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Origin and consumption of mercury in small-scale gold mining

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Abstract

Mercury (Hg) is used by small-scale gold miners in more than 50 developing countries, where the accompanied releases affect human health and the environment. The objectives of this paper are to summarize present use of Hg in artisanal and small-scale mining (ASM) worldwide, reveal the origin of part of the Hg used by the gold miners, and propose appropriate actions to reduce the resulting Hg emissions. Significant releases of mercury are associated with inefficient amalgamation techniques. Releases are estimated to range from 800 to 1000 t/annum. Of this total, approximately 200–250 t of Hg are released in China, 100–150 t in Indonesia, and 10–30 t each in Bolivia, Brazil, Colombia, Peru, Philippines, Venezuela and Zimbabwe. Mercury usually enters these countries legally – typically imported from countries in the European Union – although in some cases and in some years (e.g., Indonesia, Venezuela, etc.), the reported imports of Hg are far below estimated consumption. Meanwhile, the EU, while gradually replacing Hg products and processes with more environmentally benign alternatives, paradoxically continues to produce virgin

with more environmentally benign alternatives, paradoxically continues to produce virgin Hg at government-owned mines, further exacerbating a general global oversupply of Hg – evident from its historically low market price. Political leadership is needed to avoid the transfer of excess Hg, and related health and environmental risks from the EU to third countries. Otherwise, the present situation will continue or even worsen, with no oversight or control of the global Hg trade in which the transfer of excess EU Hg to artisanal miners is favoured by low Hg prices relative to gold prices.



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Keywords

Artisanal gold mining; ASM; Mercury trade; Mercury emissions

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