



Mercury - Free Gold Mining Project in Uganda

HEALTH AND ENVIRONMENTAL FOOTPRINTS OF MERCURY
CAUSED BY THE ASGM ACTIVITIES



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Editorial

Mercury vapour, when inhaled, can affect the central nervous system and, depending on exposure levels, can impair cognition and in some cases cause death.

Mercury is also harmful if absorbed through cuts and abrasions of the skin. Of even more concern in terms of public health is the toxicity produced when mercury emitted into the environment accumulates in lakes, rivers, streams and ocean sediments.

There, anaerobic organisms digest and transform it into methyl mercury, a more toxic form of mercury which accumulates and becomes concentrated up the food chain in plankton, fish, birds and mammals including humans.

With the adoption of the Minamata Convention on Mercury in October 2013, clear time-bound targets were set for phasing out the manufacture, export or import of a number of mercury-added products specified in the Convention. Government of Uganda is a signatory to the Minamata Convention and has already developed legal frameworks to facilitate mercury phase-out.

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To contribute the national, and indeed global efforts to phase-out mercury, NAPE in collaboration with the Ministry of Gender, Labour and Social Development (MoGLSD), Uganda National Association of Community and Occupational Health (UNACOH) and Ban Toxics from the Philippines with support from the Danish Government through Dialogos, a Danish NGO that is promoting a Mercury-Free gold mining worldwide.

Social Development (MoGLSD), Uganda National Association of Community and Occupational Health (UNACOH) and Ban Toxics from the Philippines with support from the Danish Government through Dialogos, a Danish NGO that is promoting a Mercury-Free gold mining worldwide. The project's intervention seeks to reduce health and environmental footprints caused by small-scale mining in Uganda.

The major aspects of this project are to develop the capacity of ASGM miners and regulatory mechanisms within the local government, to promote mercury-free technology, and monitor mercury in the environment.

The project is implemented in seven districts of Uganda - Mubende, Buhweju, Bugir, Namayingo, Busia, Moroto and Nakapiripirit. NAPE has

visited selected mining areas in these districts to understand the challenges associated with mining activities that these mining communities confront, and identify a suitable mining area to construct a demonstration site for training in mercury-free methodology.

Thirty miners have so far benefited from this initiative. The project conducted a training of trainers (ToT) for thirty miners from the project area in mercury-free technique using Borax, and these will in turn teach other miners the Borax method.

Key benefits of the borax method over the mercury amalgamation process include increased operating efficiencies and higher yields of gold extraction, resulting in better over-all economics even before health and environment issues are considered.



Rizalde Perez from Ban Toxics giving miners a presentation of the Bora methodology

A Snapshot of Miner-to-Miner Training in Borax Methodology



(Above) Alma Jiji and Rizalde Perez from Ban Toxics demonstrate to miners washing alluvium in a sluice box

(Top Right) Miners trying out panning in a pond. (Right) Rizalde Perez demonstrates smelting of concentrate added in Borax



ASGM Activities in Uganda: Environmental & Health Footprints Caused by Mercury

Uganda is endowed with myriad mineral resources across the country. Most of the minerals are exploited by artisanal and small-scale miners using rudimentary methods and toxic chemicals including mercury. The sector is informal and poorly regulated making it very difficult to regulate and monitor activities of the different actors involved.

The sector is characterized by uncontrolled use and spillage of mercury. Small-scale gold miners are in contact with mercury in different stages of the mining process, notably amalgamation, separation of the amalgam (panning), removal of excess mercury

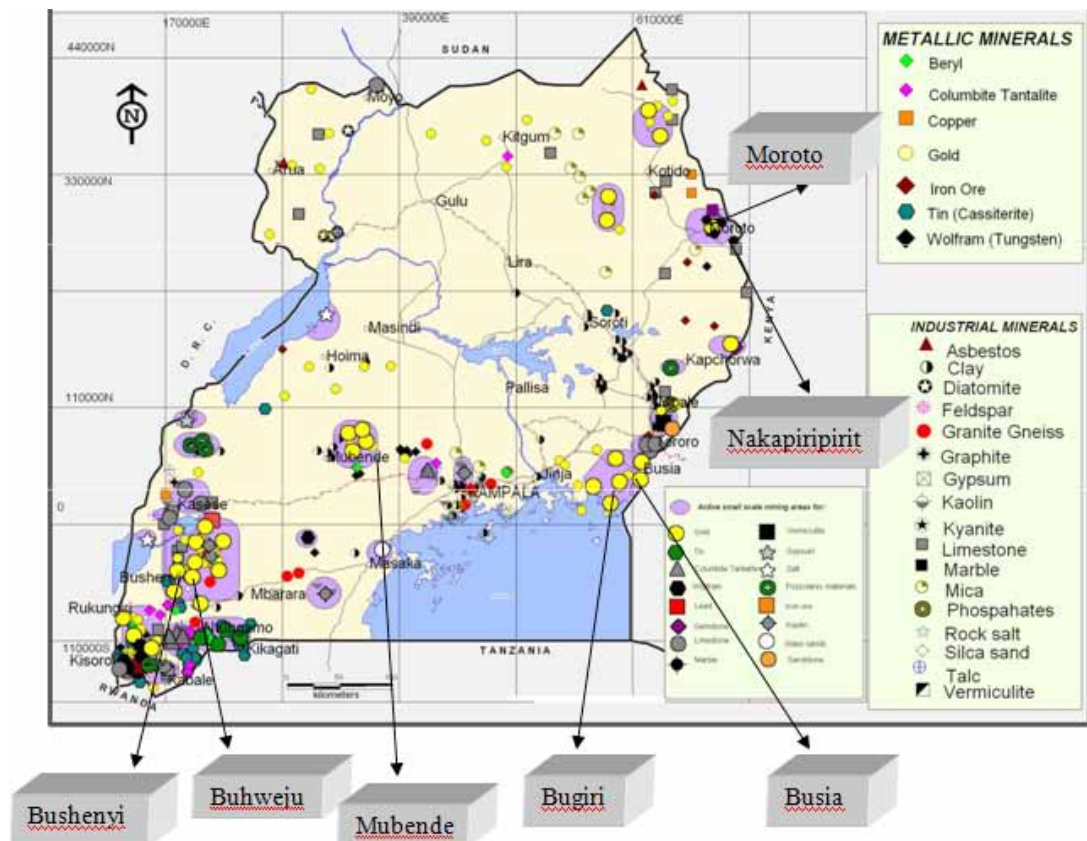
and burning the amalgam. Urgent action from government, miners and the general public is needed to phase out mercury from the gold mining sector as otherwise the long term effects especially on the health of humans and the environment will be severe.

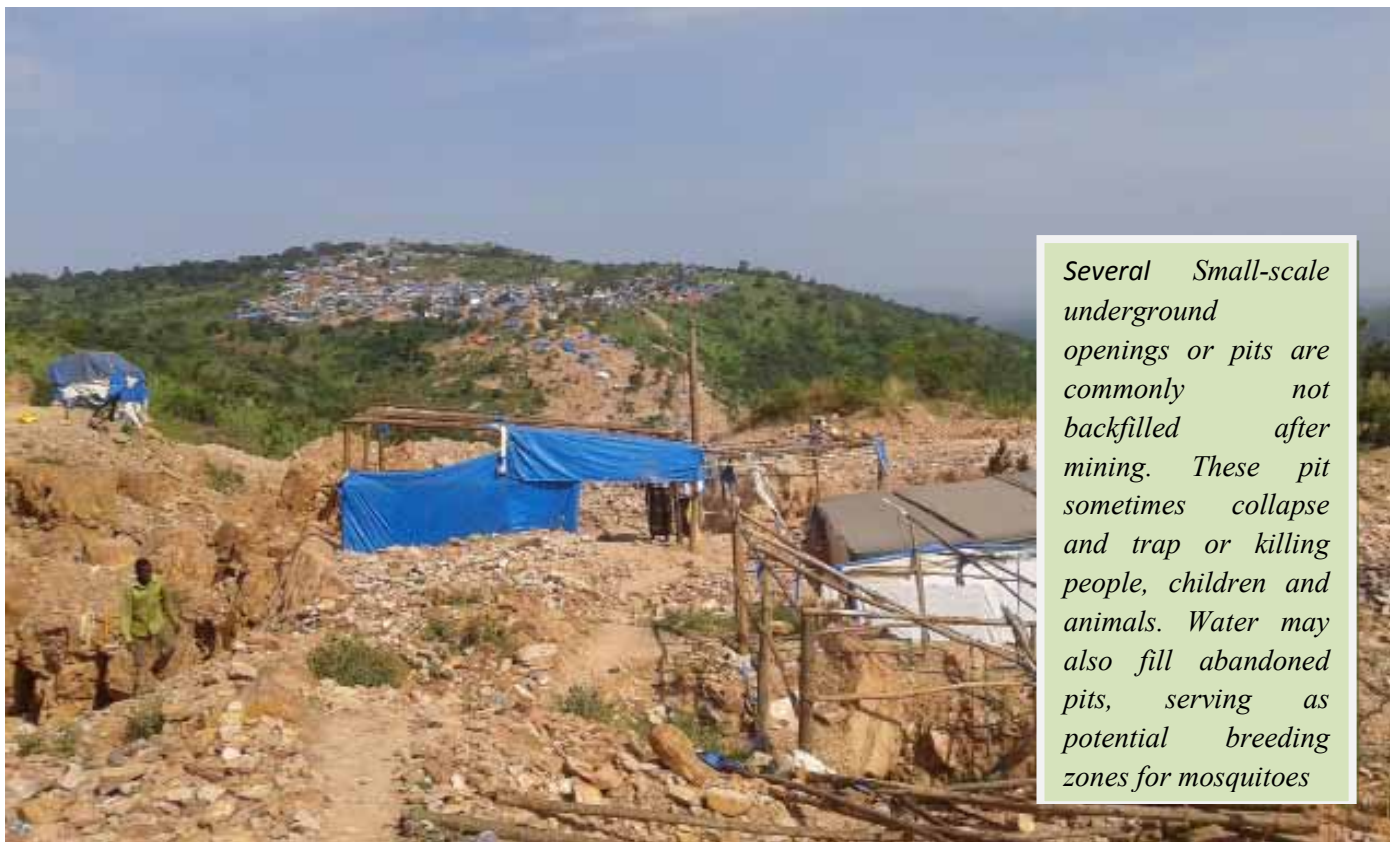
The good news is that Uganda is a party to the Minamata Convention, and already government is driving the national efforts for mercury phase-out. Efforts to reduce mercury use in the ASGM sector focus on formalization of the sector as the most effective way to promote alternative technologies which do not use mercury. Government is working with different stake-

holders including NAPE to reduce the use of mercury in the country. NAPE has been working with artisanal miners in selected gold mining areas to raise awareness on the negative impacts of mercury.

