NATIONAL ASGM STATUS REPORT

PHILIPPINES

BAN TOXICS

IPEN

for a toxics-free future

About BAN Toxics

BAN Toxics is a Philippine-based independent non-government environmental organization that works for the advancement of environmental justice, health, and sustainable development in the area of chemicals and wastes with a special focus on women, children, and other marginalized sectors.

The organization works closely with government agencies, communities, and civil society at the local, national, and international levels to reduce and eliminate the use of toxic chemicals and support global sustainable development goals through education campaigns, community grassroots interventions, training and capacity-building, policy research and development, and advocacy programs.

Over its decades-long existence, the organization has worked on pressing chemicals issues such as e-wastes, plastics, toxic chemical pollution, and waste trade. BAN Toxics has started enduring programs such as the Toxics-Free Schools Program (TFSP) and the Compassionate Gold (CG) project. In its work on mercury, BAN Toxics has been a consistent presence in advocating for the ratification of the Minamata Convention in the Philippines. The organization has also worked closely with various local and international ASGM communities to reduce its mercury emissions such as in Cambodia, Mongolia, Indonesia, Uganda, and Tanzania.

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National ASGM Status Report (Philippines)

I. Executive Summary

Mercury is considered one of the top chemicals of concern globally due to its persistent nature and its impacts to human health and the environment. Mercury is used extensively in several industries, but the primary source of anthropogenic releases and emissions remain the artisanal and small-scale gold mining (ASGM) sector where it is used to produce gold through a process called amalgamation.

The Philippines is considered one of the most mineral-rich countries in the world, with significant deposits of minerals such as gold, nickel, copper, and chromite. The country is the 17th biggest producer of gold in the world, and 5th biggest in Asia, with around 60 to 75% of the gold being produced by a thriving ASGM sector of at least 500,000 individuals and their families including at least 18,000 children and women.

The use of mercury in the ASGM sector is prohibited in the Philippines by virtue of several policies such as 2012's **Executive Order 79** also known as "Institutionalizing and Implementing Reforms in the Philippine Mining Sector Providing Policies and Guidelines to Ensure Environmental Protection and Responsible Mining in the Utilization of Mineral Resources," and the 2019 **Revised Chemical Control Order for Mercury and Mercury Compounds**. Despite this, it is continually used in the sector. This may be attributed to several social, cultural, and economic factors that are closely tied to issues of poverty and lack of access to resources.

The paper proposes to address these issues through the formalization of the sector and the increase of institutional support provided by local and national government units to ASGM communities. Furthermore, strengthening global frameworks such as the Minamata Convention on Mercury – ratified by the Philippines in 2020 – are considered key steps that must be taken to eliminate its use in the sector. Amendments such as the prohibition of global mercury trading and the adoption of a 2032 phase-out date for the use of mercury in ASGM should be adopted to further eliminate the use of mercury in ASGM and prevent illegal mercury from entering the Philippines.

II. Introduction

The Minamata Convention on Mercury defines Artisanal and Small-Scale Gold Mining (ASGM) as **gold mining conducted by individual miners or small enterprises with limited capital investment and production**.[i] The sector is considered the largest anthropogenic source of mercury emissions and releases in the world, with its use in ASGM the sector's informality. Essentially, the complex economic development and poverty issues (including exploitative working conditions, child labor, and inequitable wealth-sharing, among others) faced by ASGM contribute to its continued use of mercury. The formalization of the sector and the improvement of their capacity to access valuable social and economic resources then is considered a key step towards reducing and/or eliminating its use in the sector.[ii]

a. Contextual Overview of Artisanal and Small-Scale Gold Mining in the Philippines

The Philippines is considered one of the most mineral-rich countries in the world, with significant deposits of gold, nickel, copper, and chromite.[iii] Gold is considered a major resource, with the Philippine Statistics Authority estimating a total of 101.6 million metric tonnes[iv] of reserves distributed in more than 40 provinces in the country. This has made the Philippines the 17th biggest gold producer in the world [v] and the 5th in Asia.[vi]

Most gold produced in the Philippines comes from the largely informal ASGM sector which occurs in around 40 provinces and is comprised of a minimum estimate of around 500,000 individuals and their families, including women and children. [vii] Around 60 to 75% of the country's total annual gold production comes from ASGM,[viii] [ix] 95% of which is assumed to be sold illegally to jewellers and gold traders.[x] UN Comtrade data estimates that from 2005 to 2015, the Philippines lost as much as $2.5 billion of national revenue due to the illicit trade of gold,[xi] further reiterating the need to formalize the sector and ban mercury trade which is closely linked to illicit gold trade.

