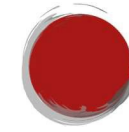




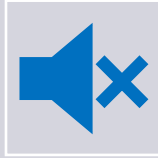
Managing Hg waste from dental amalgam and medical measuring devices: sharing existing knowledge and initiatives

Webinar, Monday 9 December 2024

For the smooth running of the webinar, please :



GLOBAL
MERCURY
PARTNERSHIP



Keep **microphones off** unless when making an intervention, cameras are optional



Use the “**Chat**” to ask technical questions or share views



The **meeting will be recorded**. Please indicate if you have any objection

AGENDA

Opening remarks and scene setting (1:00 pm – 1:05 pm)

[Benoit Varenne](#), *Oral Health, World Health Organization (WHO)*

[Motoharu Yatani](#), Co-lead of the Waste Management Area, UNEP Global Mercury Partnership

Latest tools and practices for managing Hg wastes (1:05 pm – 1:55 pm), facilitated by [Misuzu Azari](#), co-lead of the Waste Management Area

- Addressing Hg waste management under the Minamata Convention: latest updates and way forward, slides from [Eisaku Toda](#), presented by [Alexander Romanov](#), *Minamata Convention Secretariat*
- Activities of the Global Mercury Partnership Waste Management Area, [Kishor Parajuli](#), *Co-lead of the Waste Management Area*

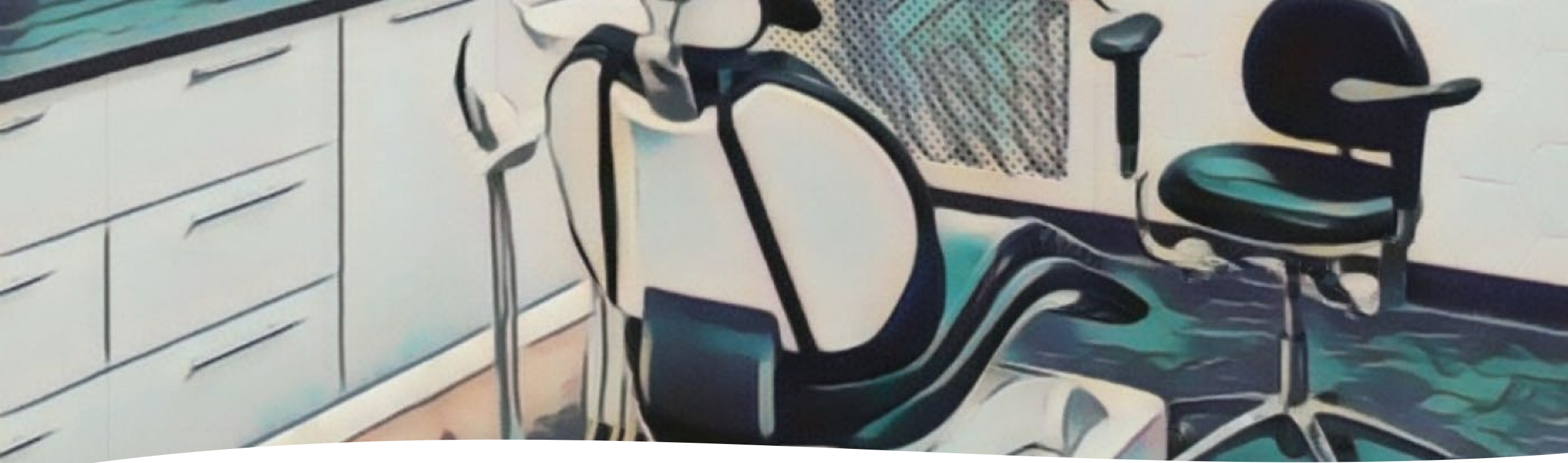
Questions & Answers

Hg wastes management at national, regional and international levels: a multi-stakeholder engagement (1:55 pm – 2:50 pm), facilitated by [Benoit Varenne](#), *WHO*

- Best technologies and practices for Hg waste management in health facilities: Case of Honduras, [Joel Ayim Darkwah](#), *United Nations Development Programme*
- Capacities building in the management of Hg wastes: case of the Philippines, [Jashaf Shamir Lorenzo](#), *BanToxics*
- Successful multi-stakeholder collaboration for the sound transport, treatment and final disposal of mercury in dental wastes, [Carola Auer](#), *Metasys*

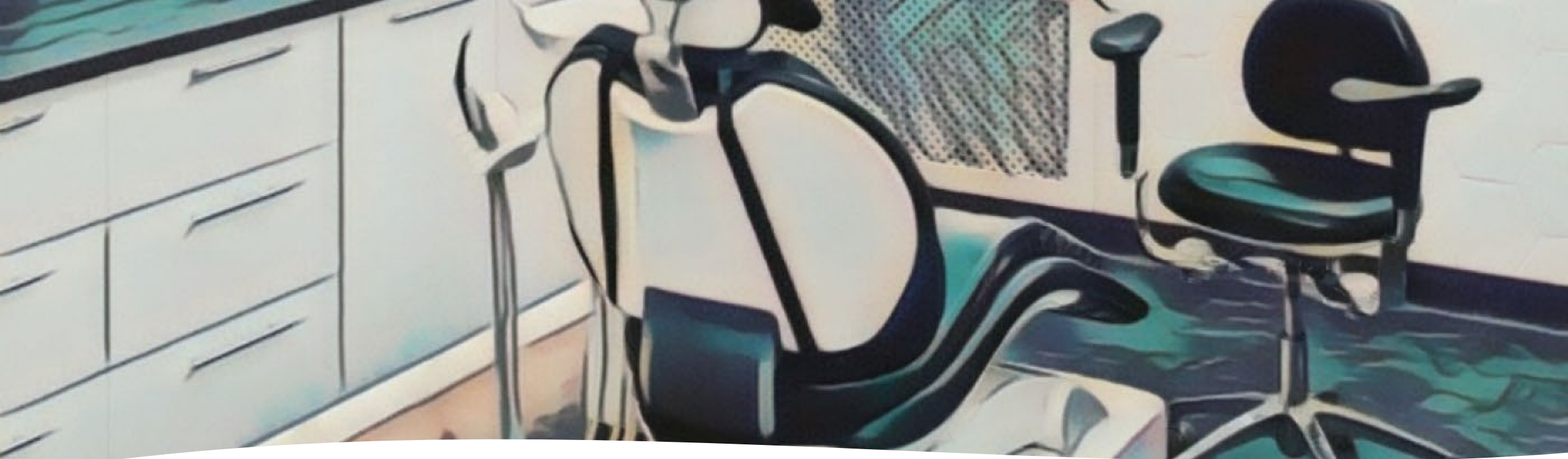
Polls - Questions & Answers

Closing remarks (2:50 pm – 3:00 pm) [Grace Halla](#), *GEF Chemicals and Waste Unit, UNEP*



Opening remarks and scene setting

Benoit Varenne, *World Health Organization*



Opening remarks and scene setting

Motoharu Yatani, *Co-lead of the Waste Management Area, UNEP Global Mercury Partnership*



Latest tools and practices for managing Hg wastes

facilitated by [Misuzu Azari](#), co-lead of the Waste Management Area, UNEP Global Mercury Partnership

Update on Minamata Convention

Alexander Romanov, Secretariat of the Minamata Convention

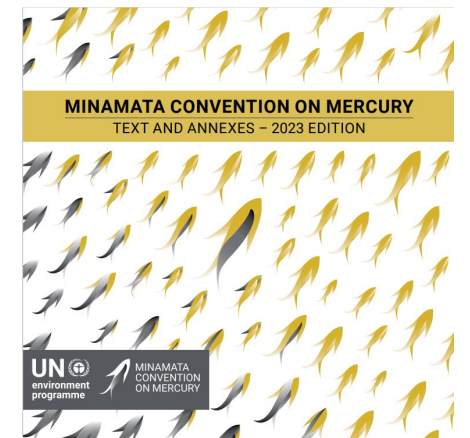
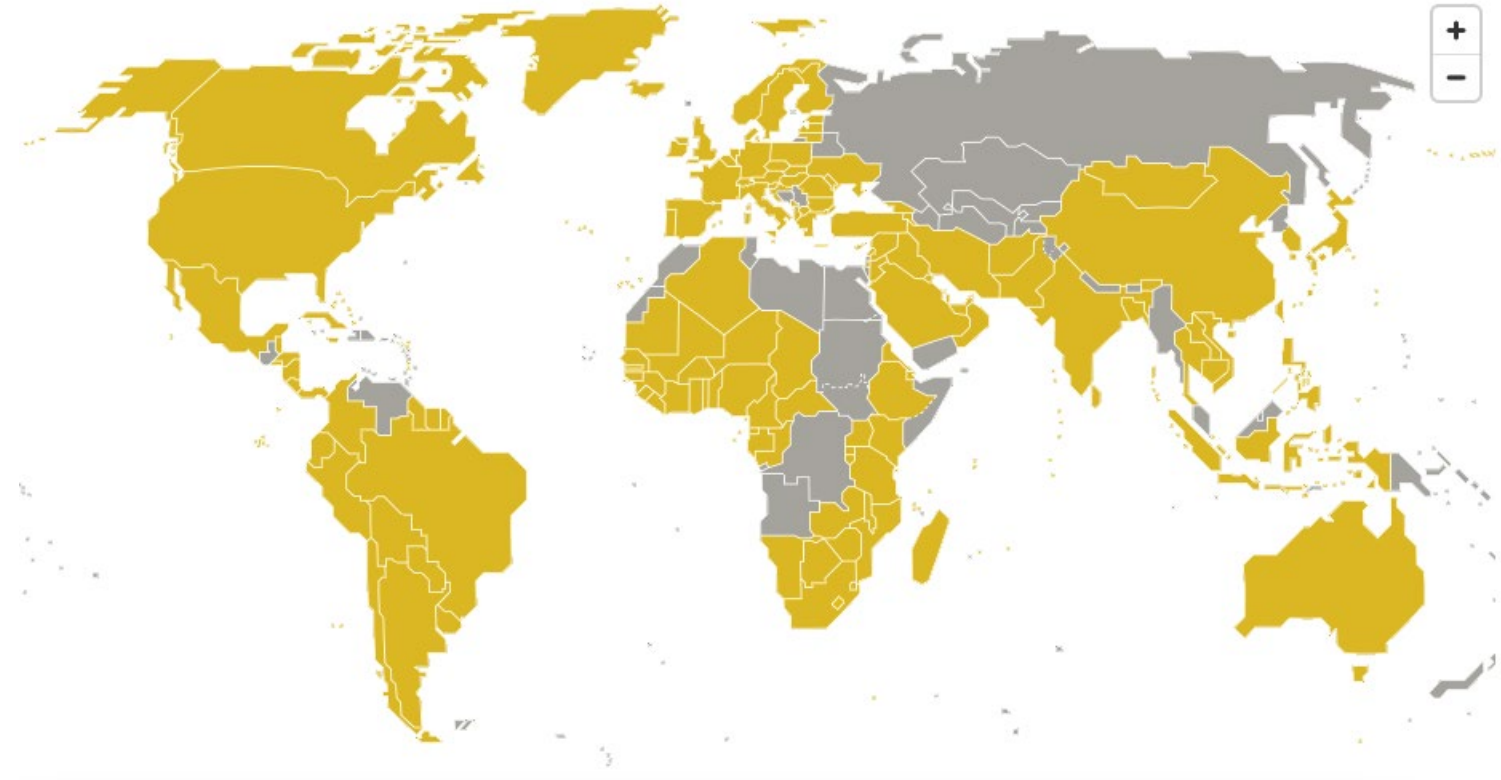
GMP Webinar: Managing Hg waste from dental amalgam
and medical measuring devices: sharing existing knowledges
and initiatives

09 December 2024



Minamata Convention on Mercury

- ▶ Global legally-binding treaty addressing mercury pollution.
- ▶ Objective: to **protect the human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds.**
- ▶ Adopted in October 2013, entered into force in August 2017.
- ▶ 151 Parties, as of 31 October 2024.



Life cycle of mercury

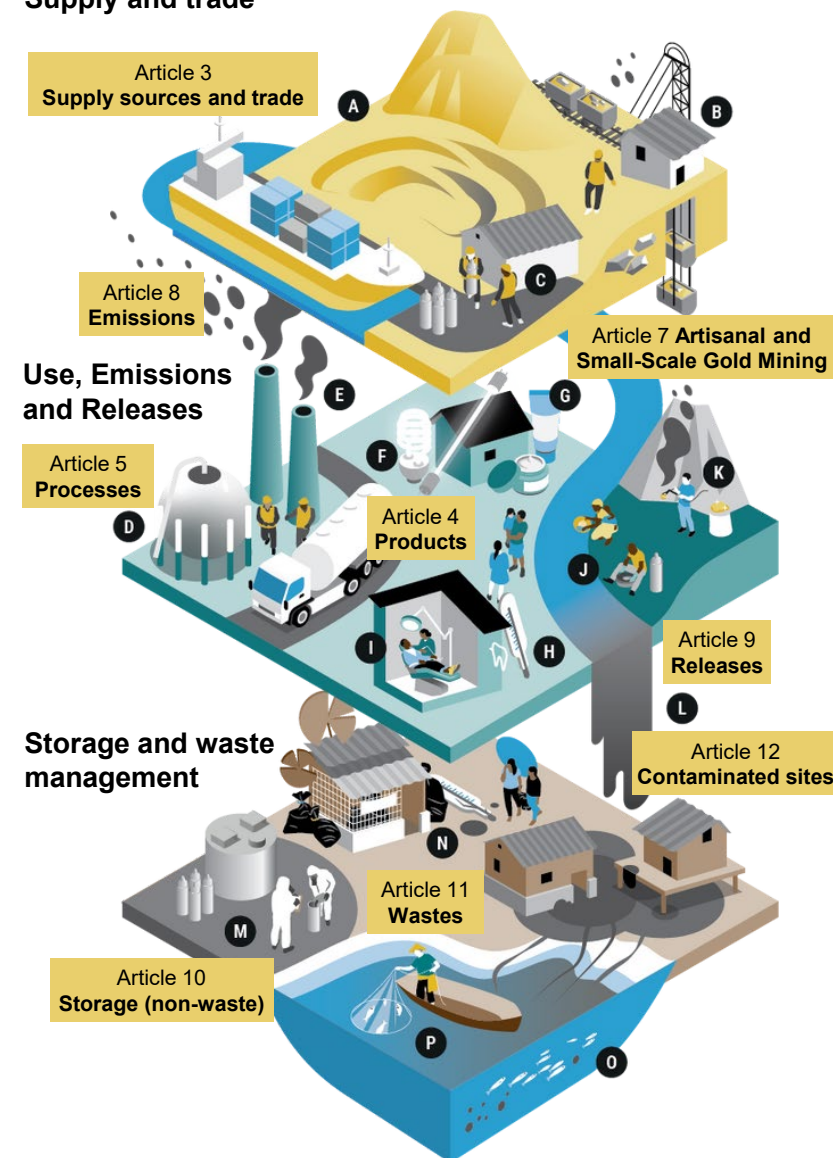
- ▶ The Minamata Convention **controls the whole life cycle of mercury**.
- ▶ Controlling the **anthropogenic emissions and releases of mercury** throughout its lifecycle has been a key factor in shaping the obligations under the Convention, which include:
 - a **ban on new mercury mines** and the phase out of existing ones
 - control of **international trade** of mercury
 - the phase out and phase down of mercury use in a number of **products and processes**
 - **control measures** on emissions to air, releases to land and water, and waste disposal

- the regulation of the **artisanal and small-scale gold mining**, often conducted informally.

