

## Mercury Material Flow Analysis

### Background

#### Requirement of the Minamata Convention on Mercury

Information on mercury use, emission and release at the national level is critical for the policy-making and to identify mercury. Under the Convention, Parties have several obligations relevant to inventory development and reporting. The information provided through reporting is used for the effectiveness evaluation of the Convention.

##### Article 8 (Emissions) and Article 9 (Releases)

Parties shall establish and maintain thereafter, an inventory of emissions/release from relevant sources.

##### Article 19 (Research, Development and Monitoring)

Parties shall endeavor to cooperate and develop/improve inventories including information of the use, consumption, and anthropogenic emissions into the atmosphere, and releases to the water and land of mercury and mercury compounds.

##### Article 21 (Reporting)

Parties shall include the information as called for in Articles 3, 5, 7, 8 and 9 of this Convention in its reporting.

##### Article 22 (Effectiveness Evaluation)

The Conference of the Parties (COP) shall evaluate the effectiveness of this Convention. Evaluation shall be conducted on the basis of available information, including those obtained from: (a) reports and other monitoring information provided to the COP; and (b) reports submitted pursuant to Article 21.

### Overview of the Technology

#### Japanese Experience of Mercury Material Flow Development.

Since 2007, Japan has developed and regularly updated the “Mercury Material Flow (MMF)” by collecting and organizing basic information on mercury use, emissions, and releases. The MMF provides comprehensive information on the flow of mercury throughout its entire life cycle within Japan.

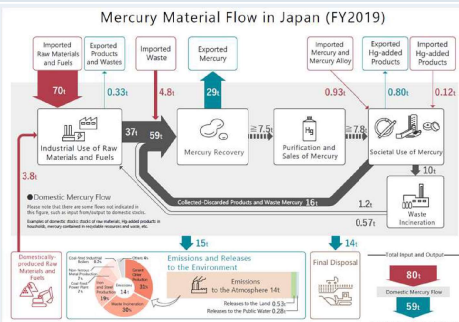
In order to develop the MMF, the Ministry of the Environment, Japan (MOEJ) took the lead in data collection, in cooperation with other governmental bodies and industries. MOEJ also established a Technical Committee with experts from the academia and industry, with various backgrounds.

In order to estimate the overall mercury flow in Japan and to estimate the emissions/releases to the environment, every piece of available information, such as those listed below were referred to.

- Statistical data
- Monitoring data
- Data provided by interview with industries
- Literature review

\*No operation of primary mining, ASGM, Manufacturing process in Japan

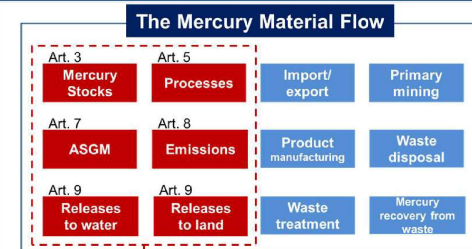
Year	Relevant activity
2007	Preparation of the FY2005 MMF
2009	Launch of discussions and studies on MMF development
2011	Preparation of the FY2010 MMF
2017	Publication of the FY2014 MMF
2019	English translation of the FY2014 MMF and submission to the Minamata Convention Secretariat
2020	Publication of the FY2016 MMF
2024	Publication of the FY2019 MMF Data from the FY2019 MMF used for emission and release reporting for the effectiveness evaluation



### Advantages/Strengths

#### Database Supporting the Policy Making and Reporting

Many countries have conducted the “Minamata Initial Assessment (MIA)” using the “Toolkit for Identification and Quantification of Mercury Releases” developed by UNEP, and are advancing the preparation of national mercury emission inventories. This toolkit is a very useful tool for countries to prepare a basic inventory as a first step in addressing mercury issues.



Information required to be reported to COP (Art.21 para2)

In contrast, Japan’s MMF aims to systematically organize and integrate mercury-related information across different sectors in order to visualize the flow of mercury. Furthermore, because the MMF uses country-specific data and information, it enables more accurate estimates compared with the Toolkit, which relies on generalized emission factors.

Furthermore, the MMF also assists competent authorities in fulfilling their reporting obligations under the Article 21 of the Convention since it contains necessary information for submitting the report to the COP. The MMF could also be used to examine the impact and effectiveness of domestic policy measures if updated and upgraded periodically.

### Applicability

#### Potential to develop MMF in your country

Developing a mercury inventory with UNEP Toolkit is a good initial step for countries to understand their current situation of mercury emissions. Japan is able to share its expertise to develop a more comprehensive MMF after this initial step, if there is need from partner countries.

Japanese experts have shared their know-how and experiences in developing the MMF at a series of workshops organized by MOEJ for ten partner countries. Since 2019, training programs inviting stakeholders to Japan, on-site technical guidance in partner countries, and online training in collaboration with UNEP and UNITAR have been conducted.



Training Programme in Tokyo, Japan (2019)

The lack of information/data is a common challenge for developing countries. Japan’s support to developing countries in considering appropriate methodologies to collect or develop data/ information will provide the most relevant basis on the circumstances of each country.

### Further Reading

MOEJ, Outcomes of Mercury Material Flows Analysis (Japanese only) (<http://www.env.go.jp/chemi/tmms/materialflow.html>)