



Project for
**Promoting
Minamata
Convention
on Mercury**



by making the most of Japan's
knowledge and experiences

Customs Training to Enhance Monitoring of Trade of Mercury and Mercury Compounds

Presentations at the workshop in Mongolia on 23-24 June 2025



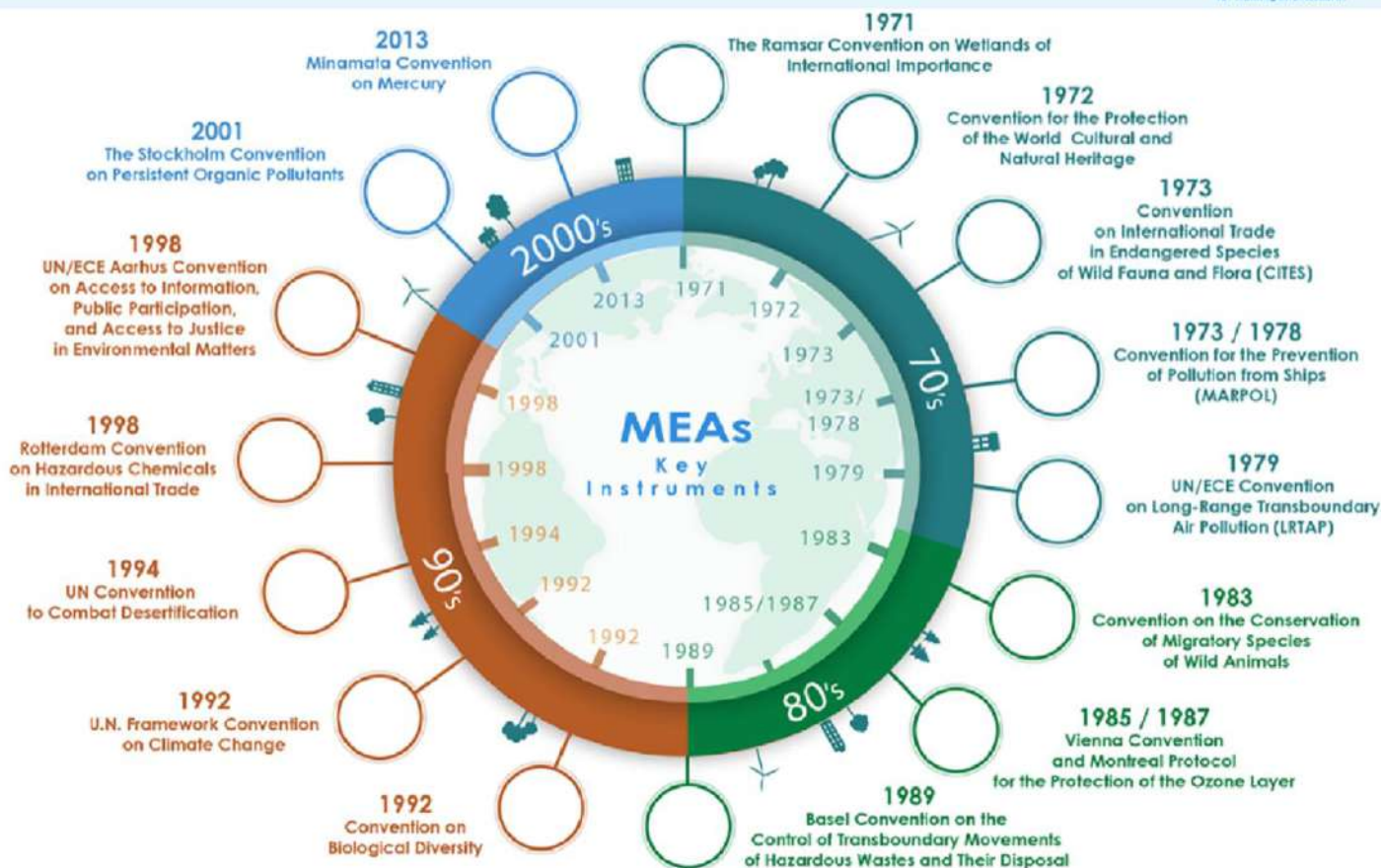
**World Customs
Organization**

Understanding the role of Customs and the available resources for enhancing implementation of the Minamata Convention on Mercury/other environmental agreements

National Training on Strengthening Country-Level Inter-Agency Coordination on Trade of Mercury

**Ulaanbaatar, Mongolia
23 June 2025**

Multilateral Environmental Agreements (MEAs)



<https://www.informea.org/en>

Multilateral Environmental Agreements (MEAs)



Common types of trade-related measures used in MEAs include:

- Trade Restrictions or Bans
- Prior Informed Consent (PIC)
- Labelling and Packaging Requirements
- Phase-out or Phase-down Schedules
- Permitting and Licensing Systems
- Environmental Impact Assessments (EIA)
- Monitoring and Reporting Obligations
- Financial Mechanisms.

Trade provisions of the Minamata Convention – Role of Customs



- **Article 3** (Mercury supply sources and trade) provides for the need prior informed consent for mercury trade. Parties shall not allow the export of mercury to a party without its written consent, and only for the purpose of a use allowed under the Convention (or interim storage).
- **Article 4** (Mercury-added products) requires parties not to allow the manufacture, import or export of mercury-added products after the phase out date. (Articles 4, 5 and 6, Annexes A and B)
- **Article 7** (Artisanal and small-scale gold mining) requires parties with ASGM to develop and implement national action plans, which includes strategies for managing trade and preventing the diversion of mercury to use in ASGM.
- **Article 11 (Mercury waste)** requires parties to the Basel Convention to take measures so that mercury waste be not transported across international boundaries except for the purpose of environmentally sound disposal. (Articles 10, 11 and 12)

Article 3: Trade



The key features of Article 3 relate to:

- the export and import of elemental mercury
- stocks of mercury and certain mercury compounds
- the prohibition of trading of mercury taken out of use in chlor-alkali production using mercury cells.
- Export of mercury from a [Party to the Convention](#) (member country) is only allowed:
 - to import countries which have given their prior consent
 - only for purposes/fates which are allowed under the Convention.

Article 3 : Trade



Customs need evidence of the prior consent from the importing country:

- General consent: Minamata Convention's Secretariat's publishes register of general prior consents from Parties:
<https://www.mercuryconvention.org/en/parties/notifications>.
- Consent to the specific shipment: A specific consent form shall follow the shipment. In cases of doubt, contact directly the official authorities in charge in the importing country.
- If the importing country is a non-Party to the Convention, the consent must additionally include certification that the importing country "has measures in place to ensure the protection of human health and the environment and to ensure its compliance with Articles 10 (storage) and 11 (waste) of the Convention".

Article 3: Trade



- FORM A: Form for the provision of written consent by a Party to the import of mercury.
- FORM B: Form for the provision of written consent by a non-Party to the import of mercury.
- FORM C: Form for non-Party certification of the source of mercury to be exported to a Party.
- FORM D: Form for general notification of consent to Import Mercury.
- Forms are available at the Minamata Convention website: [Forms related to Article 3 on Mercury trade](#).
- Guidance for the use of the forms can be seen here: [Guidance on completing the forms required under article 3 related to trade in mercury](#).

Article 4: Mercury-Added Products



- Certain mercury-added products must not be manufactured, imported, or exported after a certain phase-out date (Annex A).
- There are certain exemptions.
- For some products not subject to phase-out, parties must take steps to reduce mercury use. (Annex B).

Article 10: Interim storage

- Article 10 of the Minamata Convention on interim storage of mercury (not waste) states that mercury and its compounds should be stored in an environmentally sound manner, to avoid releases.

Article 11: Waste



- Article 11 regulates mercury waste, and references the Basel Convention on the transboundary movement of hazardous waste and their Disposal (Also for countries that are not Basel Parties but are Minamata Parties)
- In the Minamata Convention mercury wastes mean substances or objects:
 - a) Consisting of mercury or mercury compounds;
 - b) Containing mercury or mercury compounds; or
 - c) Contaminated with mercury or mercury compounds.
- Types of wastes in categories a) and b) and a concentration threshold for category c) exist, see https://minamataconvention.org/sites/default/files/documents/forms_and_guidance_document/Mercury_Waste_Thresholds.pdf

Article 11: Waste



- Article 11 further states that mercury and mercury compound wastes must be managed in an environmentally sound manner
- For Parties to the Minamata and Basel Conventions, mercury wastes shall not be transported across international boundaries unless for the purpose of environmentally safe disposal.
- Prior informed consent principles
 - Definition of illegal trafficking of waste
 - Without notification to all States concerned;
 - Without the consent of all States concerned;
 - With consent obtained through falsification, misrepresentation or fraud;
 - When there is a material discrepancy between documents and wastes;
 - When the movement results in deliberate disposal of the wastes in contravention of the Convention (e.g. dumping).
- [Basel convention guideline on mercury waste treatment](#)

Article 11: Waste

Basel Convention waste codes with reference to mercury*



Entries with direct reference to mercury	
Y29	Wastes having as constituents: <i>Mercury; mercury compounds</i>
A1010	Metal wastes and waste consisting of alloys of any of the following: ... - <i>Mercury</i> ... but excluding such wastes specifically listed on list B.
A1030	Wastes having as constituents or contaminants any of the following: ... - <i>Mercury; mercury compounds</i> ...
A1180	Waste electrical and electronic assemblies or scrap ² containing components such as accumulators and other batteries included on list A, <i>mercury-switches</i> , glass from cathode-ray tubes and other activated glass and PCB-capacitors, or contaminated with Annex I constituents (e.g., cadmium, <i>mercury</i> , lead, polychlorinated biphenyl) to an extent that they possess any of the characteristics contained in Annex III (note the related entry on list B B1110) ³

*As per Annexes I and VIII to the Basel Convention

<https://www.basel.int/Implementation/MercuryWastes/Overview/tabid/3890/Default.aspx>

Article 11: Waste

Other Basel Convention waste codes relevant to mercury (not exhaustive)*

Other entries related to wastes which may contain or be contaminated with mercury	
A1170	Unsorted waste batteries excluding mixtures of only list B batteries. Waste batteries not specified on list B containing Annex I constituents to an extent to render them hazardous
A2030	Waste catalysts but excluding such wastes specified on list B
A2060	Coal-fired power plant fly-ash containing Annex I substances in concentrations sufficient to exhibit Annex III characteristics (note the related entry on list B B2050)
A3170	Wastes arising from the production of aliphatic halogenated hydrocarbons (such as chloromethane, dichloro-ethane, vinyl chloride, vinylidene chloride, allyl chloride and epichlorhydrin)
A4010	Wastes from the production, preparation and use of pharmaceutical products but excluding such wastes specified on list B
A4020	Clinical and related wastes; that is wastes arising from medical, nursing, dental, veterinary, or similar practices, and wastes generated in hospitals or other facilities during the investigation or treatment of patients, or research projects
A4030	Wastes from the production, formulation and use of biocides and phytopharmaceuticals, including waste pesticides and herbicides which are off-specification, outdated, or unfit for their originally intended use
A4080	Wastes of an explosive nature (but excluding such wastes specified on list B)
A4160	Spent activated carbon not included on list B (note the related entry on list B B2060)

*As per Annexes I and VIII to the Basel Convention

Other international regulation related to mercury trade and shipments _ Rotterdam Convention



- The following mercury compounds are covered by the PIC procedure (in Annex III to the Convention):
 - “Mercury compounds, including inorganic mercury compounds, alkyl mercury compounds and alkyloxyalkyl and aryl mercury compounds.”
 - These compounds are listed under the category “Pesticides”, but they actually have a broader application.
- For enforcement purposes Annex III in <http://www.pic.int/TheConvention/Overview/TextoftheConvention/tabid/1048/language/en-US/Default.aspx>

Identification



- HS codes that are specific to materials, products and wastes with mercury. For example:
 - HS 280540 – Mercury
 - HS 285200 – Compounds, inorganic/organic, of mercury, excluding amalgam
 - HS 853931 – Lamps; discharge, (..), fluorescent, hot cathode
- In addition, there are other HS codes that are also relevant to mercury, meaning that the codes include materials, products and wastes with mercury, along with other non-mercury commodities and wastes. When checking for mercury trade, these are as important as the mercury-specific codes.
- There are also regional or national codes beyond 6 digits.
- Misclassification, by mistake, or deliberate.

Identification



- For an overview of types of materials, products and wastes with mercury, including pictures of examples of the relevant materials, products and wastes, examples of HS codes and Basel Convention waste codes relevant to mercury, as well as a description of key characteristics, STRiKE report [“Onsite detection of mercury”](#):
- The [Minamata Convention recommendations](#) for voluntary HS codes development for mercury-added products listed in Annex A to the Convention as of 2020.

THANK YOU!

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**World Customs
Organization**

Cross-Agency Collaboration in Mercury Trade Enforcement

National Training on Strengthening Country-Level Inter-Agency Coordination on Trade of Mercury

**Ulaanbaatar, Mongolia
24 June 2025**

Cross-Agency Collaboration in Mercury Trade Enforcement



- Customs administrations need to ensure compliance with international and domestic regulations, prevent illegal trade, and facilitate the legitimate trade.
- Common Challenges in Mercury Trade Enforcement:
 - Limited technical capacity to identify mercury and its compounds.
 - Weak coordination between frontline agencies.
 - Disjointed information systems and poor data sharing.
 - Conflicting mandates or lack of clarity on roles.
 - Limited prosecution due to lack of inter-agency case building.

Roles of Enforcement Stakeholders



Customs Authorities:

- Inspect shipments and enforce import/export controls.
- Apply commodity classification and risk profiling.
- Seize illegal or undeclared mercury, mercury-added products, mercury waste.
- Report and coordinate with relevant agencies.

Environmental Protection Agencies:

- Lead on compliance with environmental regulations.
- Issue licenses or permits for mercury use and trade.
- Identify hazardous waste mislabeling or diversion.
- Support disposal of seized mercury.

Roles of Enforcement Stakeholders



Police

- Support prosecutions and arrests.
- Investigate organized criminal networks.
- Link mercury trafficking with other crimes (e.g., illegal mining).

Prosecution and Judiciary

- Build legal cases based on multi-agency evidence.
- Issue penalties, fines, or custodial sentences.

Health Authorities

- Identify unlicensed mercury consumption and trade channels.
- Provide technical expertise on mercury risks.

Effective Collaboration Models



- **Joint Task Forces:** Combining Customs, environmental inspectors, and police.
- **Information Sharing Protocols:** Templates for alerts, risk profiles, and seizure reports.
- **Capacity Building:** Multi-agency training on mercury identification, handling, and disposal.
- **Operational Coordination:** Real-time collaboration during inspections and investigations.
- **Use of Technology:** Shared access to detection equipment and analytical labs.

Information-Sharing Protocols



To enable **timely and structured exchange** of case data, intelligence, and alerts across agencies and borders, information-sharing protocols should include:

- **Designated Communication Channels.**
- **Standardized Templates and Formats** (e.g., Pre-defined forms for seizures, risk alerts).
- **Regular Coordination Mechanisms.**
- **Data Protection and Confidentiality Provisions.**
- **Appointed Focal Points in Each Agency.**

Need for SOPs



- Well-developed and regularly updated SOPs can serve as a strategic tool for planning (risk analysis) and inspecting of shipments.
- They can provide a reliable, centralized source of information that remains adaptable to evolving needs and ensures alignment with international standards.

Key elements of domestic should:

- include procedures aligned with the Minamata Convention and the national legislation,
- clearly define the roles and responsibilities of Customs officers and other stakeholders,
- provide detailed processes for managing imports, exports, transit shipments, and other trade scenarios involving mercury, mercury-added products and waste.

Main elements of the SOPs



- Regulatory framework.
- Procedures and framework of controls of shipments of mercury and mercury-added products.
- Identification of shipments.
- Risk management and enforcement operations.
- Safety measures.
- Illegal traffic and sanctions.
- Provision of training.
- Cooperation with competent authorities and other stakeholders.

Key elements of domestic SOPs



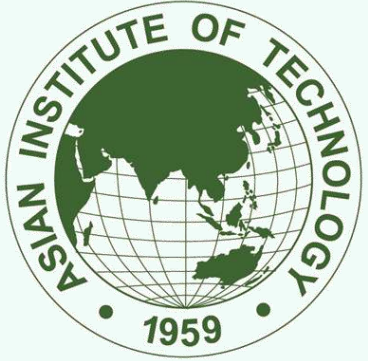
Seq.	Leda Actor	Key actions	Agreed responsibilities
0	Customs and Other Agencies	MoU	Specify roles, tasks and contact details
1	Customs	Detection of suspected illegal shipment of mercury/mercury-added products	Determine what triggers a case
2	Customs	Notify relevant agencies	Who? What? When?
3	Customs	Customs actions	Determine the relevant actions and stakeholders
4	Customs	Final decision: release, hold, seize	Determine the relevant actions and stakeholders

Standard Operating Procedures (SOPs) for controls of waste shipments (2024)



THANK YOU!