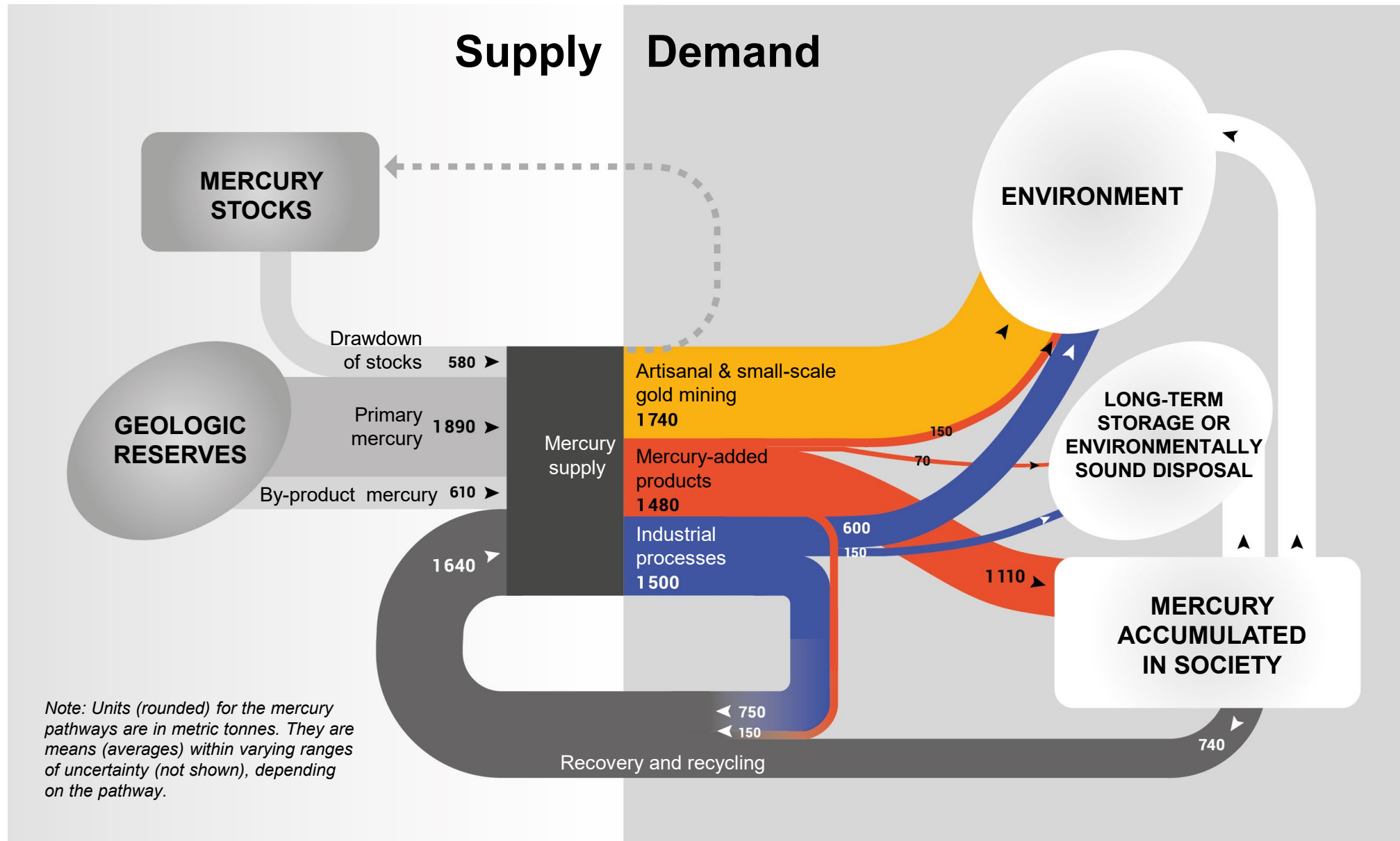
- ▶ The Convention also addresses interim storage of mercury and sites contaminated by mercury, as well as reducing human exposure to mercury.

- A. Cinnabar ore mining to produce mercury
- B. Mercury being supplied from primary mining
- C. Mercury being internationally traded
- D. Mercury being used in various industries such as chlorine and caustic soda
- E. Mercury being emitted to air from coal burning and other industries
- F. Fluorescent lamps
- G. Skin-lightening products
- H. Thermometers
- I. Dental amalgam
- J. Mercury being used to extract gold in gold mining
- K. Mercury being vaporized through burning to obtain gold
- L. Mercury being released into land and water
- M. Interim storage
- N. Mercury being emitted and released from waste management
- O. Mercury accumulating in fish from micro-organisms
- P. Humans being exposed to mercury through food consumption

Supply and trade



Source: [Minamata Convention on Mercury](#)



Source: Global mercury supply, trade and demand, (UNEP, 2017)

What are Parties required to do on mercury-added products

ARTICLE 4

Mercury-added products

1. Each Party shall not allow, by taking appropriate measures, the manufacture, import or export of mercury-added products listed in Part I of Annex A after the phase-out date specified for those products, except where an exclusion is specified in Annex A or the Party has a registered exemption pursuant to Article 6.
2. A Party may, as an alternative to paragraph 1, indicate at the time of ratification or upon entry into force of an amendment to Annex A...

Parties shall:

1. **Not allow the manufacture, import or export** of mercury-added products listed in Part I of Annex A
 - after the specified phase out date
 - unless the Party registered exemption.
 - Parties may choose, when becoming a Party to the Convention, to take other measures and report those measures to Conference of the Parties (COP). (Paragraph 2)
2. Take measures for the mercury-added products listed in Part II of Annex A– to **phase down the use of dental amalgam**.
3. Take measures to prevent the incorporation into assembled products of mercury-added products listed in Part I of Annex A.
4. Discourage the manufacture and the distribution in commerce of mercury-added products not covered by any known use before the Convention.

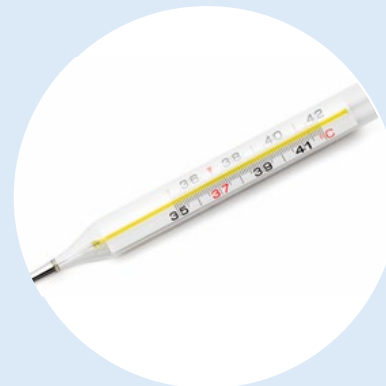
Measuring devices and equipment

Mercury, as the heaviest liquid of all substances, is used as a sensor to measure temperature or pressure.

Non-mercury liquid, dial and digital thermometers replace mercury thermometers.

Aneroid and electronic sphygmomanometers replace mercury sphygmomanometers.

Non-mercury alternatives including aneroid, digital, and non-mercury liquid-filled barometers, manometers, psychrometers, hygrometers, hydrometers, flow meters, flame sensors, and pyrometers replace the mercury containing measuring devices.



Mercury thermometer

Mercury-added products	phase out date
The following non-electronic measuring devices except non-electronic measuring devices installed in large-scale equipment or those used for high precision measurement, where no suitable mercury-free alternative is available: (a) barometers; (b) hygrometers; (c) manometers; (d) thermometers; (e) sphygmomanometers.	2020



Mercury sphygmomanometer



Mercury barometer

Phasing down the use of dental amalgam

ARTICLE 4

Mercury-added products

3. Each Party shall take measures for the mercury-added products listed in Part II of Annex A in accordance with the provisions set out therein.

- ▶ Article 4 of the Minamata Convention provides that Parties **shall take measures for the added products** listed in Annex A Part II in accordance with the provisions set out in the Annex A Part II. This is a provision to cover measures other than phasing out manufacture, import and export.
- ▶ Annex A Part II consist of a list which covers one Mercury Added Product, dental amalgam.
- ▶ The original list presented nine measures, of which Parties are to implement two or more.
- ▶ The 2022 amendment added two mandatory measures.
- ▶ The 2023 amendment added one measure that should be taken by Parties that have not phased out dental amalgam.
- ▶ COP-6 in 2025 is to consider further amendments.

Original requirement – at least two measures from the list

- ▶ The COP encourages Parties to **take more than the two** required measures in accordance with Annex A, part II, of the Convention to phase down the use of dental amalgam. (Decision [MC-3/2](#))

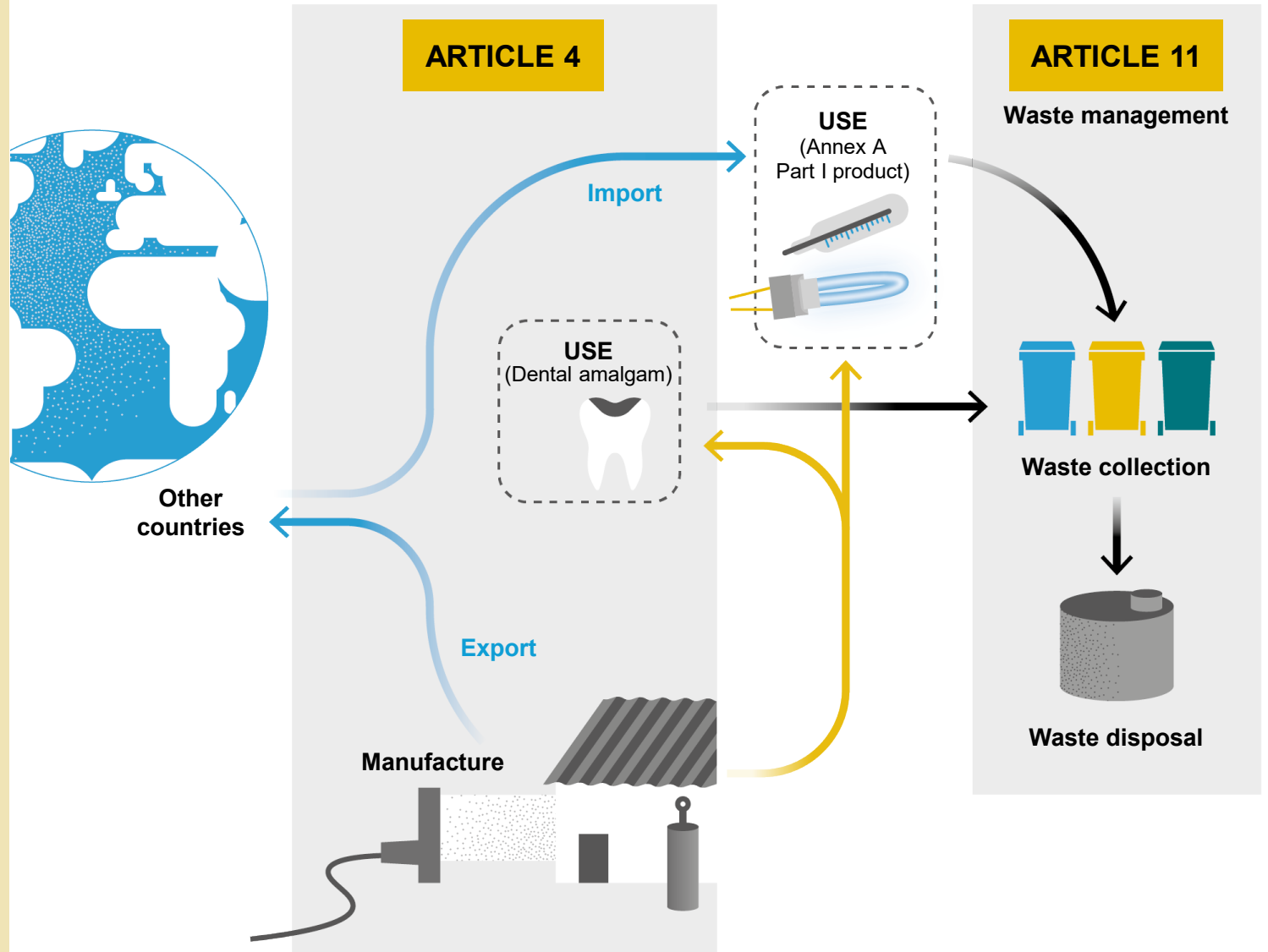
Mercury-added products	Provisions
Dental amalgam	<p>Measures to be taken by a Party to phase down the use of dental amalgam shall take into account the Party's domestic circumstances and relevant international guidance and shall include two or more of the measures from the following list:</p> <ul style="list-style-type: none">(i) Setting national objectives aiming at dental caries prevention and health promotion, thereby minimizing the need for dental restoration;(ii) Setting national objectives aiming at minimizing its use;(iii) Promoting the use of cost-effective and clinically effective mercury-free alternatives for dental restoration;(iv) Promoting research and development of quality mercury-free materials for dental restoration;(v) Encouraging representative professional organizations and dental schools to educate and train dental professionals and students on the use of mercury-free dental restoration alternatives and on promoting best management practices;(vi) Discouraging insurance policies and programmes that favour dental amalgam use over mercury-free dental restoration;(vii) Encouraging insurance policies and programmes that favour the use of quality alternatives to dental amalgam for dental restoration;(viii) Restricting the use of dental amalgam to its encapsulated form;(ix) Promoting the use of best environmental practices in dental facilities to reduce releases of mercury and mercury compounds to water and land.-

Additional requirements for dental amalgam

- ▶ By 2022 amendment, two mandatory measures were added:
 - Measures against the use of amalgam in **bulk form** (therefore to be used in encapsulated form)
 - Measures against the use for **children and pregnant/breastfeeding women**.
- ▶ By 2023 amendment, Parties that have not yet phased out dental amalgam are to submit a national action plan or a report on the progress in phasing down dental amalgam.
 - This is to be included in the national report under Article 21, to be submitted every four years.

Mercury-added products	Provisions
Dental amalgam	In addition, Parties shall: <ul style="list-style-type: none"> (i) Exclude or not allow, by taking measures as appropriate, the use of mercury in bulk form by dental practitioners; (ii) Exclude or not allow, by taking measures as appropriate, or recommend against the use of dental amalgam for the dental treatment of deciduous teeth, of patients under 15 years and of pregnant and breastfeeding women, except when considered necessary by the dental practitioner based on the needs of the patient.
	In addition, Parties that have not yet phased out dental amalgam shall: <ul style="list-style-type: none"> (i) Submit to the secretariat a national action plan or a report based on available information with respect to progress they have made or are making to phase down or phase out dental amalgam every four years as part of national reporting.