Despite being responsible for the production of most gold in the country, ASGM is still generally considered illegal in the Philippines. Because of this, the industry remains heavily unregulated with incidences of fatal accidents, child labor, and inhumane working conditions being reported. Little has improved over the years – ASGM is still considered an environmental and labor hazard,[xii] and miners are often subjected to toxic chemicals and dangerous working conditions with little or no protection.

b. Mercury Use in ASGM

Mercury is used by miners in a process called amalgamation. Mercury binds naturally with gold, and it acts as a glue that separates gold from other materials through the formation of a mercury-gold amalgam. This amalgam is subjected to heat, resulting in the vaporisation of mercury.[xiii]

The ASGM sector is considered the primary source of mercury use, release, and emissions at the global and national levels.[xiv] The Philippine Minamata Initial Assessment Report compiled by the Department of Environment and Natural Resources in 2019 estimates that 77.94% (around 212,972 kg/yr) of total emissions and releases in the Philippines originates from ASGM.[xv] Mercury is considered by the World Health Organization as one of the top ten chemicals or groups of major public health concern due to its persistent nature and its impacts to human health and the environment.[xvi]

Photo 1: Miner panning gold

Mercury use in ASGM is considered a traditional practice that has been used for generations. Beyond the lack of awareness regarding its risks**, its use is still primarily shaped by several factors**.

Firstly, ASGM is largely poverty-driven, and the ease and accessibility of using mercury allows miners to produce even small amounts of gold daily which is essential for their subsistent lifestyles.

Secondly, the informal nature of ASGM has made financing and illicit gold trading prevalent in these communities. This becomes a significant driver of mercury use as most gold traders and financers double as mercury suppliers for miners, making it difficult for miners who are already unable to access formal trading channels to shift to safer alternatives due to fear of losing support from traders and financers.

Finally, the lack of institutional support including access to financing mechanisms and alternative technologies has made it difficult for miners to shift to safer practices. The figure below summarizes the key factors that contribute to continued mercury use in the sector.

