MINAMATA CONVENTION COP 2

BRIEF ON ARTICLE 3: MERCURY SUPPLY SOURCES AND TRADE

All products or processes that contain or use mercury or mercury compounds are dependent on access to a supply of elemental mercury. Global mercury ore deposits that are most accessible for mining are located in areas of orogenic or volcanic activity, stretching from Spain to the Himalayas and surrounding the Pacific Basin. The estimated global reserves of mercury ore deposits in 2007 was 46,000 tons (UNEP 2013).

Cinnabar is the most common source of mercury in nature and has been mined for thousands of years. In the last 5 years, cinnabar ore mining has been increasingly seen in Mexico, China and Indonesia (Fritz, Maxson et al. 2016).

To produce liquid (elemental) mercury, crushed cinnabar ore is roasted in rotary furnaces. In this process, pure mercury separates from sulfur and evaporates. A condensing column is used to collect the liquid metal and then it is shipped in iron flasks.

Despite a decline in global mercury consumption, supply from competing sources and low prices, production of mercury from primary mining is still occurring in a number of countries. Studies identified several cases of small-scale and artisanal mining of mercury in China, Russia (Siberia), Outer Mongolia, Peru, Mexico and recently, Indonesia (Camacho, Van Brussel et al. 2016, George 2017, Ismawati, Zaki et al. 2017, UNEP 2017). It is likely that this mercury production is a response to the increased demand for mercury for artisanal and small-scale gold mining (ASGM), either legally or illegally.

Mercury in the environment may be present in fossil fuels like coal, oil and natural gas. At present, the world market is supplied by mercury that is:

- newly extracted from primary mercury mining sites;
- recovered as a by-product of the mining activities or refining of other metals, minerals, natural gas and old mining waste;
- recycled from spent products and waste from industrial processes;
- held in government reserve stocks; and
- held in private stocks, such as in chlor-alkali and other industries.

Currently, there is limited information available about the artisanal mining of mercury in several countries.

TO ACHIEVE THE 2020 SUNSET DATES FOR ELIMINATION OF MERCURY-ADDED PRODUCTS AND PROCESSES, THERE IS AN URGENT NEED TO REDUCE MERCURY SUPPLY AND PROMOTE SAFER ALTERNATIVES.

Since 2012, soon after the EU and USA enacted mercury export bans, data shows the declining trade values of mercury (as HS 280540) from USD 231 million (2012) to USD 40.5 million (2016), with decreased trade volumes from 4,400 tons to 1,700 tons. In 2012 Singapore was the top importer and, although not a major consumer of mercury, Singapore acts rather as a global trading hub and distribution centre. However, the situation shifted in 2015 and 2017, with Bolivia recorded as the top importer of mercury and most likely to use it in ASGM activities.

In 2017, as the mercury export bans in the EU, USA, Colombia and Japan (partial ban) are enforced, the top 5 major exporters of mercury recorded for 2017 were Mexico, Japan, Indonesia, Singapore, and India, respectively. The top 5 importers of mercury in 2017 were Bolivia, India, China Hong Kong SAR, Singapore, and Myanmar. Kenya came as the 6th world importer and Bolivia became the major mercury trade partner of Mexico after Colombia enacted an import-export ban of mercury in 2017. Colombia has not ratified the Mercury Treaty but issued the import-export ban of mercury as a trade agreement commitment.

In Mexico, mercury is produced by hundreds of small-scale mercury mining and distillery facilities

across the country, approved by the state. In Indonesia, since 2012, the production of mercury from small-scale and illegal cinnabar mining takes place in Seram Island, Central Kalimantan and Southeast Sulawesi. The cost of locally-produced mercury per kg is about a quarter of the imported mercury and sold widely in many ASGM hotspots.

Besides direct selling, delivery services, and online trading platform transactions, cinnabar ore and mercury sales and marketing are also conducted widely using the popular B-2-B e-commerce website, social-media platforms such as Alibaba, Facebook, Twitter, and Instagram.

ALTERNATIVES TO MERCURY ARE ALREADY AVAILABLE AND IMPLEMENTED IN MORE THAN 40 ASGM COUNTRIES. THERE IS NO NEED FOR THE TREATY TO INCLUDE THE ASGM SECTOR UNDER THE DEFINITION OF "USE ALLOWED". HOWEVER, COUNTRIES THAT HAVE ALREADY PROHIBITED THE USE OF MERCURY IN MINING AND ASGM SHOULD STRENGTHEN THEIR COMMITMENT TO CONTROL ALL RELEVANT CHEMICALS TO BE USED IN THE ASGM SECTOR.