Life cycle of mercury-added products



What are Parties required to do on mercury wastes?

ARTICLE 11

3. Parties shall take appropriate measures so that mercury waste is:

(a) Managed in an environmentally sound manner, taking into account the guidelines developed under the Basel Convention and in accordance with requirements that the Conference of the Parties shall adopt in an additional annex in accordance with Article 27. In developing requirements, the Conference of the Parties shall take into account Parties' waste management regulations and programmes;

(b) Only recovered, recycled, reclaimed or directly re-used for a use allowed to a Party under this Convention or **for environmentally sound disposal** pursuant to paragraph 3 (a);.

(c) For Parties to the Basel Convention, not transported across international boundaries except for the purpose of environmentally sound disposal in conformity with this Article and with that Convention. In circumstances where the Basel Convention does not apply to transport across international boundaries, a Party shall allow such transport only after taking into account relevant international rules, standards, and guidelines.

What are mercury wastes?

ARTICLE 11 (2)

“Mercury wastes” are substances or objects:
(a) consisting of mercury or mercury compounds; (b) containing mercury or mercury compounds; or (c) contaminated with mercury or mercury compounds, in a quantity above the relevant **thresholds** defined by the Conference of the Parties, that are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law or this Convention.

CATEGORY

THRESHOLD

Waste consisting of mercury or mercury compounds



No threshold
(Those listed in Annex to decision MC-3/5)

Wastes containing mercury or mercury compounds



No threshold
(End-of-life mercury-added products)

Contaminated with mercury or mercury compounds



15 mg/kg (or different approach)

- Overburden and waste rock (except those from primary mercury mining) are excluded at present.
- 25 mg/kg and 0.15 mg/L: Tailings from mining other than primary mercury mining
- There is no threshold for tailings from artisanal small-scale gold mining (ASGM), and such tailings should be managed in an environmentally sound manner pursuant to Article 7 and in line with the national action plan.

Capacity-building project on mercury waste



Supported by the Government of Switzerland, the Secretariat of the Minamata Convention is rolling out:

- Development of capacity-building material in six languages
- Webinar on mercury waste in six languages in cooperation with Basel Convention and the Global Mercury Partnership.

Partners:

- BCRC Senegal
- BCRC Argentina
- BCRC China
- Pro Mediu (NPO in Moldova)
- PERSGA (Regional Organization for the Conservation of the Environment of the Red Sea & Gulf of Aden)

The draft capacity-building material in English is available for download in both [PDF](#) and [PPT](#) format.

Other language versions will be made available in [document cloud](#).

Questions on the capacity-building material can be raised through Minamata Convention Forum until December 2024.

The screenshot shows the website interface for the 'Six language webinars on mercury waste management'. At the top, there are logos for UN Environment Programme and the Minamata Convention on Mercury, along with navigation links for 'The Convention', 'Decision-making', 'Parties', 'Implementation', 'Resources', and 'News'. The main heading is 'Six language webinars on mercury waste management'. Below this, there is a 'Share' button and a date 'MINAMATA ONLINE | VIRTUAL | 12 - 11 NOV 2024'. A text block describes the project: 'The management of mercury waste is a challenge faced by all the Parties to the Minamata Convention. With financial support from Switzerland, the Secretariat of the Minamata Convention is developing a capacity-building material and convening webinars on mercury waste management, in cooperation with the Basel Convention Secretariat and the Global Mercury Partnership. Several partners are supporting the Secretariat in developing six UN-language versions of the material and the webinar. The material will be posted on an [online workspace](#) so that Parties can use it in their national or regional activities, with further customization as needed.' To the right of the text is a graphic for the webinars, featuring the text 'SIX LANGUAGE WEBINARS ON MERCURY WASTE MANAGEMENT' and '12 NOV - 11 DEC 2024'. Below the text, there are five sections, each representing a different language webinar: 1. English, in partner with the Basel Convention and the Global Mercury Partnership (13H-14H CET, Tuesday 12 November, Registration link: [bit.ly/MO12NOV2024EN](#)). 2. Russian, in partner with Experts Association PRO MEDIU (10H-11H CET, Thursday 21 November, Registration link: [bit.ly/MO21NOV2024RU](#)). 3. French, in partner with the Basel Convention Regional Centre Senegal (11H-12H CET, Thursday 5 December, Registration link: [bit.ly/MO5DEC2024FR](#)). 4. Chinese, in partner with the Basel Convention Regional Centre China (9H-10H CET, Wednesday 11 December, Registration link: [bit.ly/MO11DEC2024CH](#)). 5. Arabic, in partner with the Regional Organization for the Conservation of the Environment of the Red Sea & Gulf of Aden (12H-13H, Wednesday 11 December, Registration link: [bit.ly/MO11DEC2024AR](#)). 6. Spanish, in partner with Basel Convention Regional Centre Argentina (15H-16H, Wednesday 11 December, Registration link: [bit.ly/MO11DEC2024SP](#)). On the right side of the page, there is a 'Time and place' section indicating the event is 'Virtual'. Below this, there are 'Starts on 12 NOV 2024 1 PM CET' and 'Ends on 11 DEC 2024 4 PM CET'. There are also buttons for 'Add to Calendar' and 'Links', including an 'English Flyer' link. At the bottom right, there is a red Swiss flag.

ESM of wastes containing mercury or mercury compounds



Handling

- ▶ Do not mix with any other wastes. Follow clean-up procedures if products are accidentally broken or spilled.
- ▶ Safely handle to prevent any breakage or damage.
- ▶ Do not discharge liquid products (e.g., paints and pesticides) into sinks, toilets, storm sewers or other rainfall runoff collection systems.

Separation

- ▶ Facilitate separation through labelling of products containing mercury.
- ▶ Labels may include:
 - ✓ the presence of mercury or mercury compounds in products;
 - ✓ instructions on proper use, recycling and disposal of those products.
- ▶ Labels should be locally appropriate and/or written in local languages.

For more information on handling: See Section III.F.1.
For more information on separation: See Section III.F.2.

ESM of wastes containing mercury or mercury compounds



Handling spillage of mercury (small spill)

Steps

- ▶ Have everyone else leave the area.
- ▶ Put on gloves.
- ▶ Pick up broken pieces and fold them with paper towel. Place them in a zip locking bag.
- ▶ Gather mercury beads by cardboard. Look for additional mercury with the flashlight.
- ▶ Collect mercury beads with the eyedropper.
- ▶ Pick up smaller hard-to-see mercury beads by duct tape or the paint brush with shaving cream.
- ▶ Place all materials used and mercury in a trash bag. Place the trash bag outside.
- ▶ Contact local health department or municipal waste authority for proper disposal.

Necessary Items

- ▶ Zip locking plastic bags (4 to 5 as needed)
- ▶ Trash bags (2 to 6 mils thick)
- ▶ Rubber, nitrile, or latex gloves
- ▶ Paper towels
- ▶ Cardboard or squeegee
- ▶ Eyedropper
- ▶ Duct tape or shaving cream, and small paint brush
- ▶ Flashlight or small task light
- ▶ Optional: Powdered sulfur

For further information on spillage of mercury: See Section III.K 2, USEPA website (What to Do if a Mercury Thermometer Breaks)

Further reading:

ILO. (2022) [Exposure to mercury in the world of work: A review of the evidence and key priority actions](#) (Box 11).

WHO website “Training modules in health-care waste management”, [Module 20: Management and storage of mercury waste](#) (slides 15-28)

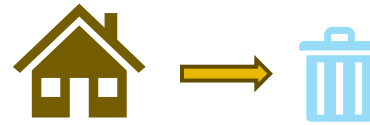
ESM of wastes containing mercury or mercury compounds



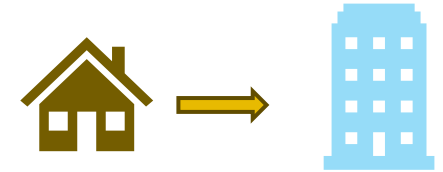
Collection

► Options for collecting waste products from households include:

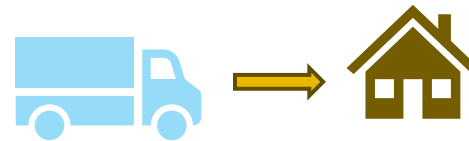
1. Waste collection stations or drop-off depots



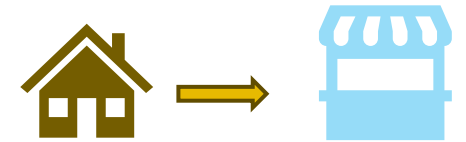
2. Collection at public places or shops



3. Collection at households by collectors

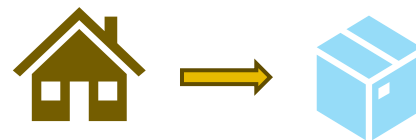


4. Take-back collection programs



Return used products at points of their purchase or at some other specified facilities

5. Pre-paid shipping services



package delivery service

For more information on collection: See Section III.F.3.

ESM of wastes containing mercury or mercury compounds

4 MODULE



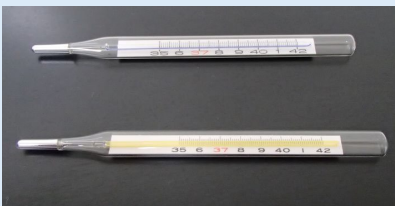
Storage

- ▶ Store safely and keep apart from other wastes.
- ▶ Store in such a manner as to minimize mercury releases (use of closed containers, impermeable concrete pads with runoff controls, or waterproof tarp covers).
- ▶ Appropriately package fragile products (e.g., lamps and thermometers).
- ▶ Keep liquid products in their original containers, whose lids should be tightly closed.

For more information on storage: See Section III.F.6.(a) and (b)(i).

ESM of wastes containing mercury or mercury compounds

4 MODULE



Treatment

- ▶ Remove or recover mercury or mercury compounds (such mercury should be treated as wastes consisting of mercury or mercury compounds, and the remaining wastes should be treated as wastes contaminated with mercury or mercury compounds).
- ▶ Minimize mercury emissions/releases from the mercury recovery process (pre-treatment, thermal treatment, purification) through:
 - ✓ employing closed system for facilities;
 - ✓ operating the process under reduced pressure;
 - ✓ capturing mercury in exhaust gas and wastewater.
- ▶ Conduct pre-treatment (removal of impurities and materials other than those containing mercury) before thermal treatment.
- ▶ Equip thermal treatment facilities with mercury vapor collection technology. Thermal desorption using indirect heat exchange is recommended.
- ▶ Purify collected mercury by successive distillation as necessary.

For more information on pre-treatment: See Section III.G.1.(a). Examples of pre-treatment operations by type of waste can be found in Table 7.
For information on thermal treatment: See Section III.G.1.(b)(i).

Case study

Reducing UPOPs and Mercury Releases from the Health Sector in Africa (GEF Project)

- Build national capacity to enable the assessment, planning, and implementation of healthcare waste management (HCWM) systems.
- Develop/improve the national policy and regulatory framework pertaining to HCWM.
- **Make available affordable non-incineration HCWM systems and mercury-free devices that conform to BAT and international standards.**
- **Demonstrate HCWM systems, recycling, mercury waste management and mercury reduction at project facilities.**
- Establish national HCWM training infrastructures.

Zambia: Phase out of mercury-added products and establishment of a temporary storage for collected products

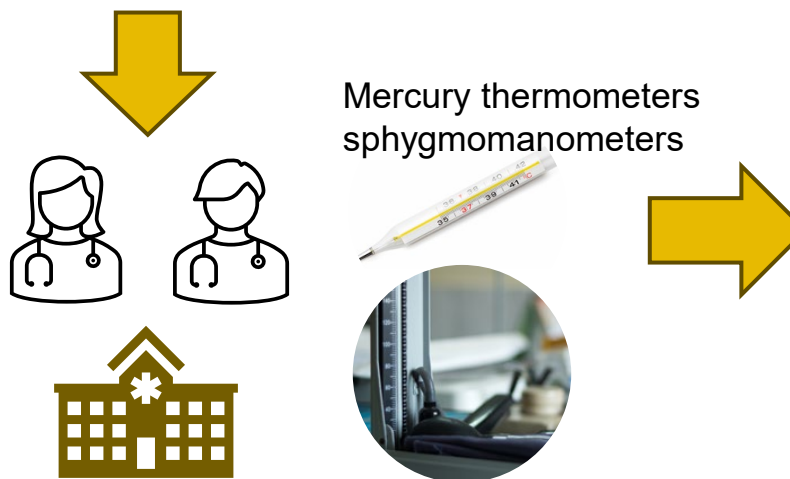
Output

Initial set of HCWM systems and mercury-free devices given to 3 health posts, up to 2 hospitals, and 1 central or cluster treatment facility

Output

BAT/BEP implemented at the model facilities
Recycling programs in the model facilities
Safe storage sites for mercury and mercury-free devices used in model facilities
National training program

Mercury-free thermometers & sphygmomanometers
Training healthcare staff on their use and maintenance
Establishment and training of local maintenance teams/technicians



Mercury Storage Container

Model Healthcare Facilities

COP-5 decision on mercury waste



Decision MC-5/10: Establishment of mercury waste thresholds

- Decided to establish **15 mg/kg total concentration of mercury** as the **threshold for wastes contaminated with mercury**, subject to the following:
 - A Party may, as an alternative to the threshold above, use a different approach to determine whether a given waste is a waste contaminated with mercury, provided that that Party has documented waste management measures in place to protect human health and the environment, including measures to ensure that mercury waste is managed pursuant to Article 11(3), and also including measures to identify mercury waste using approaches such as those based on national definitions of mercury wastes or hazardous wastes, listing approach, hazardous characteristics or risk considerations, leachate thresholds or total concentration thresholds.
 - A Party making use of this alternative approach is to submit to the secretariat its documented waste management measures as described above.
- Requested the Secretariat to maintain a public register of the information submitted in accordance with above.
- Invited Parties and relevant stakeholders to submit to the Secretariat any scientific and regulatory data and information on the effectiveness of the threshold in protecting human health and the environment, as well as on challenges and experiences related to its use, for consideration at COP-7.
- Invited Parties to use the guidance document on the test methods for the tier-2 threshold for tailings from mining other than primary mercury mining as set out in document UNEP/MC/COP.5/INF/13.

COP-5 decision on mercury waste



Decision MC-5/10: Establishment of mercury waste thresholds

- Invited parties to submit to the secretariat by 31 October 2024 information regarding their waste management regulations and programmes as mentioned in subparagraph 3 (a) of article 11, with a focus on matters not addressed by the technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with mercury or mercury compounds.
- Requested the secretariat to collect and organize the information referred to in paragraph 9 above and distribute it to the parties by 1 January 2025.
- Invited parties to review the information referred to in paragraph 9 above in their preparations for the sixth meeting of the Conference of the Parties.