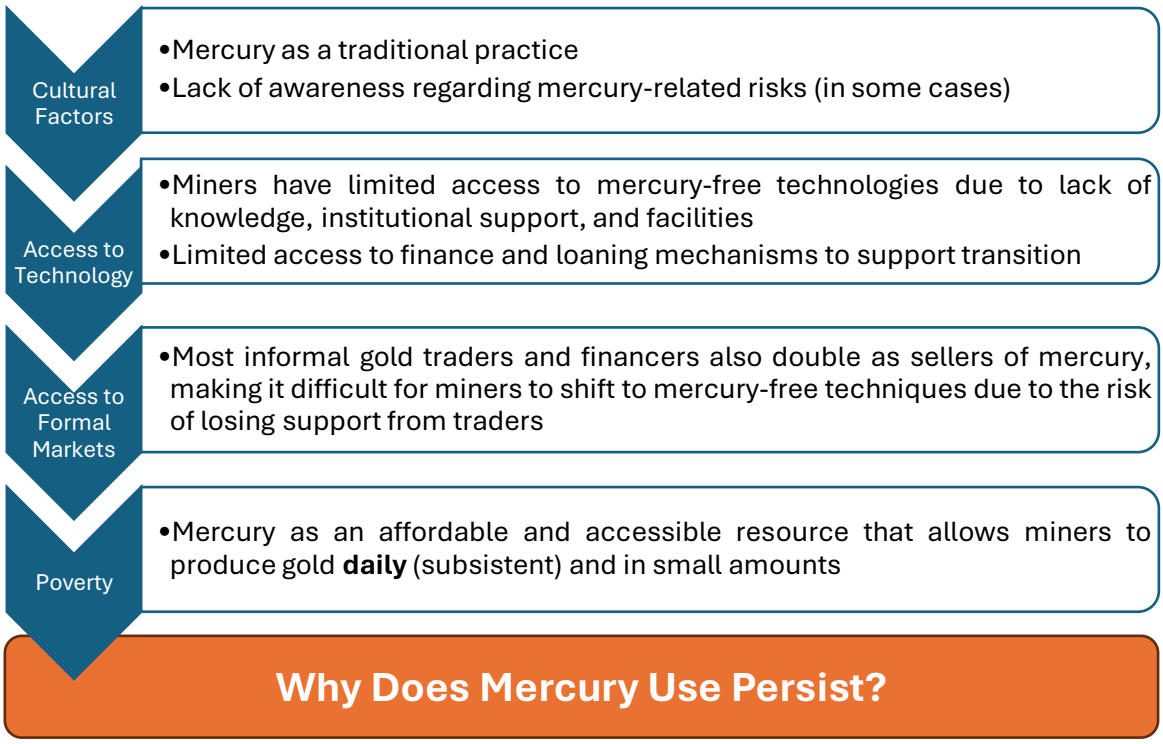

Figure 1: Summary of Factors Contributing to Continued Mercury Use

A study conducted by BAN Toxics in 2019 titled "Illicit Mercury Flows and Governance Practices in Mindanao, Philippines"[xvii] discusses in detail the social, economic, cultural, and political factors that contribute to the continued use of mercury in ASGM communities in the Philippines.

III. National Regulatory Framework related to mercury and ASGM

This section discusses the policies governing the Philippine ASGM sector and mercury use.

a. Legal Definitions of Small-Scale Mining

"Artisanal and small-scale gold mining" are general terms that refer to informal mining activities that are carried out using low technology or with minimal machinery. A singular definition of the sector does not exist, and local definitions may vary from country to country.[xviii]

In the Philippines, small-scale mining is defined by Republic Act No. 7076, otherwise known as the "People's Small-Scale Mining Act of 1991." RA 7076 defines small-scale mining as "activities which rely heavily on manual labor using simple implements and methods and do not use explosives, or heavy mining equipment."[xix] Currently, the country has no legal definitions for medium-scale mining.

Depending on the context, the concerned local government unit may be able to enact its own set of small-scale mining policies, in accordance to the national small-scale mining policies. One such policy is Resolution No. 84 Series of 2010, otherwise known as South Cotabato's Provincial Environment Code,[xx] which defines small-scale mining as a "single unit mining operation having an annual production not exceeding 50,000 metric tons of run-off-mine ore with the following prerequisites: (1) the working area is artisanal, either open cast or shallow underground mining, without the use of sophisticated mining equipment; (2) minimal investment on infrastructures and processing plant; and (3) heavy reliance on manual labor."

The definition outlined in the province's environment code is also consistent with the provisions set in Section 1 of Presidential Decree 1899.[xxi] PD 1899 also states that these small-scale mining operations should be owned, managed, and controlled by individuals and/or entities qualified under existing rules and regulations.

b. Mercury Use Policies

In 2020, the Philippines ratified the Minamata Convention on Mercury,[xxii] a global agreement on environment and health that specifically aims to control mercury supply and trade, reduce mercury's use, emissions, and releases, raise public awareness, and build necessary institutional capacities.

