ICMGP 2024

CAPE TOWN • SOUTH AFRICA • 21 - 26 JULY

CAPE TOWN INTERNATIONAL CONVENTION CENTRE

Minamata Convention Guidance on best available techniques and best environmental practices (BAT/BEP) to control mercury releases

Eisaku Toda, Secretariat of the Minamata Convention on Mercury

Bianca Dlamini (expert group co-chair), Natalia Efros (consultant)

Mercury life cycle – control measures and guidance

MINAMATA CONVENTION ON MERCURY

Life cycle of mercury

Article 3: Supply
Trade
Guidance on identifying mercury stocks (COP-1)
Guidance and format for import consent (COP-1)

Article 4: Products
Article 5: Processes
Article 7: ASGM
NAP guidance (COP-1)

Article 8: Emissions
Article 9: Releases
BAT/BEP and inventory guidance (COP-1)
Inventory guidance (COP-4)
BAT/BEP guidance (COP-5)

Article 10: Storage
Interim storage guidelines (COP-2)

Article 11: Waste
Basel Convention guidelines

Article 12: Contaminated sites
Guidance on management (COP-3)

See guidance and forms

Minamata Convention Article 9 (Releases)

Article 9 concerns controlling and reducing **releases of mercury and mercury compounds to land and water** from the relevant point sources not addressed in other provisions of the Convention.

Parties have an obligation to:

- Identify relevant point sources no later than 3 years after EIF
- Take measures to control releases which may include:
  - ✓ release limit values;
  - ✓ the use of BAT/BEP;
  - ✓ multi-pollutant control strategy
  - ✓ alternative measures
- Establish inventory of releases no later than 5 years after EIF.

Article 9 provides that COP shall adopt **guidance on BAT/BEP and methodologies for inventories**

BAT/BEP – Definition (Article 2)

MINAMATA CONVENTION ON MERCURY

"Best available techniques" means those techniques that are the most effective to prevent and, where that is not practicable, to reduce emissions and releases of mercury to air, water and land and the impact of such emissions and releases on the environment as a whole, taking into account economic and technical considerations for a given Party or a given facility within the territory of that Party. In this context:

(i) "Best" means most effective in achieving a high general level of protection of the environment as a whole;

(ii) "Available" techniques means, in respect of a given Party and a given facility within the territory of that Party, those techniques developed on a scale that allows implementation in a relevant industrial sector under economically and technically viable conditions, taking into consideration the costs and benefits, whether or not those techniques are used or developed within the territory of that Party, provided that they are accessible to the operator of the facility as determined by that Party; and

(iii) "Techniques" means technologies used, operational practices and the ways in which installations are designed, built, maintained, operated and decommissioned;

"Best environmental practices" means the application of the most appropriate combination of environmental control measures and strategies;

Mercury releases – COP decisions and Technical Expert Group

- COP-2 in 2018 established a group of technical experts that will prepare a report including **a list of any significant anthropogenic point source of release categories**.
- COP-3 in 2019 agreed on the roadmap, the group will further develop draft guidance on standardized and known methodologies for preparing inventories.
- COP-4 in 2022 **adopted the inventory guidance**, which include a list of potentially relevant point source categories, and requested the expert group to develop **draft guidance on BAT/BEP**.
- COP-5 in 2023 **adopted the BAT/BEP guidance**

Expert Group members

Africa	
Bianca Hlobsile Mkhatshwa-Dlamini	Eswatini
Jean Aubin Ondo	Gabon
James Nyirenda	Zambia
Asia and the Pacific	
YE Jing	China
Kania Dewi	Indonesia
Noriyuki SUZUKI	Japan
Ahmed Mohammad Ajabnoor	Saudi Arabia
Ajith Priyal de Alwis	Sri Lanka
Central and Eastern Europe	
Alex Radway	European Union
Frauke SCHORCHT	European Union

Latin America and the Caribbean	
Juan Facundo Domínguez	Argentina
Cristián Enrique Brito Martínez	Chile
Darcy Walrond	Guyana
Western Europe and Other	
Luis Daniel Del Carpio	Canada
Daniel Lowrey	United States