Submissions received have been posted on the Convention [website](#).

The screenshot shows a web browser window with the URL <https://minamataconvention.org/en/intersessional-work-and-submissions-cop-6#sec2416>. The page header includes the UN Environment Programme logo and the Minamata Convention on Mercury logo. The navigation menu includes: The Convention, Decision-making, Parties, Implementation, Resources, and News. The main content area is titled "Mercury waste" and contains the following text: "Parties are invited to submit information regarding their waste management regulations and programmes as mentioned in Article 11 (3) (a), with a focus on matters not addressed by the technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with mercury or mercury compounds under the Basel Convention, by 31 October 2024. The following submissions have been received. The Secretariat is to collect and organize the information and make it available by 1 January 2025." Below this text is a list of countries: Costa Rica, EU and its member states, Japan, Saudi Arabia, Thailand, and Uganda. On the left side of the page, there is a vertical list of topics: Indigenous peoples and local communities, Mercury supply sources and trade, Annexes A and B (products and processes), Artisanal and small-scale gold mining, Emissions of mercury, and Mercury waste.

Other capacity-building activities



Some projects funded by the **Global Environment Facility** have component on waste management, e.g. projects on:

- [Dental amalgam](#)
- [Medical devices](#)
- [Chlor-Alkali](#)

[Specific International Programme](#) support parties in implementing Article 11.

- 1st round (2018-): Armenia, Benin
- 2nd round (2019-): Moldova, Peru, Sri Lanka
- 3rd round (2021-): Jordan, North Macedonia, Rwanda
- 4th round (2025-): Being appraised

Funded by the European Union, the Secretariat of the Minamata Convention and the United Nations developed an online training platform on the Convention – [Minamata Tools](#).

Also see:

- [Minamata Online](#)
- [Mercury and Gender e-learning](#)
- [InforMEA](#)
- [MercuryLearn](#)
- [Global Mercury Partnership](#)

A screenshot of the Minamata Tools online training platform. The header shows the United Nations System Staff College logo and navigation links for 'Courses' and 'Cu'. The main content area is blue and features the text 'ONLINE', '13 MAY 2024 - 31 DEC 2024', and 'Minamata Tools'. Below this, there are two tabs: 'CLIMATE CHANGE' and 'SUSTAINABLE DEVELOPMENT AND THE SDGS'. A 'Sign up' button is visible. At the bottom left, there is a logo for 'Funded by the European Union'.

UNITED NATIONS SYSTEM STAFF COLLEGE Courses ▾ Cu

ONLINE

13 MAY 2024 - 31 DEC 2024

Minamata Tools

CLIMATE CHANGE SUSTAINABLE DEVELOPMENT AND THE SDGS

Sign up

Funded by the European Union

Register today!



SCAN ME

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.minamataconvention.org

MAIL: MEA-MinamataSecretariat@un.org

X: @minamataMEA

[#MakeMercuryHistory](https://twitter.com/MakeMercuryHistory)



MINAMATA
CONVENTION
ON MERCURY

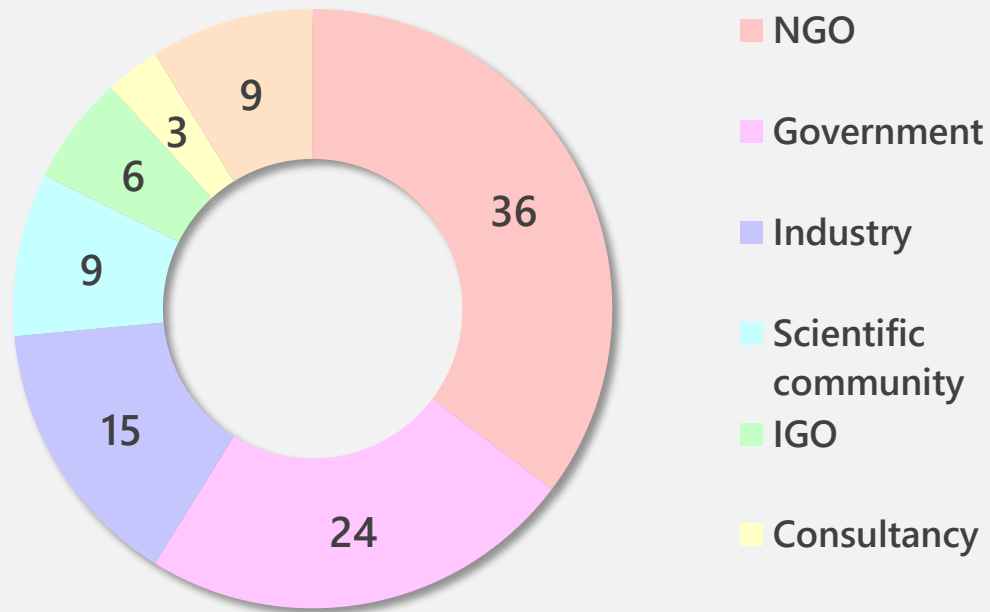
Activities of the Global Mercury Partnership Waste Management Area

**Kishor Parajuli
Secretariat, GMP-WMA**

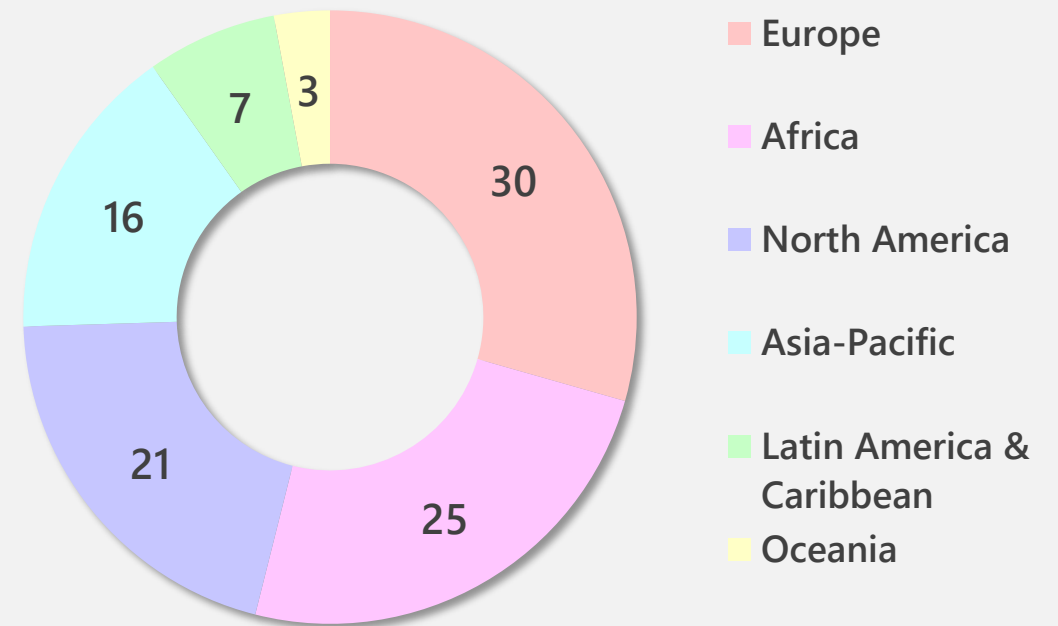
**Webinar on Managing mercury waste from dental amalgam and medical measuring devices
(9 December 2024)**

Overview of the Waste Management Area

- Largest number of Partners among the Global Mercury Partnership areas (approx. 120).
- Voluntary Initiative. Multi-stakeholder and multi-sector partners from different regions.
- Led by Dr. Misuzu Asari (Professor, Research Institute for Humanity and Nature) and the Ministry of the Environment, Japan. Supported by the WMA Secretariat (EX Research Institute, Ltd.).



Types of stakeholder



Geographic balance

Recent activities of the GMP-WMA



WMA meeting

- Twice a year to (1) review current activities and consider future ones, (2) update on recent developments on mercury (COP, PAG, ICMGP) and (3) share initiatives from Partners and external stakeholders.



Activity Plan

- Three-year plan (2022-2024), developed on the basis of online needs-survey on mercury wastes conducted in 2021.
- Set out activities to be pursued. Available online.



Catalogue

- Compendium of technologies and services that Partners can offer for mercury waste management, including the applicability in developing countries.
- Updated annually. Available online.



Working Group

- Three groups to address specific needs identified through the online needs-survey.
 - Resource development
 - Capacity-building and awareness raising
 - Solution exchange



Collaboration

- Collaboration with other partnership areas on organizing webinars.
- Presentation at the Coal area's project
- Project collaboration with Chlor-alkali area for the conversion from mercury cell.



Others

- Fact sheets
- Resource person list

Catalogue of Technologies and Services on Mercury Waste Management

The Catalogue provides technologies and services relevant for the mercury waste management.

Catalogue of technologies and services on mercury waste

- Contains information on technologies, products and services related to mercury waste management owned by WMA partners.
- It covers
 - Sector-specific solution (dental amalgam, fluorescent lamps, contaminated sites),
 - Treatment technologies (mercury recovery, stabilization and solidification), and
 - companies supplying equipment for the treatment of mercury waste.
- Updated annually and available online.
- Will be revised to include the list of mercury waste facilities around the globe.



UNEP Global Mercury Partnership
Waste Management Area

Catalogue of Technologies and Services on Mercury Waste Management

2024

This catalogue has been compiled by Professor. Misuzu Asari, Research Institute for Humanity and Nature and Ministry of the Environment, Japan, the leads of the Waste Management Area (WMA) under the UNEP Global Mercury Partnership in cooperation with the partners of the WMA, with a view to disseminate information of technologies, products, services related to mercury waste management owned by partners.

March 2024

- Intended to complement the technical guidelines for the ESM of mercury wastes under the Basel Convention.
- Provides practical information that is common to specific mercury waste streams at different stages of waste management (separation, storage, transport, treatment and disposal).
- Factsheet for Non-Electronic Measuring Devices (NEMD) has been prepared. Contains information on the following:
 - Classification under Basel Convention
 - Handling and Separation
 - Collection
 - Packaging, Labelling and transport
 - Storage
 - Treatment and Final Disposal



About this product

Non-electronic measuring devices (NEMDs) are types of mercury-added products where mercury is under its elemental form (liquid). Parties to the Minamata Convention shall take measures not to allow the manufacture, import or export of the following NEMDs (except NEMDs installed in large-scale equipment or those used for high precision measurement, where no suitable mercury-free alternative is available):

- a. barometers;
- b. hygrometers;
- c. Manometers;
- d. Thermometers;
- e. Sphygmomanometers.

The quantity of mercury used varies depending on types of product, as well as places where these products are used and stored.

Product	Application (example)	Hg-content (g)
Thermometers	Measuring temperature, industrial application	0.61 - 2.25
Barometers and vacuum gauges	Measuring atmospheric pressure, weather monitoring purpose and farming application	300 - 600
Flowmeters	Measuring the rate of flow in water, etc.	Up 5,000
Hydrometers	Measuring the gravity and density of a liquid, etc.	0.002 - 1
Hygrometers/ psychrometers	Measuring the moisture content in air	3 - 7
Manometers	Measuring air, water and gas pressure, etc.	100 - 500
Pyrometers	Measuring extremely hot materials,	5 - 10
Thermostat probes	Preventing gas leakages	1
Sphygmomanometer	Measuring blood pressure	20 - 60

Proposed activities of the WMA for 2025

(1) Preparation of factsheets on ESM of mercury wastes

- In 2025, develop an additional factsheet on mercury wastes from the oil and gas sectors. Additional factsheets will be considered based on the progress and availability of resources
-

(2) Case studies on the transboundary movement of mercury waste [further discussed in the next slide]

- Provide information to countries intending to export mercury on the challenges, lessons learned and necessary processes from the actual cases on the TBM
-

(3) Updating Catalogue of Technologies and Services on Mercury Wastes

- Annual update on “Catalogue of Technologies and Services on Mercury Waste Management”
-

(4) List of mercury waste treatment facilities

- Contains facilities owned by the WMA partners, and therefore may be integrated into the Catalogue of Technologies and Services on Mercury Waste Management.
-

(5) Consultation desk for Mercury Waste Management [further discussed in the following slides]

- Stakeholders can request assistance from WMA partners to address specific challenges related to mercury wastes.
-

Compilation of case studies on the transboundary movement of mercury waste

- Article 11 of the Minamata Convention require parties to take appropriate measures so that mercury waste is managed in an environmentally sound manner, and for parties to the Basel Convention, not transported across international boundaries except for the purpose of environmentally sound disposal.
- This document intends to provide practical information for those interested in transboundary movement of mercury wastes on challenges, experiences, necessary procedures and lessons learned on the actual cases of TBM in which WMA partners have been involved.
- Aiming to make available online by March 2025.



Background & About this document

- Article 11 of the Minamata Convention on mercury require parties to take appropriate measures so that mercury waste is managed in an environmentally sound manner, and for parties to the Basel Convention, not transported across international boundaries except for the purpose of environmentally sound disposal.
- However, recognizing that there are only a limited number of facilities capable of treating mercury wastes in an environmentally sound manner even at the international level, one of the plausible options for countries that do not have such facilities is to conduct transboundary movement of mercury wastes in accordance with the relevant provisions of the Basel Convention.
- This document is a compilation of case studies on the transboundary movement of mercury wastes developed by the Waste Management Area (WMA) of the UNEP Global Mercury Partnership. The aim is to provide practical information on challenges, experiences, necessary procedures and lessons learned on the actual cases of the transboundary movement in which WMA partners have been involved.
- It should be noted that this document is only a compilation of past cases and does not guarantee that future cases of transboundary movement will take place under the same circumstances and conditions.

Consultation desk for mercury waste management

- Online survey in 2021 found that many stakeholders face challenges particularly in the management of wastes of mercury-added products at all different stages of waste management.
- Planning to launch a new online consultation desk where stakeholders can request assistance from WMA partners to address specific challenges related to mercury wastes. Depending on the issue and available resources, the WMA may be able to support.
- Hopefully be launched by March 2025.

Under consultation with WMA Partners

- Waste Management Area of the UNEP Global Mercury Partnership

Consultation Desk for Mercury Waste Management

As of March 2025

01 Overview

- The Waste Management Area (WMA) is one of the Partnership areas under the Global Mercury Partnership led by UNEP. The WMA consists of more than 100 partners from different types of stakeholders and regions.
- The WMA is concerned that many stakeholders are struggling to manage mercury waste in an environmentally sound manner in accordance with Article 11 (mercury waste) of the Minamata Convention on mercury.
- The WMA has extensive knowledge and experiences in mercury waste management. Partners includes waste treatment companies, governments, NGO and others.
- 2021 online survey by the WMA found that stakeholders face challenges particularly in managing wastes of mercury-added products at all different stages of waste management.

The WMA has launched a new online consultation desk where stakeholders can request assistance from WMA partners to address specific challenges related to mercury waste. Depending on the issue and available resources, the WMA may be able to support you, noting that the WMA is a voluntary initiative and therefore not an institution to provide financial support.