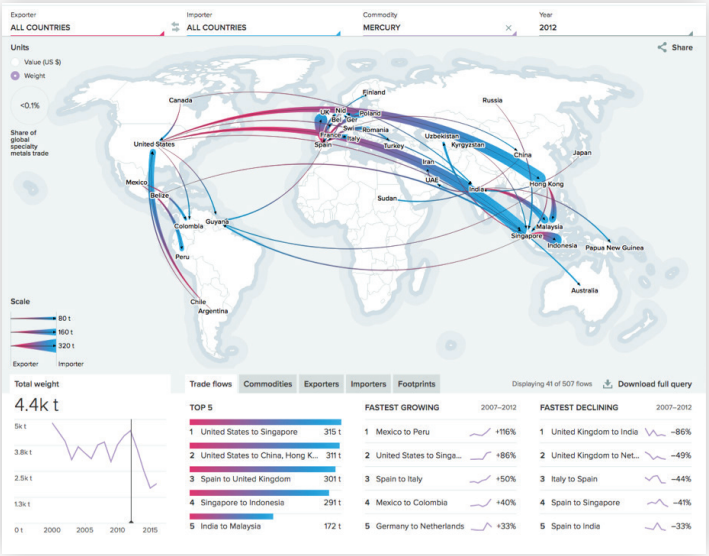
The Mercury Treaty provisions under Article 3 contain a "prior informed consent" procedure for mercury trade that requires the importing country to provide the exporting party with its written consent to the import and then to ensure that the mercury is only used for the allowed uses under the Treaty or for interim storage. The Treaty also states that a public register maintained by the Secretariat will contain consent notifications. Furthermore, exporters of mercury have to certify that it is not from prohibited sources or from illegal sites.

In the last 5 years there were more than 80 projects in more than 40 ASGM countries supported by various donors and UN agencies to introduce safer alternatives of mercury to extract gold, formalise the sector, etc. Cyanide, gravity concentration and chemical leaching processes as well as the relevant technical supports have been introduced to replace mercury in some countries and are already available in the market.

Therefore, there is no reason to allow mercury to be used in ASGM sector anymore and the Treaty will no longer need to include ASGM sector under the definition of "use allowed". However, to prevent another catastrophe, it is important to highlight that other chemicals that replaced mercury have to be equally tightly controlled and regulated.

PRIMARY MERCURY MINING SHOULD BE CONSIDERED FOR LISTING UNDER THE FUTURE MERCURY-CONTAMINATED SITE DEFINITIONS. REHABILITATION, REMEDIATION, AND LONG-TERM MONITORING PLANS SHOULD BE CONSIDERED.

Van Brussel, et al. (Camacho, Van Brussel et al. 2016), states that, although at a global level, the emission of mercury from mercury mining is 70 times lower than that from the ASGM sector, at the local and regional level, mercury primary mining is an important source of emissions and releases.



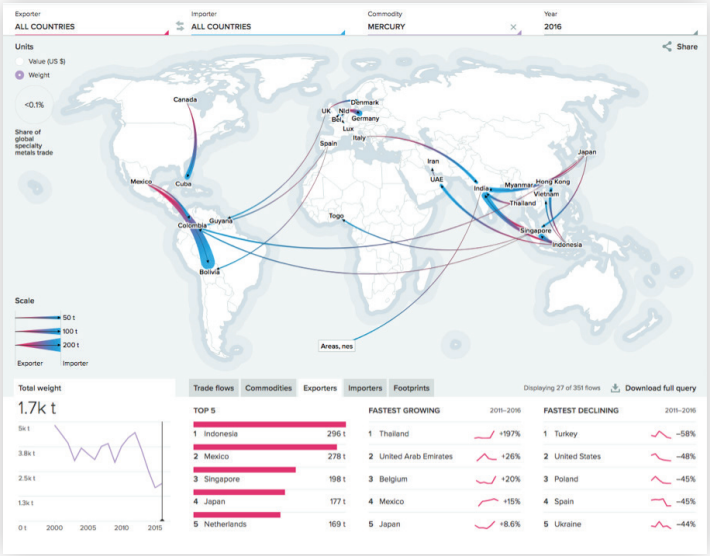


Figure 1 and 2. Global mercury trade flow 2012 and 2016. *Source: Chatham House, UK*

TABLE 1. TOP 5 EXPORTERS OF MERCURY IN 2017

Top 5 mercury exporters			Top 5 mercury importers		
Countries	**Netweight (kg)**	**Trade Value (US$)**	**Countries**	**Netweight (kg)**	**Trade Value (US$)**
Mexico	200,194	$5,234,522	Bolivia (Plurinational State of)	180,390	$3,277,255
Japan	71,246	$2,148,419	India	166,520	$5,008,545
Indonesia	69,003	$1,790,436	China, Hong Kong SAR	66,296	$454,436
Singapore	63,328	$1,698,820	Singapore	38,814	$915,060
India	14,403	$635,211	Myanmar	20,004	$6,131

Source: UN Comtrade database, accessed by 5 October 2018

Due to the rudimentary techniques used in mercury distillation processes in residential areas, dust and soil samples taken from mercury processing sites in Mexico and Indonesia showed high concentrations above the safe level. Cumulative exposure has also been confirmed as miners and the general population are being exposed to other metals that are present in the mineral itself, such as arsenic and manganese.

