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Decontaminating networks: Mercury supply, financial flows, and informal gold mining in West Africa

Gavin Hilson, Steven Van Bockstael, and Tim Laing

- The brief addresses mercury use in artisanal and small-scale gold mining (ASM) in West Africa and highlights the environmental and socio-economic impacts.
- Research was driven by the Minamata Convention, which seeks to reduce mercury pollution but is often misinterpreted in sub-Saharan Africa.
- Findings show rural economies' heavy reliance on mercury-based gold processing, exposing vulnerable women to significant health and economic disadvantages.
- Current National Action Plans inadequately address ASM's complexities, requiring more nuanced policies considering gender dynamics and economic dependencies.

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Introduction

This brief shares key findings from the IGC-funded project, “Decontaminating Networks: Mercury Supply, Financial Flows and Informal Gold Mining in West Africa”, and reflects on the policy implications of the work undertaken.

(Methyl)mercury pollution from ASM has long been identified as a major environmental problem across the developing world. In the case of sub-Saharan Africa, work carried out over the past two decades by scholars, consultants, and donors have confirmed that in countries where there are elevated concentrations of artisanal and small-scale gold mining activity, methylmercury pollution is, indeed, a problem.

The impetus for this project was the euphoria surrounding the launch of the *Minamata Convention on Mercury*, “a global treaty to protect human health and the environment from the adverse effects of mercury” (Minamata Convention on Mercury, 2021a). It is viewed by host government officials, donors and representatives at NGOs and environmental organisations as an important first step toward tackling this perceived problem. The Convention was drafted 19 January 2013, adopted 10 October later that year, and came into force 16 August 2017. Countries that ratify the *Minamata Convention on Mercury* are required to produce a National Action Plan (NAP), a document, produced by the host country’s government that provides “a clear and transparent basis for the support, development, and implementation of activities to reduce, and where feasible eliminate, mercury use, emissions and releases from ASGM at the national level” (UN Environment, 2017). The NAP must be supplied to the Minamata Secretariat within three years of ratification and must include specific information and data, the details of which are outlined in Annex C of the *Minamata Convention on Mercury: Text and Annexes*.¹

Governments in sub-Saharan Africa, however, have tended to interpret their ratification of the Minamata Convention as a commitment to banning use of mercury at ASM sites altogether and with immediate effect. With few, if any, mature alternatives capable of rivalling mercury on the cost and efficiency fronts, however, it is imperative that, in line with the convention, the region’s governments work to *gradually* phase out use of mercury and only where this is possible. Research has revealed that ASM is the most important rural nonfarm activity in sub-Saharan Africa which, in many stretches of the region, generates earnings used to purchase crucial farm inputs such as fertilisers and pesticides, in turn stabilising local food security. Any sudden disruption to supplies of

¹ Annex C states very explicitly what is required (extracted verbatim). Each Party that is subject to the provisions of paragraph 3 of Article 7 shall include in its national action plan: (a) National objectives and reduction targets; (b) Actions to eliminate: (i) Whole ore amalgamation; (ii) Open burning of amalgam or processed amalgam; (iii) Burning of amalgam in residential areas; and (iv) Cyanide leaching in sediment, ore or tailings to which mercury has been added without first removing the mercury. See UN Environment Program. 2023. *Minamata Convention on Mercury: Text and Annexes - 2023 Edition*. UN Environment Program, Geneva.

mercury could threaten this symbiosis, in the process, destabilising many of the region's rural economies.

The findings from research carried out in Sierra Leone and Liberia reported here seek to draw attention to how the fates of millions of people in sub-Saharan Africa are, at present, tied to a steady availability of mercury supplies. They are also used to cast light on how programmes being implemented under the Minamata Convention need to be targeted, as the threats posed to the cast of characters found at a typical ASM site in the region are not the same across the board.

Overview

Whilst both Sierra Leone and Liberia have burgeoning artisanal and small-scale gold mining economies, neither is particularly well-equipped to regulate this sector moving forward. This is due to both countries long being strategic suppliers of alluvial diamonds and therefore having mining legislation in place that caters mostly to regulating their extraction and export, not gold. Nevertheless, despite this obvious shortcoming, Sierra Leone ratified the Minamata Convention on 1 November 2016, and began working on its Minamata Initial Assessment, a baseline exercise that must be undertaken *before* carrying out work linked to the NAP, with support from staff at UNITAR, in February 2017. It then proceeded to complete its NAP in April 2020. Liberia, by comparison has *not* ratified the convention (likely because it is viewed by the Minamata Secretariat as not being in a position to do so) and only recently submitted its draft Minamata Initial Assessment, in August 2024 (see Table 1).

TABLE 1: Minamata Convention profiles for Sierra Leone and Liberia²

	Sierra Leone	Liberia
Signature	12-08-14	24-09-14
Ratification	01-11-16	N/A
Minamata Initial Assessment	2019	2022-2024

² "Parties and Signatories", <https://minamataconvention.org/en/parties/> (Accessed 23 June 2024); "Development of Minamata Initial Assessment and National Action Plan for Artisanal and Small Scale Gold Mining in Sierra Leone", www.thegef.org/projects-operations/projects/9454; "Minamata Initial Assessment in Liberia", www.thegef.org/projects-operations/projects/10133 (Accessed 4 May 2024).

National Action Plan	April 2020	N/A
Implementing Agency	UNEP	UNIDO
Executing Agency	UNITAR	Environmental Protection Agency

The main motivation behind carrying out this research was the view that the network underpinning the circulation of mercury supply across West Africa is vast, dynamic, largely informal and transboundary; these details are important in light of the Minamata Convention. It was the collective view of the team that there is a great deal of commerce behind the supply of mercury which must be viewed in conjunction with the financial flows in and out of ASM before important decisions are made about Minamata and the ASM sector more generally.

