Potential Health Risks Associated with The Release Of Trace Elements In The Luku Gold Mining Area, Minna,

North Central Nigeria

Ako T.A; Alabi, A.A.; Mamodu A.; Abba F.M.; Chukwu. J. N. and Kolawole M. S.

**Abstract**

Mining of solid minerals is one of the world’s most valuable resources. Mining activities such as gold are usually associated with dangers which serve as threat to man, animals, water and land. The work aims at evaluating the health risk associated with release of trace elements as a result of mining of Gold in Luku, Minna, North Central Nigeria. Soil samples collected from the study area where analyzed for trace elements using X-ray Fluorescence (XRF) method at the National Geoscience Research Laboratory (NGRL), of Nigeria Geological Survey Agency (NGSA), Kaduna. Field Observation reveal that mining activities have destroyed the quality and availability of surface and ground water in the area due to panning for gold and the use of chemicals for extraction of gold from its ores. Results of Chemical Analysis show that the mean concentration of pb (85.73ppm), As (9.27ppm), Cu (56.46ppm), Ni (58.55), Cd (1.73), and Ag (0.73) in the soil were more than the comparable crustal values of the elements. Also, Co (10.91ppm) and Mo (0.1 ppm) had concentrations slightly above the crustal values while those of Zn (31 ppm) an Mn (283.73ppm) were below these values. The order of average concentration of elements is as follows: Mn> Pb > Ni > Cu > Zn >Co >As >Cd > Mo >Hg. Consumption of water and plants with high concentrations of these elements by man can lead to possible health implications such as stomach aches, dizziness, nose, mouth, and eye irritation, liver and kidney damage, cardiovascular diseases, liver cancer and even death. It is recommended that environmental impact assessment (EIA) of the area be carried out at the commencement of mining operations.

**Keywords:** Health Risks, Medical geology, Mining activities, North Central Nigeria, Pollutants, Trace Elements.