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RRC.AP

Regional Resource Centre for
Asia and the Pacific

**Bridging science and policy
to foster environmental
sustainability in Asia and
the Pacific**

April 2025



More Information
www.rrcap.ait.ac.th



Our Email Address
info@rrcap.ait.ac.th



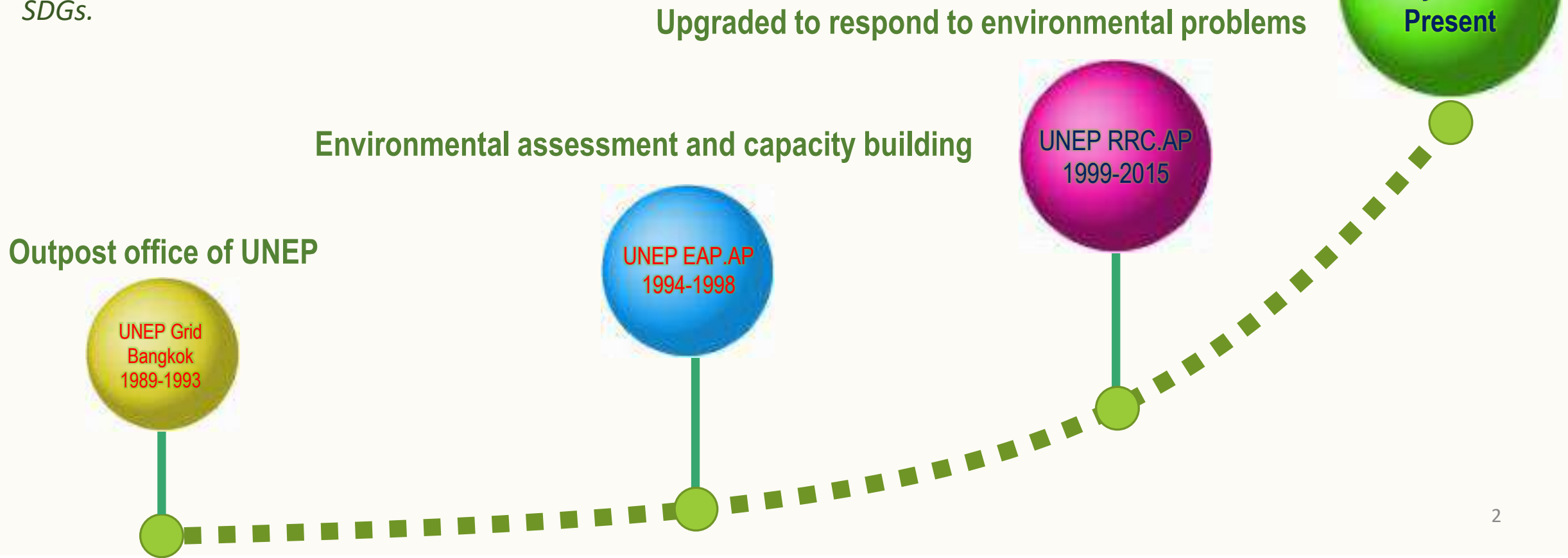
Regional Resource Centre for Asia and the Pacific



RRC.AP
Regional Resource Centre for
Asia and the Pacific

Mission: *Engaging & empowering stakeholders, communities, and governments through **capacity building, cutting-edge research & assessment, and robust technical and policy support** to achieve the SDGs.*

A centre to complement AIT's research, education and capacity building to bridge science and policy gaps



Regional Resource Centre for Asia and the Pacific

Thematic Clusters

Climate Change

- ✓ Climate Finance
- ✓ Climate Adaptation and Mitigation
- ✓ Disasters Risk Reduction
(Knowledge Production, training, Policy advice, Mentoring)

Air Pollution

Regional cooperation

- ✓ Air pollution monitoring
- ✓ Capacity building
- ✓ Decision support assessment
- ✓ Intergovernmental networks
(Malé Declaration, EANET, ABC)

Waste and Resource Management

- ✓ Policy support
- ✓ Research & Assessment
- ✓ Capacity development & Knowledge building
- ✓ Feasibility studies
- ✓ Networking & Pilot projects
(MSW, Marine Plastics, Hazardous Wastes, etc.)

IT & Media, Strategy and Coordination

- Resilience Planning for Cities and communities
- Climate data downscaling
- Technical and Policy Advice

Menu of Services



Policy Support



Research & Assessment



Capacity Development



Knowledge Sharing



Pilot Demonstration

Our Key Achievements



Regional Resource Centre for Asia and the Pacific

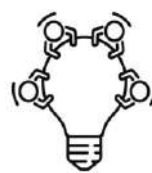
Climate
Change

Services



Capacity Building

- Comprehensive Training Programmes
- Mentoring and Post-Training Follow-Up
- E-learning Courses



Knowledge Sharing

- Development of Knowledge Products
- Dialogue (Webinars, Side-events, etc.)
- Technical and Policy Advice



Technical Services

- Policy Advice & Technical Consulting
- Programme/Project Design
- Programme/Project implementation

Thematic Areas



Accessing Climate Finance

- Project Conceptualization & Design
- Mentoring



Adaptation Planning and Disaster Risk Reduction

- Resilience Planning for Cities and
- Climate data downscaling
- Technical and Policy Advice



Climate Change Mitigation

- Youth-led Renewable energy applications
- Feasibility Studies & EIA
- Research and Technology Assessments

Climate Change

Wider Reach in Asia and the Pacific

- Regional Workshops
- Engagements with Youths in Sustainable Energy Initiatives

Strengthen National and Local-level Support

- Climate Data Downscaling and field applications
- E-learning on climate change related issues
- GCF Concept Note Development Support project implementation – Management and Technical Support



Formulation of Concept Note and City Resilience Training Programmes



ADAPTATION FUND

AIT Listed in AF Network of Providers of Readiness Support for Adaptation



AIT Listed in GCF Framework for Communities of Practice



YEA
Youth Energy Academy
1st YEA in ASIA



Downscaling software improved and installed



FloodS tool introduced for adaptation planning



Climate Change Adaptation Platform Meeting

2016

Climate data downscaling workshops introduced



2018

Continued refinement of training approach and methodology

2020

2022

Climate Change Adaptation Tools Regional Training

2024

Network and Initiatives Engaged

Adaptation Research Alliance

MCR 2030 Campaign

Asia-Pacific Adaptation Information Platform (AP-PLAT)

CCC: What has been achieved so far?



*Milestones since February 2016



Focus
on the
GCF

CCC's Capacity Building Programmes



Climate Change Data Downscaling (2016-present):
S8-SICAT Downscaler Workshop



Concept Note Development for Climate Change Adaptation (2016-present)
Caption: GCF Concept Note Development including through the Simplified Approval Process



Training organization support (ad-hoc)
Caption: Low Carbon Technology Training Programme, Thailand



Youth Energy Academy (2018 - 2022)



Building City Resilience to Climate Change and Disaster Risk (2016-present)



Regional Training Workshop: Enhancing Climate & Disaster Risk Resilient Cities in Asia & the Pacific
Caption: Feb. 2025

CCC's Major Activities



Webinar on Making Cities Resilient 2030 (MCR2030): Capacity Building Models and Tools to Strengthen Cities Resilience in Asia and the Pacific, 23 February 2023, Virtual Meeting



Webinar on Accessing and Using Data and Information for Adaptation Planning, 19 April 2023, Virtual Meeting



Regional Training Workshop on Building Cities Resilience to Climate and Disaster Risks, 8-11 May 2023, Bangkok



CCC's Major Activities (Cont'd)



**Training Workshop on Developing Concept Notes for the Green Climate Fund:
Urban Climate Resilience in Indonesia, 12-16 June 2023, Jakarta**



**AIT's insights to streamlining Nature-based Solutions to Enhance Mitigation and
Climate Resilience in the Asia and the Pacific, 15 May 2023, Bangkok**



**Regional Training Workshop on Developing Concept
Notes for the Green Climate Fund: Strengthening
Climate Resilience in Pacific Small Islands Developing
States, 17-21 June 2024, Fiji**



CCC: Knowledge Sharing | Technical & Policy Advise

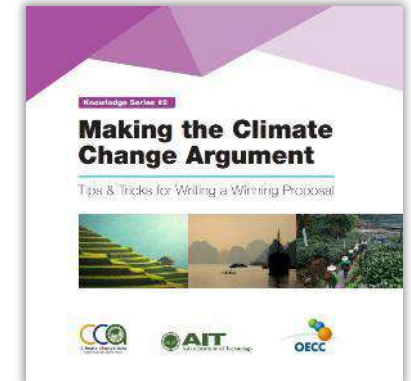
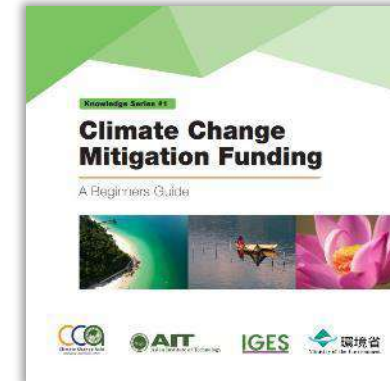
- **Assessments:**

- (2018) Technology Assessment: 8 country profiles on low carbon technologies, climate, and energy policies, and interviews with private sector.
- (2016) Financial Schemes Assessment: A Look into the Successful Transfer of Energy Efficiency Renewable Energy Technologies.
- (2016) Technology Assessment: International evaluation of low carbon technologies and related necessary research and development.

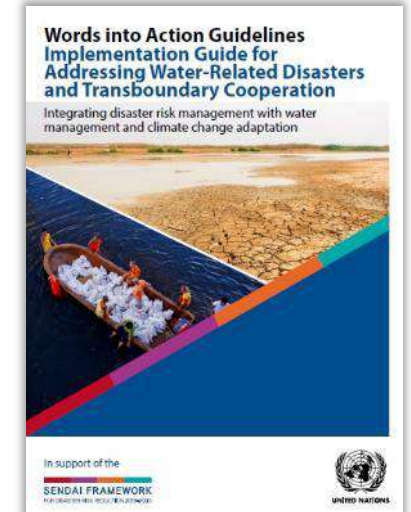
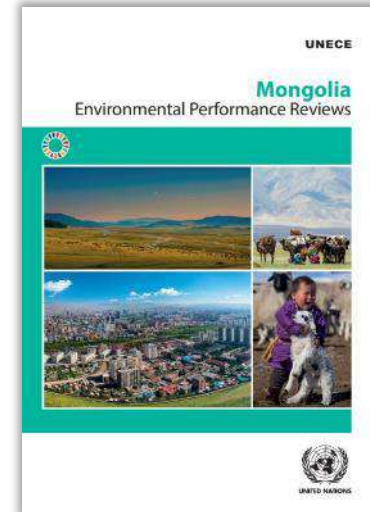
- **Monitoring & Evaluation (M&E) Tools:**

- (2017) M&E Framework for climate change adaptation activities Including pilot demonstration projects in Thailand

Knowledge Series (2017-18)



Contributions to publications on DRR (2018)



Air Pollution Cluster (APC)

Activities in 2-3 years

- Regional cooperation
- Monitoring of air pollution and capacity building
- Enhance capacity on emission inventory
- Enhance impact assessment
- Provide decision support information
- Organizing IG, Task Force, Capacity building workshops

Malé Declaration on Control and Prevention of Air pollution and its Likely Transboundary Effects for South Asia (Malé Declaration)



Activities in 2-3 years

- Acid deposition monitoring network
- Technical support and capacity building
- Conduct research and studies
- Development of periodic report
- Regional and Global network cooperation
- Organizing IG, SAC, Capacity building workshops

Acid Deposition Monitoring Network in East Asia (EANET)



Activities in 2-3 years

- A science program focuses on addressing issues of atmospheric brown clouds through building science.
- RRC.AP supports the operation and maintenance of the Maldives Climate Observatory (MCOH) located in Hanimadho Island of Maldives.

Atmospheric Brown Cloud (ABC)



APC: Malé Declaration Achievements and Outputs

1. Monitoring and Capacity Building

- Annual Training on Monitoring of Transboundary Air Pollution(2003-2013) / Central compilation, evaluation, and storage of data at RRCAP as Secretariat

2. Assessment and Research

- Health Impact Assessment
- Crop Assessment

3. Emission Inventory

4. Modeling Activities

5. Decision Support Information for Policy Information



Outputs

1. Webinar

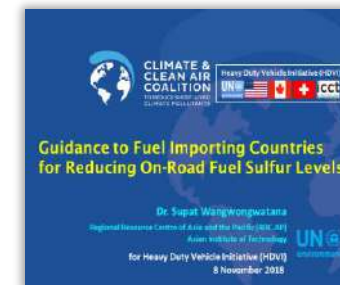
Conducted webinar on Guidance to Fuel Importing Countries for reducing on-road sulfur levels on Nov 20, and 22, 2018 at RRCAP

2. Publication

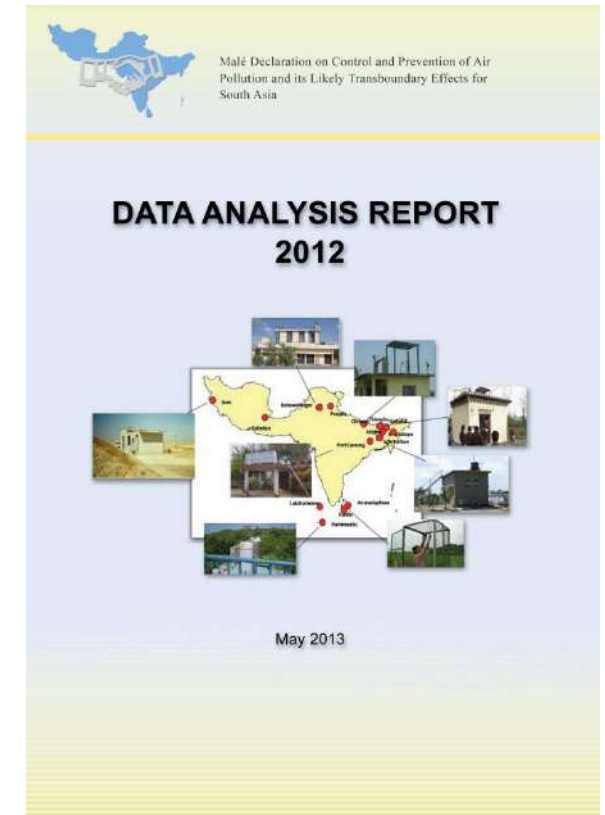
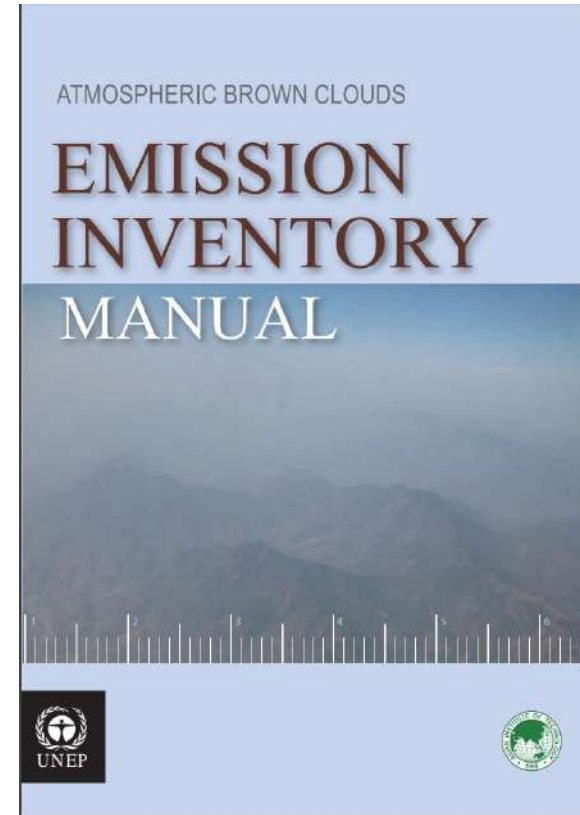
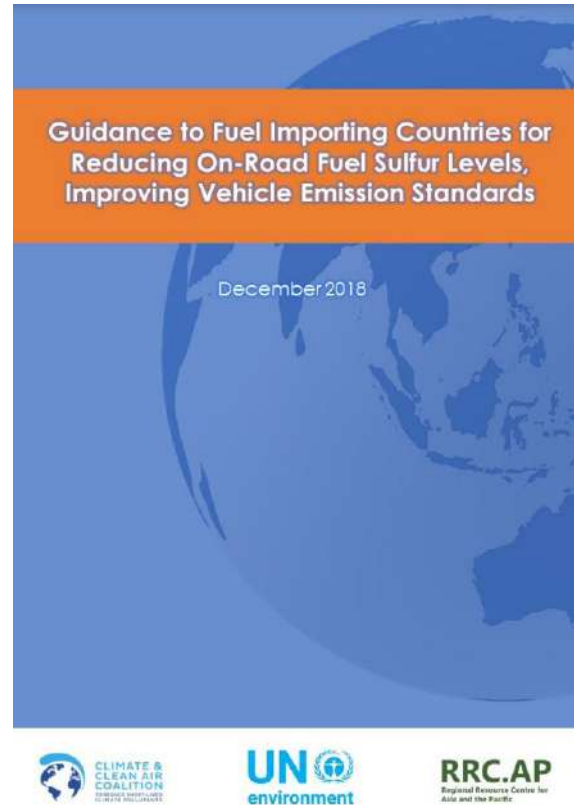
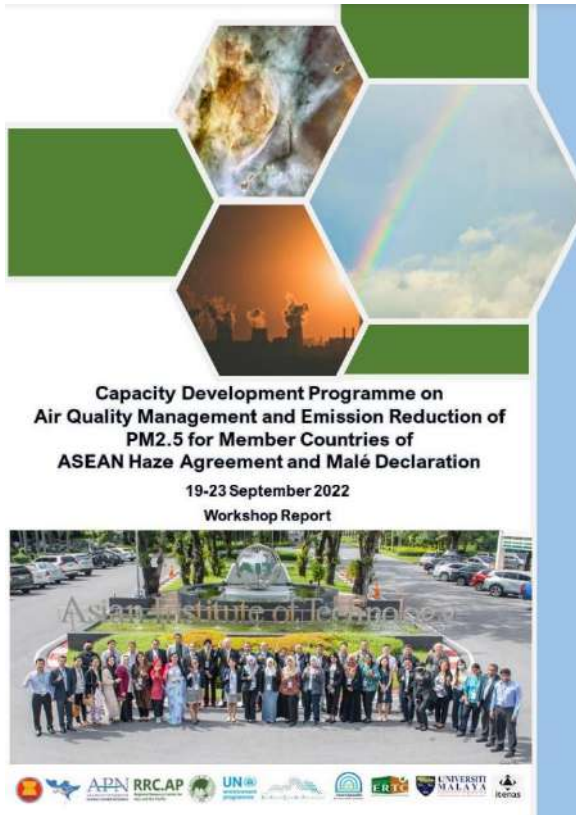
Drafted and published guidance documents relevant to desulfurization in importing countries at CCAC website

