



*Minamata Initial
Assessment*

Health component in West Africa

A summary of the health impact assessment undertaken in six West African countries as part of the Minamata Convention pre-ratification process.



World Health
Organization
REGIONAL OFFICE FOR
Africa

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1. Introduction

Mercury is one of the top ten chemicals endangering human health and the environment worldwide. The poor handling and disposal of such products can damage ecological systems and human health. People are exposed to mercury through touch, ingestion and inhalation. When mercury is released into the environment as a gas or solid, it can travel long distances by wind and water and enter the food cycle. Mercury does not degrade and there is no cure for mercury poisoning. Different forms of mercury are toxic to the brain, kidneys, heart, lungs and immune system.

Mercury does not degrade and there is no cure for mercury poisoning

Mercury is used in a wide range of products and applications. The primary sources of anthropogenic mercury emissions are artisanal and small-scale gold mining (727 tonnes), coal combustion (474 tonnes), primary production of non-ferrous metals (193 tonnes), cement production (173 tonnes), large-scale gold production (97.3 tonnes) and consumer product waste (95.6 tonnes).¹ Mercury-containing materials such as thermometers and sphygmomanometers are used in many health facilities and present a potentially harmful health risk. Dental amalgam is still widely in use in dentistry. Poorly managed disposal of such mercury-containing materials and other mercury wastes poses additional health risks.

Dental amalgam

In 2010, mercury in dental use accounted globally for 340 metric tonnes, which represents under 20% of the global mercury emissions overall.² The WHO report, 'Future Use of Materials for Dental Restoration' (2010) reported that the use of dental amalgam results in 180-240 tonnes of mercury being discharged into the atmosphere, soil, and water every year, while only 80-100 tonnes are recycled, sequestered or disposed of securely.³

Most dental fillings are made of amalgam, which is a mixture of mercury, silver, tin and copper. Researchers have been warning for years that amalgam can increase mercury levels in blood. Recent reports discovered that people with more than eight amalgam fillings have twice as much mercury in their blood, compared to people with no fillings.⁴ The safety of dental

amalgam has been considered by many countries around the world, with some European countries restricting its use for health reasons.

Medical instruments containing mercury

The World Medical Association passed a resolution⁵ in 2008 calling for the substitution of mercury-based medical devices with safer alternatives. Due to the health effects of mercury exposure, industrial and commercial uses are regulated in a number of countries. However, Low and Middle Income Countries have been slow to phase out the use of mercury-based medical devices, largely due to the cost of replacing equipment.

Mercury waste management

The Basel Convention Technical Guidelines⁶ assert that mercury must be disposed of in a stabilized and solidified state in a specially engineered landfill or must be permanently stored in secure underground storage facilities that use storage vessels specifically designed for the purpose. Globally, only a few countries have the technology and equipment for the solidification and stabilization of mercury, and only a limited number of appropriate final disposal facilities are available around the world. Of the total amount of waste generated by healthcare facilities, about 85% is general, non-hazardous waste. The remaining 15% is considered hazardous material that may include mercury as chemical waste. Open burning and incineration of healthcare wastes can result in gaseous mercury emission, which then acts as a neurotoxin.

The Minamata Convention and Minamata Initial Assessments

The Minamata Convention, entered into force in August 2017, is a global treaty that aims to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. Leading roles for the health sector in the Minamata Convention are:

- Article 4 and Annex A (Mercury-added products): Phase out manufacture, import and export by 2020 of thermometers, blood pressure monitors, antiseptics and skin-lightening

¹ United Nations Environment Plan. Global Mercury Assessment 2013: Sources, Emissions, Releases and Environmental Transport. UNEP Chemicals Branch, Geneva, Switzerland; 2013 (<http://wedocs.unep.org/handle/20.500.11822/7984>, accessed 16 April 2018)