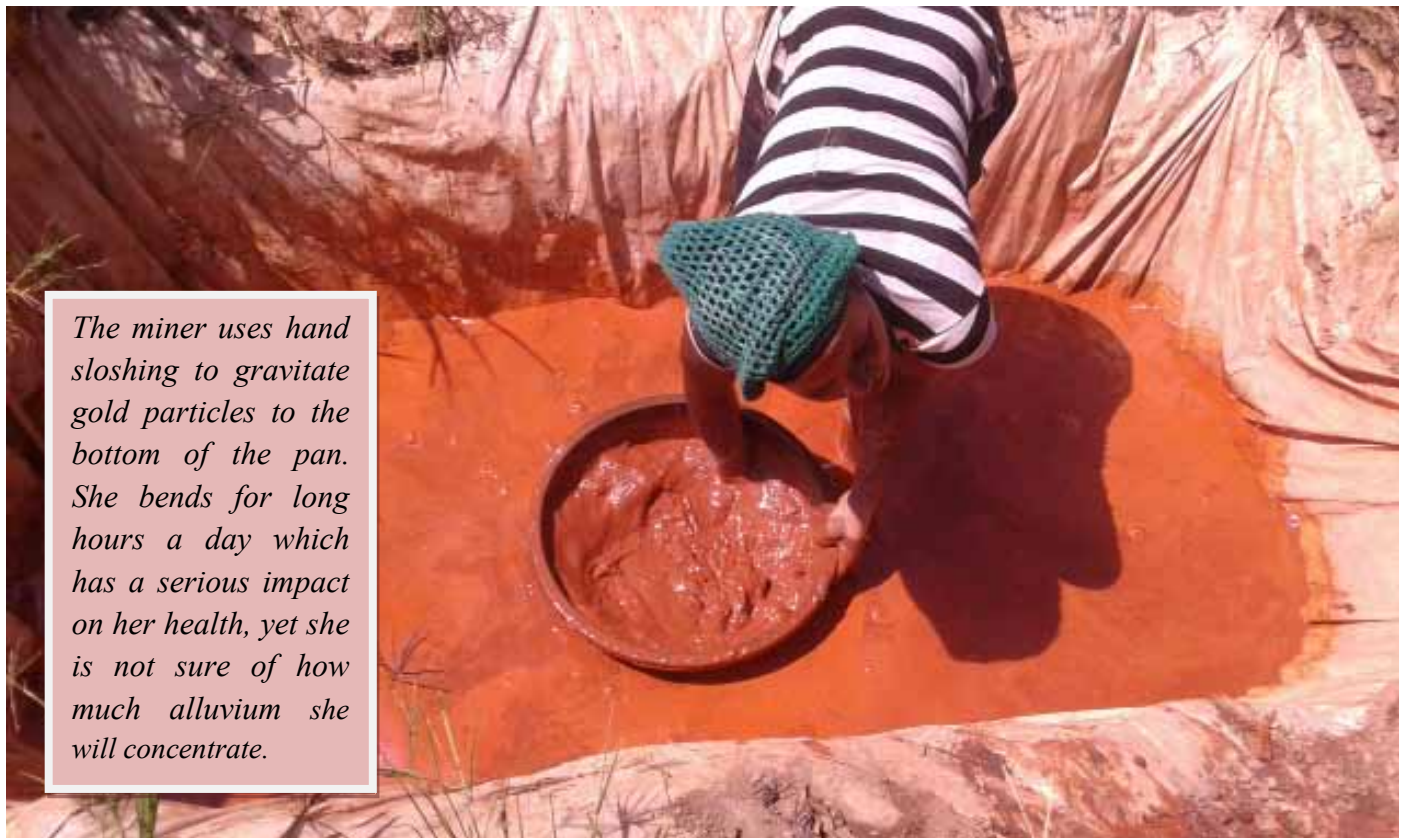
NAPE is also implementing a Mercury-Free Gold Mining Project in collaboration with the Ministry of Labour, Gender and Social Development (MoLGSD) and Uganda National Association of Community and Occupational Health (UNACOH) in the districts of Mubende, Buhweju, Bushenyi, Bugiri, Busia, Moroto on alternative methodology using Borax.

Artisanal and Small-scale Mining areas

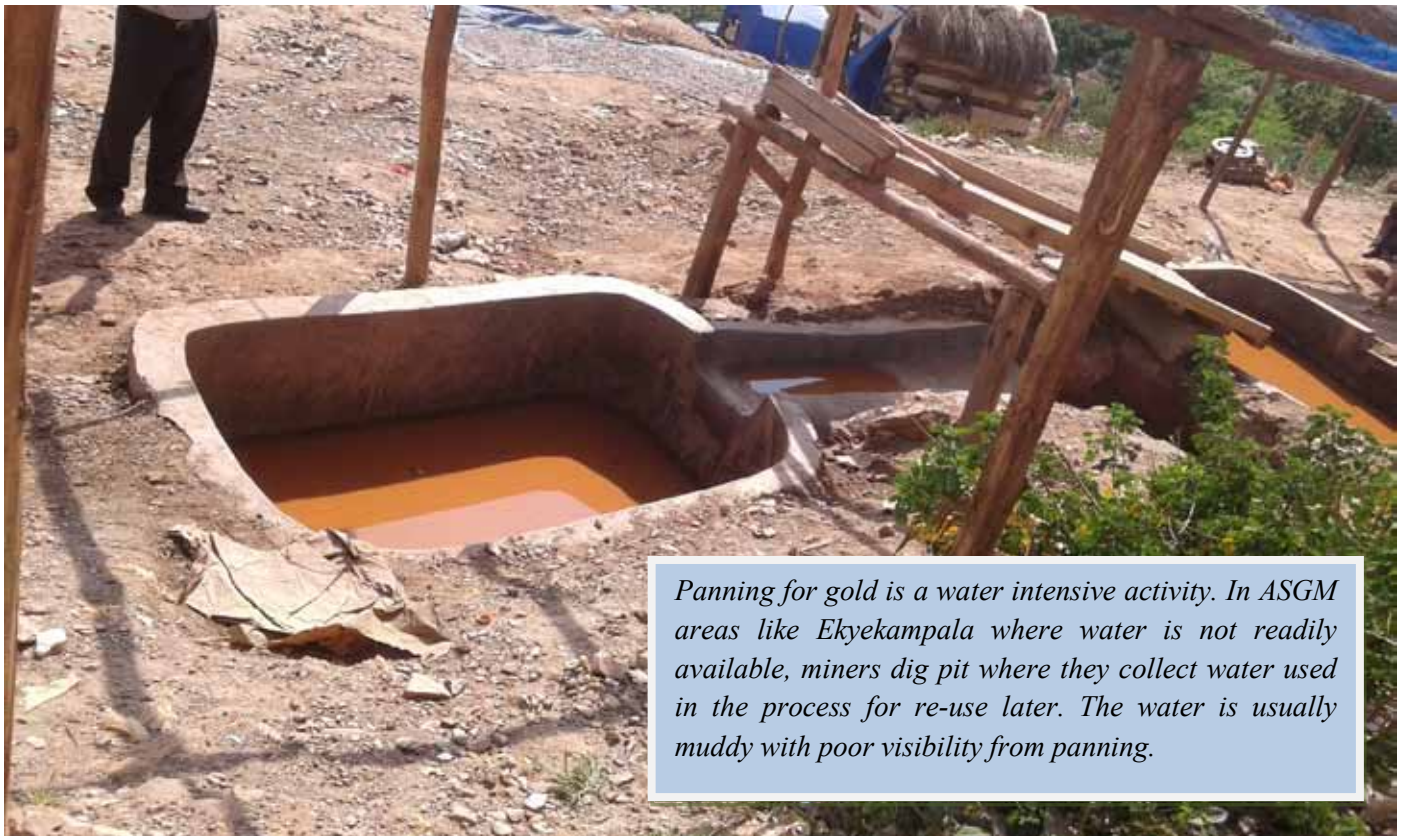


ENVIRONMENTAL & HEALTH MERCURY FOOTPRINTS IN PICTURES

Walukwago Gold Mining area in Mubende District



The miner uses hand slogging to gravitate gold particles to the bottom of the pan. She bends for long hours a day which has a serious impact on her health, yet she is not sure of how much alluvium she will concentrate.

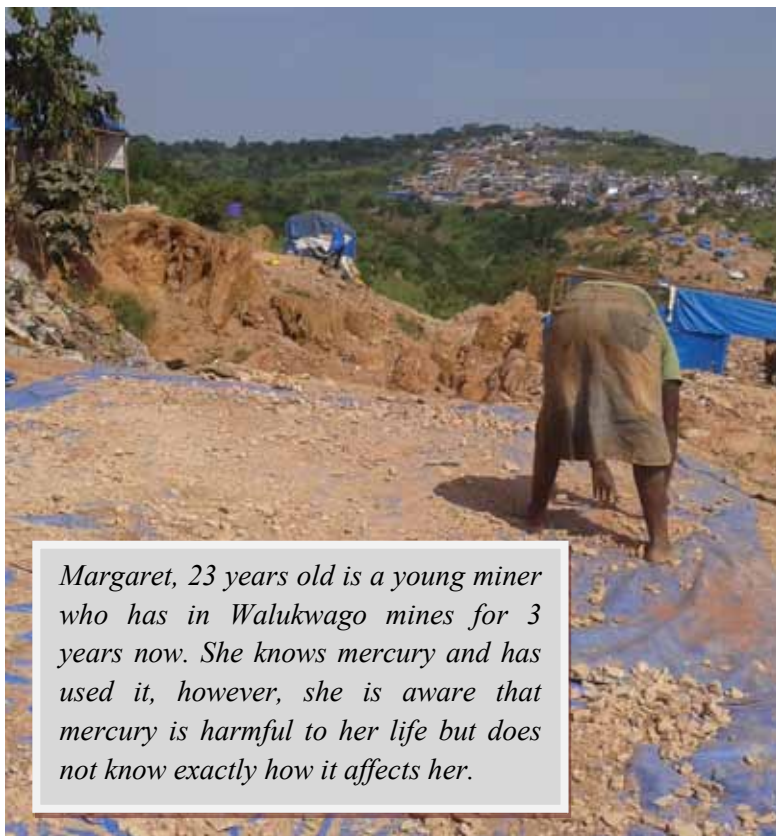


Panning for gold is a water intensive activity. In ASGM areas like Ekyekampala where water is not readily available, miners dig pit where they collect water used in the process for re-use later. The water is usually muddy with poor visibility from panning.