3. Soot-Free Transport Meeting

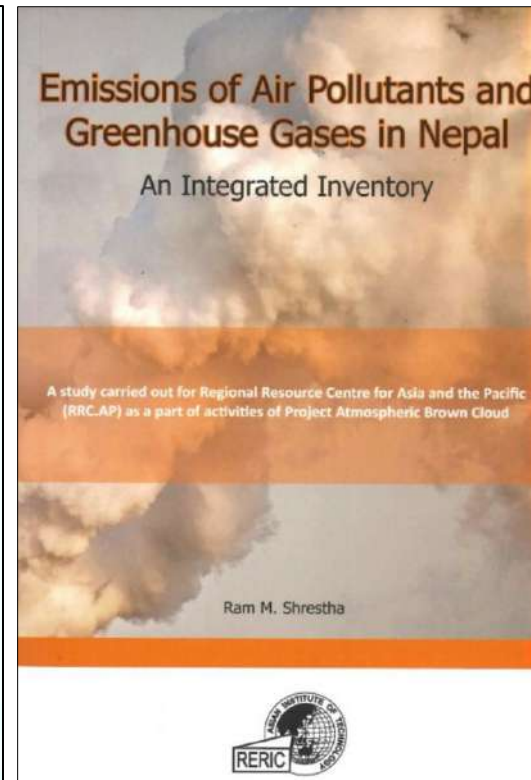
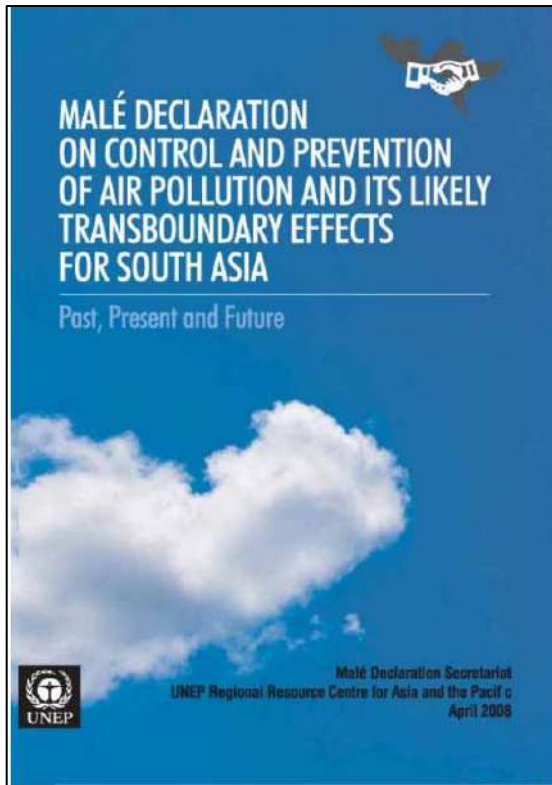
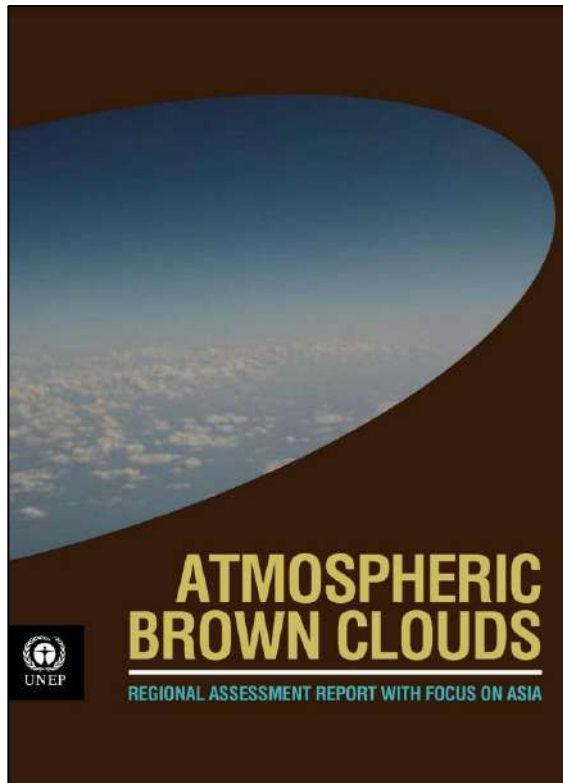
Conducted ASEAN Member States Meeting on Soot-Free Transport on 11-12 Nov. 2018 in Bangkok.



APC's Knowledge Products & Outputs



APC's Knowledge Products & Outputs (Cont'd)



APC's Activities



**Partners Dialogue on Regional Multi-Stakeholder
Alliance for Haze-Free ASEAN (Haze-Free Alliance)
25 February 2025
Bangkok, Thailand**



**ASIA-AQ 2025, Science Team Meeting
20-24 January 2025
Kuala Lumpur, Malaysia**

APC's Activities (Cont'd)



The Twenty-sixth Session of the Intergovernmental Meeting (IG26) of EANET
27-28 November 2024
Kuala Lumpur, Malaysia



EANET National Stakeholder Awareness Workshop
26 November, 2024
Kuala Lumpur, Malaysia



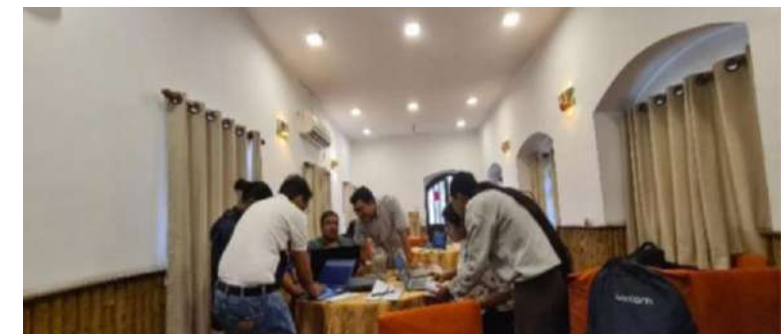
EANET Project Meeting, Emissions Inventories and Source Apportionment of Air Pollution in Southeast Asia
29 May 2024
Bangkok, Thailand



Unlocking and Future-Proofing Air Quality Management in Asia
- A multi-stakeholder consultation workshop for improved multilateral and international cooperation on air pollution
27-28 May 2024
Bangkok, Thailand



Stocktaking and Methodological Assessment of Emissions Inventories and Source Apportionment of Air Pollution in Southeast Asia, Bangkok,
26 March, 2024



Training Workshop on Air Quality Management with a focus on Air Quality Modeling
11-12 October 2023
Kathmandu, Nepal

APC's Activities (Cont'd)



The 16th Session of the Intergovernmental Meeting of the Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effect for South Asia (MD/IG16), 12 January 2022, Virtual meeting



Regional Resource Centre for Asia and the Pacific
Asian Institute of Technology
Pathum Thani, Thailand
www.aict.ac.th/portal



Awareness Workshop on State of Acid Deposition in East Asia – From Data to Policy, 20 June 2022, Online Platform



Working Group Meeting on drafting Vision Paper and Agreement for Strengthening the Malé Declaration, 23 June 2022, Online Platform

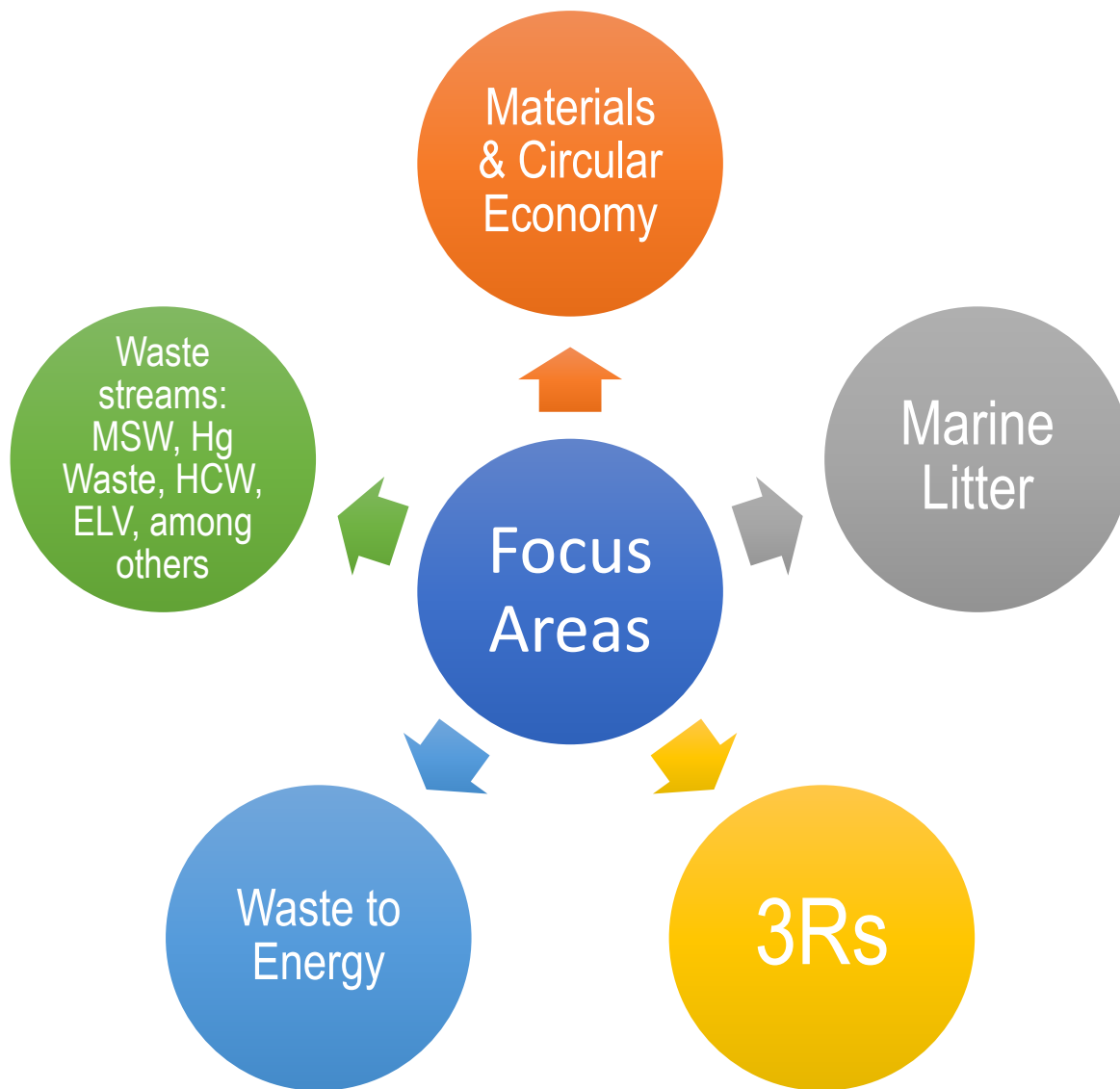


Screenshot of the Working Group meeting participants

The Working Group Meeting of EANET in 2022, 24-25 August 2022, Virtual Meeting



Waste and Resource Management Cluster (WaRMC)



Menu of Services



Research & Assessment



Policy support



Capacity development & knowledge building



Eco-innovation



Networking & pilot project

WaRMC: Policy Support

JAIF Project on Mercury Waste (2019-2021)

Achievements: ESM on Mercury Medical Devices Guidelines and Situation Assessment Reports for Indonesia and the Philippines



UNEP-AIT PCA National/City Waste Strategy (2016-2017)

Achievements: Approved Ulaanbaatar Waste Management Strategy; Mongolia National Waste Management Strategy



Ocean Conservancy Project (2016)

Achievements: White paper: The Next Wave- Investment strategies for Plastic Free Seas
> Policy & Practices Recommendations was endorsed in APEC Summit in 2016



Waste TWG Projects (2008-2013)

Thematic Working Group on Solid and Hazardous Waste >> focus on ESM municipal & medical wastes, and promote 3Rs



Achievements: Policy Brief for Ministerial Regional Forum on Env. & Health in 14 Southeast and East Asian countries.

>> Funded by MOEJ thru MRI



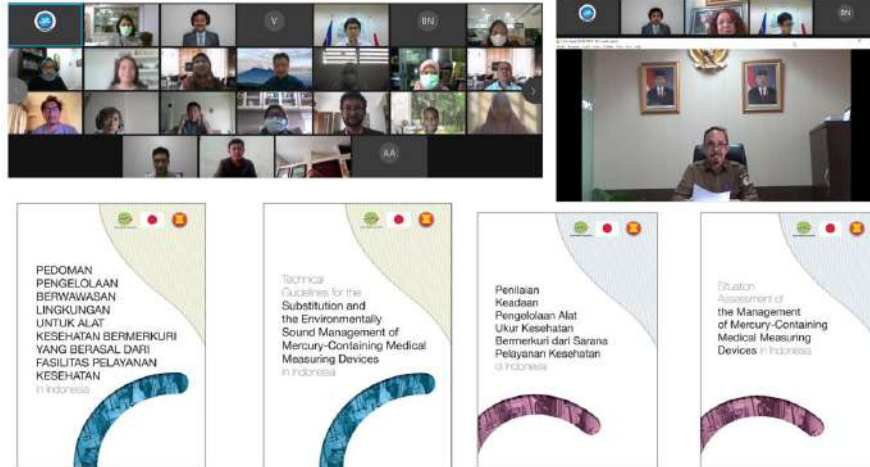
National 3R Strategy Project (2006-2010)

Achievements: National 3R Strategies Developed for Cambodia, Malaysia, Philippines and Thailand.