Sites that have been used for primary mercury mining and its processing facilities, whether large scale or small informal operations, should be remediated to the extent that surface areas around the mine no longer pose a threat to human health, surface waterways or the local environment and biota.

It should be acknowledged that soil profiles at these sites may contain naturally elevated mercury levels and any remediation plan should take this into consideration in terms of final clean up levels.

PRIMARY MERCURY MINING SITES SHOULD BE CLOSED AND MEASURES SHOULD BE TAKEN TO PREVENT THEM FROM RE-OPENING.

Recently, mercury contamination in Palawan, the Philippines, from old mercury primary mining sites came under the spotlight. After 18 years of production between 1955 until 1976, with mercury exported to Japan, the factory and the mining sites closed down. About 38% of the sampled population around the old mining site (which has now turned into a lake), reportedly suffered from chronic mercury poisoning.

Studies show a long-term and accumulated mercury pollution situation in and around the former/abandoned primary mercury mining sites in China (Lian, Shang et al. 2018, Xu, Lin et al. 2018). Recent study shows that the lagoon along the coastal areas of the Northern Adriatic Sea have been contaminated by mercury due to sediment eroded from the river banks and the floodplain deposits of the Soča/Isonzo River drainage basin where the Idrija mining district is located (western Slovenia). For almost 500 years. Until 1996, 12 million tons of Hg ore, mostly cinnabar, were excavated. More than 35,000 tons of Hg have been lost into the environment during roasting processes (Turritto, Acquavita et al. 2018). Countries with primary mercury mining should consider a serious inventory and action plan to remediate the sites and implement long-term monitoring plans.

For large scale cinnabar mines, structural stability should be assessed to determine if surface contaminated tailings materials can be packaged and stored permanently within the mine. Both large scale and informal mines should be sealed to prevent further mining activity following remediation.

Remediation plans should also consider any mercury ore processing operations associated with the mine site- even if these are not located on-site -as they will be likely to have contaminated areas where they have been located.

Specifically, the Treaty notes in Article 3:

- New primary mining is banned as of the entry into force by a government. However, a government may permit new mercury mines before then and if a government postpones ratification, then it has a longer window of time for developing new mines.
- Pre-existing primary mercury mining is banned after 15 years as of date of entry into force for a government. If a government postpones ratification, than it can mine mercury from pre-existing mines for a longer period.
- Mercury from primary mining after ratification can only be used for making permitted products or used in permitted processes (such as VCM, etc.,

described below in Articles 4 and 5), or disposed of according to Treaty requirements. This implies that mercury from primary mining shall not be available for use in ASGM once a country ratifies the Treaty.

Countries are required to "take measures" to ensure that when a chlor-alkali plant closes, the excess mercury is disposed of according to Treaty requirements and not subject to recovery, recycling, reclamation, direct re-use, or alternative uses. The measures should prevent the recovered mercury from re-entering the market. However, good mechanisms are still needed to ensure the measures are implemented and enforced.

KEY ISSUES ON TRADE AND SUPPLY AS THEY RELATE TO CONTAMINATED SITES THAT NEED TO BE CONSIDERED AT COP 2 INCLUDE:

- A call for all countries to immediately ban mercury productions, exports, and imports beyond the Convention's requirement because mercury is a poisonous industry injuring and killing thousands of impacted communities, miners, and future generations;
- Measures to manage and handle the confiscated mercury from illegal shops/kiosks/users, especially for ASGM purposes, should be developed, securely and safely;
- Prevention of mercury recovered from contaminated sites in one location or country being permitted to re-enter the mercury trade and supply chain where it may be used for ASGM creating new contaminated sites in another location or country;
- The extent to which remediation of primary mercury mining sites is possible following their closure. Given that they occur in areas of elevated natural mercury levels, specific guidance should be developed as to how the mine can be closed and contained. In addition, the land surface and waterways in proximity to the mine must be protected from legacy mining wastes (tailings, waste ponds), leachate and associated impacts;
- The Mercury Treaty does contain provisions that allow Parties to restrict primary mercury mining, but also provides for exemptions and exclusions for military use and research. However, safer alternatives and identification of the mercury stockpile for these purposes should also be recognized and identified in the National Implementation Plan.

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