

USE OF BORAX FOR GOLD EXTRACTION BY SMALL SCALE MINERS IN MIGORI COUNTY

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ABSTRACT

Kenya is endowed with plenty of mineral resources within its borders. Most of these minerals are extracted by small-scale miners while others are exploited by medium- to large-scale mining companies. The nature of artisanal mining in Kenya is still in the developing stage as the technology used is not advanced and the equipment is not that mechanized. Gold is the most common mineral which is extracted by artisanal mining mostly in Migori and Kakamega counties. With regards to artisanal and small-scale gold mining, the toxic amalgamation (mercury) method is currently being used for extraction of gold by small-scale miners, which poses health hazards to the mining community. In the present study area in Macalder Gold Mine in Migori County, the small-scale artisanal gold miners use the amalgamation method. The toxicity of mercury affects the health of the miners as well as the environment in the surrounding communities' locality. The mineral borax has been suggested to be used as an alternative to mercury in the extraction of gold in Artisanal and Small Scale Gold Mining (ASGM). Mercury is apparently used widely by ASGM in more than 50 countries worldwide. However, the Mina Mata Convention on Mercury did identify mercury as an extremely toxic chemical which has harmful effects to human beings in terms of health, apart from the environment (2013). Hence this study suggests a safer and alternative use of borax in gold extraction by ASGM communities; a mercury free gold mining technology. Borax is used as a flux in the smelting of gold concentrate. Borax, unlike mercury, is non-toxic and causes no known harmful effects to human beings and the environment. Borax is also cost effective (cheaper) and efficient in the recovery of gold as well as acting as energy reducing agent in the melting point of gold.