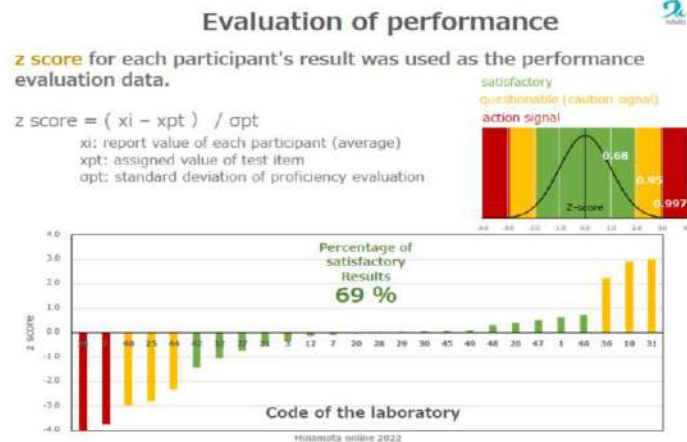
>> Funded by MOEJ through IGES



WAMRC's Activities



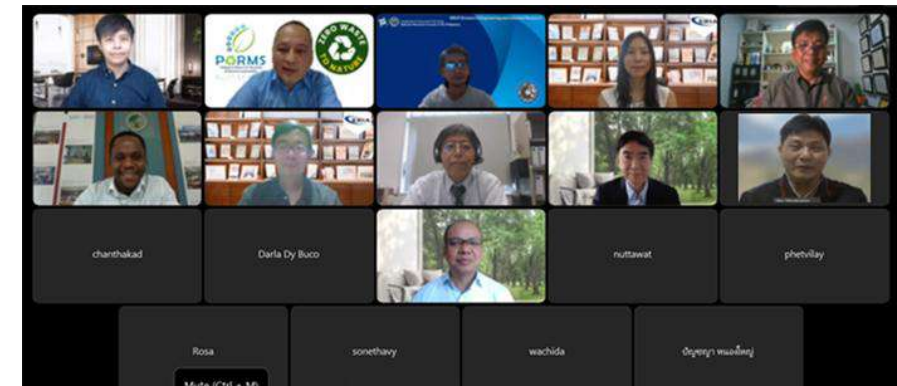
Launched and Disseminated to ASEAN Member States the Guidelines on ESM Mercury Containing Medical Measuring Devices: Indonesia & Philippines – JAIF funded project



Japan Mercury Project on Mercury Monitoring Lab PT assessment in Asia and the Pacific, 1st – 2nd Quarter of 2022



Presented and participated in the 3rd Global Waste Management Conference, 29-30 March 2022, Virtual Meeting



The AIT-RRC.AP Spearheaded the Virtual Kick-off cum Consultation for the ERIA Project on Development and Dissemination of Technical Guidelines for Plastics and Resin Pellets Leakage Prevention from Factories and Informal Recycling Sector in the ASEAN, 6 May 2022, Virtual Meeting

Waste to Energy-Biogas Demonstration Project

The Process: training and construction



Source: Guilberto Borongan, AIT RRC.AP



Deployed and constructed 10 Biogas Digesters in Takeo, Cambodia & General Santos, Philippines



Cow dung **feedstock**: daily feedstock is 10-15 kg./day >> 4 to 6 cubic meters; stove: 2-4 hours; lighting 8 hours.

Biogas demonstration project result in *Cambodia & Philippines*: For simple lighting and cooking



3R initiative in Cambodia and the Philippines, however modest, is making notable contributions towards addressing social and environmental issues to reduce poverty, ensure food security, promote good health, build environment-friendly technologies, and support the overall well-being of rural communities, especially the poor and marginalized

Achievements: ERIA Funded Project on Prevention of Plastics & Resin Pellets Leakage from factories & informal recycling sector in the ASEAN

Project cities

- Hanoi Iloilo City and Manila,
- Nonthaburi City and Pattaya City, Vientiane City



Site visit, meetings, and expert consultations

- Survey, indepth interview, focus group discussions,
- Operation process/practice assessment and auditing
- 15 national and LGU/LGO
- 27 recycling factories, junkshops and MRFs
- 5 NGO's and private stakeholders



Achievements: ERIA Funded Project on Prevention of Plastics & Resin Pellets Leakage from factories & informal recycling sector in the ASEAN (Cont'd)

Workshop, technical review, knowledge sharing and dissemination

- Expert consultation workshop
- 8 consultation cum review workshops
- >70 policy makers (city and national government officers engaged
- > 150 key stakeholders across 6 cities



Situation Assessment Reports



Technical Guidelines/ Guidebook



WAMRC's Activities



Training Workshop on Waste Management in ASEAN Cities

- 23 - 25 September 2024, Pathumthani, Thailand
- Participants (environmental officers, public health experts, & waste management practitioners from across **ASEAN** cities.



Capacity Building Programme for Reducing Recycling-Related Marine Plastic Pollution in ASEAN Cities (the CaRMPAC Project)

Launched in Vientiane, Lao PDR

16 August 2024, Vientiane, Lao PDR

WAMRC's Activities

Knowledge Exchange Program:

- Behavioral Change in Plastics and Plastic Waste Management in ASEAN Member States
- 19-23 August, Bali, Indonesia



RRC.AP's Partners and Networks



Thank you!

Contact: **Dr. Gilberto Borongan, Director**
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Email: gilberto@rrcap.ait.ac.th



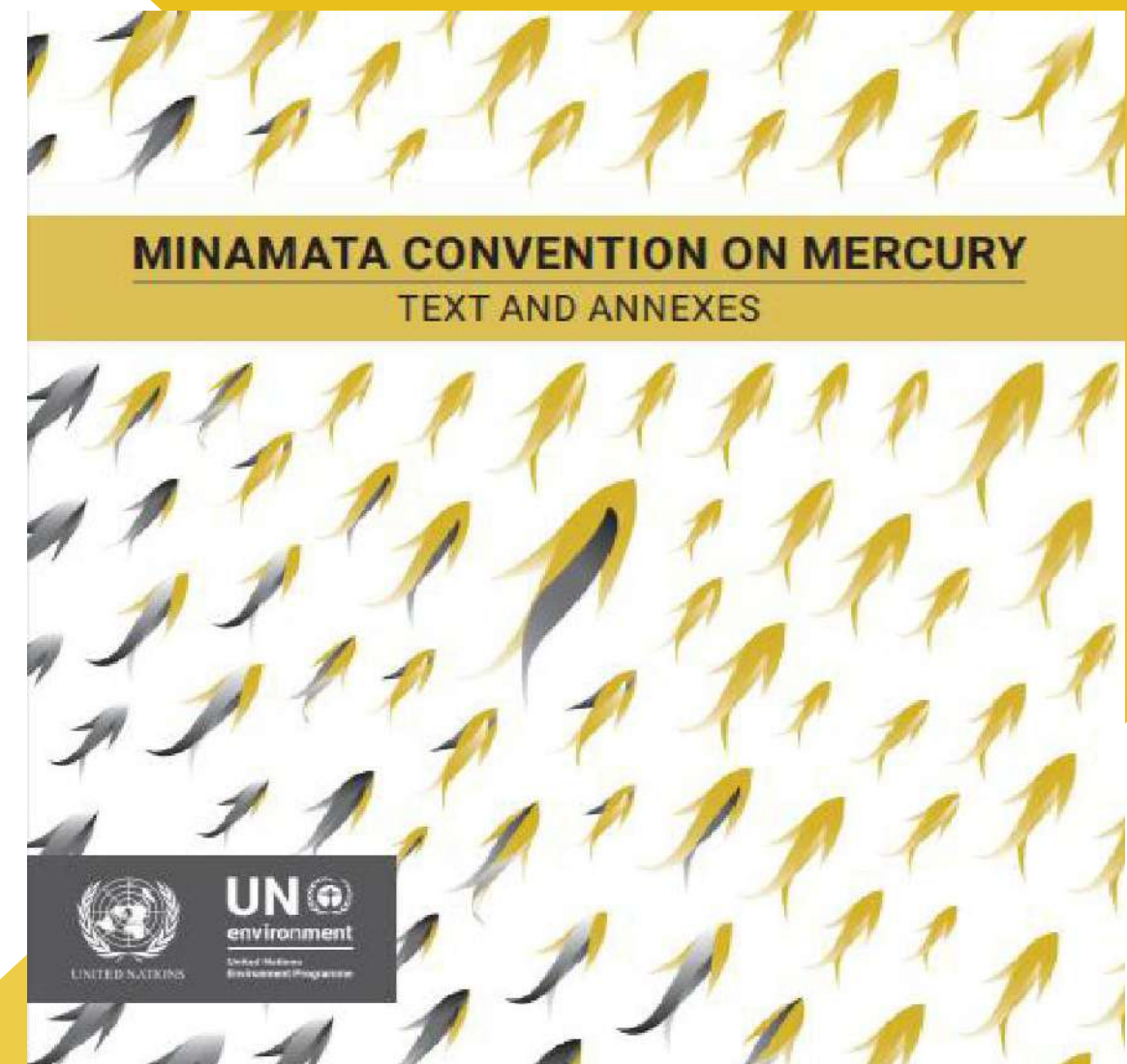
AIT RRC.AP Website

23 JUNE 2025

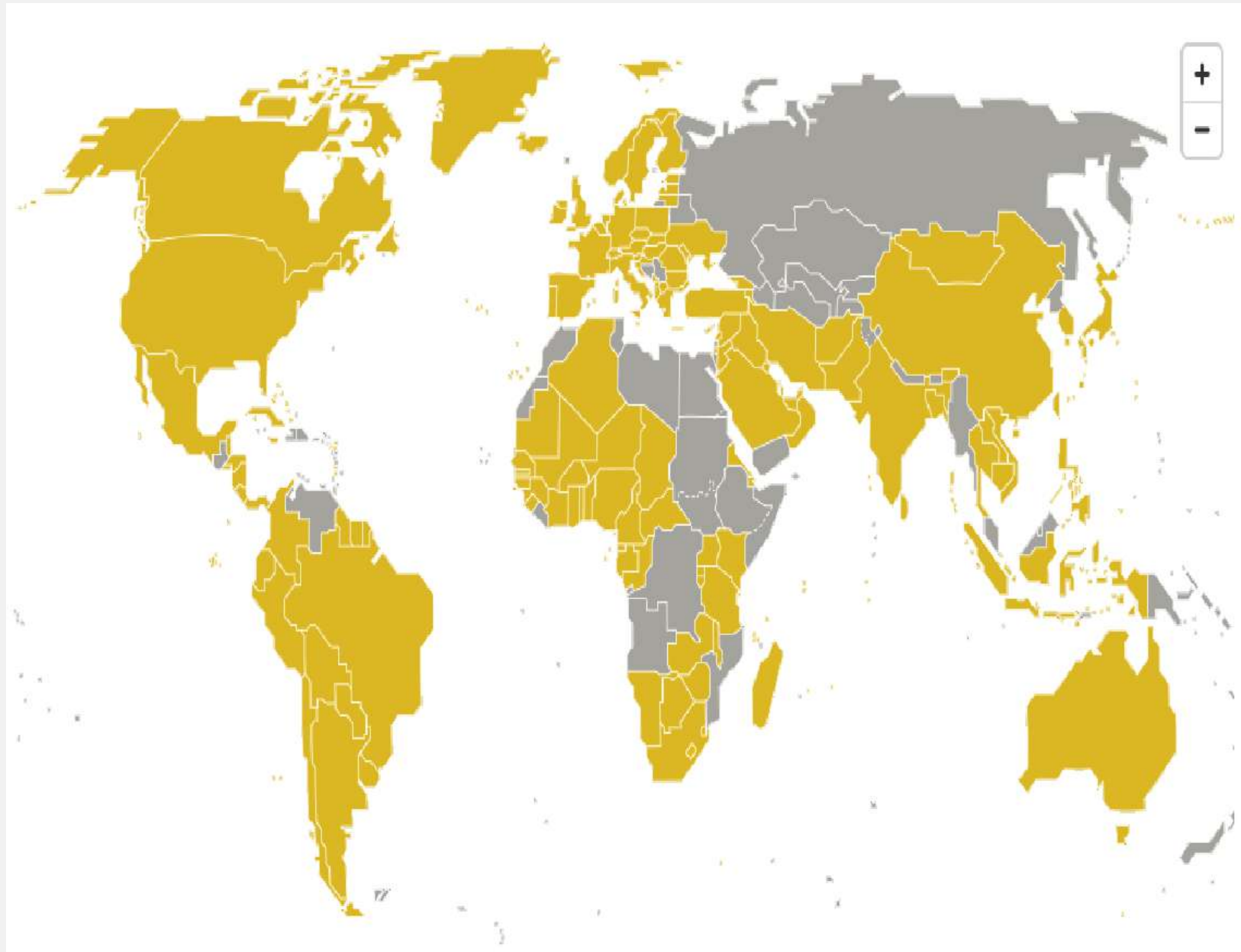
Understanding the Minamata Convention on Mercury in Relation to Trade

Presented by:
Tanlila Ali Shah, BRI

**NATIONAL TRAINING ON STRENGTHENING COUNTRY-LEVEL
INTER-AGENCY COORDINATION ON TRADE OF MERCURY:
MONGOLIA**



Minamata Convention on Mercury



AIM: 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

152 Parties, as of June 2025

Managing different types of mercury under the Minamata Convention:

- **Article 3 Mercury Supply Sources and Trade**

Elemental Mercury (liquid) and inorganic mercury compounds/salts

- Article 10 Environmentally sound interim storage of mercury, other than waste mercury

- Article 4 Mercury Added Products
- Article 5 Manufacturing processes in which mercury or mercury compounds are used
- Article 7 Artisanal and Small-Scale Gold Mining

Prohibiting use of mercury/ mercury compounds in the manufacture of products/industrial processes

- Article 11 Mercury Wastes

Mercury wastes
(from use and disposal of products etc.)

Article 3: Mercury supply sources and trade

Requires Parties to take measures to control trade of mercury with other Parties as well as with non-Parties and reinforces demand reduction control measures (Articles 4–7)

This article covers:

- elemental mercury,
- mixtures of mercury with other substances, including alloys of mercury, with a mercury concentration of at least 95 per cent by weight,
- “Mercury compounds” meaning mercury (I) chloride (known also as calomel), mercury (II) oxide, mercury (II) sulphate, mercury (II) nitrate,

Article 3: Mercury supply sources and trade

Main Provisions:

- Not allow the EXPORT of mercury unless the importing country provides **written consent**, the mercury is for an **allowed use or environmentally sound storage**, and all other conditions of Article 3.6 are met.
- Not allow the IMPORT of mercury without government **consent**, ensuring both the mercury **source and proposed use** are allowed under the Convention (and applicable domestic law).
- Restrict the export and use of mercury from **primary mercury mining**, so that it is not available for use in artisanal and small-scale gold mining (ASGM).

Article 3: Mercury supply sources and trade

General Notifications:

- Allows for Parties to issue consent either on an import-by-import basis or through a general notification of consent provided to the Secretariat.
- A general notification of consent may include terms and conditions and may be revoked at any time by that Party or non-Party.

SCENARIO ONE

EXPORTER IS A PARTY → IMPORTER IS A PARTY



Importing Party
has provided
written consent



Mercury is for use allowed under the
Convention, OR for environmentally sound
interim storage

SCENARIO TWO

EXPORTER IS A PARTY → IMPORTER IS A NON-PARTY



Importing non-Party
has provided
written consent



Importing non-Party certifies it has
measures in place to protect human health
and the environment

Importing non-Party ensures its compliance
re: storage and final disposal

Mercury is for use allowed under the
Convention, OR for environmentally sound
interim storage

SCENARIO THREE

EXPORTER IS A NON-PARTY → IMPORTER IS A PARTY



NON-PARTY



PARTY TO CONVENTION



Mercury export
is allowed if:



Importing Party
has provided
written consent



Exporting non-Party has provided
certification that the mercury is not from
primary mercury mining or from
decommissioning chlor-alkali facilities

Minamata Convention Secretariat

The Minamata Secretariat makes public the forms and guidance and keeps a public register of general notification of consent on its website.

<https://minamataconvention.org/en/documents/forms-related-article-3-mercury-trade>

<https://minamataconvention.org/en/documents/guidance-completing-forms-required-under-article-3-related-trade-mercury>

Minamata Convention Secretariat

A draft study has also been developed by the Secretariat on the **global supply, production, trade and use of mercury compounds** to further support countries in understanding the challenges and lessons learnt in managing mercury supply, trade and demand.

Some findings include...

What are the main sources of mercury compounds?

Mercury compounds come from four main sources:

- a) commercial producers of mercury compounds;
 - a) byproduct mercury compounds from metal smelting and natural gas processing;
 - a) mercury compound waste from catalysts used in oil and gas processing, from discarded products that contain mercury compounds, and from research and medical facilities; and
 - a) government or private mercury compound inventories of those involved in the production, recovery, trade or use of mercury compounds.
- 

Reports from EXPORTING COUNTRIES of >5000 kg of mercury compounds (in 2023)

	HS 285210 - Mercury compounds, chemically defined, inorganic or organic, excluding amalgams (net weight in kg)						Sum
Reporter	2018	2019	2020	2021	2022	2023	2018-2023
Thailand	596319	471671	243691	273809	433897	474080	2493467
United States	58696	130411	18675	18755	31303	83841	341681
South Africa	167332	90819	83387	257097	113337	64363	776335
Austria	90420	89789	103947	107428	105789	58755	556128
France	0	0	0	63661	45398	26179	135238
Morocco	91	1550	2605	1010	660	8600	14516
Malaysia	0	0	0	0	0	6200	6200
Source: Trade Data Monitor (2018-2021) and Comtrade (2022-2023)							

Reports from IMPORTING COUNTRIES of >5000 kg of mercury compounds (in 2023)

	HS 285210 - Mercury compounds, chemically defined, inorganic or organic, excluding amalgams (net weight in kg)						Sum
Reporter	2018	2019	2020	2021	2022	2023	2018-2023
Italy	599820	504489	208425	238658	1747045	893173	4191610
France	1727960	1299633	1096285	1374556	1009754	488978	6997166
Czechia	269903	311001	455533	301523	281565	178681	1798206
Belgium	11965	10494	4111	435955	784576	125364	1372465
Spain	9659	8124	8488	9141	7818	67406	110636
Luxembourg	5388	5074	3059	5132	1892	48084	68629
Portugal	23261	28080	30836	30032	32255	24565	169029
Netherlands	8475	3326	1340	2437	1022	11034	27634
Canada	18598	69352	10969	17961	7391	12540	136811
Malaysia	130	244	332	1074	309	9656	11745
Germany	66100	37800	24100	21700	6890	7156	163746
Source: Trade Data Monitor (2018-2021) and Comtrade (2022-2023)							

Based on the low average value per kilogram of compound traded, it can be deduced that while the ***HS Code: 285210 – Mercury compounds, chemically defined, inorganic or organic, excluding amalgams*** is meant to be used for only mercury compounds, the volumes reflect that it includes byproduct compounds meaning that identifying commercial trade of mercury compounds is still not fully captured.