² *ibid*

³ World Health Organization. Future use of materials for dental restoration: Report of the meeting convened at WHO HQ, Geneva, Switzerland 16th to 17th November 2009. Geneva, Switzerland; 2009 (http://www.who.int/oral_health/publications/dental_material_2011.pdf Accessed on 16 April 2018)

⁴ Yin L, Yu K, Lin S, Song X, Yu X. Associations of blood mercury, inorganic mercury, methyl mercury and bisphenol A with dental surface restorations in the U.S. population, NHANES 2003 - 2004 and 2010 - 2012. *Ecotoxicology and Environmental Safety*. 2016; 134:213. doi: 10.1016/j.ecoenv.2016.09.001

⁵ World Medical Association statement on reducing the global burden of mercury. 59th WMA General Assembly, Seoul, Korea; 2008 (<https://www.wma.net/policies-post/wma-statement-on-reducing-the-global-burden-of-mercury/> Accessed on 16 April 2018)

⁶ Basel Convention. Technical guidelines for the environmentally sound management of wastes consisting of elemental mercury and wastes containing or contaminated with mercury. Twelfth Meeting of the Conference of the Parties to the Basel Convention, Geneva, Switzerland; 2015 (<http://www.basel.int/Implementation/Publications/LatestTechnicalGuidelines/tabid/5875/Default.aspx> Accessed on 16 April 2018).

cosmetics; Phase down use of dental amalgam.

- Article 7 and Annex C: Artisanal and small-scale gold mining: Develop public health strategies to address the health impacts of mercury use in artisanal and small-scale gold mining.
- Article 12: Contaminated sites: Undertake human health risk assessments.
- Article 16: Health Aspects: Develop and implement strategies and programmes to identify and protect populations at risk.
- Article 17: Information exchange.
- Article 18: Public information, awareness and education.
- Article 19: Research, development and monitoring: Undertake health assessments and monitor levels of mercury and mercury compounds in vulnerable populations.

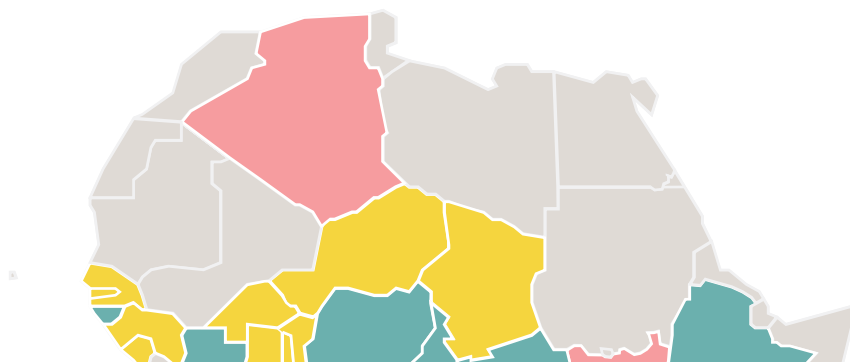
To ratify the Minamata Convention, countries need to undertake assessments that provide baseline information of their current situation. Undertaking these Minamata Initial Assessments (MIAs) will help countries complete pre-ratification preparations and define national priorities for implementation of the Convention. WHO Regional Office for Africa (WHO-AFRO) submitted a proposal for a small-scale project on the health component of the MIA to the United Nations Industrial Development Organization (UNIDO). This

health impact assessment is part of a comprehensive MIA of the health and environmental impact of mercury within Africa. The Ministries of Public Health in six West African countries, Benin, Guinea, Mali, Niger, Senegal and Togo, with the support of WHO, collected data and information on the use and disposal of medical equipment and materials containing mercury in the health system. This report summarizes the findings obtained.

The findings in this report will be useful to professionals working in the health and environment sectors, including planners and programmers in national governments, NGOs, research agencies, and regional and international development partners.

This health impact assessment is part of a comprehensive MIA of the health and environmental impact of mercury within Africa.

Figure 1. The Minamata Convention in Africa



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