The use of mercury is governed primarily by the Revised Chemical Control Order for Mercury and Mercury Compounds issued by the Department of Environment and Natural Resources in 2019 prior to the ratification of the Convention, and revising the original CCO issued in

1997.[xxiii] Section 4 of the policy reiterates the prohibition on the use of mercury and mercury compounds in ASGM, as stated in Executive Order 79 s. 2012, otherwise known as "Institutionalizing and Implementing Reforms in the Philippine Mining Sector Providing Policies and Guidelines to Ensure Environmental Protection and Responsible Mining in the Utilization of Mineral Resources." While importation of mercury for use in ASGM is prohibited, Section 6 and 7 of the revised CCO states that importation of mercury, mercury compounds, and mercury added products such as lamps, batteries, relays, switches, cosmetics, medical devices, pesticides and biocides are still allowed provided that they comply with prescribed mercury limits and secure proper importation clearances.

c. Mercury Storage and Disposal in the Philippines

Section 8 of the Revised CCO for mercury also outlines specific guidelines for the storage and disposal of mercury. As a summary, these guidelines include a) spatial requirements such as the construction of adequate fencing, walls, and posts to limit access to the storage areas, guidelines for the construction of roofing, walls, and flooring to ensure proper accessibility and ventilation, b) monitoring requirements such as regular inspections and the fulfillment and submission of documentary requirements such as Safety Data Sheets, and c) the use of appropriate equipment such as spill containment systems and storage equipment consistent with national standards for hazardous waste management.

For the disposal of mercury, the general requirements include the submission of a preparatory and remedial work plan to the Environmental Management Bureau as well as the acquisition of transport/treatment permit requirements. The policy states that all treatments and disposals must be approved by the EMB and should comply with GHS procedures and applicable provisions of policies such as the 1999 Clean Air Act of the Philippines (RA 8749), the Minamata Convention, and other applicable environmental laws.

d. Policies on the Formalization of ASGM

The first policy concerning small-scale mining was established in 1984. Presidential Decree 1899 entitled, *"Establishing Small-Scale Mining as New Dimension in Mineral Development"* was enacted by the government as a response to the increasing economic impact of the sector. PD 1899 intended to develop small mineral deposits, generate income for the poor, and alleviate the poor living conditions in rural areas.[xxiv] Major provisions of the decree include requiring mining rights holders to secure the small-scale mining permits (with a two-year validity period) and exempting permit holders from the payment of all taxes except for income tax. Finally, PD 1899 gives the authority to process small-scale mining applications to the Director of the Mines and Geosciences Bureau.[xxv]

In 1991, Republic Act No. 7076 (otherwise known as the People's Small-Scale Mining act of 1991) was formulated to provide guidelines toward achieving a systematic and rational scheme for the small-scale development and utilization of mineral resources in order to

address the social, economic, technical, and environmental challenges pertaining to small-scale mining activities. The policy also gives mandate and devolves a number of key responsibilities to relevant local government entities.

The government has also noted the differences between the two policies. In an effort to reconcile some of these conflicting provisions, the DENR-MGB issued a clarifying guideline.[xxvi] Executive Order No. 79 (EO 79) series of 2012,[xxvii] otherwise known as "*Institutionalizing and Implementing Reforms in the Philippine Mining Sector Providing Policies and Guidelines to Ensure Environmental Protection and Responsible Mining in the Utilization of Mineral Resources,"* covers a variety of issues for both small-scale and large-scale mining, and aims to strengthen the protection of the environment, the promotion of responsible mining, and the promotion of better revenue-sharing practices in the sector. As discussed earlier, **EO 79 s. 2012 also explicitly prohibits the use of mercury in processing gold**.

There are also a number of policies governing the sale and production of gold. Under RA 7076,[xxviii] the Bangko Sentral ng Pilipinas is recognized as the only legitimate buyer of gold produced by ASGM. Other policies such as Republic Acts 11256 and 8502, however, are directly or indirectly linked with current gold trade practices. RA 11256 is a recent policy signed in 2019 that exempts miners from paying excise and income taxes for gold and aims to promote the availability of gold to jewelry enterprises.[xxix] RA 8502 or the Jewelry Industry Development Act of 1998, on the other hand, prohibits the purchase of gold from small-scale miners. However, the act also stipulates that accredited jewelry enterprises have the authority to purchase gold directly from the BSP.[xxx]