Other useful information sources

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Basel Convention

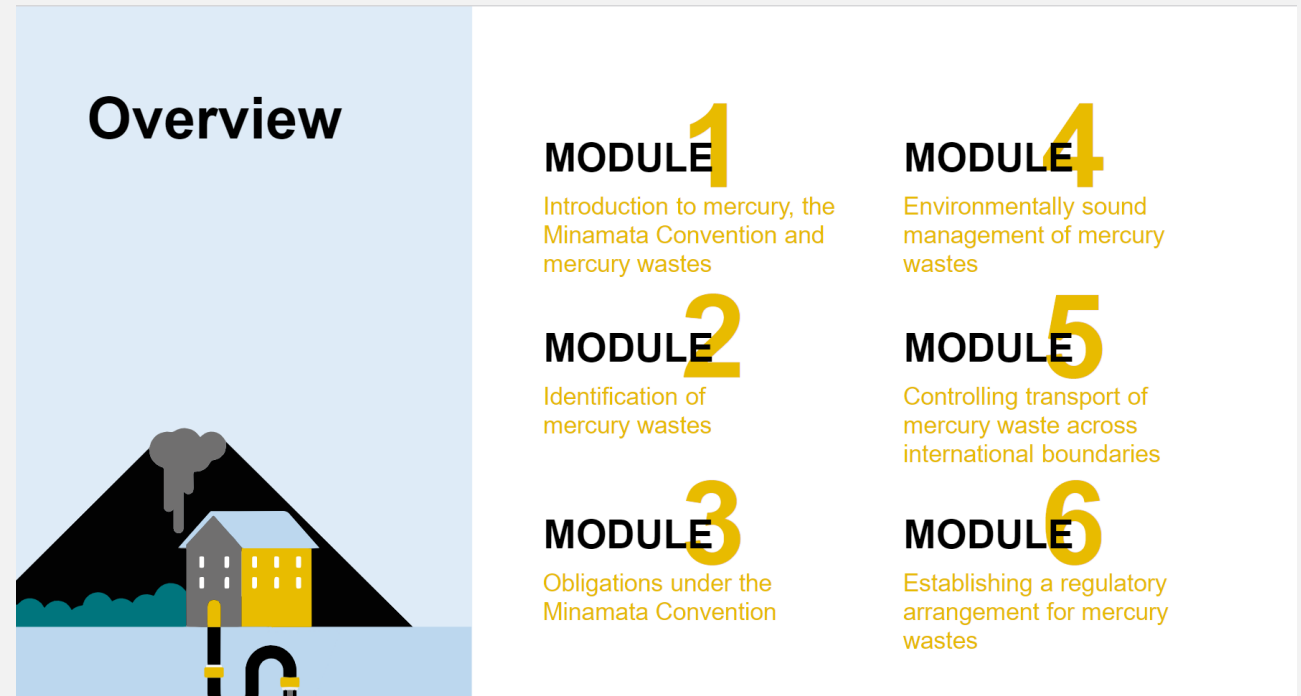
-Technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with mercury or mercury compounds
[Adopted by COP-15, May 2023]

Other useful information sources

Minamata Convention Secretariat

-Capacity-building material and webinars on mercury waste management

- Secretariat of the Minamata Convention is developing a capacity-building material and convening webinars on mercury waste management, in cooperation with the Basel Convention Secretariat and the Global Mercury Partnership
- Materials are posted on an online workspace (<https://owncloud.unog.ch/s/pcTvzmOtdj6LYqg>) so that Parties can use it in their national or regional activities, with further customization as needed.
- Six Language webinars on mercury waste management [12 Nov-11 Dec 2024]



<https://minamataconvention.org/en/events/six-language-webinars-mercury-waste-management>

wastemanagement@exri.co.jp



Questions and Answers

facilitated by [Misuzu Azari](#), Co-lead of the Waste Management Area



Hg wastes management at national, regional and international levels: a multi-stakeholder engagement

facilitated by [Benoit Varenne](#), World Health Organization



Managing Hg waste from dental amalgam and medical measuring devices: sharing existing knowledge and initiatives

UNEP Global Mercury Partnership Webinar
December 9, 2024

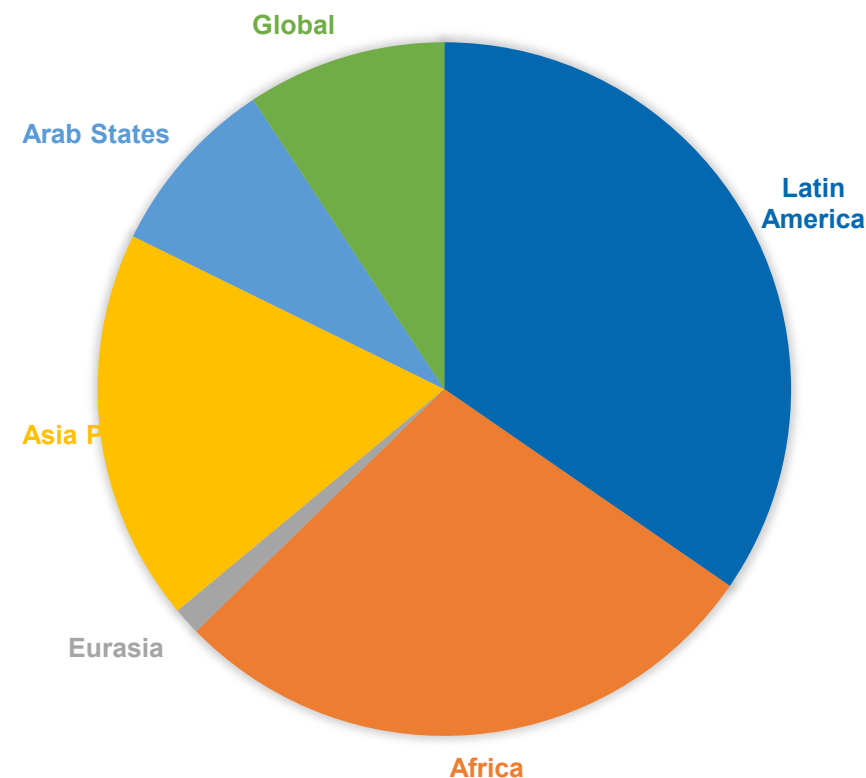
Joel Ayim Darkwah

UNDP Chemicals and Waste Hub, Regional Technical Advisor,
Regional Centre for Africa, Addis Ababa

HEALTHCARE WASTE MANAGEMENT PORTFOLIO

UNDP GEF Portfolio

- 34 projects in 31 countries
- Across all GEF cycles, incl. GEF-8
- Global portfolio + \$67million
- LAC (+ \$38 mil), Africa (+ \$31 mil) and Asia Pacific (+ \$20 mil).
- **Outputs:** Policy and regulation, collection and safe storage/disposal, training and capacity building, awareness raising, knowledge management and communication





Reducing UPOPs and Mercury Release from the Health Sector in Africa

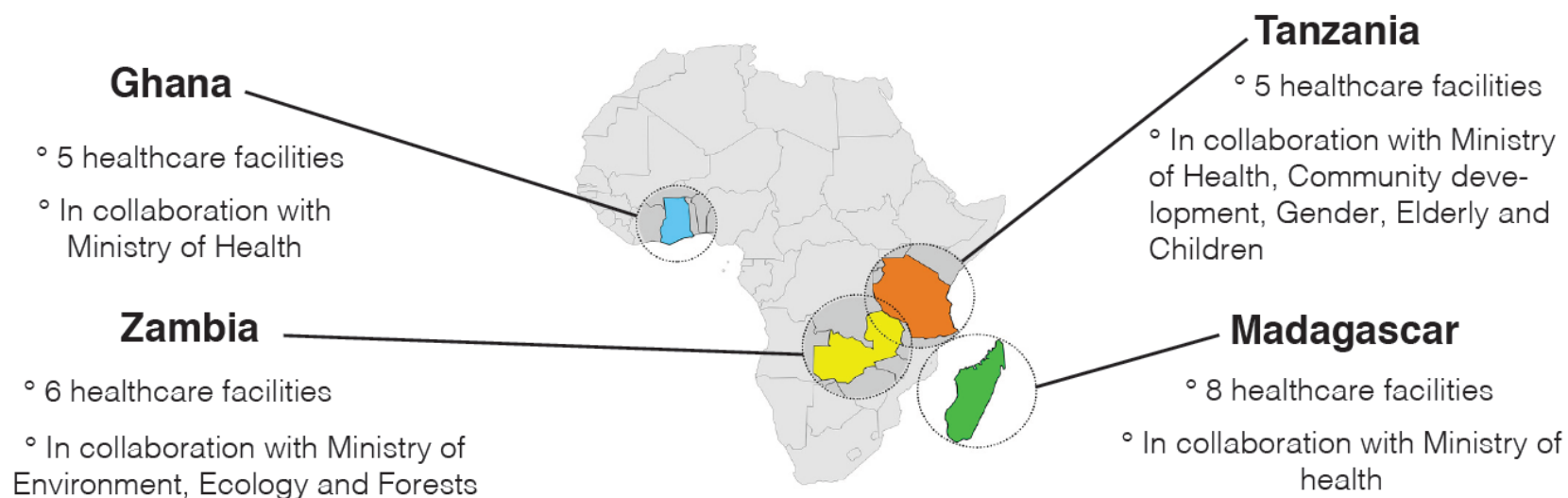


...to implement best environmental practices and introduce non-incineration healthcare waste treatment technologies and mercury-free medical devices in four Sub-Saharan African countries (**Ghana, Madagascar, Tanzania and Zambia**) to reduce harmful releases from the health sector.

Duration: April 2016 to December 2020

Budget: \$6,4 Million GEF financing

Partners: UNDP, WHO and Health Care Without Harm (HCWH)



Results of Mercury Component



- 2,200 mercury-free devices (digital thermometers and sphygmomanometers) procured and delivered to 24 model HCFs.
- Mercury containing medical devices collected.
- Project model HCFs were free of MCDs. In Madagascar, 50+ facilities eliminated MCDs as a result of a national campaign.
- 1 central and 3 interim storage facilities for collected mercury-containing equipment were established.
- 224 kg of mercury releases reduced/avoided.
- National curricula updated.
- Purchase of mercury-free devices was mainstreamed into centralized health procurement systems (Medical Stores).

Website and Knowledge Repository

[Green Healthcare Waste website : www.greenhealthcarewaste.org](http://www.greenhealthcarewaste.org);
Knowledge repository for GEF financed HCWM projects

Technical Lessons Learned reports

HCWM training packages (incl. occupational health modules, mercury spills)

Technical specifications on non-incineration HCWM equipment (incl. PPEs, logistics equipment) and mercury free medical devices.

Replication/scale-up tools and country case studies

Independent Evaluations (Midterm and Terminal Evaluation Reports)

Knowledge repository for GEF financed HCWM projects

Phasing out Mercury – Lessons Learned

1. Procurement

Centralized procurement by UNDP Regional / global procurement was effective but complicated (difficulties with shipping, customs, import duties)

- Where possible procure equipment at national level
- Conduct market study and support market transformation in favour of mercury-free devices.
- Support national supply chains via local procurement of mercury free devices.
- Support centralized national procurement systems (Medical Stores) with capacity building so they build capacity in green procurement practices, incl. for mercury-free medical devices.



Phasing out Mercury – Lessons Learned

2. Capacity for validation/calibration equipment

Low capacity in project countries in the validation (quality control) and calibration of medical equipment. This can be a challenge for quality assurance during procurement and impact long-term use of mercury free, digital medical devices.

- Assess validation and calibration requirements and countries' capacity.
- Provide clear guidance and training on validation / calibration of equipment when necessary.
- **Guidance and capacity needs to be in place before arrival of new equipment.**



Phasing out Mercury – Lessons Learned

3. Owners of mercury containing devices

Mercury containing medical devices are not always owned by the hospitals but by the physicians and the patients.

- For an exchange of these devices, final recipients must be well identified and if necessary, changed.
- Instead of strict 1:1 replacement strategy, provide mercury free devices in accordance with need.
- **Consider higher budget** for new equipment to enable staff to use equipment safely (to reduce cross contamination).
- Incentives were provided to **promote/recognize** mercury free healthcare facilities.

Phasing out Mercury – Lessons Learned

4. Awareness raising and training

Reluctancy to use the new equipment as some medical staff was not convinced that it is as accurate as the mercury containing equipment

- Awareness raising and training on digital equipment on the ground is essential. Formal trainings should be adopted – **starting at medical and nursing schools.**
- Establish a maintenance system for new digital equipment, to ensure lasting operation and reliable energy supply (batteries).
- Assist in the identification of **local supply chains for chargers and batteries** to sustain the use of new equipment.



Phasing out Mercury – Lessons Learned

5. Accessibility, Secure Storage and Disposal Costs

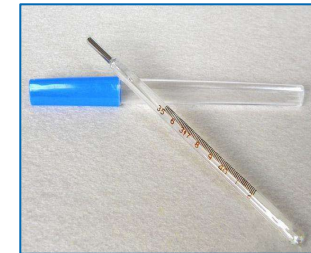
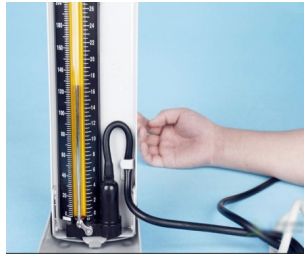
- Only one size arm-cuffs of sphygmomanometers have been procured which were **not suitable for children**.
 - Consider different sized arm-cuffs during the planning of equipment procurement.
- Ensure **secure mercury storage facility**. Mercury containing devices may be stolen from the storage facility for selling on the informal market.
 - The storage of mercury containing devices needs to be inaccessible to unauthorized persons and monitored regularly.
 - A disposal strategy for mercury waste should be identified/ensured in line with a country's obligations under the Minamata Convention.
- Very small quantity of mercury recovered (Madagascar):
 - **High cost of disposal outside the country**
 - See possibility of grouping with other mercury waste



Phase-out of mercury-containing medical thermo- and sphygmomanometers & promoting mercury-free alternatives in medical facilities in China

Minamata Convention

- China's Entry-into-Effect of Minamata Convention on Mercury in 2017
- The import and/or export banned from January 1, 2021
- As for China, the manufacture of mercury-containing thermometers and sphygmomanometers will be forbidden from January 1, 2026
- GEF Project: 2023-2027, Budget: USD16 million,
- Partners: UNDP, Foreign Environmental Cooperation Center- Ministry of Ecology and Environment, China Association for Medical Devices Industry



Background

Manufacturing

- ❑ China is a large manufacturer of mercury-containing medical thermometers and sphygmomanometers. The production facilities are mostly located in Eastern China like Jiangsu, Anhui and Shandong Provinces etc



Medical institutions

- ❑ nearly 1 million medical institutions of different levels in China, and mercury-containing thermometers and sphygmomanometers are widely used in medical institutions, and the total amount of use is difficult to estimate effectively.
- ❑ Mercury-free thermometers and sphygmomanometers have been gradually adopted by some healthcare organizations, but the adoption of mercury-free alternatives has been slow, given the stability, quality, price, and usage habits of the alternatives.