Whilst some time was spent analysing the regulatory and institutional frameworks in both countries to ascertain how well-equipped they are for regulating ASM and embracing the policy changes that come with ratification of the Minamata Convention, the bulk of work carried out for this project took place at (mine) sites. Selection of sites was deliberate, influenced by the pandemic (only those which could be accessed legitimately were selected) and previous history (i.e. where the team has built a sound rapport with, and thus have access to, local communities). Following this blueprint, the team decided to conduct fieldwork at the following locations: in Sierra Leone, Sinbek, Mathonkara, Manki and Makeleh in Tonkolli District; and in Liberia, Weaju and Reeve Village in Gola Konneh District, and Butter Hills in Kpokpa District. In total, 117 people (miners, traders and sponsors) across these sites were interviewed between July 2022 and August 2023. All data were inputted into the KOBOTOOLBOX, an online data storage platform that can be accessed via mobile phones. In addition, 40 in-depth life histories were conducted with selected respondents. The intention was to capture the more intricate details of mercury supply, availability and use at sites and to determine the extent to which individuals' lives have been impacted by it.

Findings

The data gathered paint a fairly clear picture of the dynamics of the mercury supply chain in both countries' ASM sites, as well as capture individuals'

growing dependency on amalgamation to process gold. Perhaps the most significant finding, however, was the discovery that the ore-sharing agreements at sites are a major determinant of mercury exposure at sites.

Specifically, the sluice box used at sites to wash ore contains three “compartments” or “boxes”. Most of the gold is captured in the first box, which belongs to the sponsor or the “boss”. After the gravel runs through the first box, it is washed again in the second box. There is not much left at this point but what gold is collected is used by the “boss” to finance the business. For example, he or she uses the gold collected here to purchase food for labourers and diesel for the excavators. The third and last box belongs to the washing team, which, at the sites visited in Sierra Leone, are mostly women. The gravel washed in the first and second boxes is washed by these same women. There is almost no gold or very little dust remaining at this stage and of what is available, it is extremely difficult to collect. Mercury is, therefore, relied on heavily at this point to recover finer particles of gold.

When it emerged in late- 2022 that in Sierra Leone, vulnerable women were the most exposed to mercury at sites, the result of this ore-sharing agreement, the team decided to slightly pivot the work to investigate this phenomenon. From the data analysed thus far, these women do whatever it takes to capture gold, even if it means purchasing more mercury. Doing so, however, brings about even more hardship: they typically purchase it from their sponsors (usually the “boss”) and end up selling what little gold they recover to him or her but at a much lower price than they would fetch in town. To capture the full extent of the story of the “third box”, the team conducted 40 life histories with individuals occupying the lowest rung of the ASM labour hierarchy who, again, are among the most exposed to mercury being used at sites.

Policy implications

Are the governments of Sierra Leone and Liberia capturing this level of detail in their assessments of mercury use in ASM and more broadly, baselines of the sector itself? The likely answer is *no*. Discussions and engagements with policymakers in both countries left a lot to be desired. Liberia could perhaps be given a pass as it has not yet ratified the Minamata Convention and because the results of its Minamata Initial Assessment were not yet in the public domain at the time of writing.

Both Sierra Leone’s Minamata Initial Assessment and NAP make reference to gender. The former provides a brief summary of the female contingent found in the sector, sharing details about their average ages and marital statuses, and weighing in on their vulnerability (UN Environment Programme & UNITAR, 2019). The latter rather focuses on gender norms, reinforcing generic claims made

about women's involvement in ASM elsewhere in sub-Saharan Africa (UN Environment Programme & UNITAR, 2020). It states, *inter alia*, that:

Women face gender-specific challenges in the sector. They face more difficulty in joining mining groups which are dominated and ruled by men, unless their husband, a relative or a close friend is part of the group and invites her. They cannot access hard rock mining sites as they are often not allowed to go up in the hills as a result of superstitious beliefs and security concerns. In addition, women face difficulty in accessing land due to historical gender norms and due to their difficulty in accessing finance. This is related to women's market access, since it is often the gold buyers that invest in ASGM operations. However, given that women are often excluded from mining groups, it is less viable for gold buyers to invest in women's operations as their production is lower... (UN Environment Programme & UNITAR, 2020).

It is fairly safe to say that the NAP crafted in Sierra Leone is ill-equipped to deal with the phenomenon of the "three boxes". The findings uncovered during research in Sierra Leone are a reminder of how dynamic ASM communities are in sub-Saharan Africa and why generic policy treatment will never be enough to adequately address the complex challenges confronting the sector. This is despite the Minamata Secretariat prioritizing gender so much so that there is a gender focal point. As explained on its website, "The Minamata Convention on Mercury pays specific attention to the needs of vulnerable populations, especially women and children, in several parts of its text", including the preamble, which states that there are "health concerns, especially in low- and middle-income countries, resulting from exposure to mercury of vulnerable populations, especially women, children, and through them future generations"; in Article 16 on health aspects; Article 18 on public information, awareness and education; Article 19 on research, development and monitoring; and Article 22 on effectiveness evaluation all refer to the needs of vulnerable groups and populations (Minamata Convention on Mercury, 2021b).

The documents produced for Sierra Leone fall considerably short of addressing any of these points. It is findings from research that unearth phenomena such as the "three boxes" that should be informing the gender dimension of NAPs in countries such as Sierra Leone, as opposed to outdated, uninformed top-down analysis.

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