mining companies should give weight to water management and treatment so as to improve both

water quality and quantity as well as protect aquatic ecosystems in the communities in which they operate.

8. The Environmental Protection Agency (EPA) and ministry of land and natural resources should also strictly enforce primary jurisdiction over mining operations within the borders of Ghana and control water pollution from miners on case study basis through implementing permit and license.

We urge the Ghana Chamber of Mines, the government and all stakeholders including the citizens to think of better ways to help solve this menace; otherwise we will wake up one day to find out that we do not have any potable water because all the water bodies, as well as our ground water, have been polluted through the unbridled activities of these illegal miners.

6. Conclusions

The problem of illegal mining has been a matter of concern for a long time but it appears the challenges have been enormous and visible in recent times. This paper has attempted to outline the challenges associated with small scale mining, potential impact on water for domestic and irrigation purposes; illegal mining processes and impact on environmental resources. The suggested solutions outlined are some of the possible ways to address the issues of illegal mining activities on water bodies in Ghana. The question then is: should illegal mining (galamsey) activities continue at the expense of the scarce water resources and the environment?

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