The **objective** of this project is to **set the enabling environment to accelerate uptake of mercury-free technology in production of medical thermometers and sphygmomanometers, and to lay the foundation for market acceptance and growth for mercury-free devices in the medical services sector, to meet the associated phase out deadlines under the Minamata Convention**

Objective Indicators :

- Demonstration at **4 + 2** mercury-containing manufacturers, completely stop their production lines, reducing mercury consumption, production and sales to zero, eliminating the consumption of **75 metric tons of mercury**
- Facilitated by technology transformation and national replication programme, completely phase out by **31 December 2025** the consumption of mercury by the **18 + 5** enterprises
- Mercury-free medical devices promoted in at least **6** demonstration medical facilities, staff trained to use and maintain mercury-free medical devices;
- ESM of mercury on interim mercury storage, mercury-containing waste and mercury contaminated areas at the demonstration production facilities and medical facilities implemented.

Expected results



The project adopted a strategy with the following **three integrated components** to remove the barriers and the GEF funding will be used to achieve the objective through achievement of key results under the following **components & outcomes:**

Component 1 :

Policy, regulatory tools, and associated action plans in place, to guide phase out of mercury medical devices under the Minamata Convention

Outcome 1: Cross ministerial cooperation established to reduce the use of primary mercury in medical devices, to manage waste of obsolete devices, and to promote the uptake of mercury-free medical devices.

Component 2:

Demonstration of technology transfer and investment

Outcome 2: Enterprises are enabled to convert production lines.

Outcome 3: Use of mercury-free devices and the sound management of obsolete mercury-containing medical devices demonstrated in at least 6 medical facilities. 60% of baseline mercury-containing medical devices replaced in demonstration provinces.

Component 3:

Guidelines and tools for the long-term sound management of discarded mercury-containing medical devices and mercury-contaminated areas

Outcome 4: Production enterprises and medical facilities implemented appropriate strategies, tools and guidance to assure long-term sound management of mercury-containing medical devices and mercury contaminated areas.

Component 4 and 5: Knowledge management, M&E, PMC



Thank you!

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UNDP Chemicals and Waste Hub

Dental Amalgam in the Philippines: Challenges and Successes

BANTOXICS

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BAN Toxics

BAN Toxics is a Philippine-based independent non-government, non-profit, 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.

We have worked with communities from the Philippines, Cambodia, Mongolia, Indonesia, Uganda, and Tanzania (to name a few).



Key Questions

01

What are the relevant projects and activities conducted in the Philippines to help manage dental amalgam?

02

What policies have been effective in contributing to the management of dental amalgam?

03

What are the current challenges and issues in implementation?

Policy Framework

Revised Chemical Control Order for Mercury and Mercury Compounds (DAO 2019-20)

- State policy to regulate, restrict, or prohibit the importation, manufacture, processing, sale, handling, storage, distribution, use, and disposal of Mercury, Mercury Compounds, and Mercury-Added Products that present risk and danger to human health and the environment. **(Section 1)**

Minamata Convention on Mercury

- Ratified by the Philippines in 2020

Guidelines on the Phaseout of Mercury Use in Dental Restorative Procedures (DAO 2020-20)

- Immediate ban on the use of dental amalgam for children fourteen (14) years old and below, pregnant women, and nursing mothers **(Section 7)**
- Ban on the use of existing dental amalgam/capsules for dental restoration procedures in clinics and schools three years from the effectivity of the order **(Section 7, effective May 2023)**

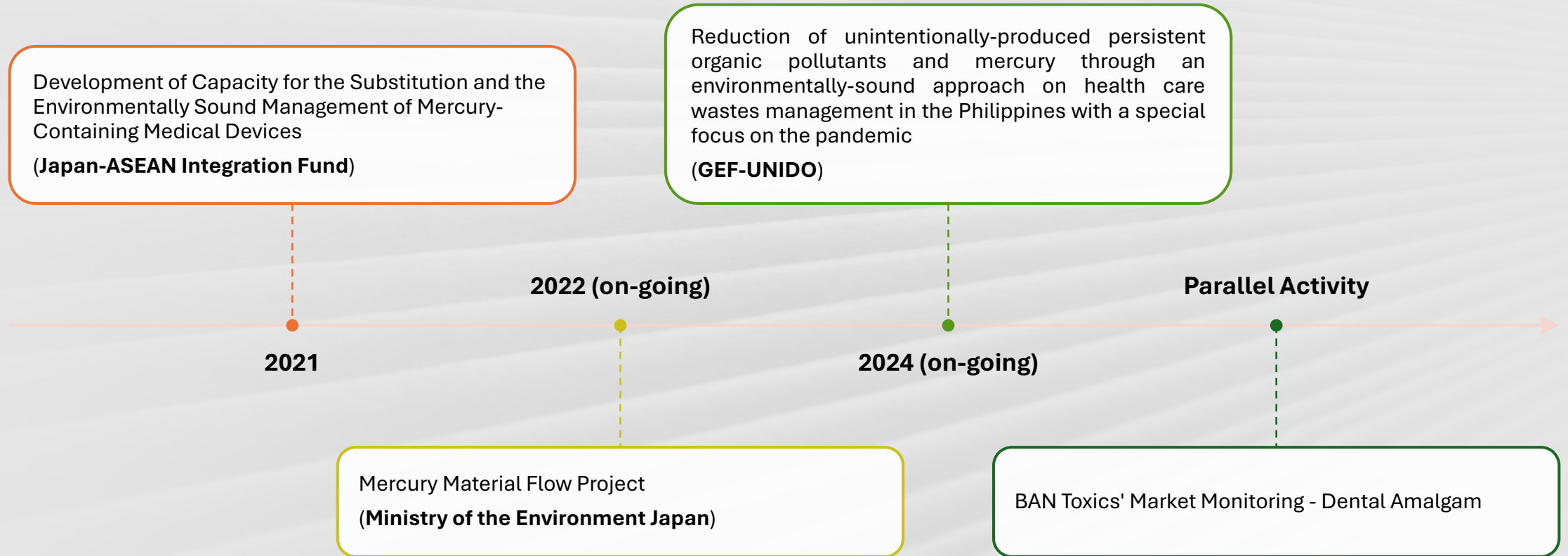
Food and Drug Administration Memorandum Circular 2022-03

- Prohibits the use of mercury-containing devices, including sphygmomanometers, thermometers, and dental amalgam in all dental institutions.
- Reinforces the prohibition of dental amalgam use in dental schools after the transitory period **(Paragraph 7, Section 1)**

Relevant Projects

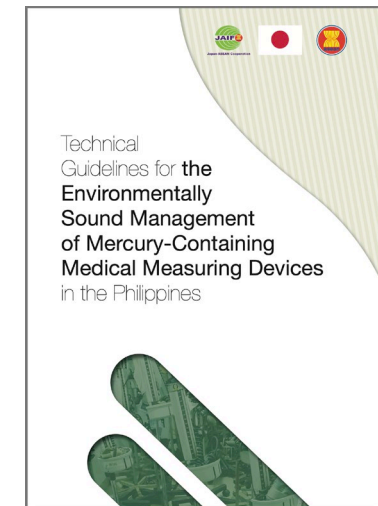
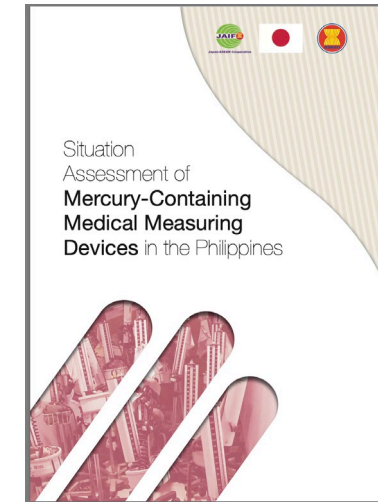
BAN Toxics is the executing agency for several national projects on MCMMDs and dental amalgam in partnership with the Department of Environment and Natural Resources.

Relative to dental amalgam, the objectives of the projects include: 1) **assessing the effectivity of the phase-out**, 2) **understanding where mercury from dental amalgam is**, 3) **strengthening policy** and 4) **facilitating final disposal**.



Development of Capacity for the Substitution and the Environmentally Sound Management of Mercury-Containing Medical Devices

- a **Japan-ASEAN Integration Fund (JAIF)** project endorsed by the Association of Southeast Asian Nations (ASEAN) Working Group on Chemicals and Waste and the ASEAN Senior Officials on the Environment.
- The project aimed to contribute to the prevention of the adverse health and environmental impacts of mercury through the **environmentally sound management of used thermometers and sphygmomanometers** in ASEAN Member States.
- Assesses the **effectivity** of the **2008 Administrative Order** in banning the use of MCMMDs, and identifies **policy gaps** in order to build capacities in implementing agencies
- The reports show that **MCMMD use has been reduced drastically (>95%)**, but some healthcare facilities particularly in rural areas 1) lacked awareness regarding policies, 2) did not have access to formal treatment, storage, and disposal services, and 3) lacked knowledge on proper management of MCMMDs.
- Policy recommendations from the study were adopted and **eventually led to the enactment of FDA MC 2022-03**, harmonizing existing bans on MAPs such as medical devices and dental amalgam (Slide 4)

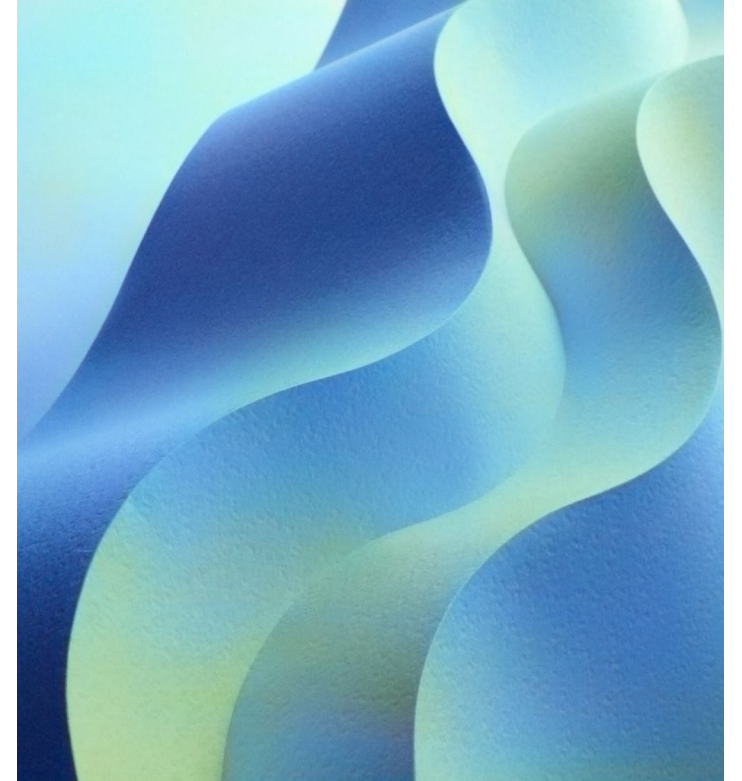


Mercury Material Flow Project

The on-going project aims to develop a national-level mercury material flow document that outlines mercury inputs and outputs in the Philippines

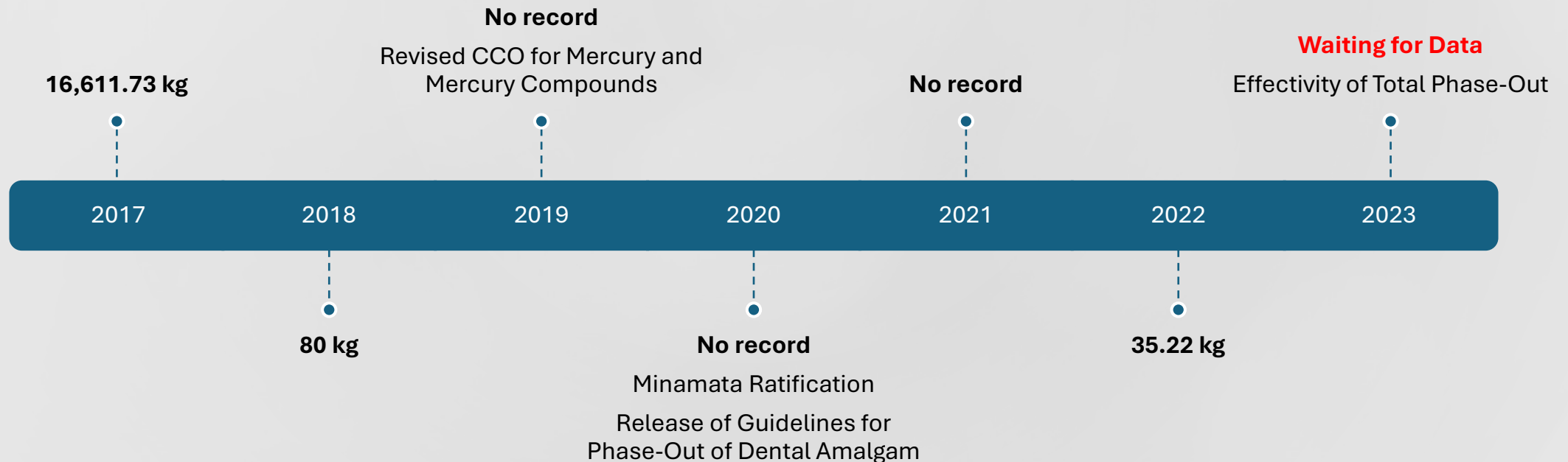
Three focal sectors identified: a) artisanal and small-scale gold mining, b) mercury-added products, and c) industrial uses of mercury

Under MAPs, **dental amalgam** is considered a significant category. The 2018 Minamata Initial Assessment estimates a total annual mercury output of **3,585.46 kg/yr** (including air, water, land, product, general waste, and sector-specific disposal).



Dental Amalgam Importation Trends in the Philippines

- Data provided by the Philippine Statistics Authority in **gross kilograms**, showing significant reduction in the volume of importation since the enactment of the phase-out
- Countries of origin include China, Germany, Japan, Malaysia, Singapore, Thailand, and the USA (2017), Japan, Singapore and Thailand (2018), and Taiwan, Hong Kong (China), Italy, Japan, and Singapore (2022)
- Lack of data may be attributed to establishment of new guidelines for reporting, COVID-19, etc.



