

# Appendix 1

Brief description of gold extraction using mercury as it is used today in Cabo Delgado and the suggested new method: mercury-free gold extraction.

## Gold extraction using mercury

Present set-up for gold extraction.

The milled gold ore is placed in the upper box which has a number of hoes in the lower end. The box is called sluice and the lower part of the system is called a launder. The milled ore is flushed with buckets of water down on the launder. On the launder is a layer of sacks where the heavy particles such as gold are supposed to be captured. Next stage is to clean the heavy minerals from the sack into a gold diggers pan. The material is crudely reduced and then mercury is added. The mercury is thoroughly mixed with the ore whereby gold amalgamates with mercury. The amalgam is subsequently heated whereby mercury evaporates and the gold is left behind.



## Mercury-free gold extraction

Sluice box to the right where milled ore is placed and flushed down the launder which during processing has a carpet of felt where heavy minerals and gold is captured



When the felt is full of heavy minerals it is taken off the launder and 'washed' in a tub whereby the heavy minerals and gold sinks to the bottom of the tub



The heavy mineral concentrate is further concentrated in a pan yielding a good gold concentrate



The gold concentrate is mixed with borax a few drops of water and put into a small piece of plastic. The little bag is placed in a clay bowl or piece of brick. The set-up is covered by ignited charcoal and strong blowing until the gold melts and form a small piece of gold.



Result of gold extraction. The small piece of gold is recovered from processing using mercury, the bigger piece from mercury-free gold extraction in Waiquia





Old method using mercury in the foreground versus new mercury-free gold extraction in the background in Wacueia