The Minamata Secretariat's study is expected to be finalized in 2025.

Thank You!



Tahlia Ali Shah

International Environmental Scientist
Biodiversity Research Institute (BRI)
Tahlia.alishah@briwildlife.org

National Training on Strengthening Country-Level Inter-Agency Coordination on Trade of Mercury

WORKSHOP OVERVIEW

Monday 23 JUNE 2025

Background and Objectives:

- Effective mercury trade enforcement requires tailored national strategies that align with each country's regulatory and operational context. This in-country training focuses on practical, hands-on exercises to enhance coordination among customs officers, environmental regulators, and law enforcement authorities. Strengthening inter-agency collaboration is essential for detecting, monitoring, and preventing illicit mercury trade, which remains a persistent challenge across the Asian Region.
- This initiative aims to equip national enforcement agencies with the technical skills and enforcement tools necessary to combat mercury smuggling. By integrating regional collaboration with country-specific training, the program fosters a comprehensive enforcement network, enhancing national and cross-border cooperation to improve compliance with the Minamata Convention and other trade regulations. Ultimately, this approach will bolster national enforcement capacity and contribute to regional efforts to eliminate mercury trade.

Objectives

1. Build country-specific enforcement capacity through hands-on training.
2. Improve coordination between national agencies to close enforcement gaps.
3. Train officers in forensic detection and risk assessment for mercury shipments.
4. Initiate a national action plan for mercury trade control.

Expected Outcomes

1. Strengthened inter-agency coordination for mercury trade enforcement.
2. Improved capacity of national authorities to detect and prevent mercury trade.
3. Standardized procedures for customs and law enforcement authorities.
4. Initiation of country-specific action plans and policy recommendations.
5. Gather up to date information on mercury trade data and national challenges.

Schedule of Overall Activities

Online Webinars:

3 webinars (1.5 hours each)

Between May – July/August 2025

1. Overview on the issues posed by mercury, mercury trade and the relevant obligations under the Minamata Convention – *held 26 May 2025*
1. Review of Regulatory Framework for Managing Mercury Trade – late June/early July 2025
1. Lessons Learnt from In-Country Training Workshops – late July/early August 2025

Schedule of Today's Key Activities:

Registration		
8:30-9:00	Registration Housekeeping announcements	Asian Institute of Technology (AIT)
9:00-9:30	Opening remarks	Mr. Thomas Verbaere, Knowledge and Risk Unit, Chemicals and Health Branch, Industry and Economy Division of UNEP Mr. Ts. Urtnasan, the State Secretary of MOECC Dr. Guilberto Borongan, Director, Regional Resource Centre for Asia and the Pacific at the Asian Institute of Technology (AIT RRC.AP)
9:30-9:50	Introduction of Participants	All
9:50-10:00	Introduction Objectives, expected outcomes, and schedule of the training.	Ashley Bastiansz, Biodiversity Research Institute (BRI)
10:00-10:15	Implementation of the Minamata Convention in Mongolia [with simultaneous interpretation]	Mr. L. Batzorig, Senior Officer responsible for Chemical Impact Policy, MOECC
10:15-10:30	Mercury Use and Environmental Impacts	Mark Burton, BRI
10:30-10:45	Human Health Impacts of Mercury	Elena Jordan, World Health Organisation (WHO) - <i>virtual</i>
10:45-11:00	Overview of Mercury Trade and Related the Minamata Convention Obligations	Tahlia Ali Shah, BRI - <i>virtual</i>
11:00-11:15	Group Photo and Health Break	

11:15-11:35	Mercury Mass Flow in Mongolia	Kyaw Nyunt Maung, UNEP - <i>virtual</i>
11:35–11:50	National Customs Existing Procedures for sound handling of seized commodities	Mr. Tegshbayar Tumurbaatar, Senior State Customs Inspector, Quarantine Division, Customs General Administration of Mongolia
11:50–12:30	Atmospheric Survey and Analysis (Manual Active Sampling Method)	AIT
12:30-13:30	<i>Lunch</i>	
13:30-14:00	Understanding the role of Customs and the available resources for enhancing implementation of the Minamata Convention on Mercury/other environmental agreements	Anna Kobylecka, World Customs Organisation (WCO)- <i>virtual</i>
14:00-15:45	Practical exercises on customs inspection procedures and mercury shipment profiling (to include case studies on smuggling tactics and interception methods and identifying and handling illegal mercury shipment scenarios)	Facilitator: Ashley Bastiansz, BRI All participants Note-takers: Mark Burton, BRI and AIT
15:45-15:55	<i>Health Break</i>	
15:55-16:15	Risk-assessment methodologies: Mercury detection and forensic analysis techniques- XRF	Ashley Bastiansz and Mark Burton, BRI
16:15-16:30	Wrap up of day's outcomes and plans for day 2.	BRI and all participants.

Overview of Mercury Use, Trade, and Environmental Impacts

Presenter: Mark Burton, BRI
National Training on Strengthening Country-level
Inter-Agency Coordination on Trade of Mercury
Monday 23- Tuesday 24 June 2025,
Ulaanbaatar, Mongolia

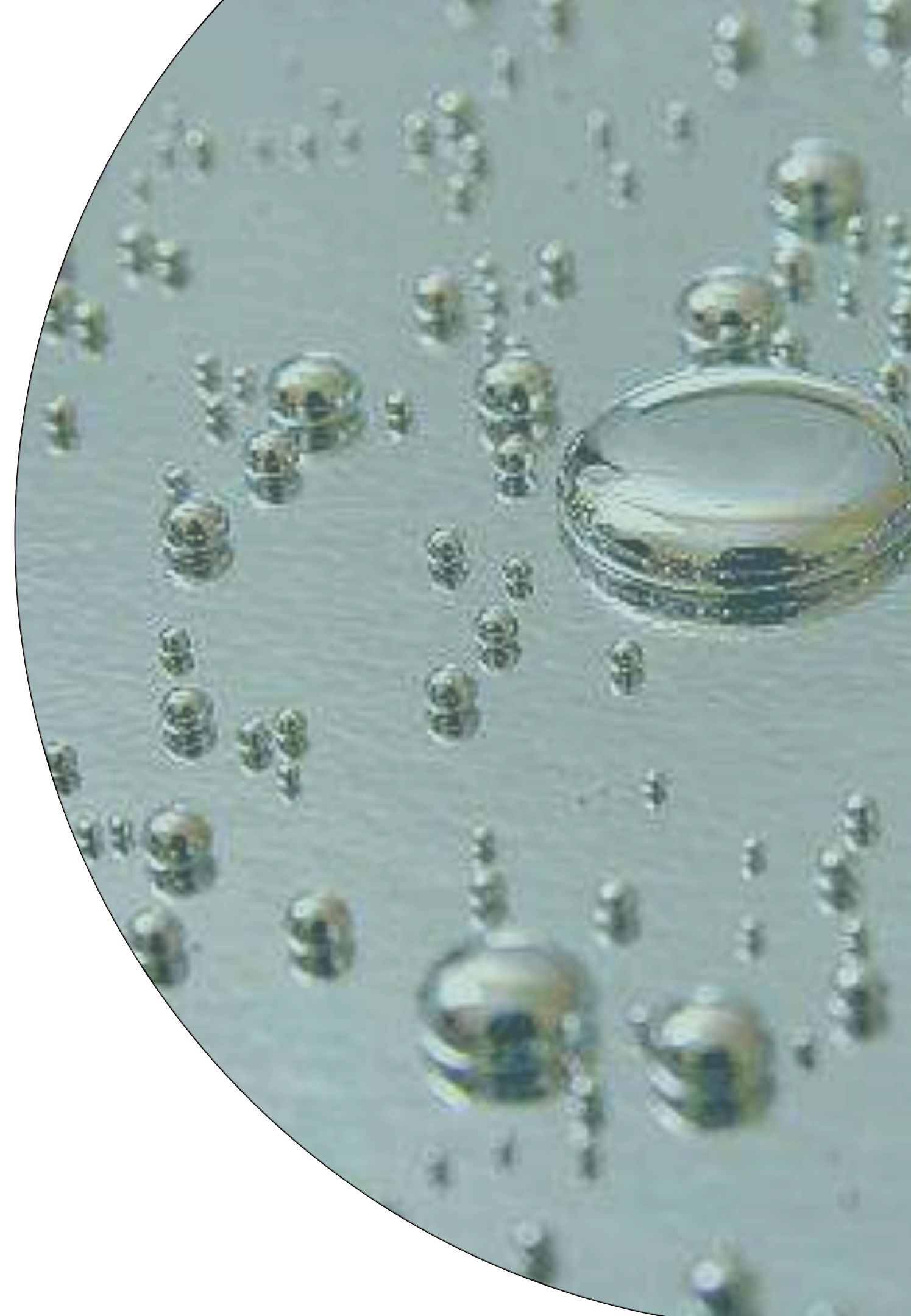
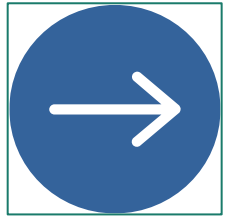
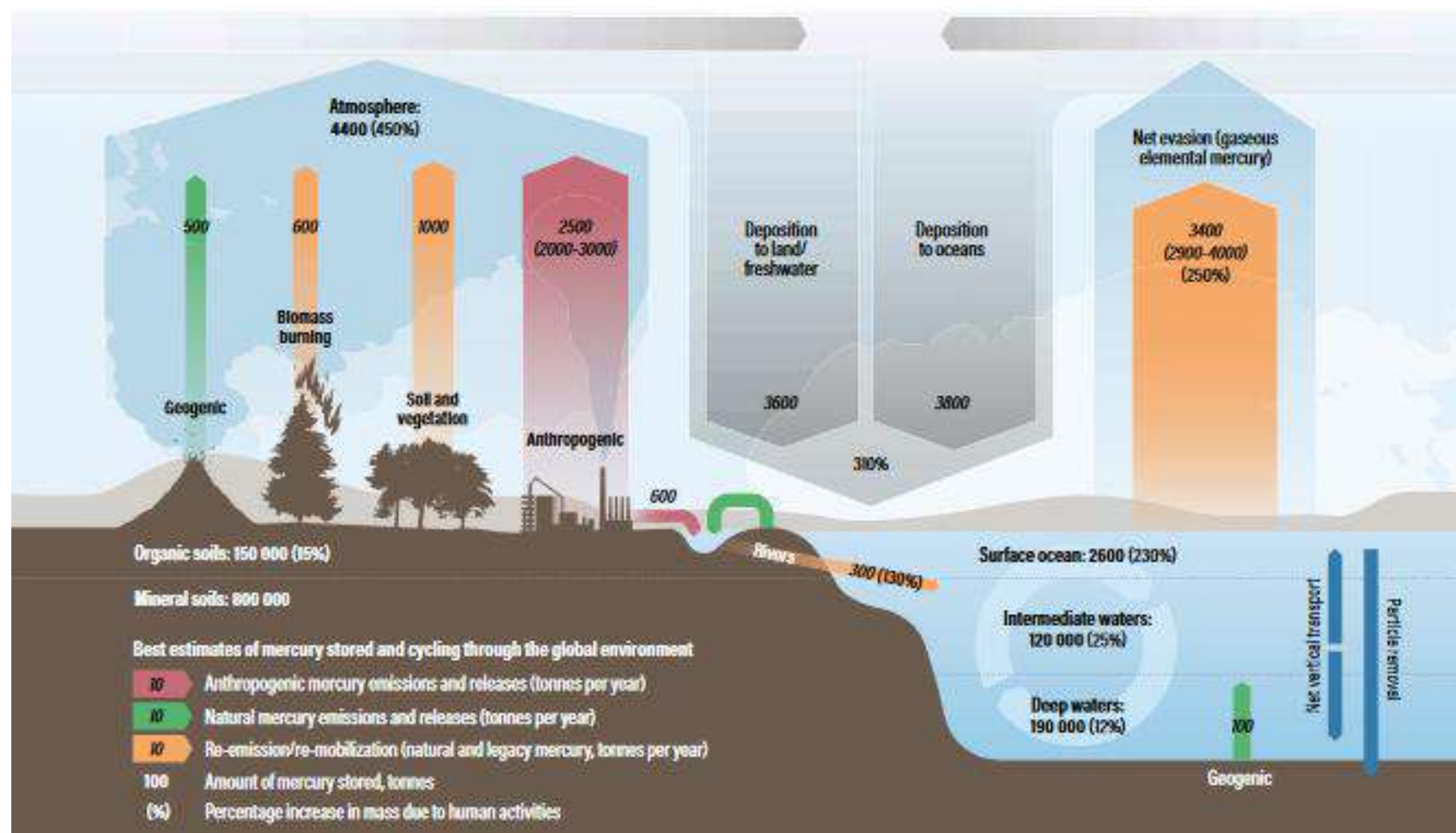


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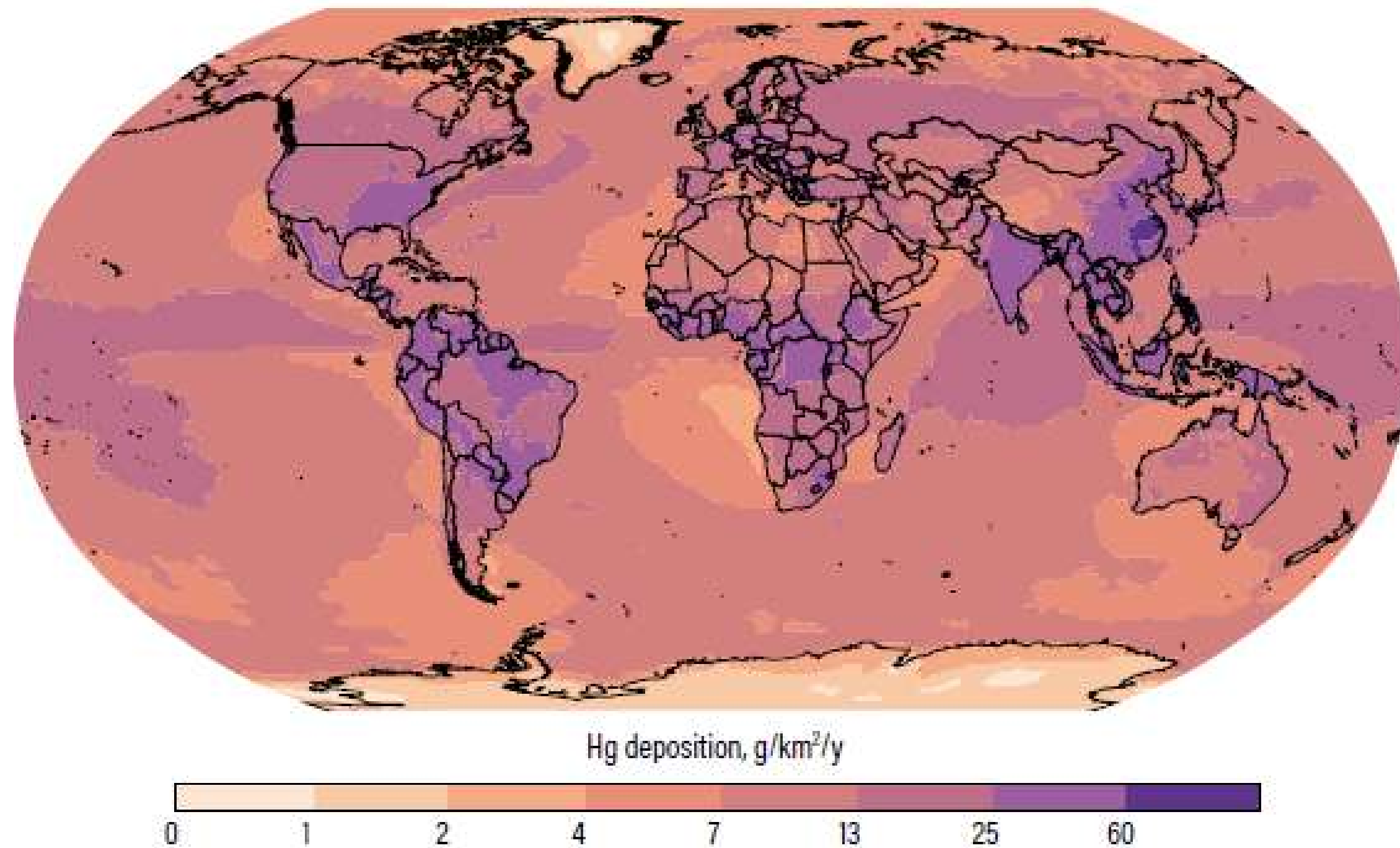
- What are the sources of mercury?
- What activities drive mercury trade?
- Why is mercury an issue in the environment?
- Biomonitoring?