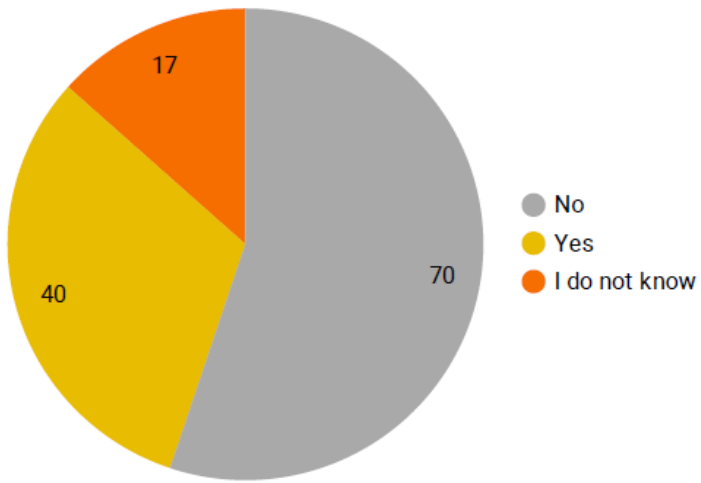
Past members:

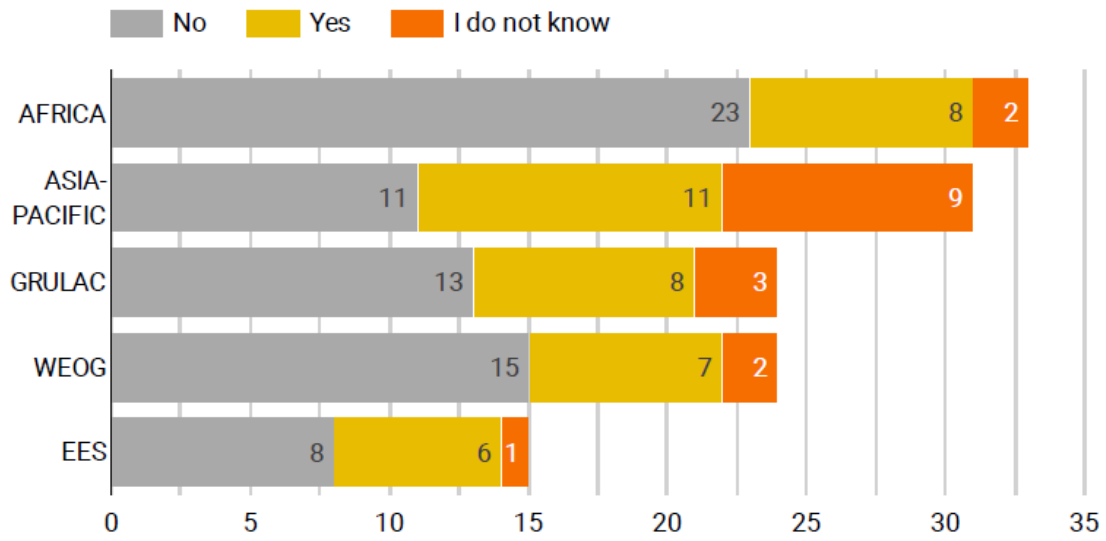
Olubunmi Olusanya	Nigeria
Jacques Nsengiyumva	Rwanda
Zuleika Castilhos	Brazil
Carlos Calleja-Amador	Costa Rica
Alison Dickson	Canada
Rafael Zubrzycki	Germany
Ine Merethe Lorgen	Norway
Petra Hagström	Sweden
Greg Helms	United States

National Reporting quantitative data - 2021

Part B - Art.9: Releases

9.1. Are there, within the party's territory, relevant sources of releases as defined in paragraph 2 (b) of article 9? (Para. 4)

