Developing public health strategies for artisanal and small-scale gold mining within the Minamata Convention on Mercury:

findings and lessons learned from country workshops

World Health Organization

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Background

Mercury amalgamation remains the preferred method to extract gold employed in artisanal and small-scale gold mining (ASGM) worldwide. Liquid elemental mercury is added to an ore slurry to bind to gold and form a gold–mercury complex (amalgam). When gold is separated from mercury in the smelting process, high concentrations of mercury vapours are released. People working and living in ASGM communities are exposed to mercury mainly through inhalation of these toxic vapours. Furthermore, mercury dust is deposited on surfaces (walls, clothes, tools) and released to the environment, where microorganisms in water and soil convert elemental mercury into organic methylmercury, which accumulates in the food chain *(1)*.

Acute mercury exposure affects the respiratory, cardiovascular and nervous systems, as well as the kidneys. Chronic exposure affects mostly the nervous system, causing neurological damage. Symptoms can take years to appear in adults. Pregnant women are particularly vulnerable, as prenatal exposure of the fetus to mercury can lead to irreversible neurological damage, including birth defects, developmental disorders and impaired cognition, and can result in adverse pregnancy outcomes such as stillbirth *(2, 3)*.

The Minamata Convention on Mercury is an international treaty that entered into force in 2017 with the goal of protecting human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds *(4)*. Article 7, paragraph 3(a) of the Convention states that each Party that has more than insignificant ASGM in its territory shall develop and implement a national action plan (NAP) in accordance with Annex C to the Convention, which further stipulates that such a NAP must include a public health strategy to prevent artisanal and small-scale miners and their communities from being exposed to mercury. Developing the public health strategy is primarily the responsibility of ministries of health.

World Health Assembly resolution WHA67.11 (2014) calls upon the World Health Organization (WHO) Secretariat to support ministries of health in meeting their obligations under the Minamata Convention on Mercury *(5)*. The WHO guidance document *Addressing health when developing national action plans on artisanal and small-scale gold mining under the Minamata Convention on Mercury* details an approach to addressing health during the wider process of developing the NAP *(6)*.

To support ministries of health develop their detailed public health strategies for inclusion in the NAPs, WHO, in collaboration with the Swiss Tropical and Public Health Institute, developed a research approach. The approach was pilot-tested in three African countries – Ghana, Mozambique and Nigeria – that have extensive ASGM activities and were in the process of developing a NAP. The evidence collected and the recommendations that emerged by applying the research approach guided ministries of health and other stakeholders in developing the public health strategies. *A Step-by-step guide for developing a public health strategy for artisanal and small-scale gold mining in the context of the Minamata Convention on Mercury* to using the research approach is available for researchers or other types of assessors *(7)*. Figure 1 shows the six steps to develop a public health strategy using the research approach. In the last step of the process, a national multistakeholder workshop is held to translate the findings and recommendations from the assessments (steps 3–5) into a public health strategy.

Figure 1. Steps of the process to develop a public health strategy