Hg flows



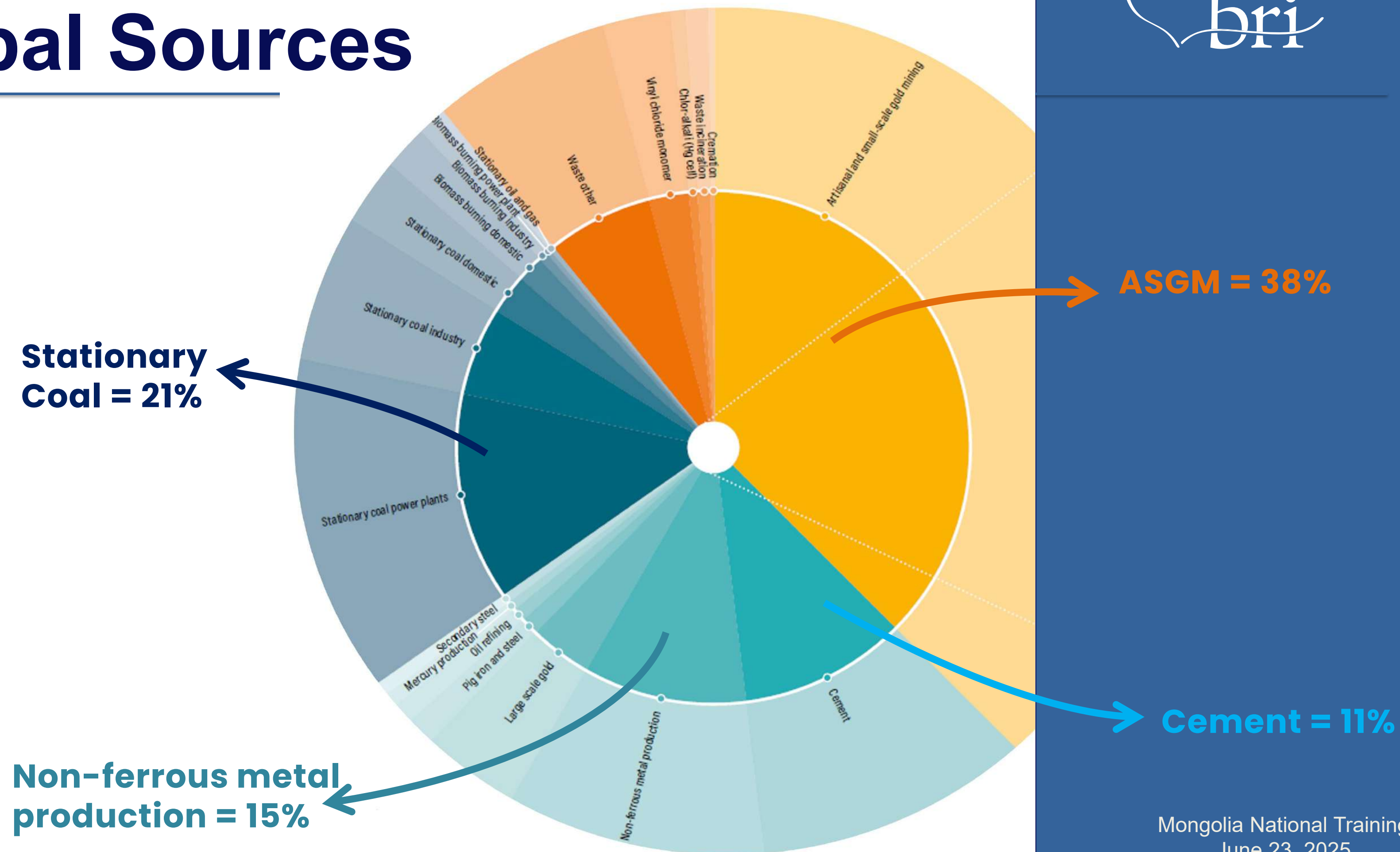
* Data Source: UN Environment Programme's 2018 Global Mercury Assessment.

Spatial Patterns in Hg deposition are variable at global scales



* Data Source: UN Environment Programme's 2018 Global Mercury Assessment.

Global Sources



Global Sources - MIAs

Minamata Initial Assessments Mercury Inventories

Summary of results from UNEP's *Toolkit for identification and quantification of mercury releases*

✓ Select a region using the regional drop down menu to update the Hg Inputs in each figure and statistic.

Global

Hg input by country (kg Hg yr⁻¹)

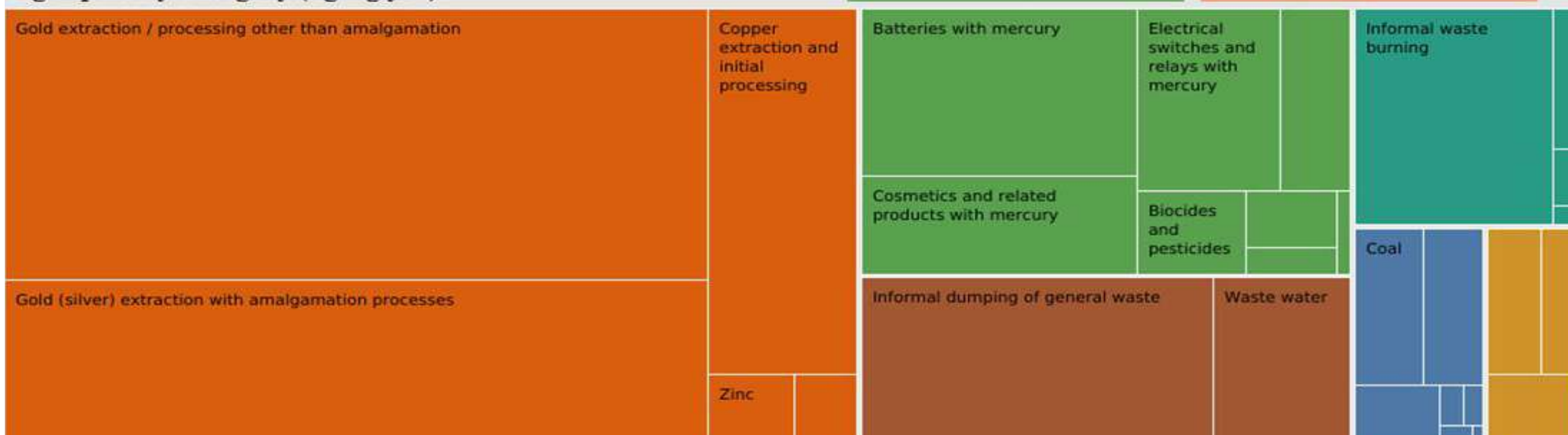


per capita Hg input by country (kg Hg yr⁻¹ 100,000 people⁻¹)



© 2025 Mapbox © OpenStreetMap

Hg Inputs by Category (kg Hg yr⁻¹)

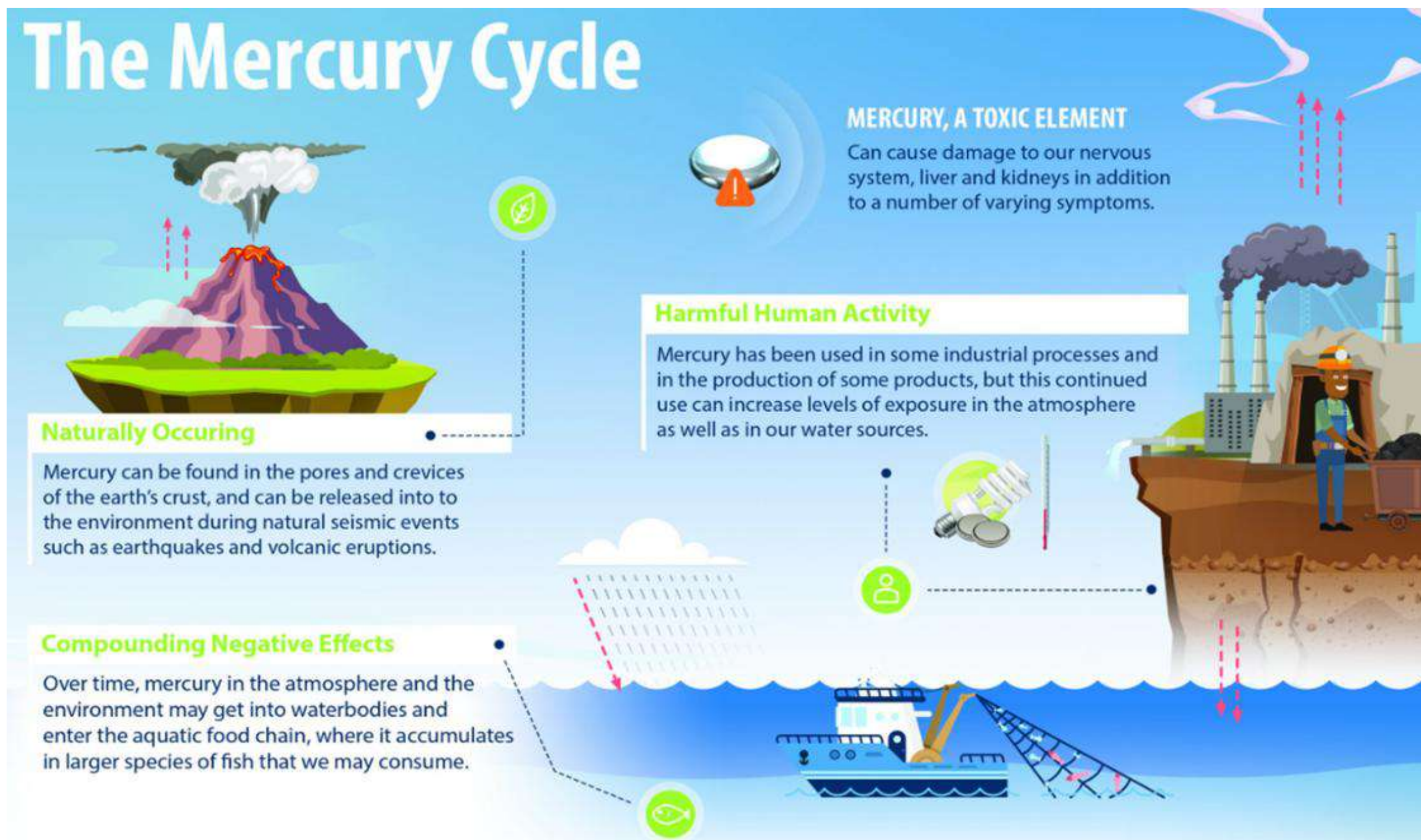


Estimated Sources of Mercury Releases
Based on UNEP's Toolkit for identification and quantification of mercury releases for **78 countries assessed as of 2022***.

Major Sources:

- Primary Metal Production
- Consumer products with intentional use of mercury
- Waste deposition/landfilling and wastewater treatment

Mercury Cycle



Mercury (Hg) may be found in different forms, all with different sources and applications:

- **Elemental Mercury** (silver liquid)
- **Inorganic mercury salts** (e.g., mercuric chloride, mercuric sulfide (cinnabar))
- **Organic Mercury** (e.g., methylmercury, dimethylmercury)

What are the main sources of mercury compounds?

Mercury compounds may be **stored/produced from direct use/production** at:

- Primary mercury (cinnabar) mining facilities;
- Mercury compound producers;
- Facilities that manufacture products or catalysts containing mercury compounds;
- Mercury compound traders, especially those involved in transboundary movements of commodity grade mercury compounds;
- Other interim storage facilities.

What are the main sources of mercury compounds?

Mercury compounds may be stored/produced as **byproducts or wastes** at:

- Mercury recycling and waste treatment facilities;
- Non-ferrous metal mining or processing facilities;
- Natural gas and oil production and processing facilities;
- Facilities producing vinyl chloride monomer (VCM) using mercury chloride catalysts;
- Facilities producing polyurethane products with mercury compound catalysts;
- Mercury cell chlor-alkali facilities;
- Sodium or potassium methylete or ethylete facilities using mercury cells;
- Unsecured waste disposal sites

Common Mercury Compounds

Note: Based on assessments conducted by UNEP (2025), it was found that some mercury compounds can be produced at low enough costs to bypass trade restrictions in many countries for the purpose of extracting the elemental mercury.

- **Mercury(I) chloride**
- **Mercury(II) sulfide** (lower purity, black)
- Mercury(II) oxide
- **Mercury(II) sulfate**
- Mercury(II) nitrate
- Mercury(II) amidochloride
(*ammoniated mercury*)
- Mercury(II) acetate
- Mercury(II) chloride
- Mercury(II) iodide
- Phenylmercury(II) acetate
- Mercury(II) bromide



Mercury Added Consumer Products

Approximately 30% of the global demand for mercury is due to its use in products.

Due to its properties as a good electricity conductor, its high density and high surface tension, mercury has historically been used in many products such as **certain**:

- Lighting devices (e.g.) CFLs, LFLs and High-pressure mercury vapour lamps
- Batteries
- Electrical Switches and Relays
- Non-electrical measuring devices
- Dental amalgam fillings
- Pesticides, biocides and topical antiseptics
- Cosmetics such as mercury skin lightening products.

Many of these products are being phased out with manufacturing countries phasing out mercury use under the Minamata Convention and other countries agreeing not to import/export them, the long-lasting impacts of mercury releases due to disposal still poses a risk to be addressed.



Sources: BCRC-Caribbean, 2019

Common Uses for Mercury Compounds

Common Purposes	Mercury Compounds
Manufacture of Certain Mercury-Added Products such as Batteries etc.	Mercury (I) Chloride, Mercury (II) Oxide, Mercury (II) Sulfate, Mercury (II) Chloride...
As a preservative, disinfectant or in the production of antiseptics (e.g. mercurochrome)	Thimerosal, mercury (II) amidochloride, phenylmercury (II) acetate, mercury (II) chloride...
Manufacture of Pharmaceuticals	Mercury (II) chloride, mercury (II) iodide, mercury (II) thiocyanate...
As a lab reagent	Mercury (II) nitrate, mercury (II) sulfate, mercury (II) chloride...
Synthesis of other mercury compounds or recovery of elemental mercury	Mercury (I) chloride, mercury (II) nitrate, mercury (II) acetate...
As catalysts in industrial process	Mercury (I) chloride, phenylmercury (II) acetate...
In gold and silver extraction	Mercury (II) sulfate
Manufacture of skin lightening products	Mercury (I) chloride, mercury (II) oxide, mercury (II) sulfate, mercury (II) chloride
Miscellaneous (fireworks, thermoelectric applications, nuclear particle equipment, photo fixative...)	Many other mercury compounds

Example: Trade of Mercury-added Skin Lightening Products (Hg SLPs)

Mercury Compounds Used for Manufacture of Mercury-added Skin Lightening Products:

- Mercury(I) chloride
- Mercury(II) oxide
- Mercury(II) amidochloride (ammoniated mercury) – *most popular Hg compound reported in Hg SLPs.*

NOTE: *There are very few Hg SLPs on the market that explicitly list mercury/mercury compounds as ingredients (despite having them in very high concentrations).*



Where are *Mercury Compounds* Sourced for the manufacture of Hg SLPs

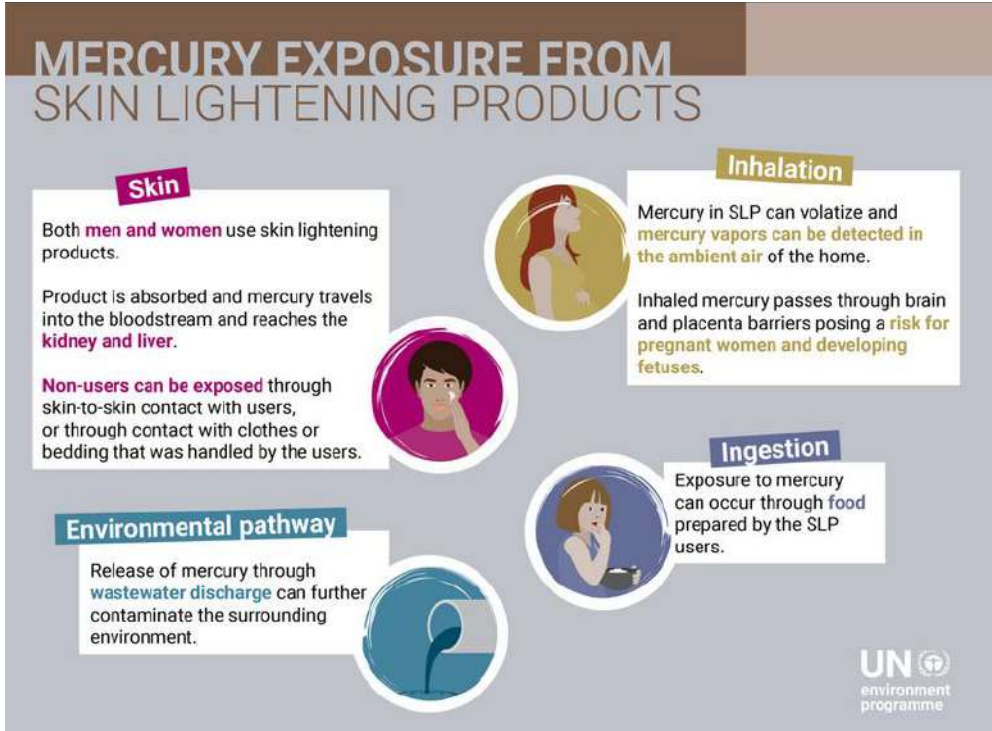


Where are mercury compounds for the manufacture of Hg SLPs sourced?