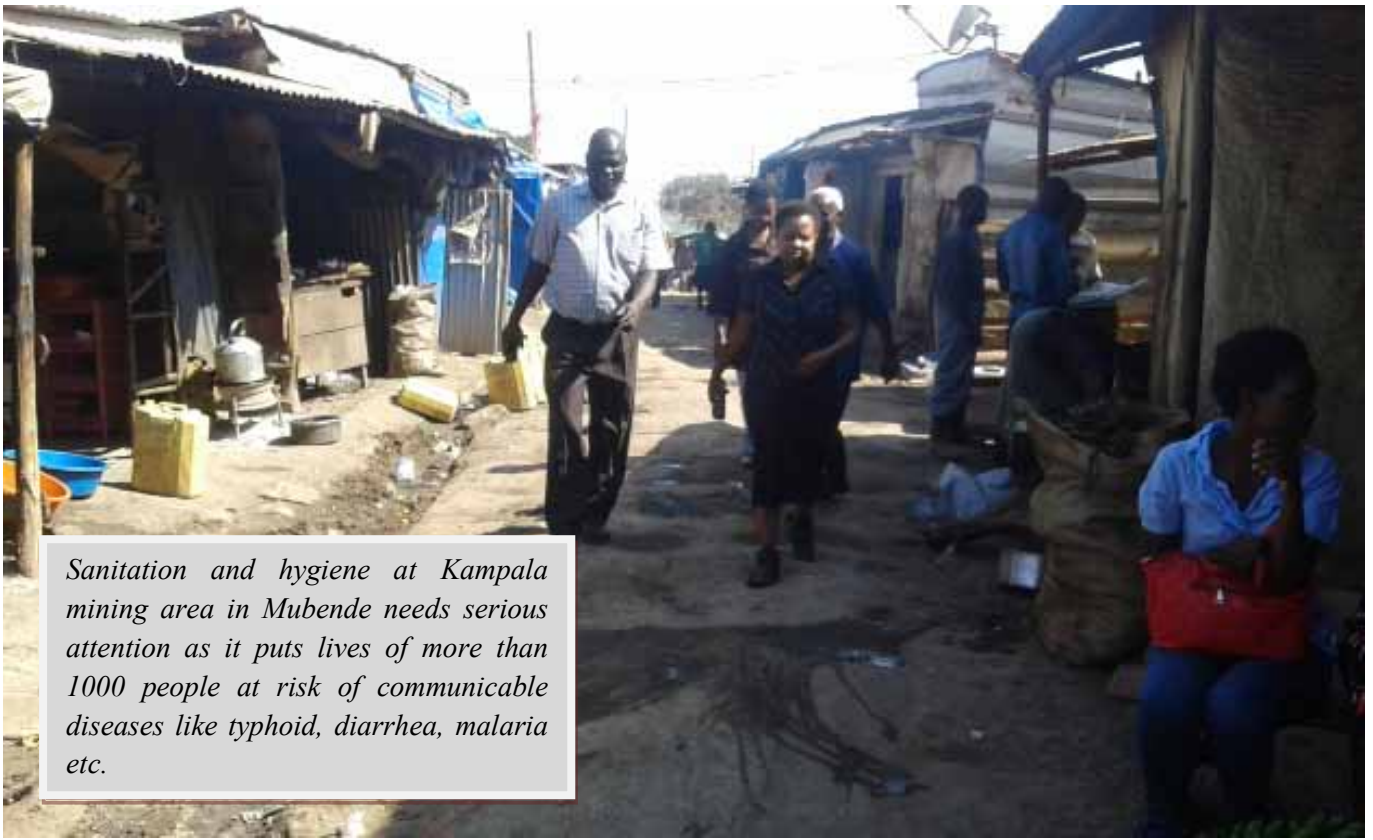
Gold processing uses a lot of water. But the biggest challenge in Kampala mining area in Mubende is water availability. Young men line up to get water to supply the mines.

Lack of sufficient water for in some artisanal gold mining sites in Mubende is a big challenge to miners



Margaret, 23 years old is a young miner who has in Walukwago mines for 3 years now. She knows mercury and has used it, however, she is aware that mercury is harmful to her life but does not know exactly how it affects her.





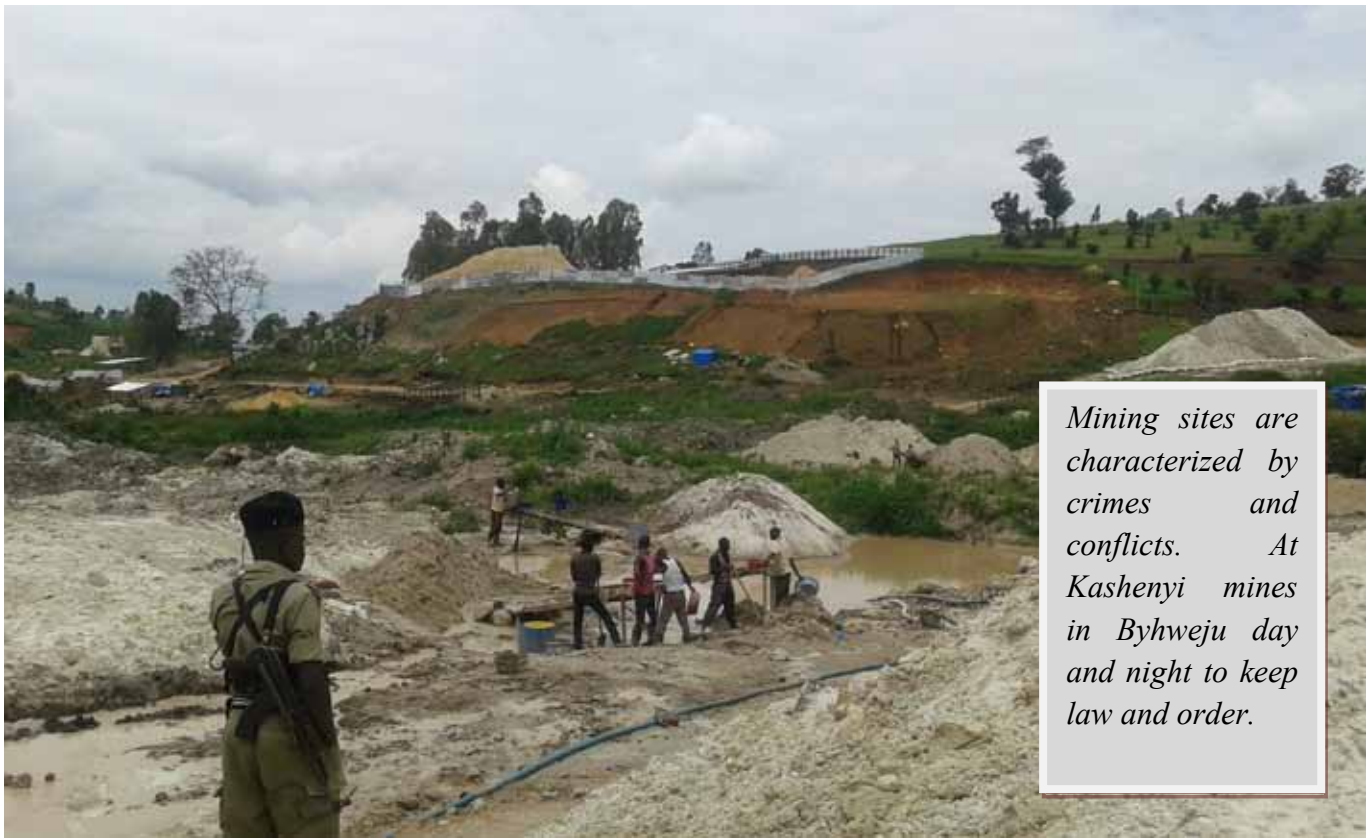
Sanitation and hygiene at Kampala mining area in Mubende needs serious attention as it puts lives of more than 1000 people at risk of communicable diseases like typhoid, diarrhea, malaria etc.

Sanitation and Hygiene situation at Kampala mining area in Mubende

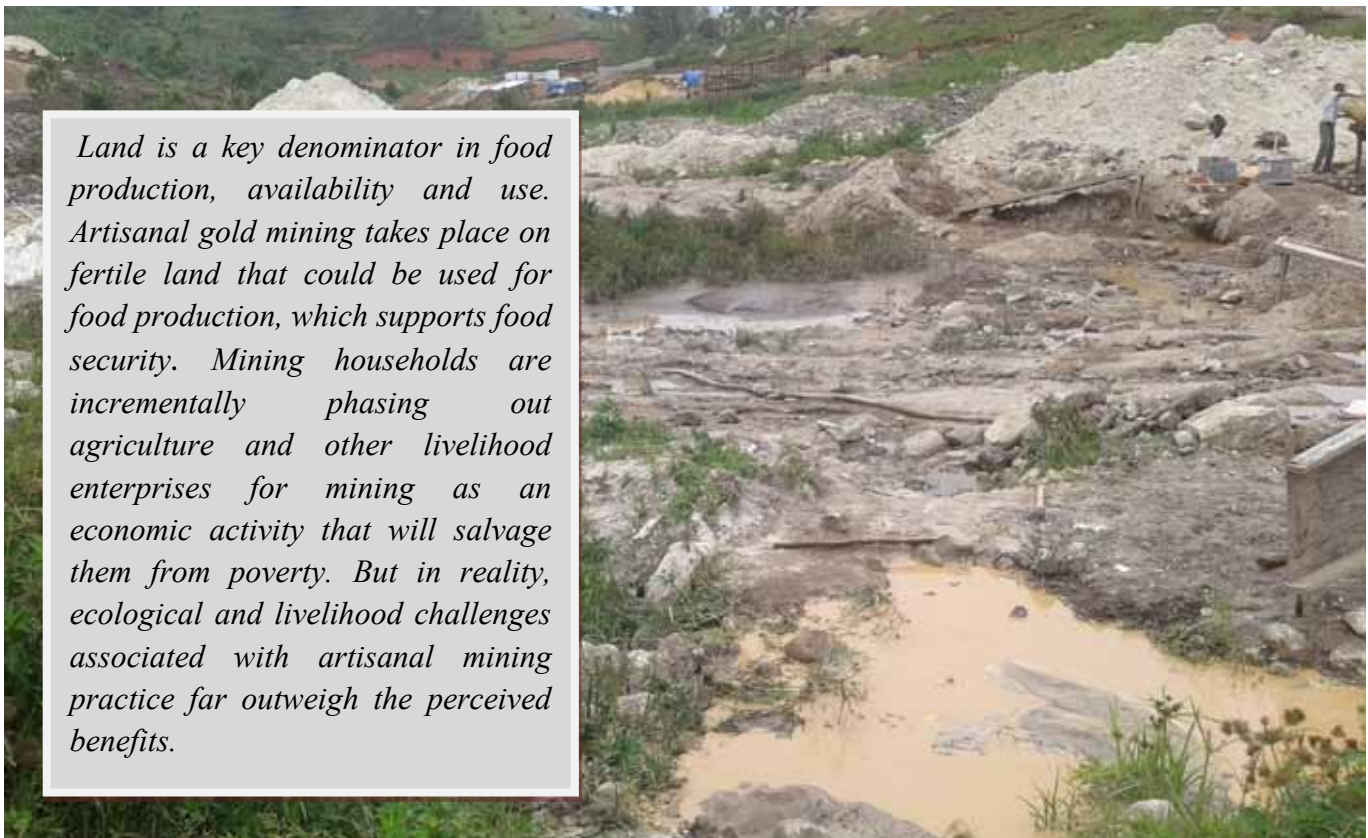


There about 3 drug shops in the mining area that serves 1000 people.

Kashenyi Gold Mining area in Buhweju District



Mining sites are characterized by crimes and conflicts. At Kashenyi mines in Buhweju day and night to keep law and order.