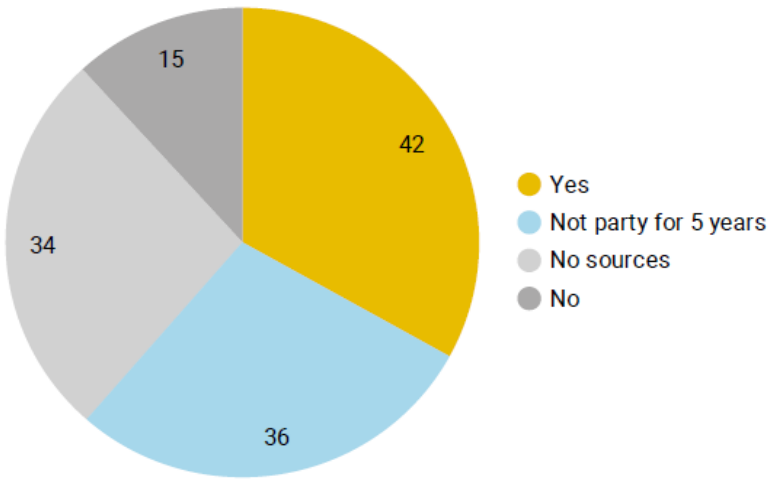


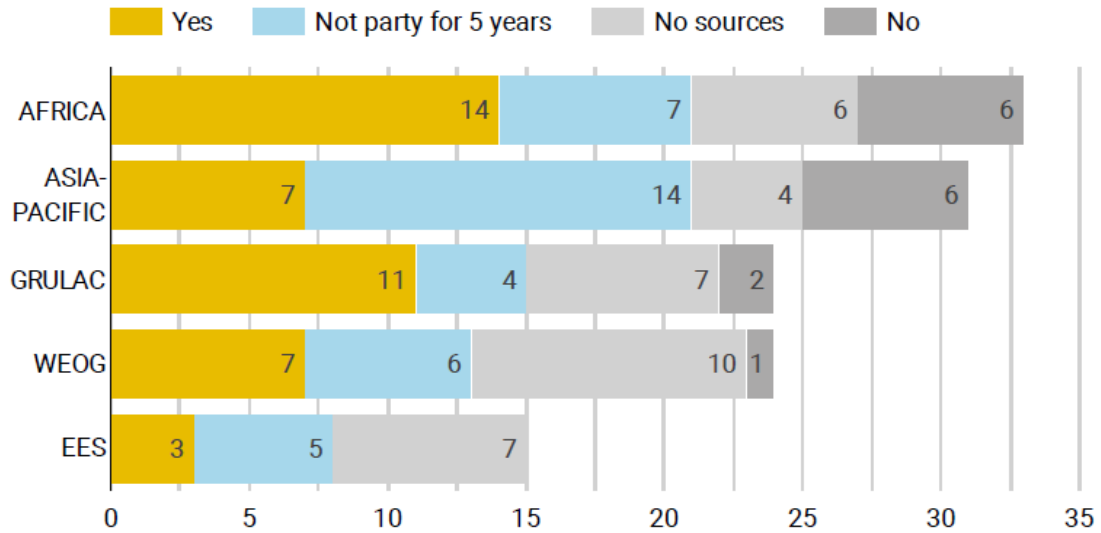


National Reporting quantitative data - 2021

Part B - Art.9: Releases

9.2. Has the party established an inventory of releases from relevant sources within 5 years of entry into force of the convention for it? (Para. 6)

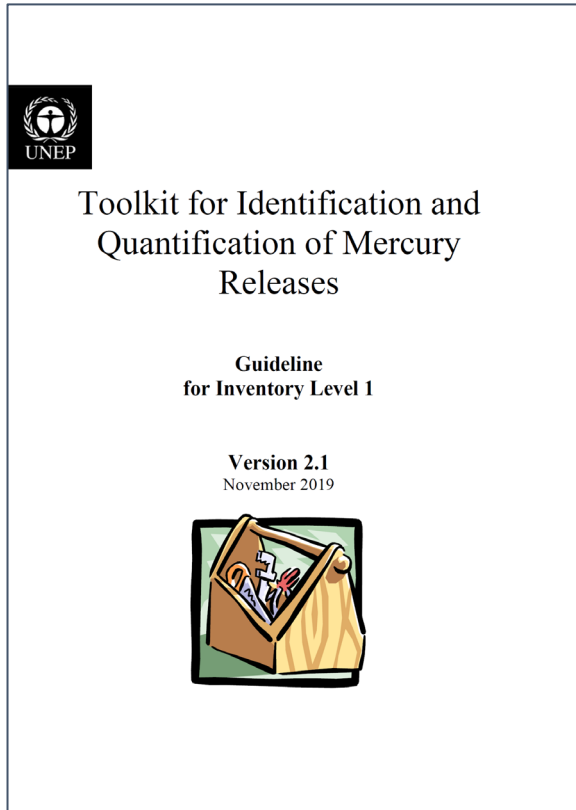




Guidance on the methodology for preparing inventories of releases pursuant to Article 9