A 2023 investigation conducted by the Environmental Investigation Agency (EIA) indicated that for Hg SLPs **manufactured in Thailand, Pakistan and Jamaica**, mercury compounds were imported by manufacturers **from India, Spain and the USA**.

Determining how these compounds were imported is unclear.

Mercury Exposure from Mercury-added Products



Sources: UNEP, 2024 and BCRC-Caribbean, 2019



Artisanal and Small-Scale Gold Mining (ASGM)

ASGM occurs in over 80 countries at varying scales but is most prevalent in tropical and sub-tropical regions which tend to be the most biodiverse and sensitive ecosystems globally.

In ASGM, mercury may be displaced from the ground through mining practices however the most common source of mercury is due to its direct use in the extraction of gold.

Liquid mercury is often added to gold ore to form a mercury-gold amalgam which is then burned to evaporate mercury leaving behind the gold.

While many countries have implemented national action plans and other initiatives to reduce the use of mercury in ASGM, it is noted that with the increased market for gold, there is pressure to produce gold at any means necessary to meet demands.

Reference:
<https://www.channelnewsasia.com/asia/indonesia-gold-prices-soar-economic-uncertainty-5096191>
Photo Sources: [Kroll, 2024](#), [Evers, et. al, 2024a](#)



Artisanal and Small-Scale Gold Mining (ASGM)

80
Number of countries where ASGM occurs, found mostly in tropical regions.

15 Million
People rely on ASGM for their livelihood, mostly in rural areas.

4-5 Million
Women are included in the total number who rely on ASGM.

38
Percent of global anthropogenic mercury emissions from ASGM.

ASGM Process



Heavy excavation to prepare mining sites



Mercury/gold amalgam heated to evaporate Hg



Hg contaminates run off (mine tailings)

How Mercury from ASGM Enters the Environment



Study Highlights

84
Percent of land area deforested over the last 20 years directly resulting from ASGM activities (concentrated in only 10 countries).

54
Percent of documents reviewed that cite chemical pollution of terrestrial and aquatic ecosystems as one of the main consequences of ASGM.

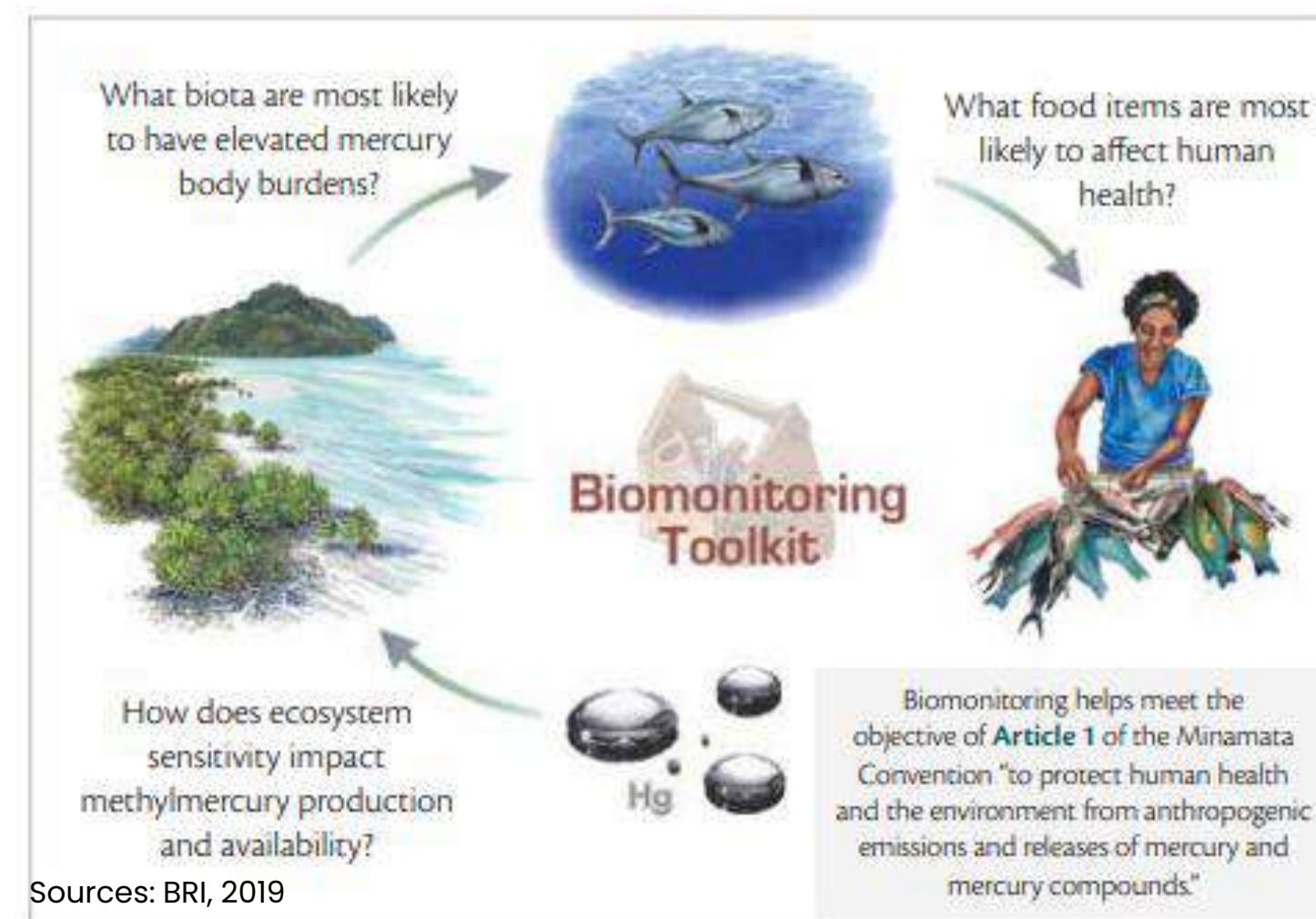
59
Percent of NAPs reporting the presence of cyanide leaching in mercury tailings → highly mobile, toxic, and bioavailable mercury-cyanide complexes.

Source: Evers et. al, 2023 and Dossou Etui et. al, 2023

How does mercury impact ecological and human health

Depending on a suite of environmental conditions, when mercury is emitted or released into air, land, or water, it may be converted to methylmercury, a bioaccumulative neurotoxin.

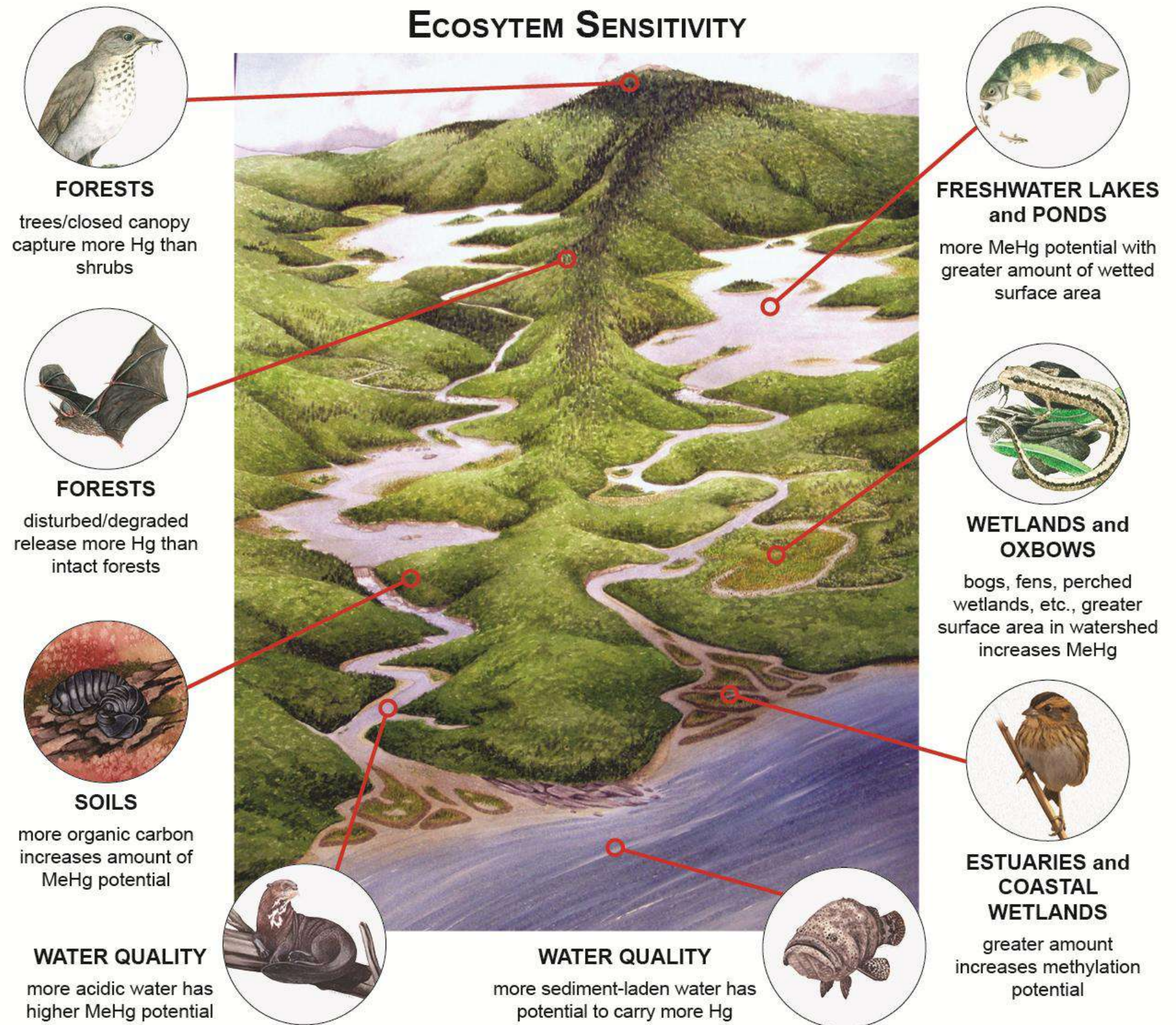
Threats to human and ecosystem health can be thought of a combination of ecosystem sensitivity and contamination risk.



Ecosystem Sensitivity

Sensitivity of Ecosystems to Mercury Methylation:

1. Multiple Land Cover Types;
2. Habitat Characteristics;
3. Forest Integrity;
4. Soil Organic Carbon;
5. Water Quality;
6. Climate Change Disturbance;
7. Naturally occurring mercury



Risk of Contamination – Anthropogenic Influences

Risk of Mercury Contamination from Anthropogenic Influence

1. Hg Deposition

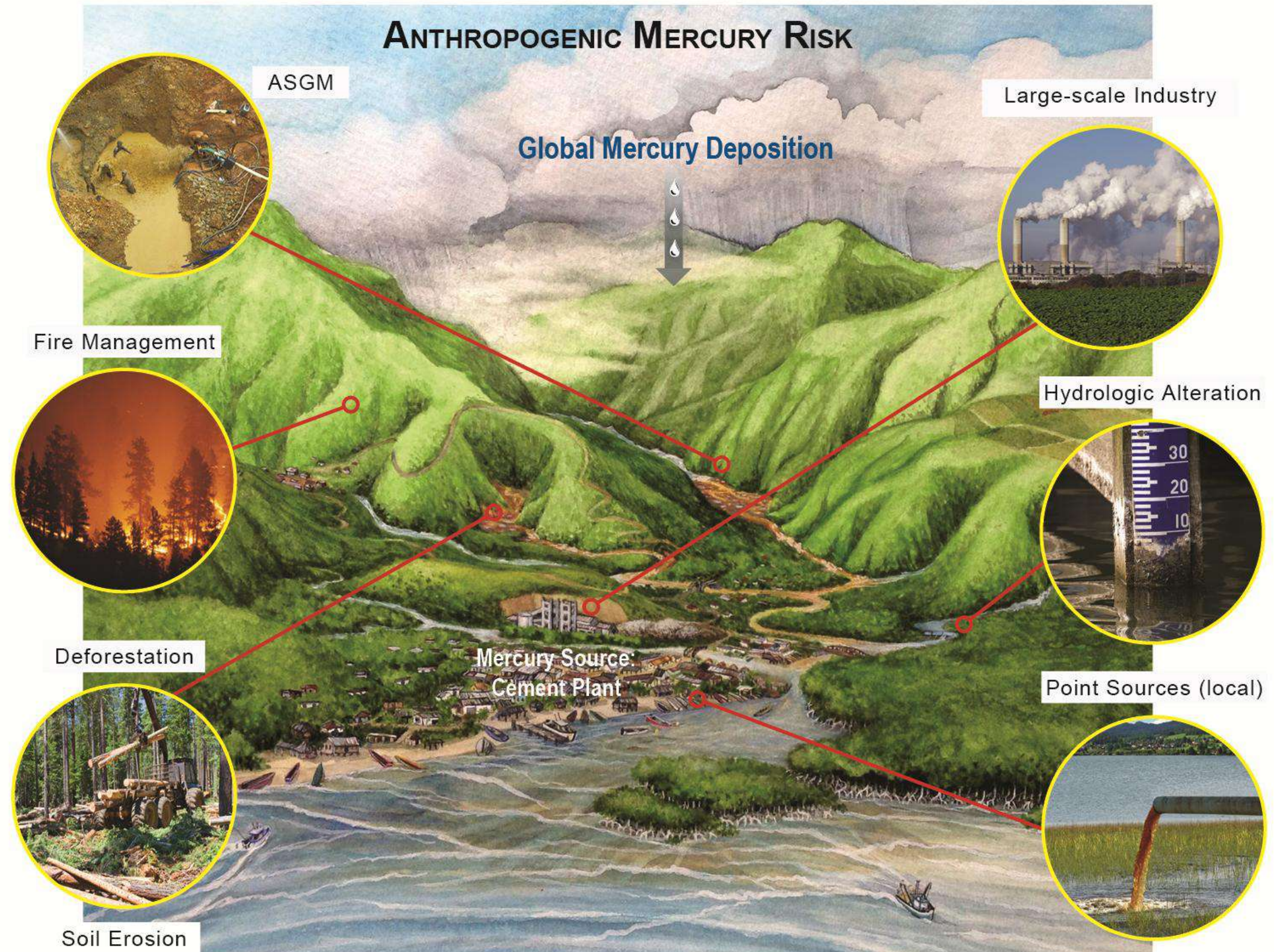
- i. ASGM
- ii. Power Generation
- iii. Industrial Sources
- iv. Intentional Use and Product Waste

