

Precious metals from major exploration, mining and their destroyed impact on environment: A case study of gold mining

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Africa is a rich continent with mineral resources. Instead of using these resources to develop and make Africa a sustainable continent, they are sources of pollution and toxic materials which create a challenge for the sustainable development of the continent. Gold is one of these mineral resources. Gold is an incompatible element; thus, the mineral leaching process has become one of the main methods of gold cyanidation extraction processes. This process is based on activated carbon that can adsorb liquid gold in alkaline cyanide solution. The waste of this process carries activated carbon and heavy elements e.g., Cyanide, Mercury, Lead, and Arsenic which are essentially used to extract gold. The concentrations of these elements in the waste (e.g., Hg: 0.46-1920 mg/kg, Pb: 6.5-510 mg/kg & As: 0.05-80.0 mg/kg) are above appropriate levels. Much of this waste leaches this toxic and heavy metal into environmental components. Weathering and geochemical processes cause to expose the deep earth to air and water cause chemical reactions that produce sulfuric acid, which can leach to drainage systems. Air quality is also affected by gold mining, which releases hundreds of tons of airborne elemental mercury and carbon every year. Although this relationship between mining activities and environmental/climate change, there is no existing training program to teach and train workers in the mining sector about the environmental consequences of mining activities. Moreover, such training programs are missing at the university level.

Considering these findings, the study recommends that a coordinated approach should be provided to geologists, scientists, and mining companies to provide them with some basic training in environmental management and disaster risk management skills. This will assist in the limit of the environmental damages and other related disasters emanating from different mining activities.

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