Controls on Mercury by Ana Claudia Vasconcellos, Sandra Hacon, and Paulo Basta, from the "Environment, Diversity and Health" group at Fundação Oswaldo Cruz (Fiocruz)

1. Has your country prohibited the a) import or b) export of elemental mercury?

The import and export of mercury are not prohibited activities in Brazil. Brazil does not have mercury mines. The Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA, acronym in Portuguese) is the institution responsible for authorizing these activities and the Ministry of Economy registers and regulates all import trade.

1. Has your country prohibited mercury use in artisanal or small-scale gold mining (ASGM) by law or regulation?

The use of mercury in gold mining is not prohibited in Brazil. This activity is regulated by Decree # 97,507, of February 13, 1989, which provides for licensing of mineral activity, the use of metallic mercury and cyanide in gold extraction areas, and other provisions.

1. What enforcement action and penalties apply to gold miners who use mercury. or to traders who supply mercury for this use, if such use is prohibited? Please share statistics on such actions.

In general, workers involved in mining are punished in operations carried out by the federal police in Brazil with the seizure of mercury used in the extraction process and with the destruction of all infrastructure related to gold extraction, including heavy machinery (backhoes, jet nozzle, dredgers, conveyors etc) used in the process. However, it is not usual to have arrests, penalties and/or convictions of those responsible for the mines.

There is no penalty for those who use metallic Hg for the gold exploration activity, as long as the mine owner has the mining permission. The Mining Permission (PLG, acronym in Portuguese) is granted as an administrative measure through an order from the Director General of the National Mining Agency (ANM, acronym in Portuguese) – the institution that regulates the activity in Brazil. The PLG is valid for a period of up to five years, and may be renewed every five years, depending on criteria established by the ANM. The area that received the mining permit may not exceed 50 (fifty) hectares, except when granted to the gold prospectors' cooperative. In parallel with the administrative procedure of the ANM, it is necessary to carry out the environmental licensing, with the state environmental agency or with IBAMA. Today, the PLG concession is facilitated by a simplified procedure that is difficult to monitor, which favors illegal mining activity in the country, giving rise to what we call “ghost mining”. Structures officially registered with the ANM that only serve to register gold from environmental protection areas, conservation units and indigenous lands, considered to be heritage of the Union and not authorized to carry out any economic activity, without regulation by the national congress and without prior consultation to the communities involved. The ban on mining activity occurs when the mining request takes place in a conservation unit area and indigenous and/or quilombola areas, known as illegal mining.

1. If your country allows import of mercury but prohibits its use in ASGM, how do customs officers determine the end use of mercury at the point of import to ensure it is not directed to ASGM?

The importation of metallic mercury is not prohibited in Brazil, and consequently mercury can be used in mining activities, as long as environmental and labor laws are followed. However, most of the mines that operate in the Amazon work illegally, as they affect Union lands. Therefore, the mercury used in these mines enters the country clandestinely, through smuggling, especially at the borders with countries From Latin America. Unfortunately, there is no effective enforcement by the authorities.

1. Are there tracking or certification processes to ensure that imported mercury is used according to its claimed purpose?

Controlling who buys mercury is an essential activity for effective implementation of the Minamata Convention in Brazil. Therefore, controlling the importation and use of metallic mercury in production processes that use it as an input must be a priority in the country. To this end, control and tracking of the production chain are essential. However, generally, the metallic mercury used in the mining activity is obtained through smuggling in border areas with Brazil.

On the other hand, when mercury is legally imported through IBAMA, there is control and supervision of the use of this metal. However, this importation is generally carried out by the chlorine and soda industries and not by professionals involved in gold mining.

1. Are mercury importers registered on a government database and their activities periodically audited including the end use of the mercury they import? Are postal imports of mercury banned?

Yes, there is a system of the Ministry of Foreign Trade that records all imports and exports carried out by Brazil, including mercury and products containing added mercury. In addition, the import of metallic mercury is controlled by IBAMA. This body is linked to the Ministry of the Environment and has the registration and justification for the use of all metallic mercury importers.