Land is a key denominator in food production, availability and use. Artisanal gold mining takes place on fertile land that could be used for food production, which supports food security. Mining households are incrementally phasing out agriculture and other livelihood enterprises for mining as an economic activity that will salvage them from poverty. But in reality, ecological and livelihood challenges associated with artisanal mining practice far outweigh the perceived benefits.



Miners using spiral concentrator tilted at on angle with grooves. A motor is used to rotate the pan continually as concentrate is fed onto the pan by an operator. A pipe extending horizontally across the pan sprays water along the surface of the pan as the concentrate spins.



Wherever gold is discovered, miners will go ahead to dig in search for the precious mineral even if it the activity destroys other important sector such as agriculture.

Bude Gold Mining area in Bugiri District



Bude gold mine in Bugiri is characterized by increased child labour. School dropout is high and the mining community does not see it as a problem. All they care about is searching for the precious mineral.

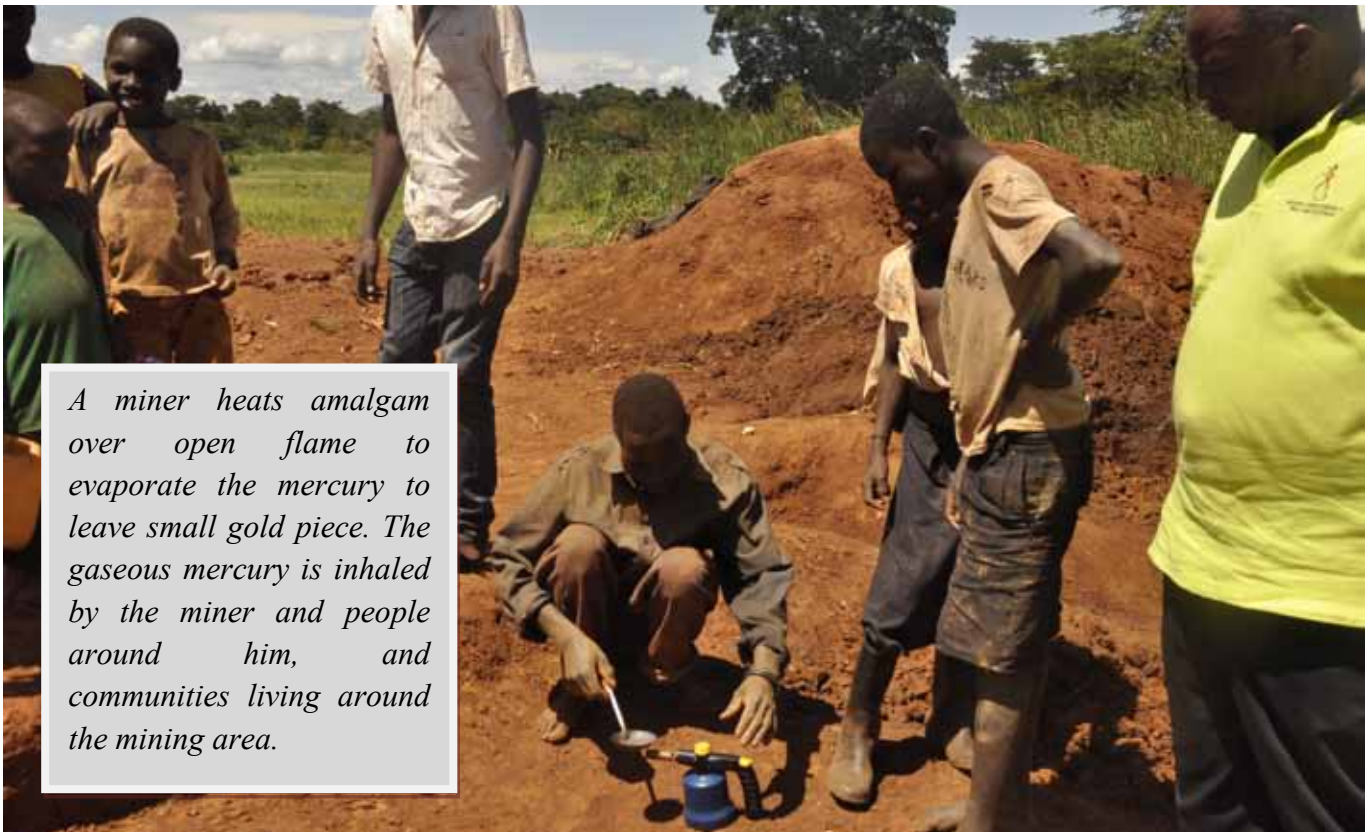


Water polluted with mercury is discharged directly in the rice field adjacent to the mine.

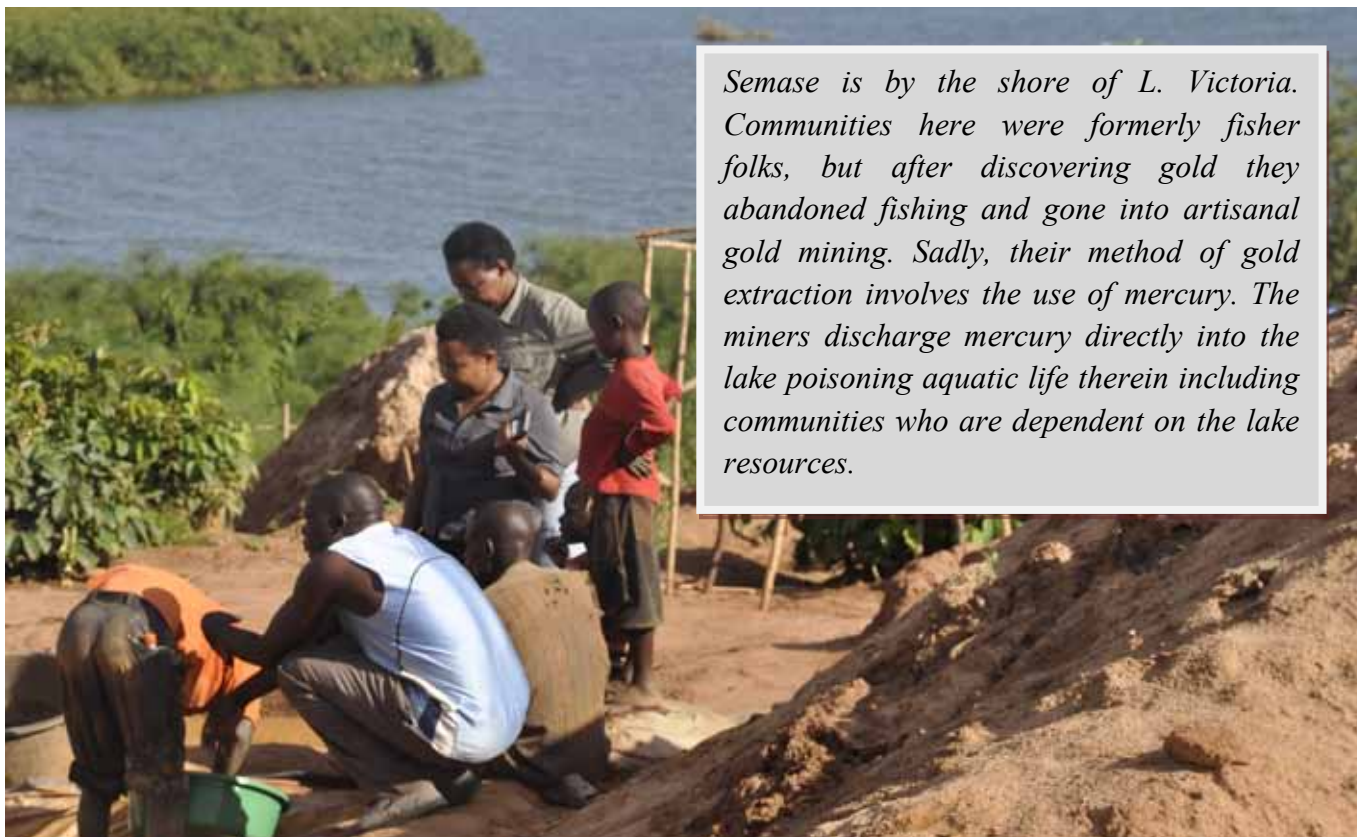
Small scale mining operations endanger the environment by inducing land degradation and contaminating surface and groundwater resources.



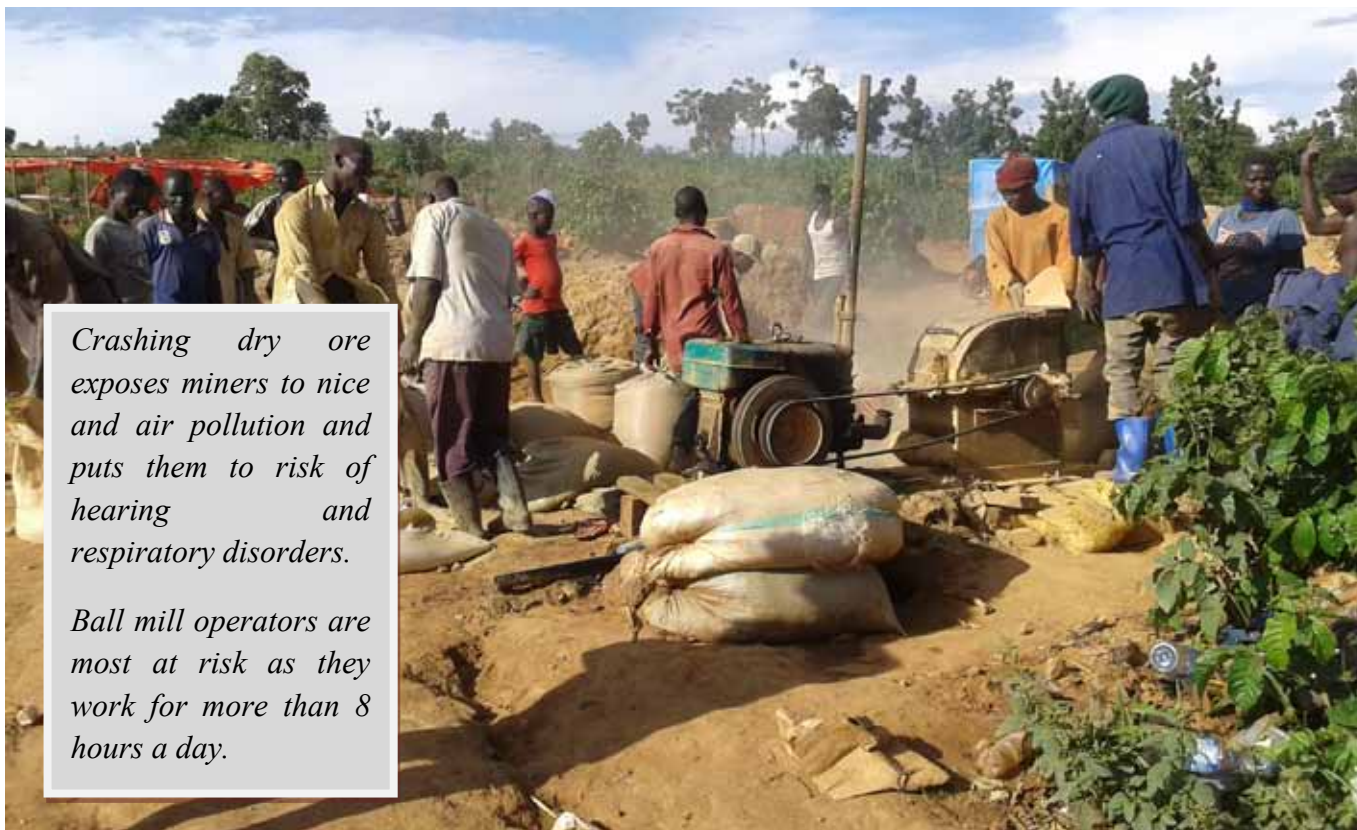
A miner heats amalgam over open flame to evaporate the mercury to leave small gold piece. The gaseous mercury is inhaled by the miner and people around him, and communities living around the mining area.