MINAMATA CONVENTION ON MERCURY

- Methodology to establish an emissions inventory typically involves many or all of the following steps:
  - Plan the approach for development of inventory, within available resources, and consider how to collect, handle and review data, including any quality control and quality assurance processes
  - Collect existing emissions data as a useful starting point
  - Identify relevant sources within each source category
  - Establish facility-based emissions reporting requirements
  - Collect the emissions reports from facilities on a periodic basis (e.g. annually)
  - Develop a database to store the reported emissions data
  - Facilitate analysis of the results
  - Ensure the data publicly accessible and searchable.
- The guidance mentions pollutant release and transfer register (**PRTR**) as information source for mercury emission inventories.
- UNEP inventory toolkit could be a good starting point for parties developing their own emissions inventories.



List of potentially relevant sources of releases

MINAMATA CONVENTION ON MERCURY

Extraction and use of fuels/energy sources
- Coal combustion in large power plants
- Other coal combustion
- Coal mining
- Mineral oils –extraction, refining and use (petroleum)
- Natural gas –extraction, refining and use
- Biomass-fired power and heat production

Primary (virgin) metal production
- Mercury extraction and initial processing
- Mining, mineral processing, smelting and roasting of non ferrous metals other than mercury
- Primary ferrous metal production

Production of other minerals and materials with mercury impurities
- Cement clinker production
- Pulp and paper production
- Other minerals and materials

Intentional use of mercury in industrial processes
- Chlor-alkali production with mercury technology

Consumer products with intentional use of mercury
- Manufacturing of products containing mercury

Other intentional products/process uses
- Dental mercury amalgam fillings
- Laboratory chemicals and equipment

Production of recycled metals (secondary metal production)
- Production of recycled mercury (“secondary production”)
- Production of recycled ferrous metals (iron and steel) (includes the recycling of scrap vehicles)
- Reuse or recycling of used industrial equipment