1. What remedies are available to persons in your country for pollution damages related to mercury exposure from ASGM activities?

Due to the illegal nature of the mining activity, there are no resources earmarked for people harmed by mercury exposure in Brazil. In fact, actions for the surveillance of populations that live in mining areas are non-existent and this is one of the main points to be faced with the commissioner of the Minamata Convention. On the other hand, when there is an acute occupational exposure to mercury, in an industrial environment, those affected receive medical care in specialized centers, located mostly in the Southeast region of the country. Some drugs with a chelating effect are available at specialized centers, such as dimercapto succinic acid (DMSA).

Illegal Traffic

1. What actions has your country taken to prevent the illegal importation, smuggling and distribution of mercury to ASGM activities?

Surveillance and enforcement in border areas. Increased control of purchase and sale by the Federal Revenue. Seizures in illegal mining.

1. What are the greatest challenges your country faces in preventing illegal mercury imports and smuggling?

It has been very difficult to prevent the smuggling of mercury, because, as mentioned earlier, the entry routes are located in international border areas, in the Amazon territory, which are difficult to access and control.

1. Has your country established cooperative arrangements with bordering countries or at a regional level to combat illegal transboundary movement of mercury destined for ASGM activity?

Not to our knowledge.

1. Are there instances of corruption among police, military or other officials involving the facilitation of mercury distribution in your country? What measures have been taken to address it?

Unfortunately, there are large national and foreign companies and high-ranking politicians from the federal government or even the national congress involved with the illegal extraction of gold in Brazil, a fact that significantly hinders inspection and punishment actions.

1. Is there any information to suggest local or regional organised crime syndicates are distributing mercury to facilitate gold smuggling in your country?

Yes. Recently, one of the largest criminal organizations in the country, known as Primeiro Comando da Capital (PCC), originally from São Paulo, has dominated illegal mining operations, as well as smuggling of mercury, in the state of Roraima, on the border with to Venezuela. In addition to promoting the crime of illegal gold mining and mercury smuggling, the PCC has spread fear and terror among local communities, especially the Yanomami indigenous villages.

For more details, see:

<https://www.cartacapital.com.br/sociedade/pcc-e-o-comando-vermelho-ampliam-o-leque-de-atividades-ilicitas-na-amazonia/>

<https://tab.uol.com.br/edicao/pcc-no-garimpo/>

<https://amazoniareal.com.br/como-o-pcc-se-infiltrou-nos-garimpos-em-roraima/>

<https://www.ecoamazonia.org.br/2022/02/pcc-toma-areas-garimpo-roraima-explora-trafico-drogas-prostituicao-terra-yanomami/>

<https://reporterbrasil.org.br/2021/06/pcc-se-aproxima-de-garimpeiros-para-lavagem-de-recursos/>

Minamata Convention

1. Has your country ratified the Minamata Convention on Mercury and if yes, what measures have been taken to eliminate mercury from ASGM, including its diversion to ASGM?

Yes, Brazil ratified the Convention in August 2018. However, there are still no official measures to ban mercury from existing mines in the country. There are federal police operations to combat mining in forbidden places such as indigenous lands and conservation units, but the federal government, through the President of the Republic himself and through the Ministry of the Environment, does not have a clear position against mining. On the contrary, the President of the Republic himself presented Bill No. 191, on 02/06/2020, which aims to regulate mining in indigenous lands and other areas of the Union. More recently, the President of the Republic signed Decree No. 10,966, on 02/11/2022 establishing the Support Program for Artisanal and Small-Scale Mining in the country. Actions with the clear objective of expanding and regularizing illegal activity in Brazilian territory.

1. How could access to capacity building or technology transfer under the Minamata Convention Specific International Programme help your country to eliminate mercury pollution from ASGM?