Simase Gold Mining area in Namayingo District

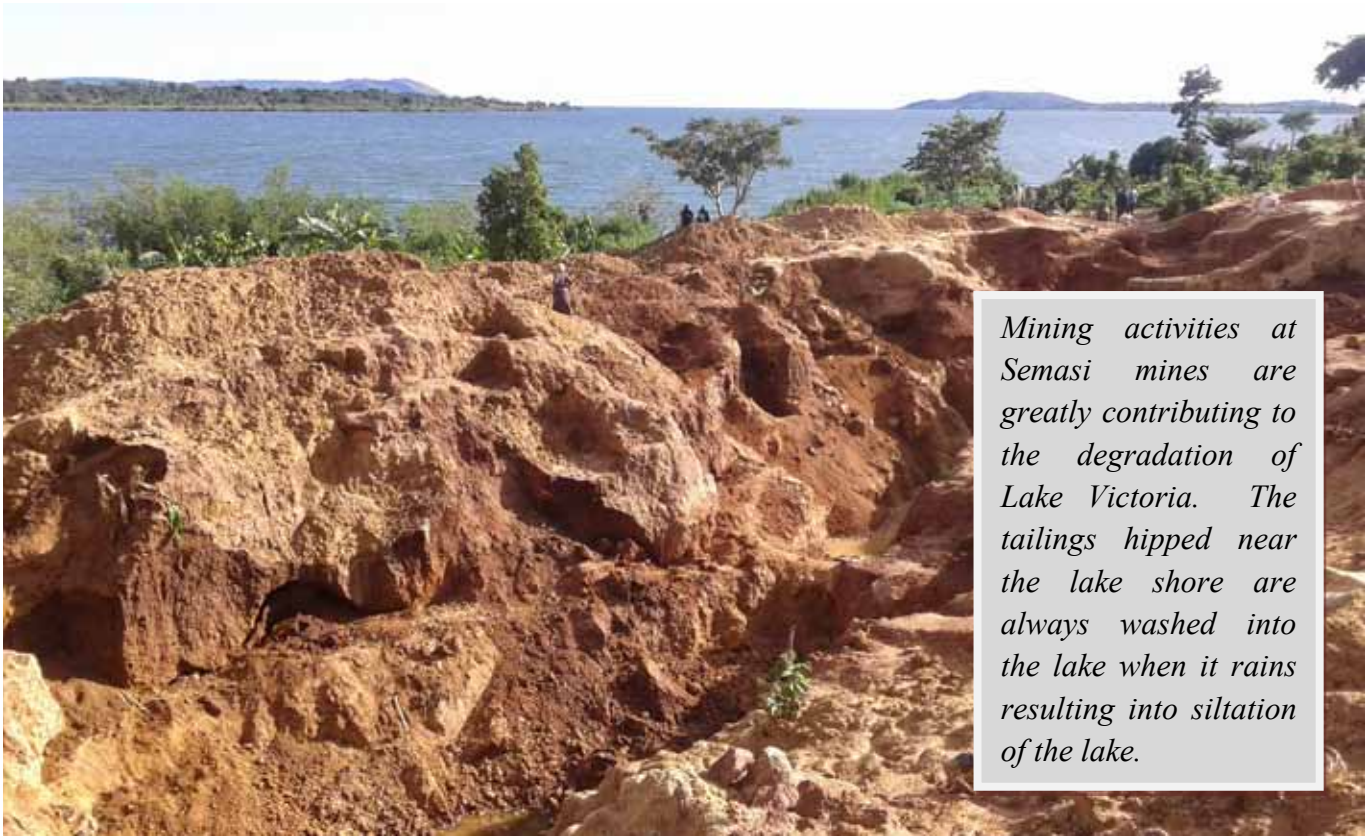


Semase is by the shore of L. Victoria. Communities here were formerly fisher folks, but after discovering gold they abandoned fishing and gone into artisanal gold mining. Sadly, their method of gold extraction involves the use of mercury. The miners discharge mercury directly into the lake poisoning aquatic life therein including communities who are dependent on the lake resources.

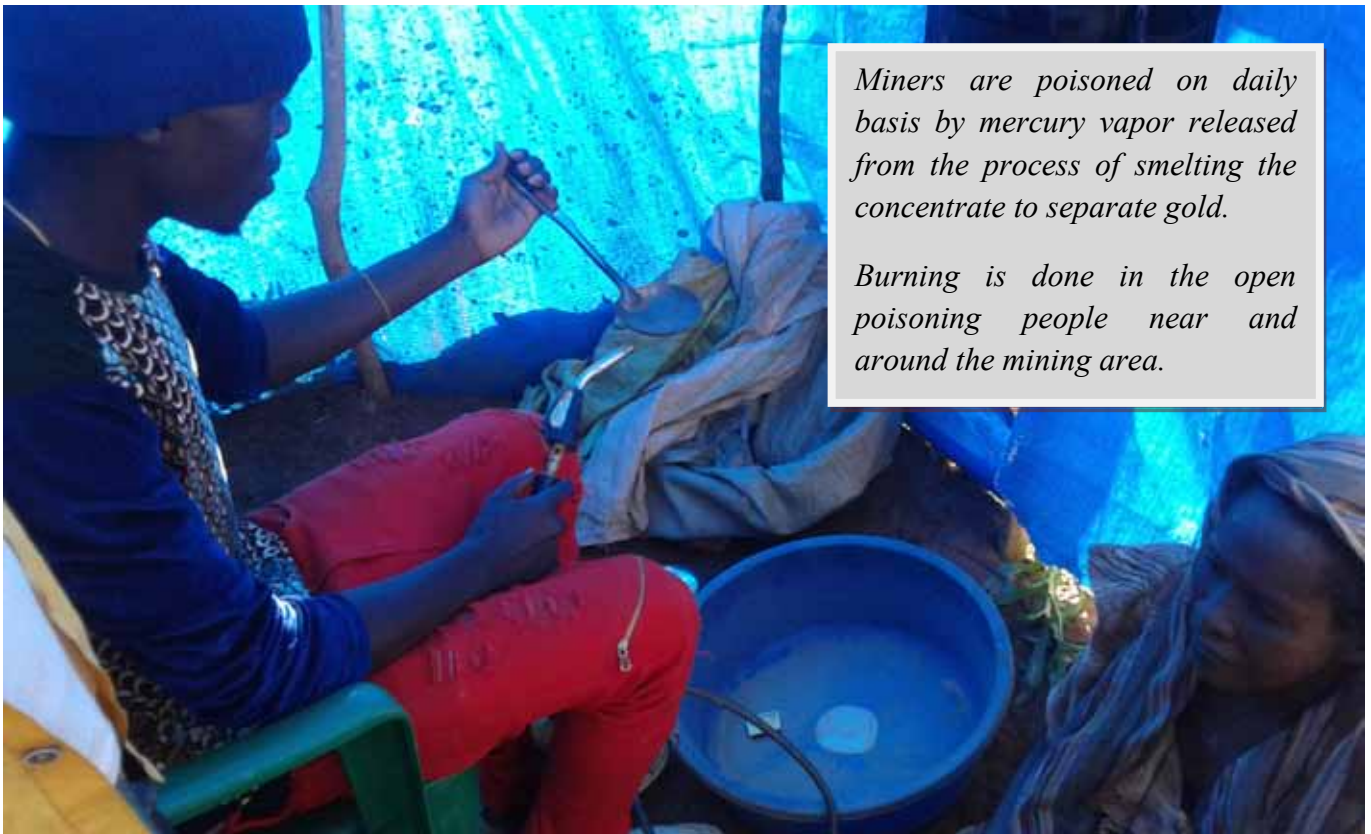


Crashing dry ore exposes miners to noise and air pollution and puts them to risk of hearing and respiratory disorders.

Ball mill operators are most at risk as they work for more than 8 hours a day.

