

THE REPERCUSSIONS OF MINNING ON THE ENVIRONMENT OF GHANA AND FEASIBLE SOLUTIONS

*Nadiya Kostyuchenko, Opoku Sampson Boampong
Sumy State University, Sumy, Ukraine*

Small-scale mining is delineated to include both the exploitation of mineral deposits using fairly rudimentary implements at low levels of production with minimal capital investment (often characterized by lack of insufficient knowledge, education and techniques, structured administration and management also capital). While the large-scale mining, particularly gold has become predominant, small-scale mining, which predates such operations, has continued to be an important economic activity, principally within the far-flung areas of countries which can boast of gold. The minerals being mined in Ghana are gold, diamonds, bauxite and manganese, but the most dominant mineral commodity is gold. Small-scale gold mining in Ghana alone is reported to produce more than 400,000 ounces annually. Apart from gold and diamonds, other small-scale activities serving for employment for a lot of people are salt, kaolin, silica, sand, brown clay, aggregates and crushed rocks.

Small-scale mining was a respected tradition in Ghana for centuries, but became a persecuted profession after the British colonized the region in the early 19th century and banned the practice. Ghana's independent government legalized small-scale mining in 1989, but the government grants few mining concessions to peasants, forcing most people to mine illicitly. Small-scale mining in Ghana consists of groups of 8 to 15 people using the most rudimentary concentration methods followed by the extraction of gold using highly toxic mercury, the use of which has been outlawed worldwide. The crude mining techniques used are hazardous to them and their environment and expose the entire population of the country to mercury-related illnesses. This problem is not restricted to Ghana but is worldwide in scope.

You can see some data from a global report by Mining, Mineral and Sustainable Development (MMSD) on Small Scale Mining below:

Country	Total number of workers in thousands
Bolivia	72
Brazil	10
Burkina Faso	100-200
China	3000-15000
Ecuador	92
Ghana	200
India	500
Indonesia	109
Malawi	40
Mali	200
Mozambique	60
Peru	30
Philippines	185.4
South Africa	10
Tanzania	550
Zambia	30
Zimbabwe	350

Since the enactment of the Small Scale Gold Mining Law in 1989, which effectively legalized small-scale gold mining in the country, industrial operations, collectively, have made important contributions to national gold output, foreign exchange earnings and employment. Accompanying this pattern of socio-economic growth, however, have been increased environmental complications – namely, mercury pollution and land. The removal of the forest cover is rapidly drying up rivers and streams, leading to the extinction of river hosted animal and plant species. Surface mining represents a serious threat to the last vestiges of Ghana's forest resources and threatens the rich biodiversity of the country's tropical rainforest. There is a growing conflict between sustainable forest management and mining activities.

The process of mining and processing of the mineral involve activities which give rise to various environmentally-related diseases. During the process of mining, toxic chemicals such as cyanide, arsenic, sulphur dioxide and gases are produced with very serious health consequences on the residents of the affected communities. Not only are water sources polluted this way, but poisonous gases are also released freely into the atmosphere giving rise to pulmonary diseases such as tuberculosis and silicosis. Mining-related diseases which have been on the increase since the inception of surface mining include acute conjunctivitis, schistomiasis, mental cases, boils and other skin diseases, and mining related malaria.

Protected species such as the Red River hog, the roan antelope, the red Colobus monkey and the black Colobus monkeys are some of the species associated with tropical rainforest. At the community level, the threat to ecological biodiversity has economic implications. Increased mining activities in the area have partly led to the reduction or extinction of certain flora and fauna species that the communities depend on. Many communities complain that snails, mushrooms, medicinal plants, etc. are no longer available in the area due partly to mining activities gradation.

In general environmental effects can be categorized under the following: Mercury pollution, Cyanide pollution, Direct dumping of tailing and effluents into rivers, improper construction of tailing dams, acid rock drainage, improper closure, river siltation, erosion damage and deforestation, landscape destruction, garbage and solid waste, tropical diseases (malaria), cultural damage due to invasion of sensitive tribal lands.

The Ghanaian Mineral Commission has been burdened with most of the jurisdictional responsibilities related to small-scale mining, but with a diminutive staff working with a pool of highly insufficient research resources lack of control and enforcement, inadequate environmental legislation, economic limitations, it is clearly incapable of facilitating sufficient environmental improvement on its own.

It is concluded that marked environmental improvements can only be achieved if:

- 1) assistance is provided to the Minerals Commission from local governmental bodies and academic units;
- 2) industry-specific environmental management tools and strategies are designed and implemented;
- 3) concerted effort is made to prospect for deposits suitable for small-scale gold mining, a key to preventing unnecessary exploration; and a nation-wide industrial mercury study is commissioned, and a mercury retorting program is implemented;
- 4) effective environmental sustainability education is interminably carried out.

Although mitigation efforts have had a limited impact, it is expected that the measures now being considered for adoption will improve the efficacy of the Government of Ghana's drive towards improving environmental management in resident small-scale precious metal mining operations.

References

1. *Ghana Chamber of Mines*
2. *Ghana Mineral Commission*
3. *Mining, Mineral and Sustainable Development (MMSD)*