In Brazil, only the health sector has adopted effective measures to ban the use of mercury, which include banning the use of measuring devices that contain mercury, such as thermometers and sphygmomometers, and the use of encapsulated mercury for dental treatments. In industry, chlorine-soda plants have also made an effort to replace mercury cells with cleaner technologies, such as the use of diaphragm cells. However, the country has not yet developed an official plan to ban mercury from mining activities.

Protections for Indigenous Peoples

1. What specific actions has your country taken to directly protect the health of indigenous people from mercury contamination related to ASGM?

We are not aware of any formal action/measure to protect the health of indigenous peoples. Specific experiences, conducted by independent research groups, have developed recommendations with information to reduce the consumption of carnivorous fish, the most affected by mercury contamination, used in illegal mining.

1. Has any government forum for consultation with indigenous people about mercury pollution from ASGM been established?

No. So far, no specific forum has been created to discuss the issue with traditional populations, nor have any instances of prior, free and informed consultation been established, as recommended by Convention No. 169 of the International Labor Organization (ILO).

1. Have any mercury related health assessments or studies been conducted in your country that relate directly to the exposure of indigenous people to mercury pollution from ASGM activities and associated mercury pollution? Please describe or share.

Yes, the research group “Environment, Diversity and Health” (http://dgp.cnpq.br/dgp/espelhogrupo/532438) of Fundação Oswaldo Cruz (Fiocruz), a research institute of the Ministry of Health, has carried out research with some peoples indigenous people affected by illegal mining, active in their territories, in order to illustrate the impacts caused to people's health and the environment. A study carried out with the Yanomami Indigenous People, from the state of Roraima (data collected in 2014) revealed that in 19 communities spread out in the ancestral territory there were people contaminated by mercury. The highest rates of contamination were observed in communities in the Waikás region, located on the banks of the Uraricoera River, where there is a great gold rush. A more recent study, carried out with the Munduruku Indigenous People in the state of Pará, revealed even more alarming contamination rates. In this area, mercury levels were detected in all hair samples analyzed from 200 people, men, women, adults, elderly and children, without exception. Similarly, to what was observed among the Yanomami, the highest levels of contamination were reported in the villages closest to illegal gold mining activities. Through this study, it was also possible to verify that in people with the highest levels of contamination, a greater frequency of neurological symptoms was reported, such as: changes in tactile and painful sensitivity, motor changes and mainly cognitive changes, such as memory and delay in verbal fluency among adults and adolescents. In children under 6 years of age, important neurodevelopmental problems were detected, in addition to anemia and malnutrition. In addition, 88 specimens of fish that were also contaminated by mercury from mining were analyzed. Below you can find links to access articles from the main research:

1) Basta PC, Viana PVS, Vasconcellos ACS, Périssé ARS, Hofer CB, Paiva NS, Kempton JW, Ciampi de Andrade D, Oliveira RAA, Achatz RW, Perini JA, Meneses HDNM, Hallwass G, Lima MO, Jesus IM, Santos CCRD, Hacon SS. Mercury Exposure in Munduruku Indigenous Communities from Brazilian Amazon: Methodological Background and an Overview of the Principal Results. Int J Environ Res Public Health. 2021 Sep 1;18(17):9222. doi: 10.3390/ijerph18179222. PMID: 34501811; PMCID: PMC8430525.

Available on: https://www.mdpi.com/1660-4601/18/17/9222

2) Vasconcellos ACS, Hallwass G, Bezerra JG, Aciole ANS, Meneses HNM, Lima MO, Jesus IM, Hacon SS, Basta PC. Health Risk Assessment of Mercury Exposure from Fish Consumption in Munduruku Indigenous Communities in the Brazilian Amazon. Int J Environ Res Public Health. 2021 Jul 27;18(15):7940. doi: 10.3390/ijerph18157940. PMID: 34360233; PMCID: PMC8345402.