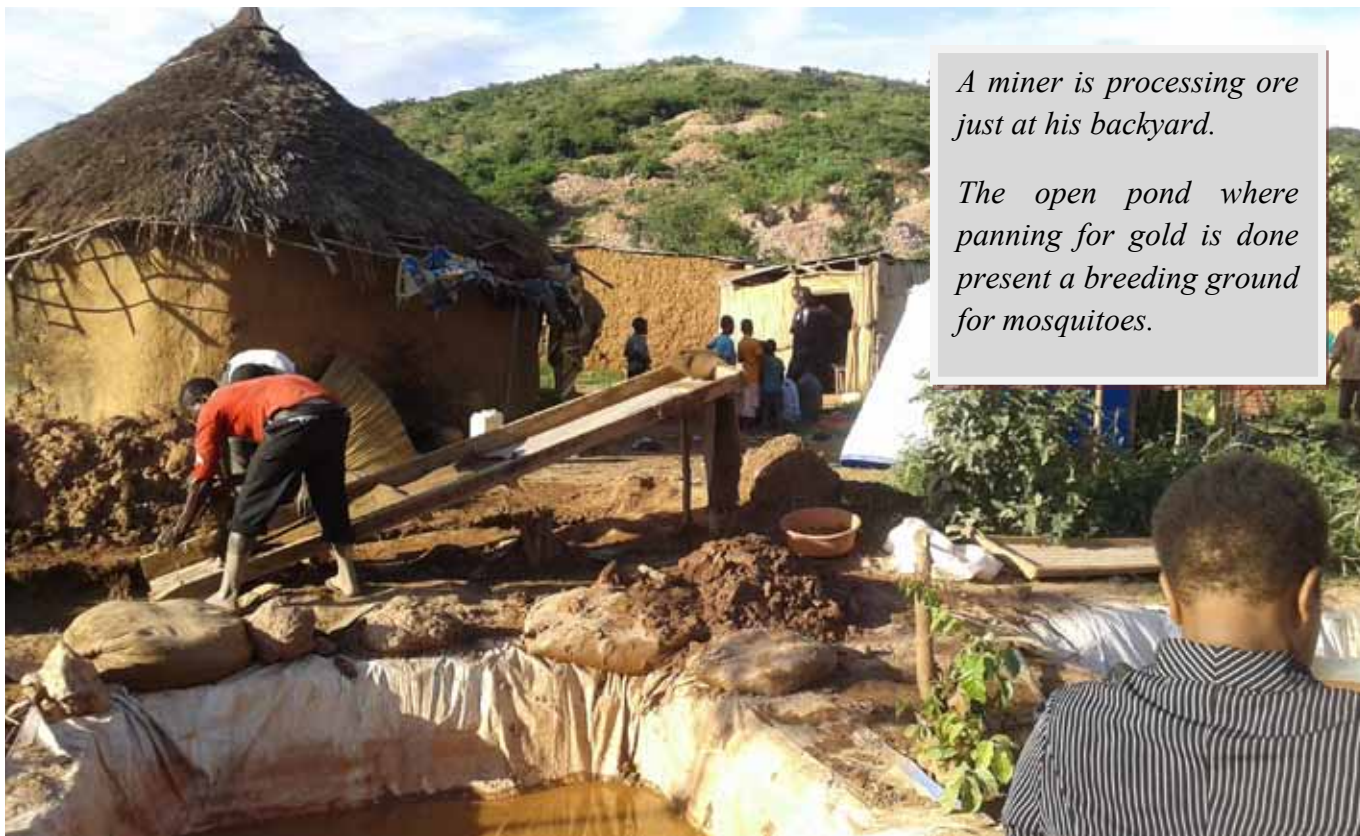
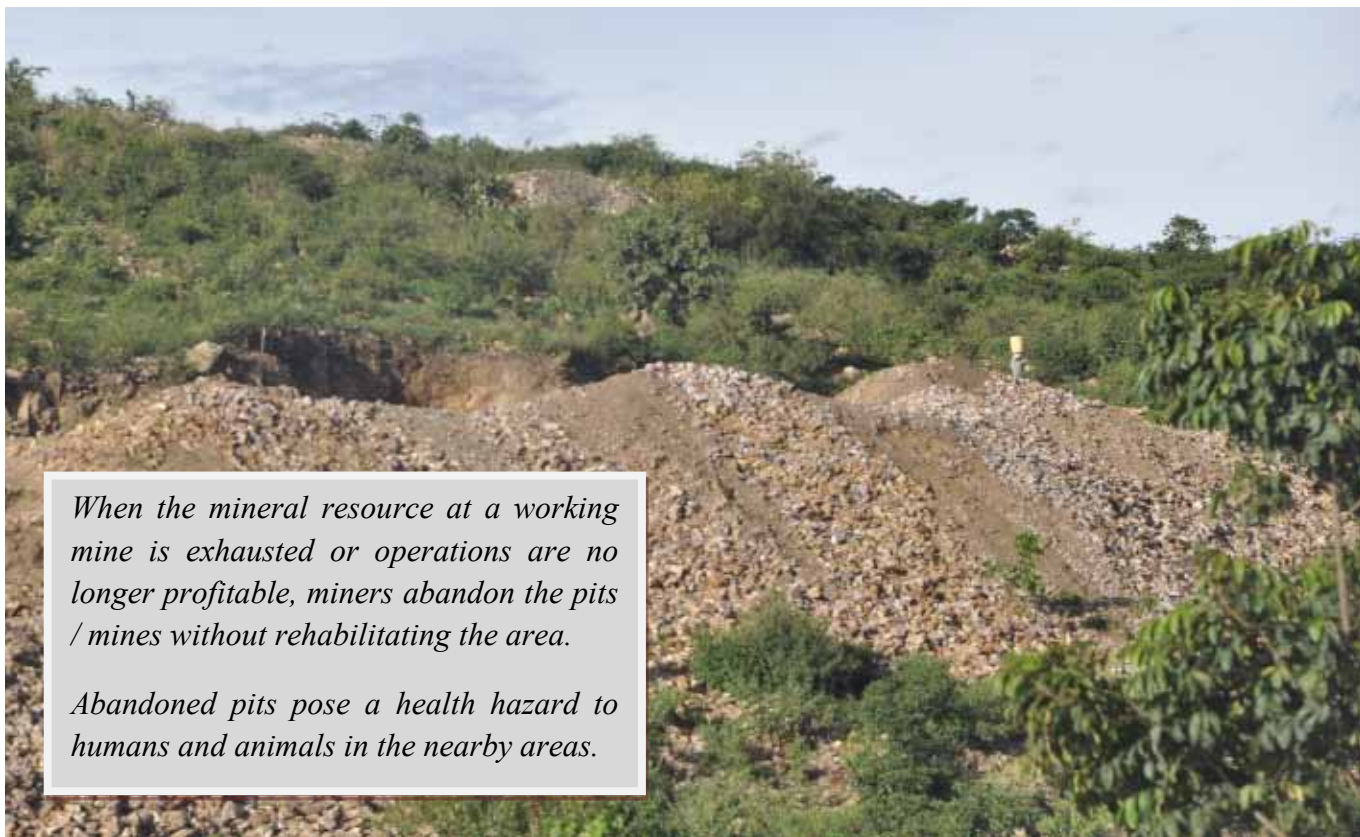


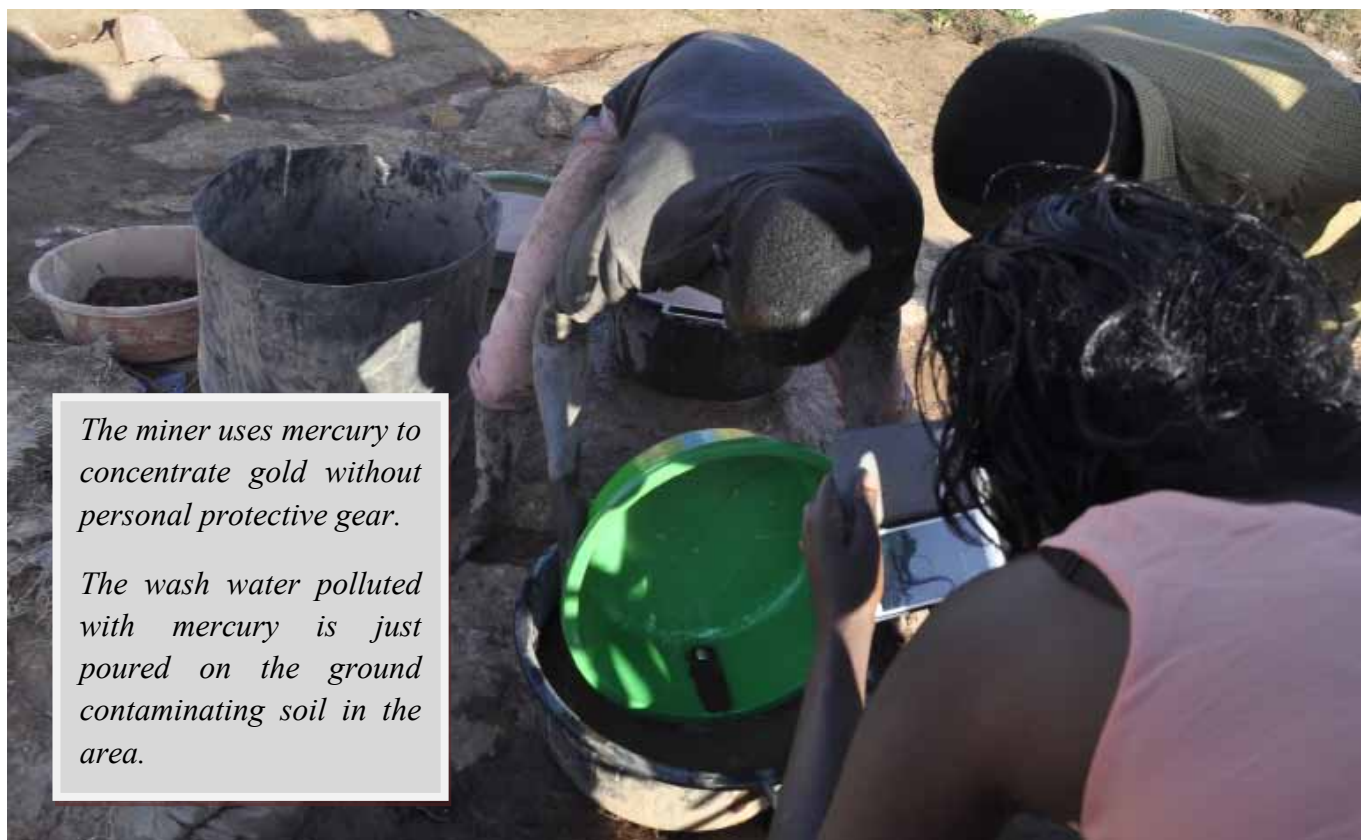
Mining activities at Semasi mines are greatly contributing to the degradation of Lake Victoria. The tailings tipped near the lake shore are always washed into the lake when it rains resulting into siltation of the lake.



Miners are poisoned on daily basis by mercury vapor released from the process of smelting the concentrate to separate gold.

Burning is done in the open poisoning people near and around the mining area.

Bukana / Buhere Gold Mining area in Namayingo District



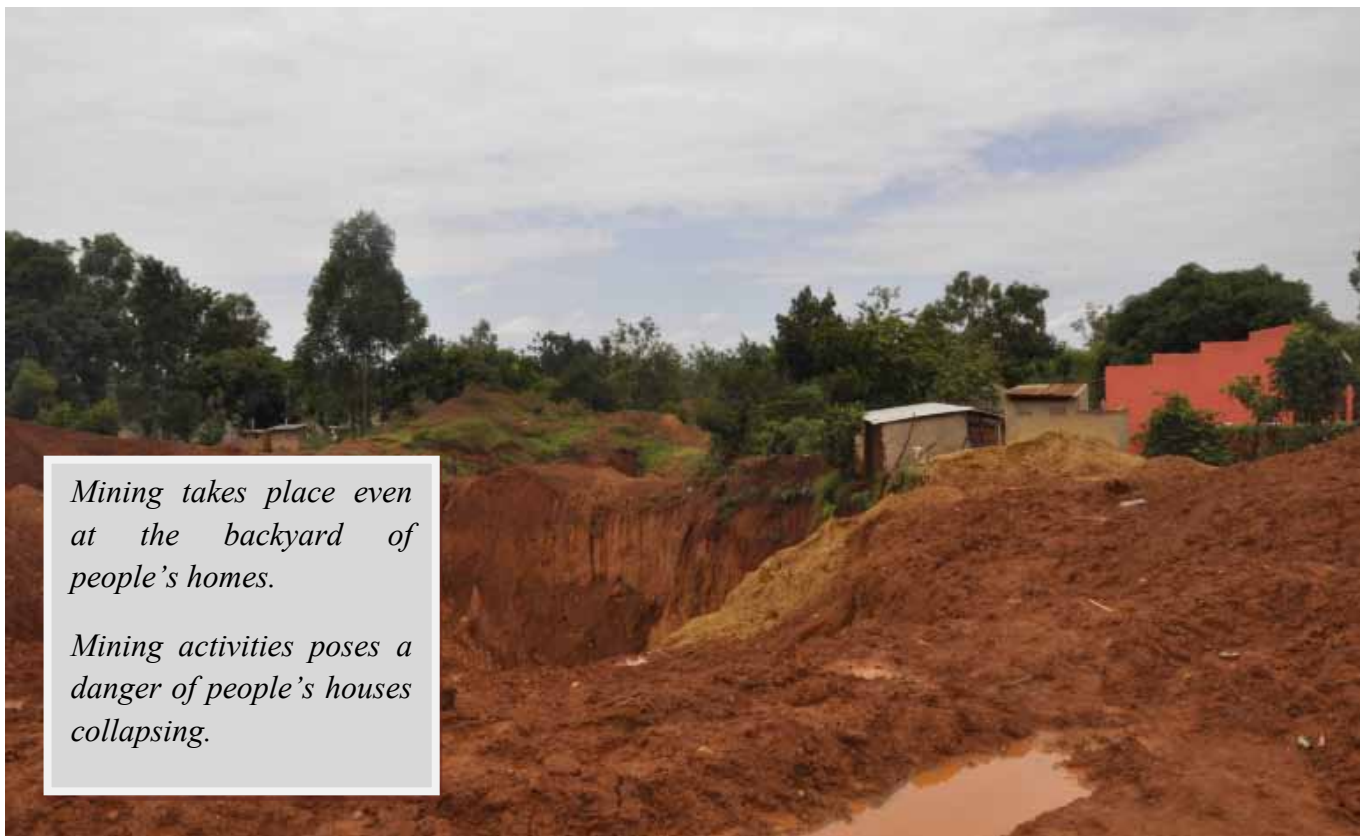
The miner uses mercury to concentrate gold without personal protective gear.