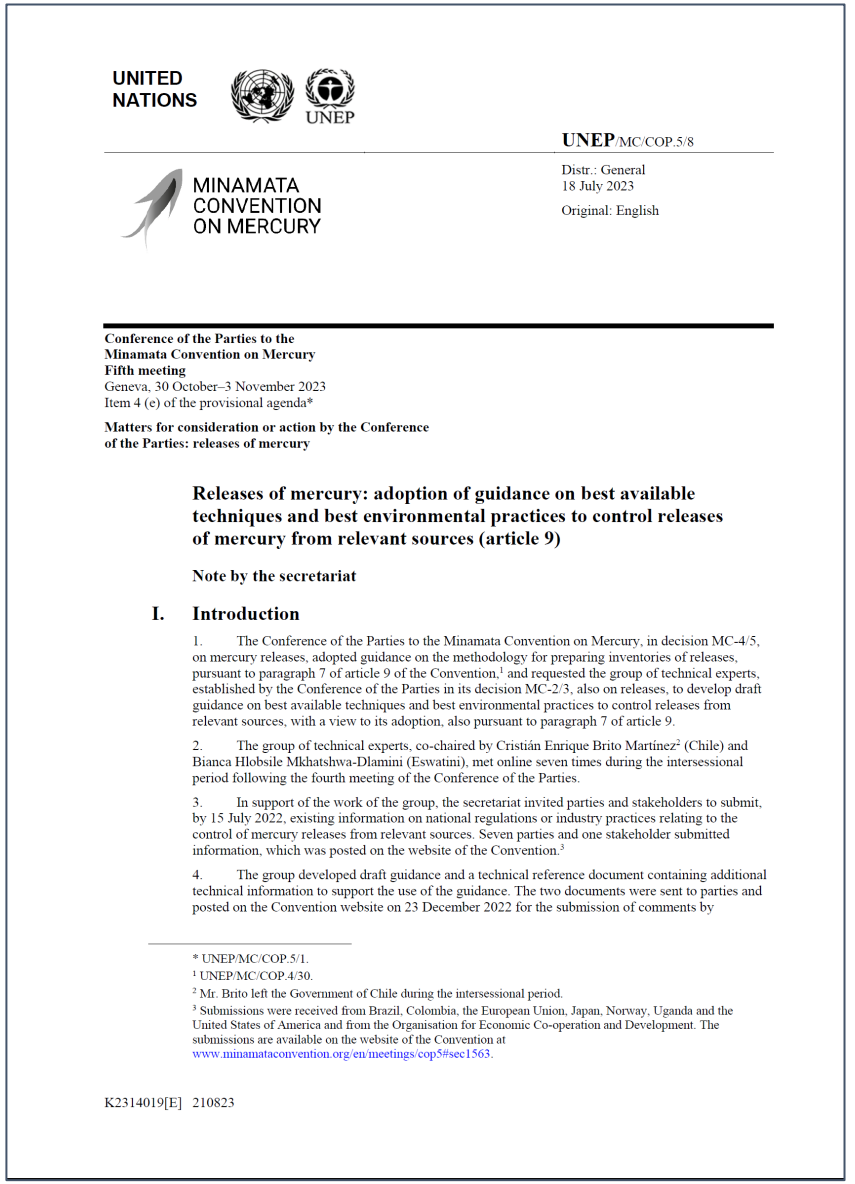
Waste incineration
- Waste incineration

Waste deposition/landfilling and wastewater treatment
- Controlled landfills/deposits
- Wastewater systems/treatment

Crematoria and cemeteries
- Crematoria

BAT/BEP Guidance

- Submitted to COP-5 as document UNEP/MC/COP.5/8, with technical reference document UNEP/MC/COP.5/INF/11
- Adopted in decision MC-5/9
- Available from Convention webpage "Implementation > COP Guidance and Forms"



UNITED NATIONS

UNEP

UNEP/MC/COP.5/8

MINAMATA CONVENTION ON MERCURY

Distr.: General
18 July 2023

Original: English

Conference of the Parties to the Minamata Convention on Mercury
Fifth meeting
Geneva, 30 October–3 November 2023
Item 4 (e) of the provisional agenda*

Matters for consideration or action by the Conference of the Parties: releases of mercury

Releases of mercury: adoption of guidance on best available techniques and best environmental practices to control releases of mercury from relevant sources (article 9)

Note by the secretariat

I. Introduction

1. The Conference of the Parties to the Minamata Convention on Mercury, in decision MC-4/5, on mercury releases, adopted guidance on the methodology for preparing inventories of releases, pursuant to paragraph 7 of article 9 of the Convention,[1] and requested the group of technical experts, established by the Conference of the Parties in its decision MC-2/3, also on releases, to develop draft guidance on best available techniques and best environmental practices to control releases from relevant sources, with a view to its adoption, also pursuant to paragraph 7 of article 9.

2. The group of technical experts, co-chaired by Cristián Enrique Brito Martínez[2] (Chile) and Bianca Hlobsile Mkhatshwa-Dlamini (Eswatini), met online seven times during the intersessional period following the fourth meeting of the Conference of the Parties.

3. In support of the work of the group, the secretariat invited parties and stakeholders to submit, by 15 July 2022, existing information on national regulations or industry practices relating to the control of mercury releases from relevant sources. Seven parties and one stakeholder submitted information, which was posted on the website of the Convention.[3]

4. The group developed draft guidance and a technical reference document containing additional technical information to support the use of the guidance. The two documents were sent to parties and posted on the Convention website on 23 December 2022 for the submission of comments by

* UNEP/MC/COP.5/1.

[1] UNEP/MC/COP.4/30.

[2] Mr. Brito left the Government of Chile during the intersessional period.

