

# **The Environmental Impact of Small-Scale Diamond Mining Operations in Some Selected Communities in the Kwaebibirem District of Ghana**

**Djopong, Humphrey Agbeko**

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## **ABSTRACT**

There is no doubt that Small-Scale diamond mining operations has brought economic prosperity to the mining communities in the Kwaebibirem District in the Eastern Region of Ghana. They have also brought in their wake environmentally-related problems.

Most of the damage done to the environment by this small-scale miners is due to both lack of knowledge and neglect on the part of the miners as well as lack of proper co-ordination from environmental institutions and officers.

The study conducted involved; physico-chemical, bacteriological and macro invertebrate analysis of the water bodies used for the sifting of the ore to determine any possible pollution from mining activities. A social survey was conducted in the selected communities by way of questionnaire administration to determine the awareness of the miners as well as non-miners of the impact of the small-scale mining. Medical records spanning 2003-2006 was collected from the district hospital (St. Dominic's Hospital-Akwatia) to assess mining related impacts on health.

The results obtained generally indicated some pollution of water bodies by the activities of the miners within the communities of the study area. Concentrations of most of the physico-chemical parameters of the water such as turbidity, true colour and suspended solids were generally above the permissible levels as given by both the World Health Organisation (WHO) and Ghana Standards (GS175). For instance, turbidity value of 510mg/l was recorded at Aprapo as compared to acceptable limit of 5mg/l. Bacteriologically, none of the sites qualified as a suitable source of drinking water. Values between 10cfu/100ml – 9120cfu/100ml and 38cfu/100ml – 1140cfu/100ml were recorded for total and faecal coliforms respectively. The high levels of total and faecal coliforms can be attributed to the mining and its associated sanitation problems. In terms of macro invertebrates pollution indicators such as *Chironomidae* larvae were present at all sites. Areas where there is indication of pollution such as Aprapo, Bosomtswumwaa and Abansa 2, pollution tolerant organisms such as *Chironomidae* and *Oligochaetes* were abundant, while *Ephemeroptera* was found in large quantities

at less polluted areas. Sites with a lot of fringe vegetation recorded a high number of insects with majority of the individuals in the larvae form.

Results from the social survey, indicated that the miners did not have high commitment to providing environmental safety and security as well as maintenance of environmental sanity. The results indicated negative impact of mining activities on both water bodies and on health. Most of the respondents agreed that mining had affected their communities. Over 74% of them admitted mining had affected the quality of water in the communities. Substance abuse was also indicated positively by the respondents. Records from the hospital indicated that the following diseases have been prominent in the communities; malaria, acute respiratory infection, upper respiratory infection, diarrhoea, skin disease and ulcers, typhoid fever, HIV/AIDS, asthma, and eye infection. The job related injuries included lacerations and abrasions, foreign body in the eyes and falls into the pits. There was total disregard for the use of protective clothing during working hours.

There is the need for concerted actions by all stakeholders, thus the Government through technical and financial support for small-scale diamond miners; the District Assembly through the monitoring and evaluation of diamond mining activities and the setting up of Fund to rehabilitate the environment. Finally the willingness of both miners and non-miners in the mining communities to observe good environmental practices are some of the ways required to make small-scale diamond mining operations both healthy and environmentally friendly.

## **SUPERVISORS**

Dr. Hayford, E. K.

Dr. Ampofo, J. A.

Dr. Tetteh, Edith