The wash water polluted with mercury is just poured on the ground contaminating soil in the area.

Tiira Gold Mining area in Busia District



Miners sluicing the alluvium down an angled platform of about 5- 15 degrees. As water washes sediments down the sluice, gold particles sink and are captured by the material (cloth) covering the bottom of the sluice.



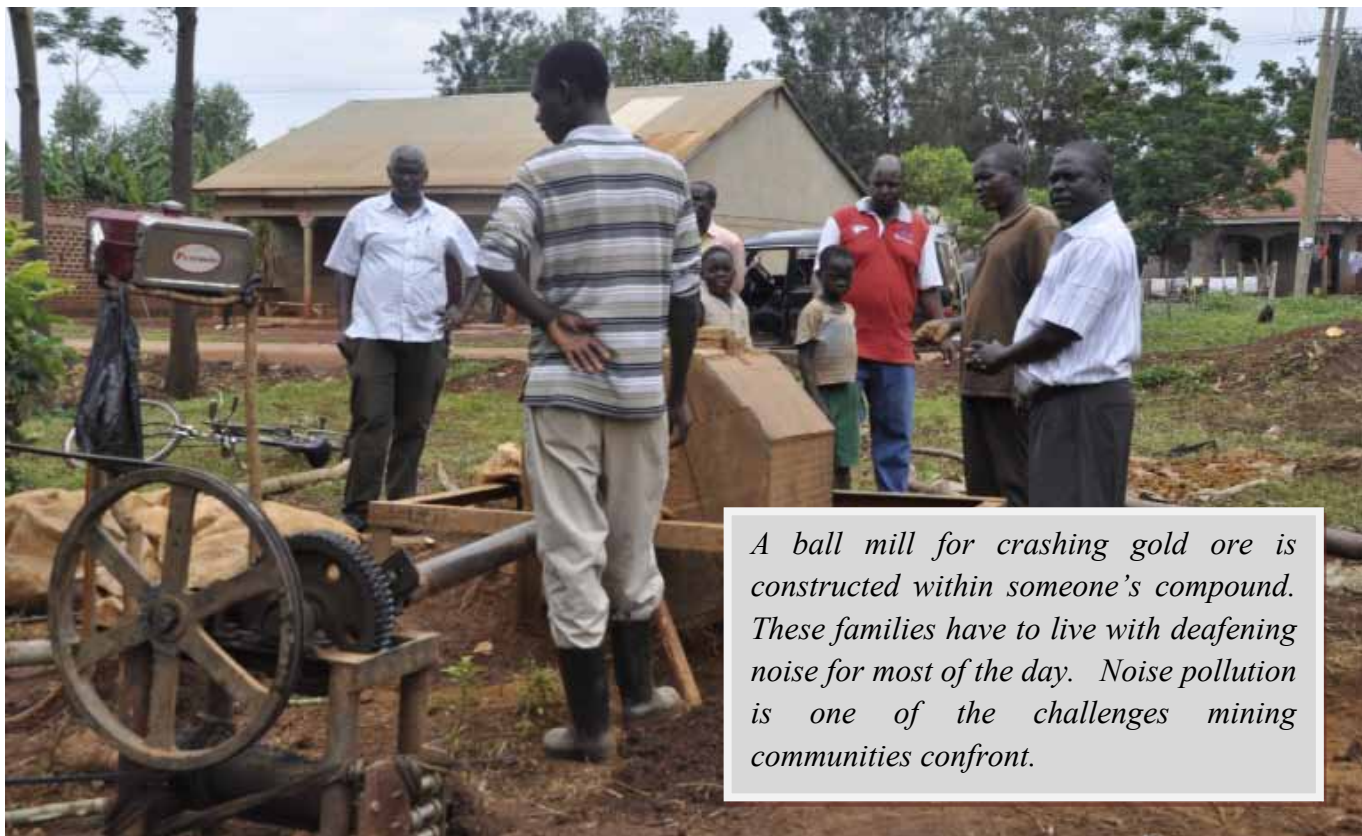
Mining takes place even at the backyard of people's homes.

Mining activities poses a danger of people's houses collapsing.



In Busia mining is even taking place in fragile ecosystems.

Swamps that community water sources are polluted with mercury.

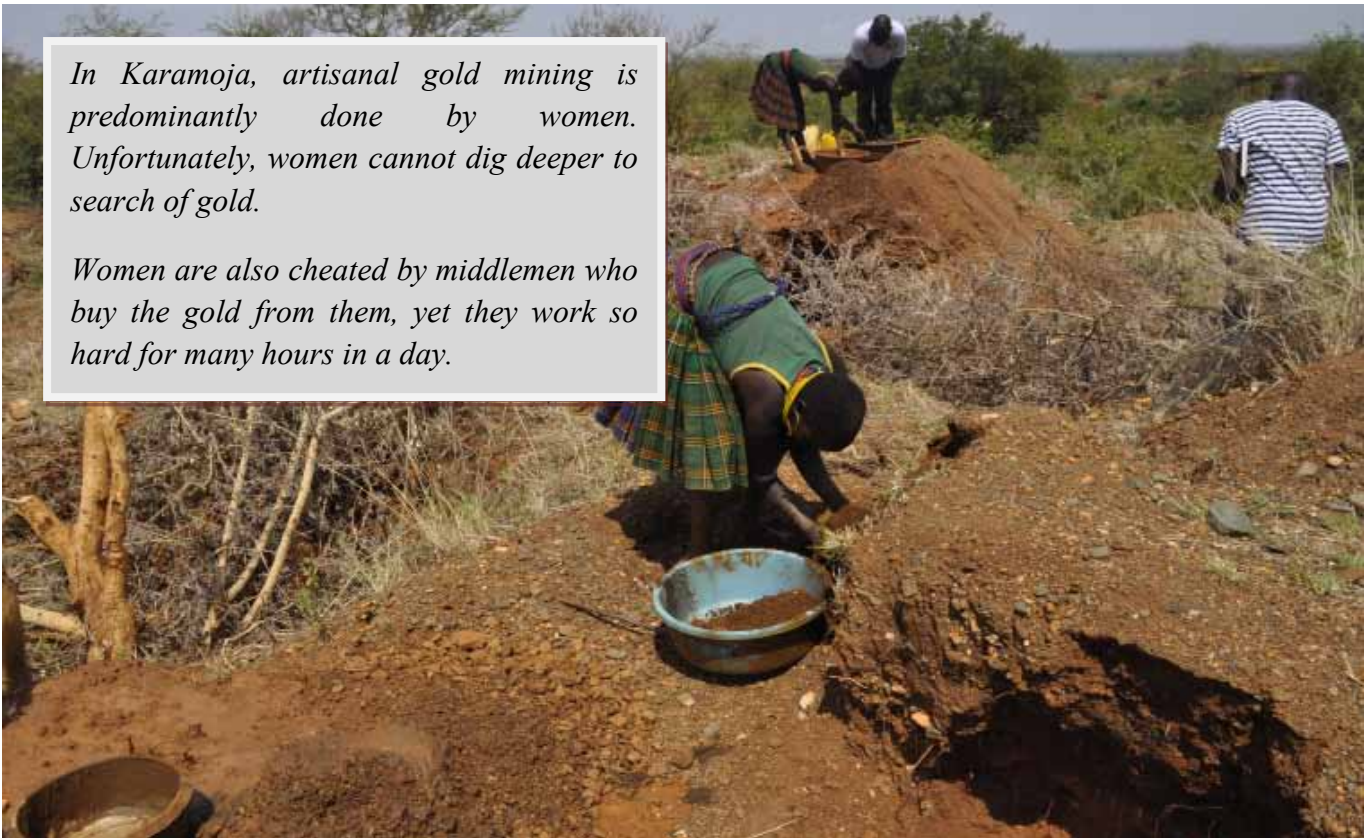


A ball mill for crashing gold ore is constructed within someone's compound. These families have to live with deafening noise for most of the day. Noise pollution is one of the challenges mining communities confront.

Rupa Mining area in Moroto District

In Karamoja, artisanal gold mining is predominantly done by women. Unfortunately, women cannot dig deeper to search of gold.

Women are also cheated by middlemen who buy the gold from them, yet they work so hard for many hours in a day.



Even with almost no gold recovered, Maria Nakiru can afford a small. She is hopeful she will get if she tries harder. The Mercury-Freed Gold Mining Project team gives her a ward of encouragement.



The miner carrying a ore from the pit to prepare for panning. The panning process requires a lot of water unfortunately water is the biggest challenge for artisanal gold miners in Karamoja region.