Mercury Material Flow Project

- In relation to dental amalgam management, the MMF Project contributes towards answering two key questions: a) how effective is the phase-out initiative? b) where is the mercury stockpile?
- Two survey instruments were developed, focusing on clinics and educational institutions (noting the differences in use cases as well as phase-out guidelines), to validate importation data from the PSA

Dental Amalgam in Educational Institutions - MMF Project

ASSESSING THE SUCCESS OF THE DENTAL AMALGAM PHASE-OUT IN THE PHILIPPINES

Dental Amalgam in Clinics - MMF Project

ASSESSING THE SUCCESS OF THE DENTAL AMALGAM PHASE-OUT IN THE PHILIPPINES

Question Categories

Dental Clinics

- Awareness of existing policies
- Kind of amalgam used (liquid mercury, encapsulated amalgam)
- Factors contributing to continued use (including year of last use, if possible)
- **Employee and patient awareness on mercury risks, alternatives (including training initiatives)**
- Purchase, storage, and treatment/disposal practices

Dental Schools

- Awareness of existing policies
- Kind of amalgam used (liquid mercury, encapsulated amalgam)
- Factors contributing to continued use (including year of last use, if possible)
- **Amalgam in curricula, practical training (including use for live patients)**
- **Faculty and student awareness on mercury risks, alternatives**
- Purchase, storage, and treatment/disposal practices



Survey Highlights

Question	Dental Clinics		Educational Institutions	
	Yes	No	Yes	No
Are you aware about the phase-out of mercury-use in dental restorative procedures?	81%	19%	100%	
Are you currently using dental amalgam?		100%	33.3%	66.7%
Have you administered dental amalgam to a patient since 2017?	95.2%	4.8%	66.7%	33.3%
Have you disposed of mercury and/or dental amalgam capsules since 2017?	90.5%	9.5%		100%
Do you have waste treatment equipment for mercury?		100%	33.3%	66.7%

Survey Challenges and Issues

Data privacy and unwillingness to participate in the study

Security issues as a key factor: only 4 out of the 23 registered dental colleges responded + 22 dental clinics
Difficulty in acquiring proof of trade and disposal activities

Low response rates still provided valuable information

Dental clinics did not have access to mercury waste management facilities
Continued use of dental amalgam in some universities due to outdated curriculum requirements (also noting that amalgam use is not part of current board exam requirements)

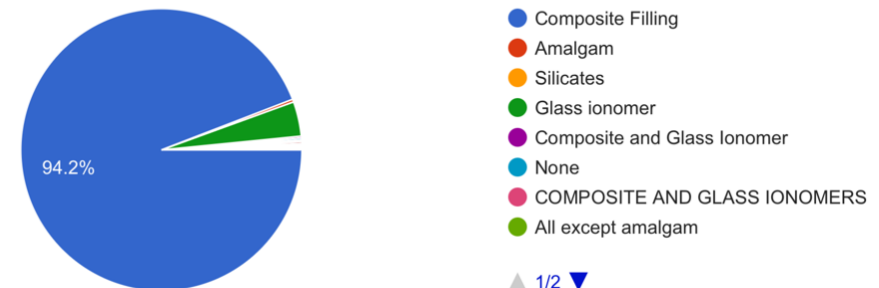
Identification of follow-up activities

Key question: **how to respond to data inadequacy?**
Coordination with the **Philippine Dental Association**
Validation of data through qualitative interviews with key stakeholders and other activities

Stakeholders Coordination and Consultations

- Coordination with the **Philippine Dental Association** in the conduct of a **second national survey**, focusing on amalgam usage rates (959 respondents)
- **On amalgam use:** the PDA estimates that around 10% of dental facilities may still use amalgam, coming from non-PDA members and/or unlicensed practitioners. The PDA also noted that amalgam use is still prevalent in **educational facilities**
- **On access to equipment:** the PDA notes that dental facilities are required to have access to proper filtration equipment, but do not have access to wastewater treatment facilities
- **On the use of amalgam in other sectors:** The National Coalition of Small-Scale Miners in the Philippines noted that mercury sold in dental supply stores may be linked with ASGM

Which restorative materials are still available in your practice?
959 responses



We have not used Dental Amalgams or any mercury containing materials since 2010

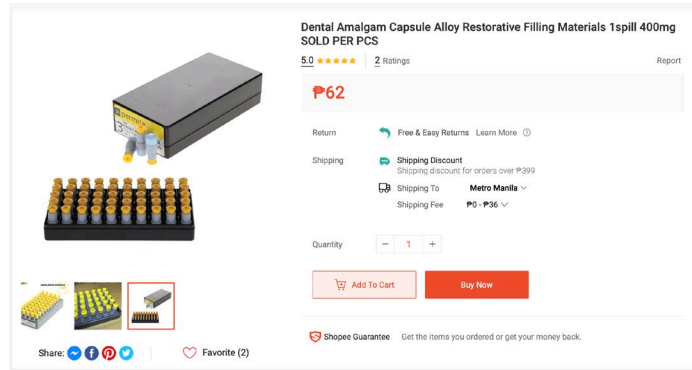
NA

amalgam is prohibited in practice BUT why do you require dental students to use the material?????

none

No

Market Monitoring Activities

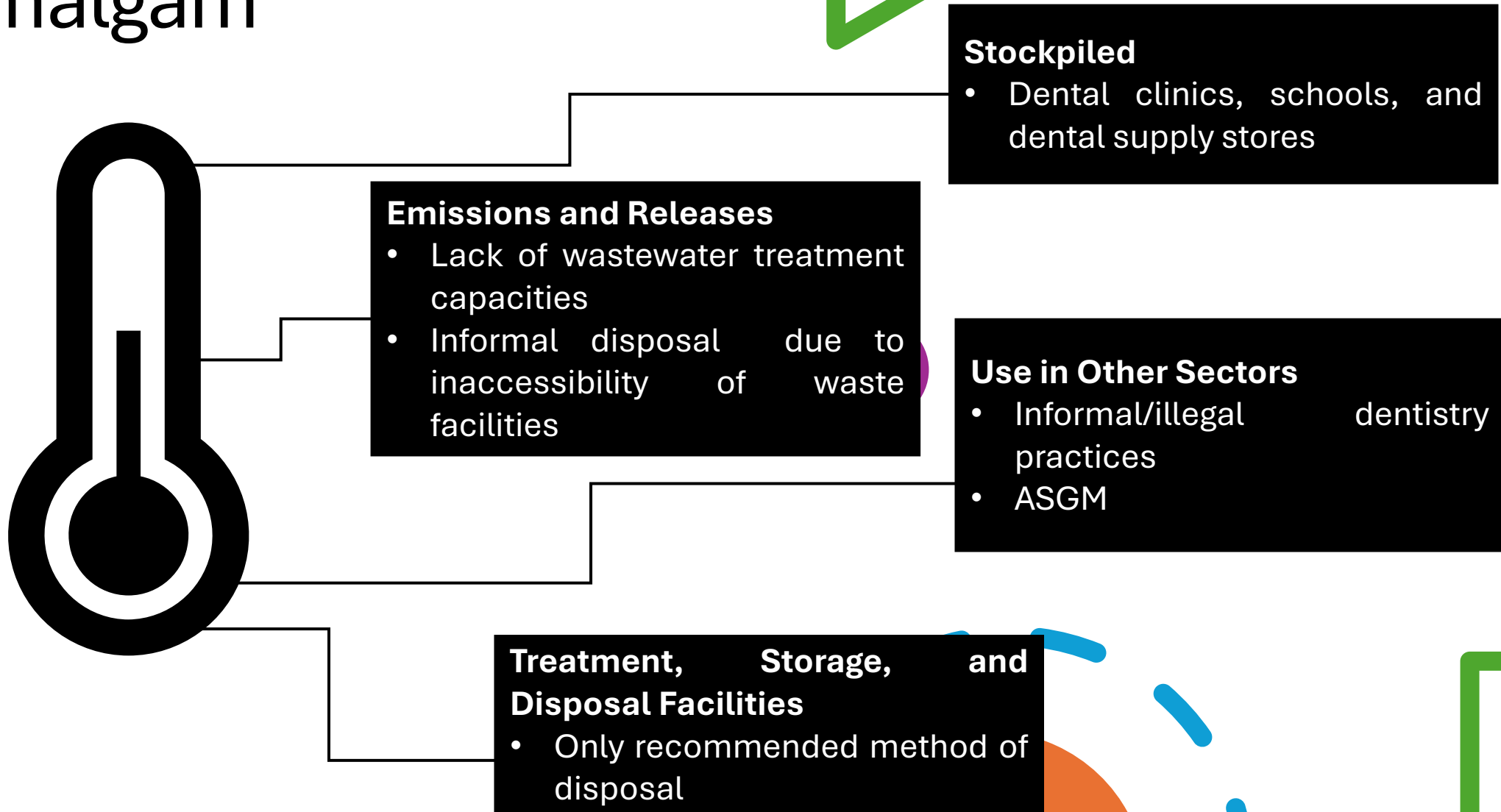


Amalgam sold in online markets from Cavex, Nu Alloy DP, Southern Dental Industries, and other generic brands

- To further validate information provided by the PDA and the ASGM Sector, BAN Toxics conducted market monitoring activities and found dental amalgam sold in **public markets and online shopping platforms** including products

- Difficulties in managing sale of amalgam in online platforms is similar to issues encountered in regulating other MAPs such as cosmetics, e.g., flagging-product removal cycle

Fate of Dental Amalgam



Next Steps

GEF-UNIDO Philippine Healthcare and Mercury Wastes Management Project

- **Further collection of data and validation** of stockpiles needed
 - Difficulty in collecting proof of disposal, missing stockpiles due to improper disposal previously encountered in thermometers/sphygmomanometers
- **Awareness-Raising**
 - **Training and capacity-building** on the handling and management of amalgam
 - **Public awareness** on dental amalgam risks
- **Facilitation of final disposal**
 - **Assessment of current technological capacities and needs** in treatment, storage, and disposal of mercury
- **Policy recommendations** to curb online sales and eliminate use in educational institutions
 - Working with relevant national government agencies and inter-agency groups



Provisional Workplan

Component 2: Management of Mercury, Mercury-Added Products (MAPs), and Mercury Wastes in the health sector according to the Minamata Convention on Mercury and the Philippine Action Plan for MAPs Phase-Out

Outcome 2.1: Improved synergies to support the phase-out of MAPs and ESM of mercury and mercury wastes, especially in the health sector

Output 2.1.1: Harmonized policies and updated action plans on mercury, MAPs, and mercury wastes across concerned and mandated agencies developed

Activity 2.1.1.1: Validation / updating the Philippine Minamata Initial Assessment and assessment of the implementation of the 2010 National Action Plan on Mercury and Mercury-containing Wastes Management

Activity 2.1.1.2: Formulation of policies and action plans that need to be revised and new regulations to support the phase-out of MAPs and the environmentally-sound management of mercury and mercury wastes in the healthcare sector

Activity 2.1.1.3: Support to government agencies that are members of the Hg-IATWG under the IACEH to prepare and update work and financial plans compliant with the National Action Plan for MAPs Phase-out

Output 2.1.2: Inventory and monitoring systems for MAPs and mercury wastes, emissions, and releases institutionalized

Activity 2.1.2.1: Develop a material flow analysis for MAPs in the Philippines

Activity 2.1.2.2: Review and Improvement of the Guidelines of "Self-Monitoring Report (SMR)" for industries

Activity 2.1.2.3: Strengthening the "Online Permitting and Monitoring System" (OPMS) and other existing databases

Activity 2.1.2.4: Support to gather accurate and timely information regarding mercury and mercury wastes monitoring, tracking, and reporting

Activity 2.1.2.5: Training on monitoring of mercury levels in emissions, releases, air, and water bodies

Activity 2.1.2.6: Environmental monitoring of mercury levels in emissions from HCW facilities (10 monitoring campaigns), environmental air (20 samples), water bodies (50 samples)

Provisional Workplan

Component 2: Management of Mercury, Mercury-Added Products (MAPs), and Mercury Wastes in the health sector according to the Minamata Convention on Mercury and the Philippine Action Plan for MAPs Phase-Out

Outcome 2.2 Demonstrated capacity to adopt best available technologies and best environmental practices for the environmentally sound management of mercury wastes from the healthcare sector	Output 2.2.1: Capacity of mercury waste service providers upgraded to be BAT/BEP compliant	Activity 2.2.1.1: Assessment of existing facilities (TSD) in terms of procedures and technologies being adopted and the potential need for upgrading in order to become BAT/BEP compliant
		Activity 2.2.1.2: Assessment of selected mercury waste management at hospital level and the potential need for upgrading to comply with BEP procedures.
	Output 2.2.2: Environmentally sound management of MAPs and mercury stockpiles in the healthcare sector demonstrated	Activity 2.2.2.1: Training on the safe management of MAP in selected healthcare waste facilities.
		Activity 2.2.2.2: Drafting of plans and procedures to demonstrate the management of MAPs in selected pilot facilities
		Activity 2.2.2.3: Environmentally safe management of mercury waste and MAP

The Way Forward: Ensuring a Successful Phase-Out of Dental Amalgam in the Philippines

The Philippine experience highlights the capacity of developing countries to phase-out amalgam in the interest of protecting human health and the environment

- Multi-stakeholder approaches in research, policy formulation, building awareness, implementation, and monitoring/regulation

National Policy may not be enough to fully eliminate amalgam use

- Wide-scale phase-out of dental amalgam is needed to ensure that entry of amalgam into the country through illicit means is avoided, e.g., **amalgam will be available while production continues**
- **Contribution to the reduction/elimination of mercury use** in unlicensed dental institutions and linked sectors such as ASGM

Hope for the Future

01

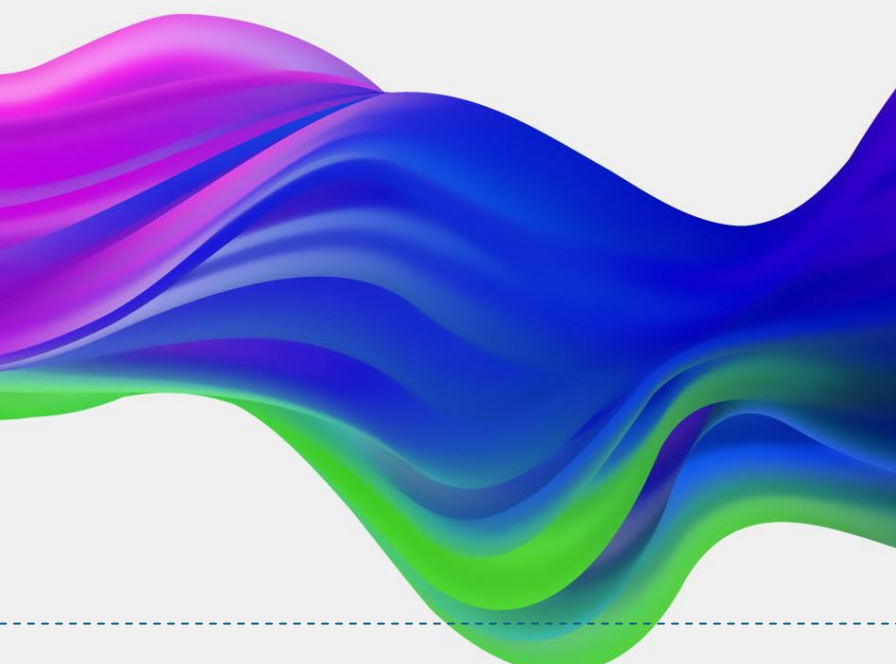
**ENFORCE THE
CHILDREN'S
AMENDMENT**

02

**STOP THE
PRODUCTION
OF DENTAL
AMALGAM**

03

**MAKE DENTAL
AMALGAM
HISTORY!**



Thank You!