Available on: https://www.mdpi.com/1660-4601/18/15/7940

3) Achatz RW, de Vasconcellos ACS, Pereira L, Viana PVS, Basta PC. Impacts of the Goldmining and Chronic Methylmercury Exposure on the Good-Living and Mental Health of Munduruku Native Communities in the Amazon Basin. Int J Environ Res Public Health. 2021 Aug 26;18(17):8994. doi: 10.3390/ijerph18178994. PMID: 34501591; PMCID: PMC8431418.

Available on: https://www.mdpi.com/1660-4601/18/17/8994

4) Perini JA, Silva MC, Vasconcellos ACS, Viana PVS, Lima MO, Jesus IM, Kempton JW, Oliveira RAA, Hacon SS, Basta PC. Genetic Polymorphism of Delta Aminolevulinic Acid Dehydratase (*ALAD*) Gene and Symptoms of Chronic Mercury Exposure in Munduruku Indigenous Children within the Brazilian Amazon. Int J Environ Res Public Health. 2021 Aug 19;18(16):8746. doi: 10.3390/ijerph18168746. PMID: 34444495; PMCID: PMC8394242.

Available on: https://www.mdpi.com/1660-4601/18/16/8746

5) Kempton JW, Périssé ARS, Hofer CB, de Vasconcellos ACS, de Sousa Viana PV, de Oliveira Lima M, de Jesus IM, de Souza Hacon S, Basta PC. An Assessment of Health Outcomes and Methylmercury Exposure in Munduruku Indigenous Women of Childbearing Age and Their Children under 2 Years Old. Int J Environ Res Public Health. 2021 Sep 25;18(19):10091. doi: 10.3390/ijerph181910091. PMID: 34639393; PMCID: PMC8508331.

Available on: https://www.mdpi.com/1660-4601/18/19/10091

6) Oliveira RAA, Pinto BD, Rebouças BH, Ciampi de Andrade D, Vasconcellos ACS, Basta PC. Neurological Impacts of Chronic Methylmercury Exposure in Munduruku Indigenous Adults: Somatosensory, Motor, and Cognitive Abnormalities. Int J Environ Res Public Health. 2021 Sep 29;18(19):10270. doi: 10.3390/ijerph181910270. PMID: 34639574; PMCID: PMC8507861.

Available on: <https://www.mdpi.com/1660-4601/18/19/10270>

7) Hacon SS, Oliveira-da-Costa M, Gama CS, Ferreira R, Basta PC, Schramm A, Yokota D. Mercury Exposure through Fish Consumption in Traditional Communities in the Brazilian Northern Amazon. Int J Environ Res Public Health. 2020 Jul 22;17(15):5269. doi: 10.3390/ijerph17155269. PMID: 32707799; PMCID: PMC7432107.

Available on: <https://www.mdpi.com/1660-4601/17/15/5269>

8) Vega CM, Orellana JDY, Oliveira MW, Hacon SS, Basta PC. Human Mercury Exposure in Yanomami Indigenous Villages from the Brazilian Amazon. Int J Environ Res Public Health. 2018 May 23;15(6):1051. doi: 10.3390/ijerph15061051. PMID: 29789499; PMCID: PMC6028914.

Available on: <https://www.mdpi.com/1660-4601/15/6/1051>

1. What health services and advice does your country provide to indigenous people to either treat high mercury levels or to minimise their exposure to mercury through diet (e.g. fish) or direct exposure via ASGM activity?

The special health system that serves indigenous peoples in Brazil does not offer specific services for the treatment of individuals exposed to mercury. In fact, there is still no public health policy aimed at monitoring and/or guiding indigenous populations living in areas affected by gold mining.

1. What constitutional or legal rights do indigenous people have to prohibit mercury based ASGM in their traditional lands and territories?

According to the Brazilian Federal Constitution of 1988, gold mining, as well as any other economic activity, including extractive and exploratory activities, is prohibited on indigenous lands. For any economic activity to be authorized in these regions, it is necessary to have a regulation by the national congress and also the formal consent of the communities involved, after prior, free and informed consultation.

General

20. Please provide any further information that you consider relevant for the purposes of this questionnaire.