

## **Background Paper for: Mercury and Artisanal and Small Scale Gold Mining: the Path Forward**

Artisanal and Small Scale Gold Mining (ASGM) is currently estimated to be responsible for 12% of the world's gold production or approximately 330 tons per year.<sup>1</sup> In addition to the 13 to 20 million small-scale miners directly involved in the industry<sup>2</sup>, ASGM supports the livelihood of over 100 million people in 70 countries.<sup>3</sup> This trend appears to be increasing as gold reaches record highs; the price of gold has risen from \$274.45 oz at the start of 2002<sup>4</sup> to \$912 oz in mid-May, 2009.<sup>5</sup>

### **Mercury in ASGM**

Mercury is commonly used in ASGM to amalgamate gold. Mercury is favored over other methods of gold extraction for a number of reasons, including ease of use, ready accessibility and relatively low costs. Further, mercury amalgamation allows for a completely independent operation; the entire mining process can be accomplished by one miner, as opposed to some of the more costly and technically sophisticated methods.<sup>6</sup> Thus, even though other methods may be theoretically more effective,<sup>7</sup> mercury amalgamation is a very practical and efficient method under the conditions typically found at ASGM sites.

Unfortunately, the use of mercury in ASGM can be devastating on a local, regional and global level. Once the gold has been collected, the mercury is burned off; the resulting vapors are directly inhaled by miners and their families, posing direct health risks to these individuals: one study of Peruvian children of ASGM miners found that nearly 85% of the sampled children had dangerous levels of mercury in their bodies.<sup>8</sup> Mercury is a potent neurological toxicant that interferes with brain functions and the nervous system. It is particularly harmful to babies and young children. Low-level exposure to infants during gestation is associated with attention span, fine-motor function, language, visual-spatial abilities (such as drawing) and verbal memory. In adults, mercury can cause numbness and tingling, vision abnormalities, and memory problems.

In addition to directly affecting human health, mercury is often released into streams and rivers adjacent to mining sites, severely contaminating these water bodies. Further,

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<sup>1</sup> Telmer, K.H. and M.M. Veiga, 2008. World emissions of mercury from artisanal and small scale gold mining. In: Mercury Fate and Transport in the Global Atmosphere: Measurements, Models and Policy Implications. Interim Report of the UNEP Global Mercury Partnership, Mercury Transport and Fate Research Partnership Area. July 14. <http://www.cs.iaa.cnr.it/UNEP-MFTP/index.htm>.

<sup>2</sup> Stablum, A. 2008. Big increase in illegal gold mining as price rockets. Thomson Reuters, London.

<sup>3</sup> Telmer and Veiga, 2008.

<sup>4</sup> <http://goldprice.org/live-gold-price.html>

<sup>5</sup> 2008. Draft business plan of the artisanal and small scale gold mining partnership area. UNEP Global Mercury Partnership.

<sup>6</sup> Ibid.

<sup>7</sup> Telmer and Veiga, 2008.

<sup>8</sup> Counter, S.A., Buchanan, L.H., and F. Ortega, 2006. Neurocognitive screening of mercury-exposed children of Andean gold miners. *Int J Occup Environ Health* 12:209-214.

because mercury is a global pollutant, the mercury released to air and water from ASGM sites becomes part of the total load of mercury circulating in the global environment. That means that mercury released from a source in one country can disperse around the world, often falling far from its source of release and entering distant food supplies. In all, ASGM is estimated to release up to 1350 tonnes of mercury to the global environment annually.<sup>9</sup>

In recent years, the widespread use of mercury in ASGM has drawn the attention of the international community, and addressing this problem is a key component of broader strategy to combat global mercury pollution. Notably, in February of this year, the UNEP Governing Council decided to begin negotiations on a legally binding international agreement to control global mercury pollution, which will include measures to control the use of mercury in ASGM. As one of the largest uses of mercury in the world, the ASGM sector received special attention from the UNEP GC in its Decision 25/5, in Para 34 (c), which called on governments to make progress on reducing mercury while the treaty details are negotiated; the Decision specifically requested governments to enhance efforts on “conducting awareness-raising and pilot projects in key countries to reduce mercury use in artisanal and small scale gold mining”<sup>10</sup>.

As one vehicle to implement such projects, UNEP has created a Mercury Partnership for Artisanal and Small Scale Gold Mining, directed at promoting low-mercury and mercury-free ASGM techniques, among other objectives. UNEP’s ASGM Mercury Partnership has adopted the goal of 50 percent mercury use reduction in ASGM by 2017, based on a recent report prepared for UNEP estimated that the use of mercury in ASGM could be reduced by 50 to 60 percent over the next decade<sup>11</sup> through strategic and aggressive promotion of low-cost, practical cleaner production techniques for small scale miners that reduce mercury emissions without undermining economic benefits for the miners.

### **Purpose of the Meeting**

The purpose of the meeting is to promote awareness of the issue of the uncontrolled use of mercury in artisanal/small scale gold mining, and to consider solutions to this problem. The meeting will provide participants with information on:

- The role of ASGM in global mercury problem;
- Links between ASGM and pro-poor economic development policy more generally;
- The ways mercury is used now in ASGM, and
- A series of success stories of low-mercury/mercury-free techniques that have been successfully tested in the field.

After the informational presentation, participants will be invited to brainstorm ideas and recommendations for priority activities, and for how to bring greater focus, attention and resources to addressing this problem throughout the international development community.

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<sup>9</sup> Telmer, K.H. and M.M. Veiga, 2008.

<sup>10</sup> <http://www.unep.org/GC/GC25/Docs/GC25-DRAFTDECISION.pdf>

<sup>11</sup> Telmer, K.H. and M.M. Veiga, 2008.

The session will be helpful for those working in international financial institutions, bilateral aid agencies, selected NGOs and foundations, the large-scale mining sector, private sector gold consumers (e.g. jewelers), and others engaged with the ASGM sector, to learn about the practice of mercury use in ASGM, the likely impact that expected mercury restrictions under the treaty will have on the economic life of this sector, and potential avenues for solving this difficult problem.