IV. ASGM Activities in the Philippines

Despite its largely informal status, ASGM continues to be a thriving industry in the Philippines with major sites such as South Cotabato, Camarines Norte, Benguet, and Compostella Valley, to name a few. As mentioned previously, around 40 provinces are home to some 500,000 individuals[xxxi] and their families whose main livelihood is derived from extracting gold in ASGM sites. Among these small-scale miners, 75 percent are engaged in subsistence mining, 15 percent are small individual or family businesses, while the remaining 10 percent are established commercial mining firms. In 2009, studies have suggested that around 18,000 women and children[xxxii] in rural communities are in some way involved in gold mining activities. Using the same ratio, the estimated number may have already reached at least 30,000 at present. A report released by the International Labor Organization (ILO) in 2011 estimated the number of children working in mines and mine offices for all types of minerals in the Philippines to roughly 20,000.

a. ASGM: Social and Economic Challenges

The microeconomic factors that influence the existence and drive the expansion of ASGM operations are rooted in the socio-economic conditions of ASGM communities—reflected in various "push" and "pull" factors which affect an individual's decision to undertake ASGM.[xxxiii] For example, agricultural workers and fisherfolk may be "pushed" toward a livelihood in ASGM due to diminished soil fertility and agricultural productivity, inadequate access to farming inputs, market failures, and/or natural disasters and climate extremes. Meanwhile, "pull" factors that draw people to ASGM include higher return on labor, generation of cash to meet non-food needs, and other economic opportunities associated with development.

The socio-economic conditions in rural communities present a complex set of development challenges that are closely linked to health, culture, environmental, and human security concerns. Individuals who engage in ASGM due to the need to generate cash to purchase daily necessities have a high potential to be stuck in a so-called "poverty trap"[xxxiv], a vicious circle of dependence involving un- or underemployed people who shift to ASGM activities in the hope of earning some income. However, prevailing power structures within ASGM operations and communities and market conditions, coupled with lack of access to technical and financial resources, impede the adoption of needed reforms in these communities.

Inadequate infrastructure, weak forms of social services, and the absence of economic opportunities aggravate socio-economic conditions, which also promote the proliferation illegal trade and other several forms of social and economic injustices such as (1) gender-related inequalities, (2) human rights violations, and (3) inadequate child protection, among others.

b. Environmental and Health Impacts of Mercury in ASGM

ASGM also raises environmental and health problems that need to be addressed comprehensively. Particularly, the continued use of mercury despite its prohibition in the sector has implications on the peoples' right to the highest attainable standard of health and the right to a healthy ecology. Several environmental and health studies have documented severe mercury contamination in ASGM communities, as well as the high incidence of symptomatic mercury intoxication of workers. A study by Appleton et al. (2006) reported heavy mercury contamination in the Naboc river in Mindanao in the 1990s caused by nearby ASGM operations, which have affected soil quality, crops and aquatic life in the area.[xxxv] Meanwhile, another study conducted by Bose-O'Reilly et al. (2003) found that residents in Monkayo, Compostela Valley who are situated in areas downstream of Mt. Diwalwal have elevated mercury levels in their bodies.[xxxvi]

Aside from mercury contamination, existing ASGM practices release high quantities of mine wastes into local water bodies, causing changes to water conductivity, sediment loads and increased concentrations of metals, as well as alteration of water morphology. In several instances, sites with associated ASGM activities had water qualities that do not meet national and/or WHO standards or permissible guideline values.

c. *Mercury Trading Practices in ASGM*

Despite the ban on its use in the sector as well as the many documented impacts of mercury to miners, their communities, and the environment, mercury is still easily accessible. 2022 trade data from the Philippine Statistics Authority[1] (PSA) report that 51 kg of mercury was imported by the Philippines. Additionally, the table below summarizes importation data for a number of mercury-added products based on the Philippine Minamata Initial Assessment[2] as well as more updated data from the PSA.