Jashaf Shamir Lorenzo

BAN Toxics

Contact: jlorenzo@bantoxics.org

METASYS

Medizintechnik GmbH

HG WASTE MANAGEMENT

OUR MISSION: PROTECT WHAT YOU NEED

- Protection of our environment – with sophisticated technologies for the dental industry
- Protect our drinking water from heavy metals and dangerous chemical substances
- Reduce unnecessary water waste

**METASYS: integrated solutions
for the modern dental office!**



WHAT IS DENTAL AMALGAM?

- used as dental filling material for over 150 years
- consists of:
 - Mercury (approx. 50%)
 - Silver, tin, copper, zinc
 - Other trace metals
- Europe:
approx. 58 tons of mercury for dental amalgam fillings annually



AMALGAM IN WASTE WATER

Mercury

- 1g of mercury can contaminate up to 100,000 liters of drinking water

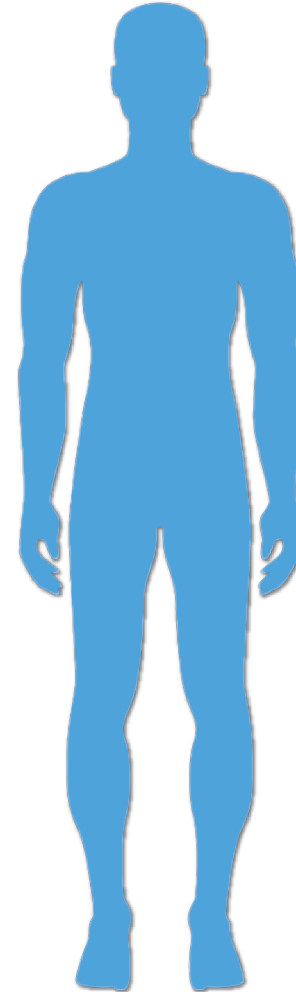
Methylmercury

- is formed when microorganisms react with mercury
- highly toxic to humans
- passed on in the food chain



HEALTH EFFECTS OF MERCURY

- deteriorates nervous system
- impairs hearing, speech, vision and gait
- causes involuntary muscle movements
- corrodes skin and mucous membranes
- causes chewing and swallowing to become difficult



SOLUTION

Installation of amalgam separators



CURRENT ACTIVITIES: AMALGAM WASTE MANAGEMENT

Germany:

- Number of Dentists: 101.344
- METASYS collects waste p.a. of approx. 6.6 t
- METASYS collects 3300 full containers p.a.

Austria:

- Number of Dentists: 5.383
- METASYS collects waste p.a. of approx. 2.7 t
- METASYS collects 2.000 full containers p.a.

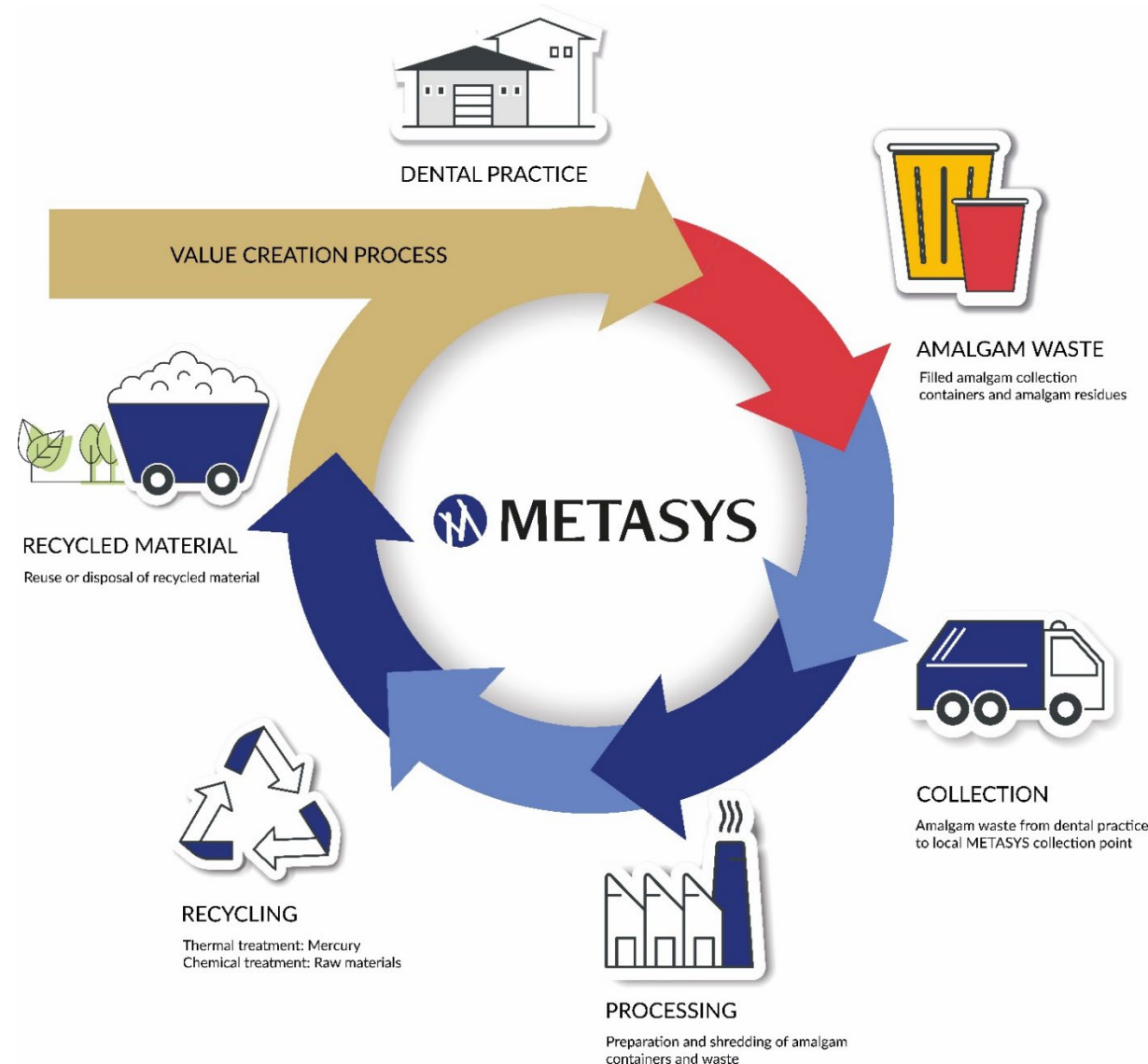
METASYS recycling & processing collects 150-165 t amalgam waste worldwide

- Mercury percentage in dental waste is approx. 1.1 % of net weight
- Therefore we collect between 1.6-1.8 t of mercury per year
- The disposed mercury is stabilized into non-toxic mercury sulphide (HgS) and is finally stored



HG WASTE MANAGEMENT

- Dental Amalgam Managing Hazardous Waste
- Solution in countries where legal requirements and amalgam separators are in force



WORLDWIDE COLLECTION CENTERS



- METASYS partners
- METASYS logistics & collection, METASYS processing & recycling & METASYS partners



METASYS LOGISTICS & COLLECTION GMBH

METASYS logistics & collection GmbH collects:

- amalgam sludge
- amalgam capsules
- scrap amalgam
- filter residues, filter sieves
- extracted teeth
- other amalgam containing residues



METASYS RECYCLING & PROCESSING

- **Specialized Services:**
 - meets the specific needs of dental practices
- **Comprehensive Waste Management:**
 - handles all types of dental waste in some countries
 - provides uncomplicated solutions for dental waste management
- **International Network:**
 - collaborates with skilled collection partners
 - ensures compliance with local regulations
- **Amalgam Waste Management:**
 - delivers several tons of amalgam waste annually
 - recycling at the company's own amalgam recycling facility





**PROJECT
GEF / METASYS**

PROJECT: GEF/METASYS

Goal: Minimize Mercury Phase-Out

• Identify Suitable Clinics & Local Partnership

- Target clinics that meet technical criteria for trial periods by the UN.
- Collaborate with a local partner for installation, maintenance, and service.
- Engage with a native speaker from RB Dental to facilitate communication.

• Amalgam Separator Logistics

- Arrange for the shipping of amalgam separators to Thailand.
- Conduct training and installation at the clinics.

• Collection Container Management

- Implement the exchange of collection containers after one year.

• Waste Management

- Negotiate storage and recycling of full amalgam containers with a local waste company.



FACTS ECO II+

- 99.38% separation rate at 1 litre flow rate
- The average weight of a full ECO II+ is approx. 3.3 kg
- ECO II+ customers dispose of a full container approximately every 8 months to one year
- approx. 36.3 g of mercury per ECO II+ is collected





CERTIFIED QUALITY

- Introduction of a quality management system in accordance with EN ISO 9001
- EN ISO 14001 environmental certificate
- EMAS environmental certification
- Introduction of the quality management system in accordance with EN ISO 13485
- Accreditation as a certified waste management company



METASYS – protect what you need!

METASYS Medizintechnik GmbH

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6063 Rum bei Innsbruck

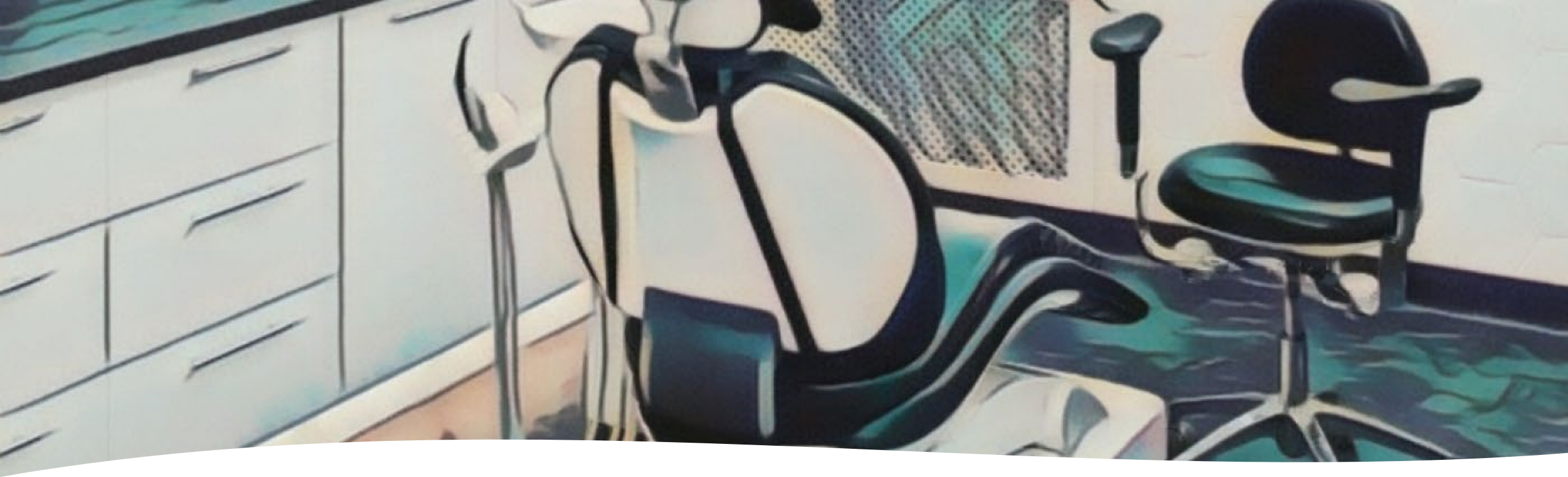
Austria

T +43 512 205420

info@metasys.com

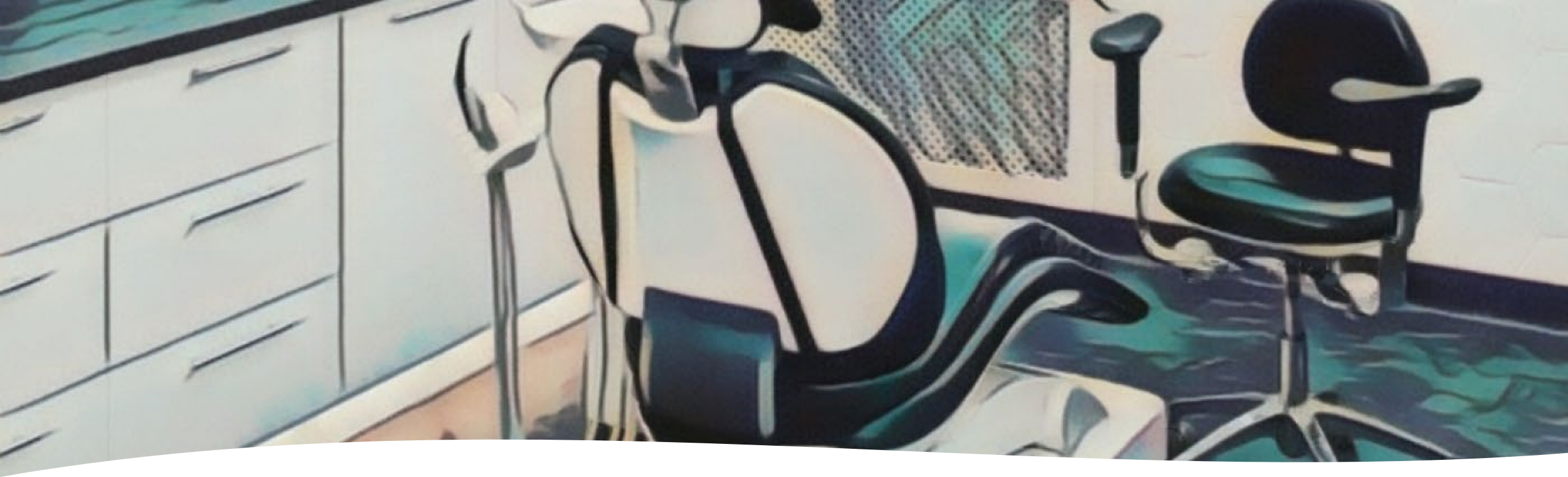
metasys.com





Polls, Questions and Answers

facilitated by the Secretariat of the Global Mercury Partnership



Closing remarks

Grace Halla, *GEF Chemicals and Wastes Unit, UNEP*