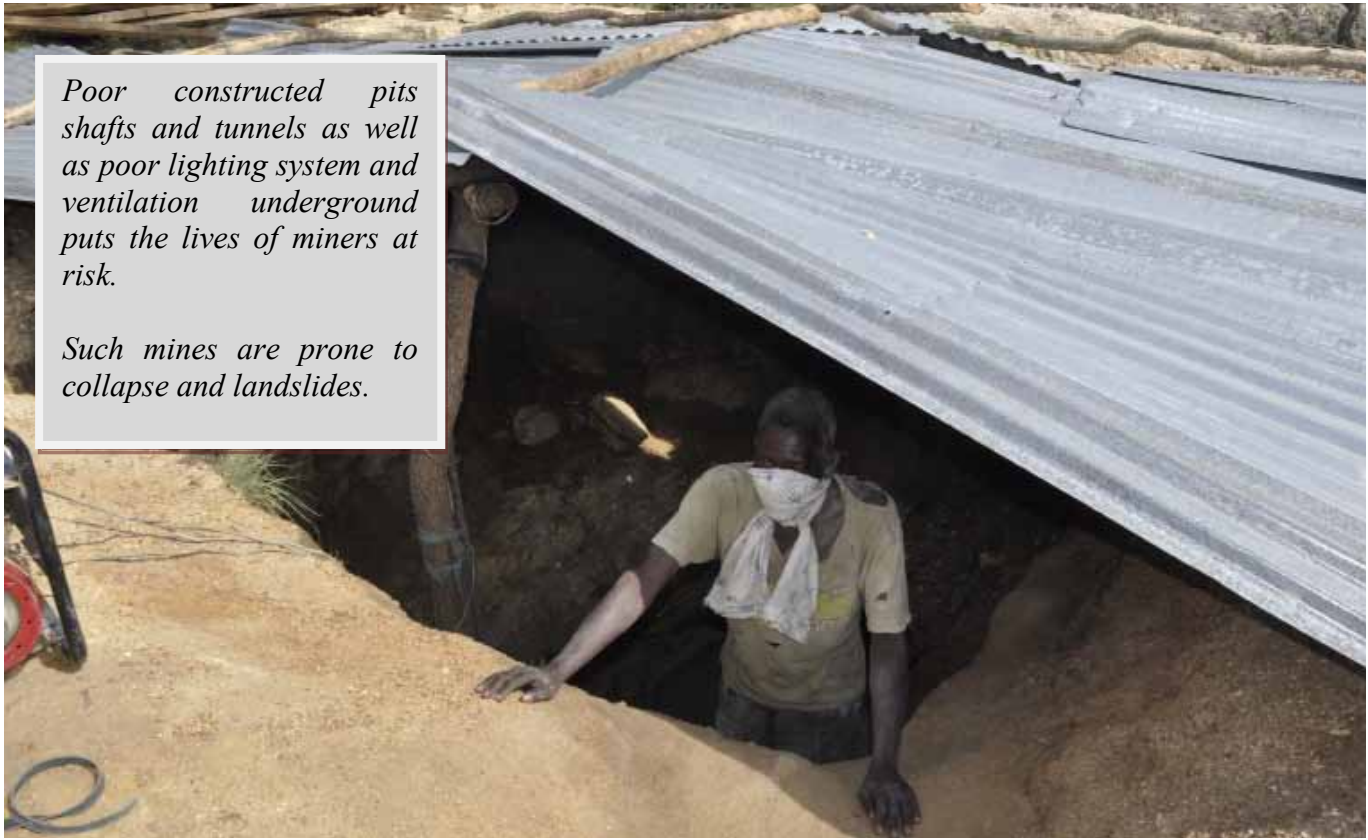


In Rupa artisanal gold mining area, mercury is not used. Miners try their luck without any chemical.

Acherere Mining area in Nakapirpirit District

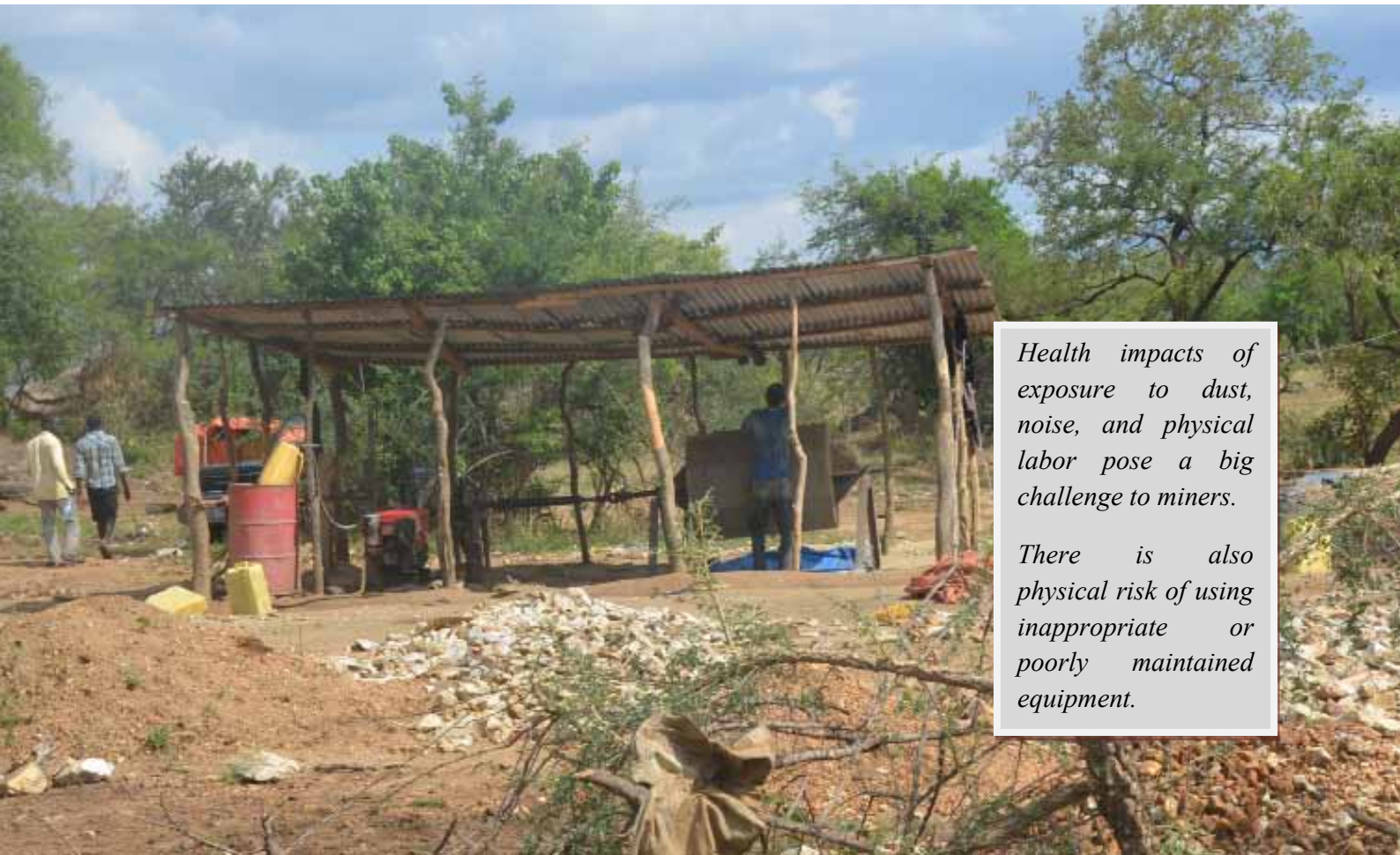
Poor constructed pits shafts and tunnels as well as poor lighting system and ventilation underground puts the lives of miners at risk.

Such mines are prone to collapse and landslides.



Health impacts of exposure to dust, noise, and physical labor pose a big challenge to miners.

There is also physical risk of using inappropriate or poorly maintained equipment.



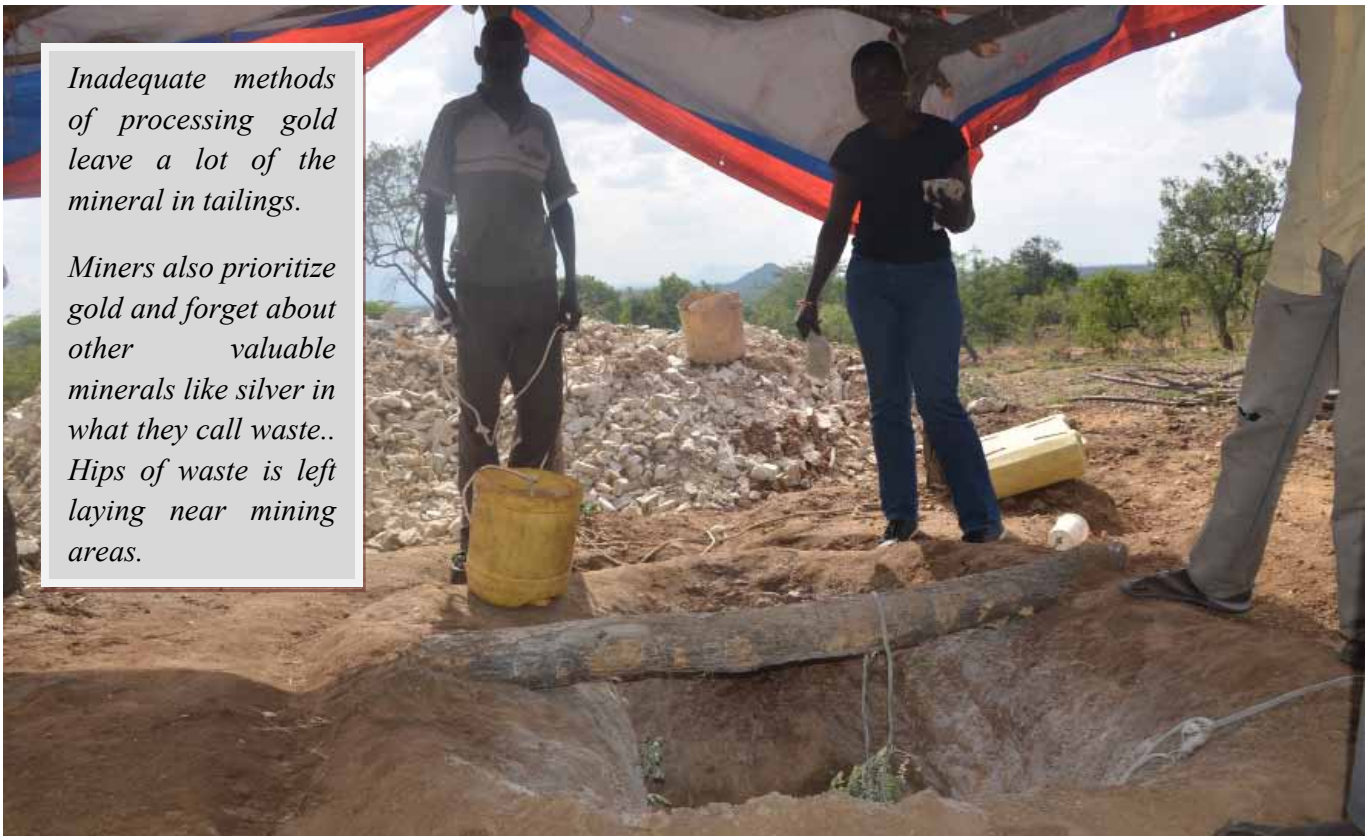
Processing gold requires sufficient water. Karamoja is a water stressed area.

Miners struggle to process gold with limited water and it is likely that the recovery of gold is also limited.



Inadequate methods of processing gold leave a lot of the mineral in tailings.

Miners also prioritize gold and forget about other valuable minerals like silver in what they call waste.. Hips of waste is left laying near mining areas.





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