

# The Gold Shop Mercury Capture System (MCS): a Simple Technology for Healthier Local and Global Communities

*By capturing vaporized mercury in small-scale gold shops, the MCS could prevent the release of hundreds of metric tons of the neurotoxin annually.*

## Reasons for MCS Success:

- Designed by US EPA and Argonne; piloted with local collaborators.
- Constructed of readily available materials.
- Costs less than US \$500 to locally produce.
- Easy to transport.
- With proper installation and use, can capture over 80% of mercury produced in small-scale gold shops.

## Existing Process:

Throughout over 70 countries, approximately 50,000 small-scale gold shops vaporize mercury to refine gold ore. Through this process elemental mercury is released into atmosphere, severely impacting the health of local and global communities. Mercury is a powerful neurotoxin that impairs learning, memory, and many of the senses and can harm the brain, heart, kidneys, lungs, and immune system. In most gold shops, there is no filtration or capture of vaporized mercury, allowing airborne concentrations to reach over 100 times the safe level.

## Intervention:

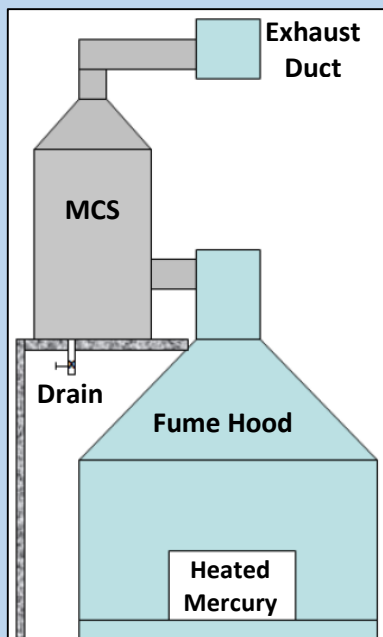
The Gold Shop Mercury Capture System (MCS) is a low cost, low maintenance, mercury capture device. Developed by the U.S. Environmental Protection Agency and the Argonne National Laboratory, the MCS is easy to construct, simple to install, and can reduce gold shop mercury emissions by over 80%. The MCS is constructed using a 55 gallon steel drum, where mercury vapor is cooled, condensed, and collected as liquid for safe management.



**Attachment of the MCS to an existing fume hood in a small-scale gold shop.**

## Outcomes:

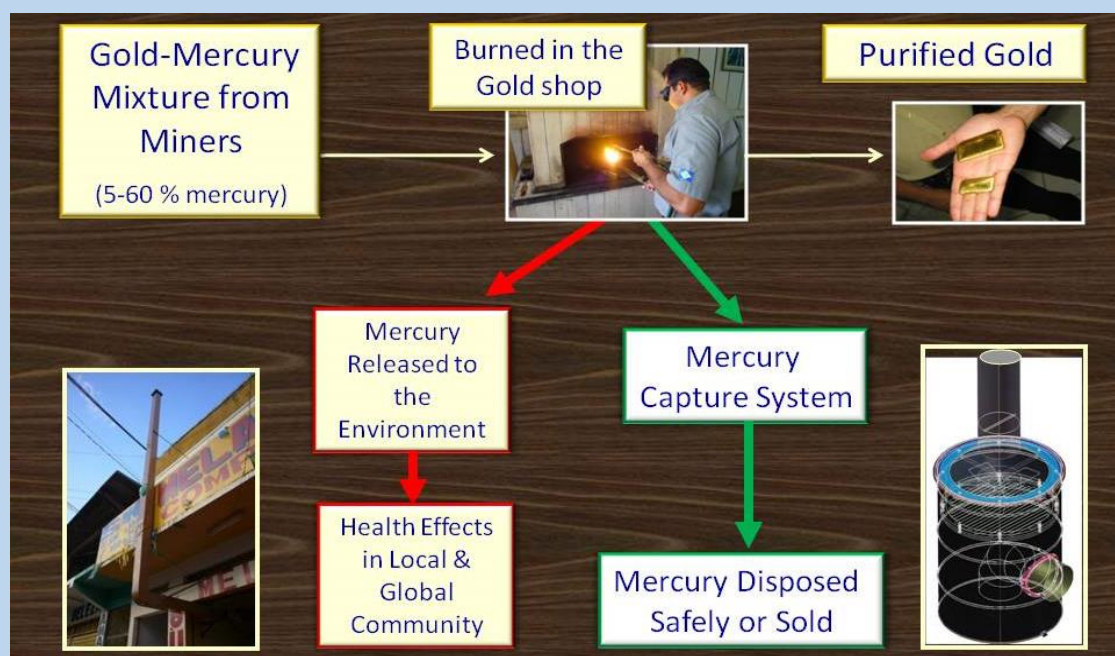
- MCS was successfully piloted in Peru and Brazil in 2008.
- Mercury vapor concentration decreased approximately 5 to 20 fold in gold shops.
- Widespread MCS use could prevent the release of over 200 metric tons of mercury into the atmosphere annually, thereby preventing harm to humans and the environment.
- The challenge now is to encourage and facilitate use of this technology in gold shops around the world.



**Preferred MCS configuration. Mercury is collected daily from a drain for safe management.**

## More Information:

- [MCS Design and Function Video](#)
- [MCS Construction Manual](#)
- [MCS Effectiveness Report](#)
- [UNEP Global Mercury Partnership](#)
- [UNEP Global Mercury Assessment](#)
- [US EPA Efforts on Mercury](#)



**Simplified artisanal and small-scale gold mining processing cycle. Mercury vapor is released when the gold-mercury mixture is burned in gold shops.**