TOTAL	SOURCE	Hg input, kg / yr
Thermometers with mercury - household	MIA 2018	173.88
Thermometers with mercury - medical facilities	PSA 2021	0.44
Electrical switches	PSA 2021	2,221.00
Light sources with mercury - import - legal	PSA 2021	160.00
Batteries containing mercury	PSA 2021	0.06
Biocides and pesticides	MIA 2018	88.45
Cosmetics and other related products - unregulated	MIA 2018	32,426.69
Dental mercury amalgam fillings - preparation	PSA 2021	262.00
Dental mercury amalgam fillings - use	MIA 2018	18.47
Manometers and gauges with mercury - medical facilities	PSA 2021	176.00
Laboratory chemicals and equipment with mercury	PSA 2021	3,997.69

A 2019 study by BAN Toxics[xxxvii] reveal that mercury enters the country through various mining hotspots in Mindanao such as Marawi City, Zamboanga City, Tagum City, and Cagayan de Oro City. This mercury is packaged into smaller amounts (often sold per kilogram) and sold throughout the country, with miners interviewed for the study noting that mercury from Mindanao often reach as far as Baguio City in Northern Luzon, where ASGM operations also occur.

[1] Philippine Statistics Authority (2022). Import data – mercury and MAPs.
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Mercury reaches miners through different ways. In some cases, mercury is readily available from hardware stores, public markets, mining supply stores, informal gold-buying stations, and goldsmiths in mining areas. At times, mercury is sold (or, in the case of Southern Leyte, provided for free)[xxxviii] by gold traders or mining financiers directly to the miners they work with.

V. Conclusions and Recommendations

This chapter presents a summary of the recommendations on how to further improve the Philippines' capacity to address mercury use in ASGM.

a. The need to amend the convention to end mercury trade and introduce a 2032 phase-out date for mercury use in ASGM

Despite national policies prohibiting the use of mercury in small-scale mining in the Philippines, its trade and use persists. This highlights the need for stronger global frameworks that can support implementation at the national levels.

The Minamata Convention on Mercury should consider adopting amendments to end the global trade in mercury, with exemptions for mercury traded for environmentally sound storage and/or disposal. Most uses of mercury in the Philippines are banned by virtue of the 2019 Revised CCO for Mercury and Mercury Compounds. Dental amalgam, which is only listed for phasedown by the Convention, is also banned in the country by virtue of Department of Health Administrative Order 2020-0020.[xxxix] Despite this, mercury-added products including amalgam are still available in the country, mostly due to the illegal entry of these products.[xl] A global ban on the trade of mercury and mercury-added products can further strengthen the Philippines' capacity to address the illicit entry of mercury to the country.

There is also a need to provide a definitive 2032 phase-out date for the use of mercury in ASGM. With the lack of a phase-out date defined by the Convention, mercury use continues to be a global problem, with most countries relying on voluntary and nationally determined efforts (such as National Action Plans) to control its use in the sector. A definitive phase-out date supports the Philippines' efforts to protect sensitive areas, reduce illegal gold smuggling, and promote the protection of the environment and communities around small-scale mining areas.

b. Formalization and Mercury Use

As summarized in Figure 1, the continued use of mercury is shaped by various factors that are not only limited to the current legislative framework. Cultural factors, access to institutional support and technology, as well as poverty all contribute to its use in the sector. Aside from strengthening national and global frameworks to eliminate the use of mercury in the sector, it is important that these issues are addressed to ensure that miners are provided opportunities to transition to mercury-free mining technologies.

Education and capacity-building efforts should focus on ensuring that miners and the public are aware of the risks of mercury (including in mercury-added products) to promote the shift

to safer alternatives. For miners, this should also include building capacities on the use of mercury-free gold processing techniques and technologies. As the ASGM sector in the Philippines is closely linked with Indigenous People's, this also presents an opportunity to explore and promote indigenous knowledge on safer mining practices.

Formalization presents many opportunities to address issues linked to poverty. Firstly, formalizing the sector protects miners from extortion and other forms of abuses that come with their status as informal workers. As required by Philippine law, formalized ASGM communities are prohibited from using mercury and allowing child laborers to work in mine sites.

Photo 2: Miner prepares to enter compressor mining site

In addition to formalization, there is a need for increased institutional support from local and national governments for the sector. Improving access to formal markets for gold allow miners to sell gold directly to accredited gold buyers, allowing them to fully benefit from the gold that they produce by cutting the middleman. The introduction of financial mechanisms that miners can avail is also essential as this provides miners with opportunities to purchase the necessary equipment and technologies for mercury-free mining.

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