[3] Submissions were received from Brazil, Colombia, the European Union, Japan, Norway, Uganda and the United States of America and from the Organisation for Economic Co-operation and Development. The submissions are available on the website of the Convention at www.minamataconvention.org/en/meetings/cop5#sec1563.

K2314019[E] 210823

BAT/BEP Guidance

MINAMATA CONVENTION ON MERCURY

BAT/BEP guidance – Table of contents

1. Introduction
    1.1. Purpose of the guidance
    1.2. How to use the guidance
    1.3. Chemical forms of mercury
    1.4. How the Minamata Convention addresses mercury releases
    1.5. Sources of mercury releases covered by this guidance
2. Considerations in the selection and implementation of best available techniques and best environmental practices
    2.1. General considerations relating to best available techniques
    2.2. Performance levels
    2.3. Best environmental practices
    2.4. Consideration of the costs and benefits of techniques and practices
    2.5. Cross-media effects and multi-pollutant control techniques
3. Common techniques for the control of releases
    3.1. Removal of solid content
    3.2. Precipitation of metals
    3.3. Recovery of mercury by reduction and coalescence
    3.4. Ion exchange
    3.5. Adsorption
    3.6. Biological treatment
    3.7. Membrane filtration
    3.8. Other techniques to control releases to land and water
4. Techniques for specific sources of release
    4.1. Releases from air pollution control systems
    4.2. Coal combustion
    4.3. Oil and gas
    4.4. Primary mercury-metal production
    4.5. Non-ferrous-metal production
    4.6. Chlor-alkali production
    4.7. Waste incineration
    4.8. Waste landfilling
5. Monitoring

BAT/BEP Guidance – Reference

MINAMATA CONVENTION ON MERCURY

- Editorial committee on pollution prevention technology and regulations. (2022). New Pollution Prevention Technology and Regulations in 2022 (Water Quality Edition). Japan Environmental Management Association for Industry. ISBN978-4-86240-196-0 (in Japanese)
- European Commission . 2014. Best Available Techniques (BAT) Reference Document for the Production of Chlor-alkali. https://doi.org/10.2791/13138.
- European Commission . 2015. Best Available Techniques (BAT) Reference Document for the Refining of Mineral Oil and Gas. https://doi.org/10.2791/010758.
- European Commission. 2016. Best Available Techniques (BAT) Reference Document for Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector. https://doi.org/10.2791/37535.
- European Commission. 2017a. Best Available Techniques (BAT) Reference Document for Large Combustion Plants. https://doi.org/10.2760/949.
- European Commission. 2017b. Best Available Techniques (BAT) Reference Document for the Non Ferrous Metals Industries. https://doi.org/10.2760/8224.
- European Commission. 2018. Best Available Techniques (BAT) Reference Document for Waste Treatment. https://doi.org/10.2760/407967.
- European Commission. 2019. Best Available Techniques (BAT) Reference Document for Waste Incineration. https://doi.org/10.2760/761437.
- Misorogi, N. (2015). Theories on Hazardous Substances in Water (Revised Edition). Japan Environmental Management Association for Industry. ISBN978-4-86240-131-1 (in Japanese)
- OECD. 2022. BAT Project Activity – Best Available Techniques (BAT) to Prevent and Control Mercury Releases to Land and Water. https://one.oecd.org/document/ENV/CBC/MONO(2022)17/en/pdf.
- US EPA. 2007. Treatment Technologies for Mercury in Soil, Waste, and Water, United States Environmental Protection Agency. https://www.epa.gov/sites/default/files/2015-08/documents/treat_tech_mercury_542r07003.pdf.
- US EPA. ELG. Effluent Guidelines Database, United States Environmental Protection Agency. https://www.epa.gov/eg/effluent-guidelines-database

MINAMATA CONVENTION ON MERCURY

Thank you for your attention

Secretariat of the Minamata Convention on Mercury
United Nations Environment Programme
11-13, Chemin des Anémones - 1219 Châtelaine, Switzerland

WEB: www.mercuryconvention.org
MAIL: MEA-MinamataSecretariat@un.org
TWITTER: @minamataMEA
#MakeMercuryHistory