2. Direct Hg releases into water

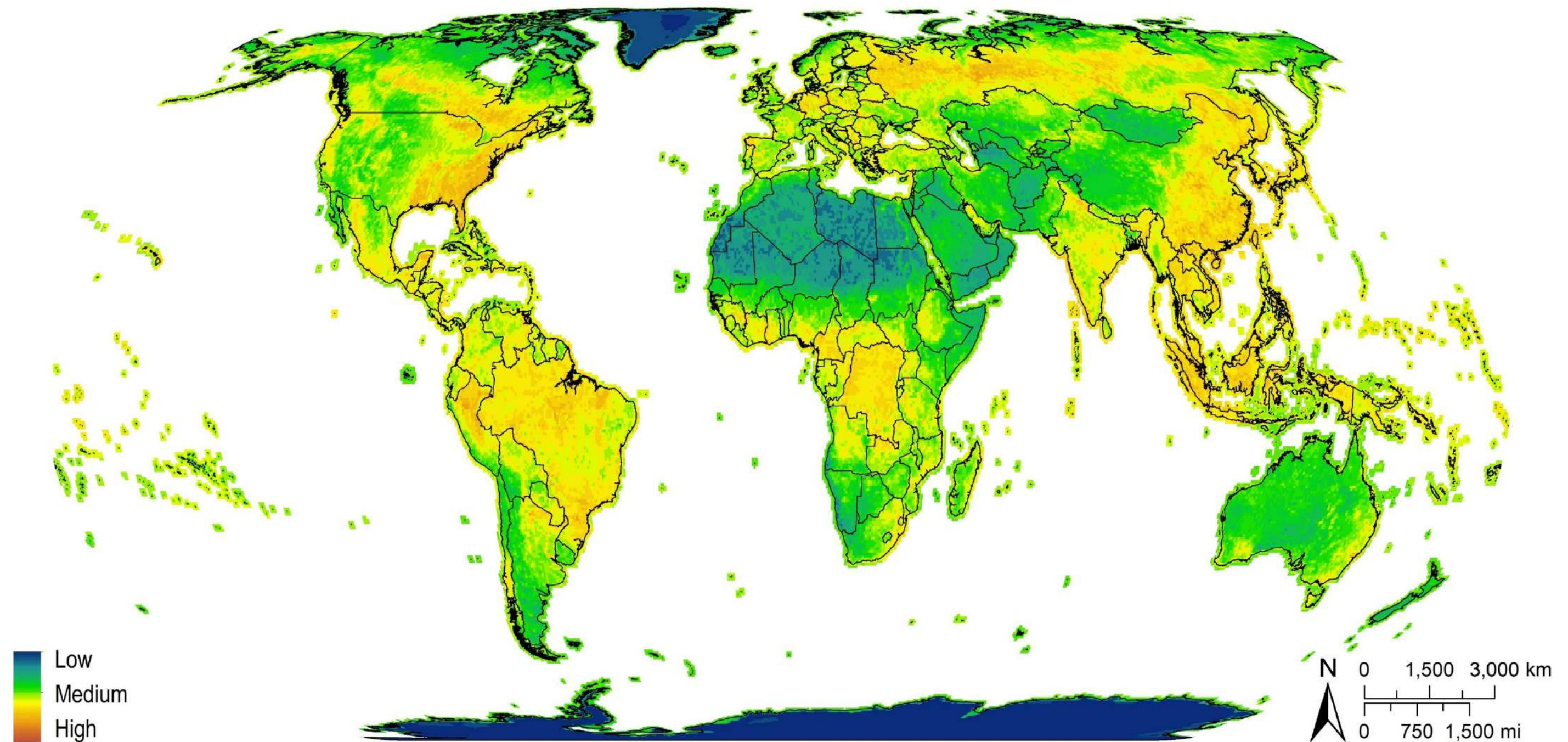
3. Human-Induced Ecological Disturbance

- i. Deforestation
- ii. Fire Management
- iii. Hydrologic Alteration
- iv. Sedimentation

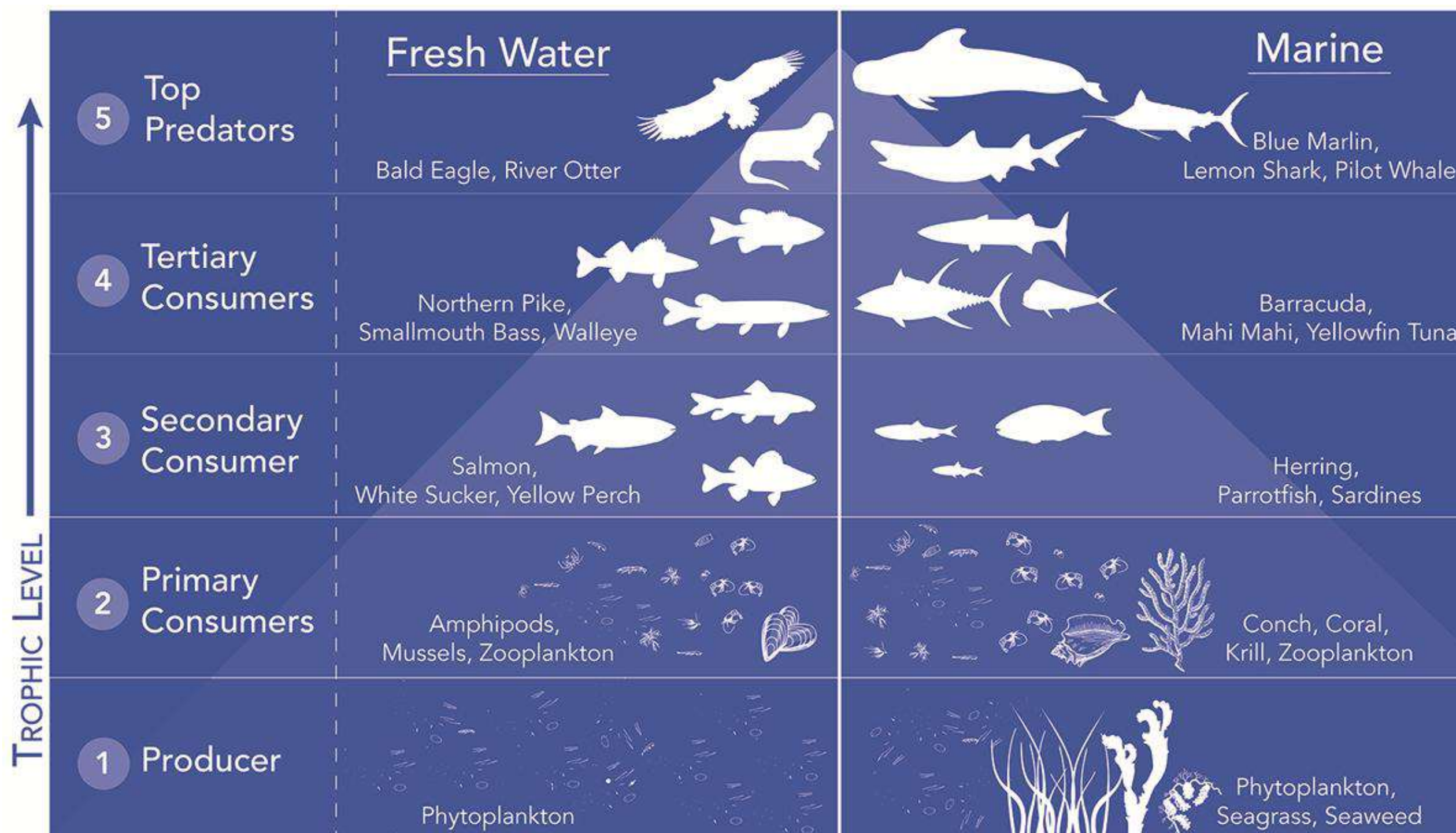
4. Point Sources



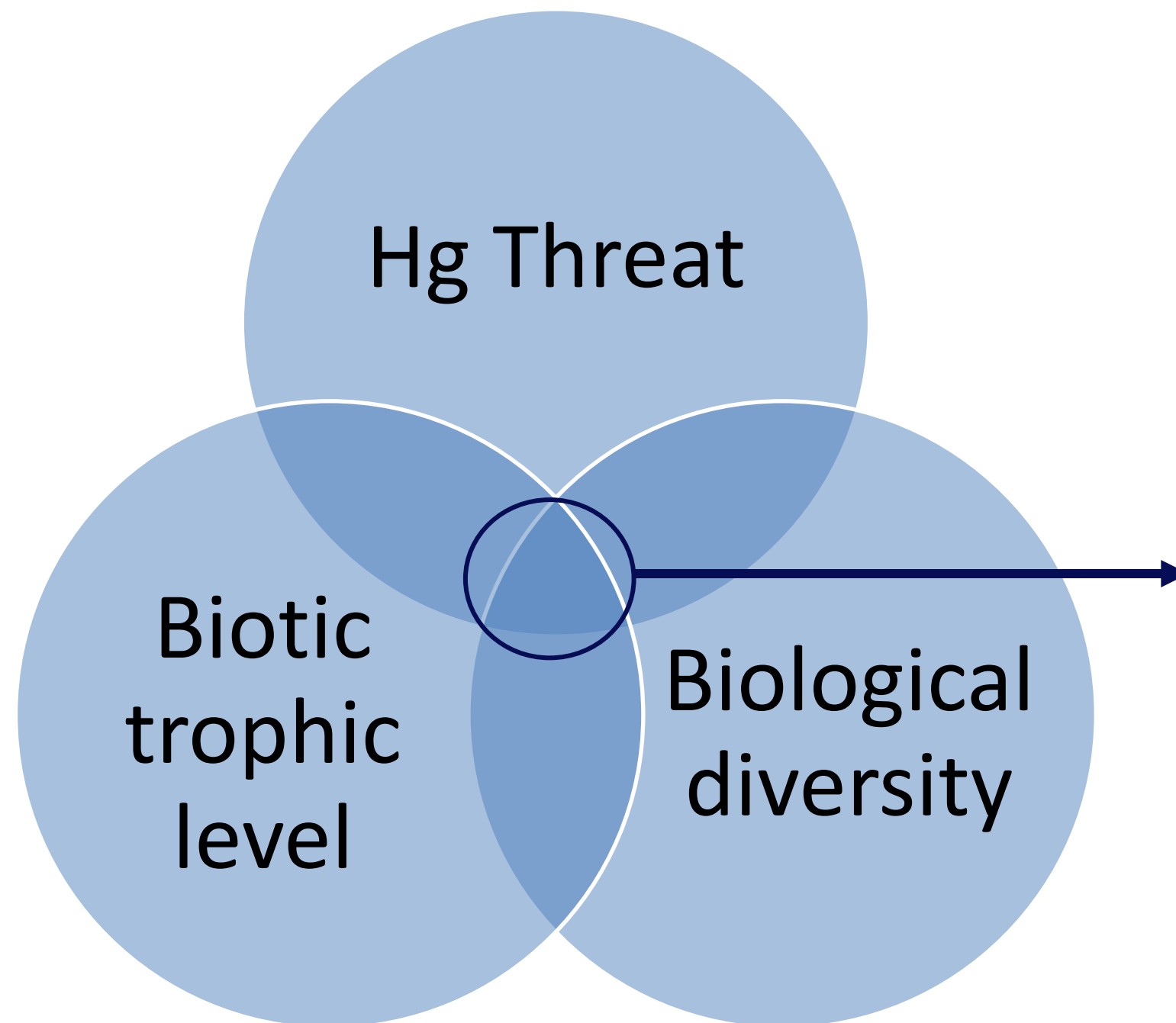
Global Mercury Threat Assessment (GMTA)



How does mercury impact ecological and human health



Biomonitoring



Areas of Greatest Concern

1. High mercury threat
2. High biological diversity

Species of Greatest Concern

1. High trophic level organisms
 - a) Aquatic
 - b) Terrestrial
2. IUCN Red Listed species

Making informed decisions

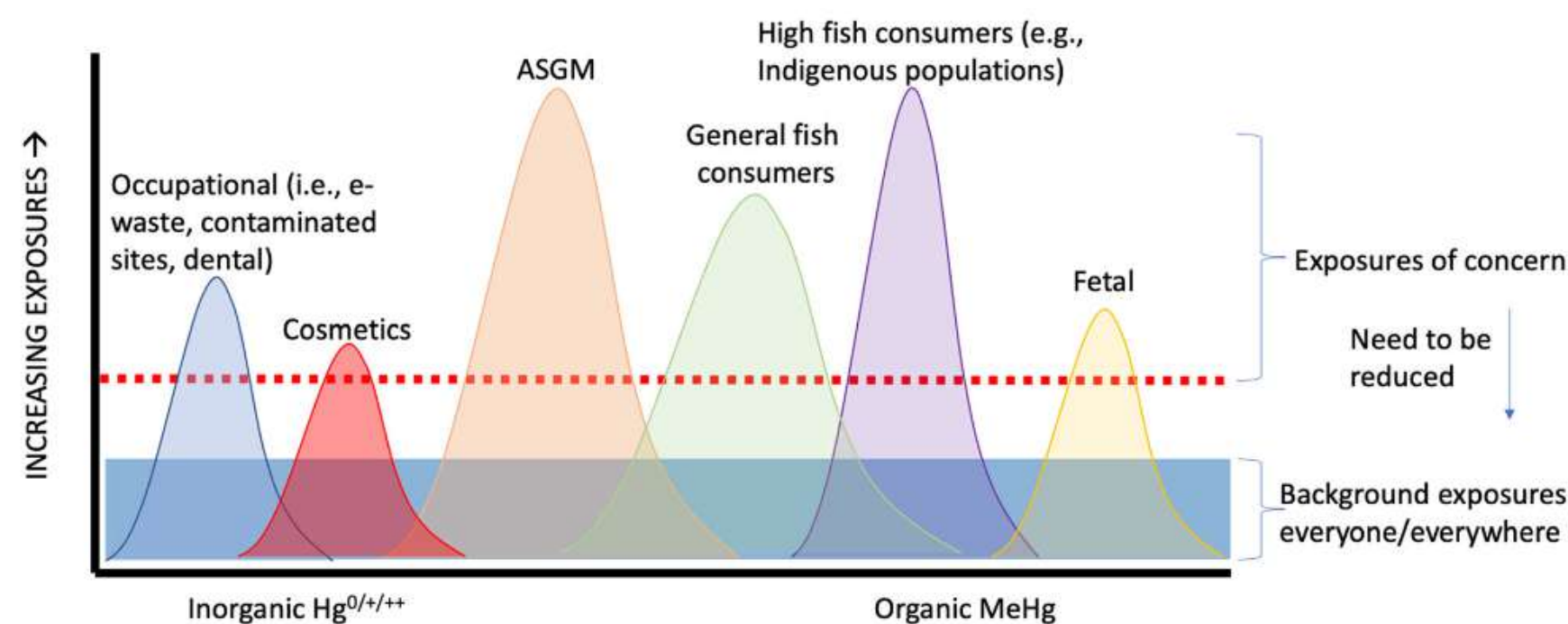
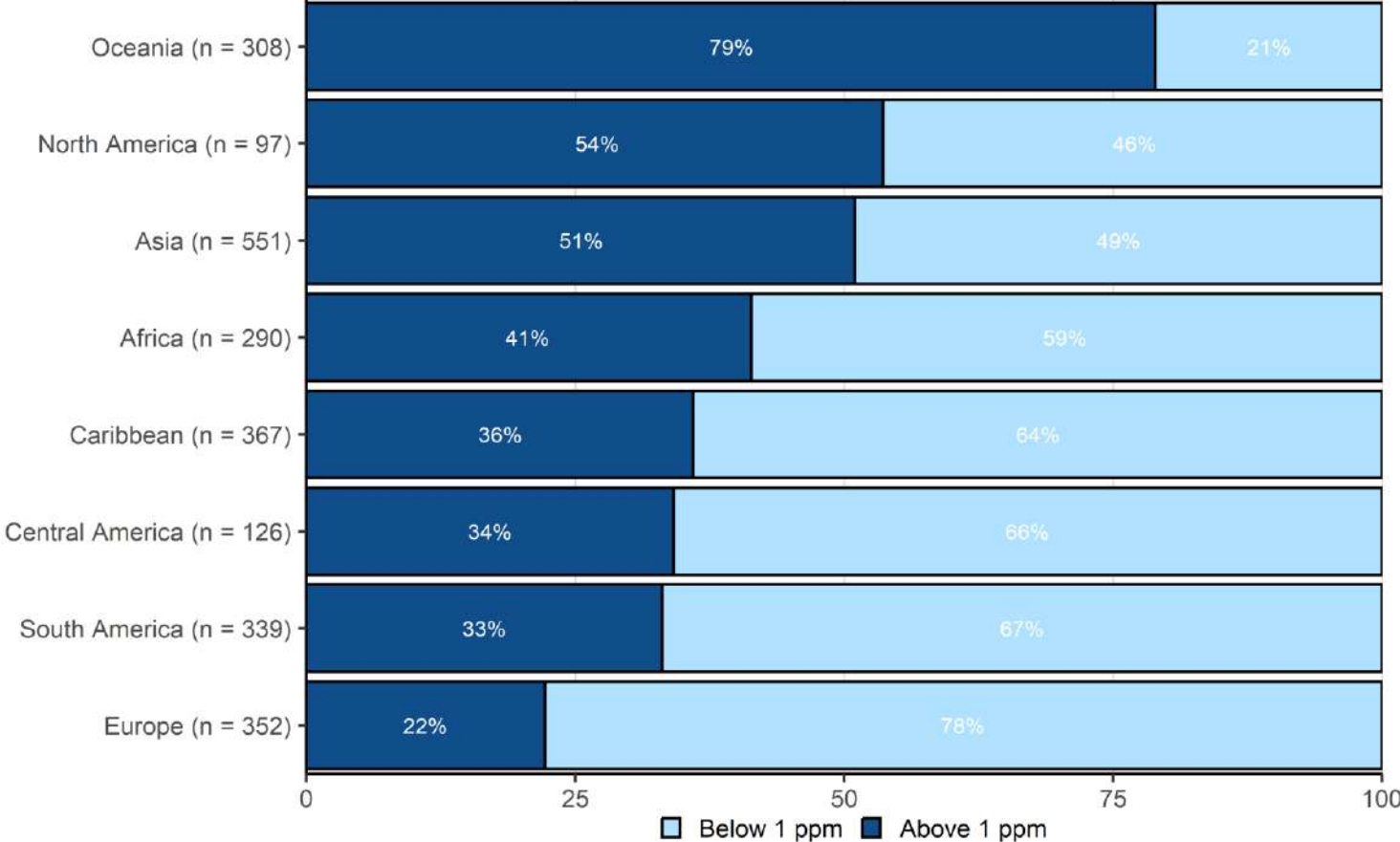


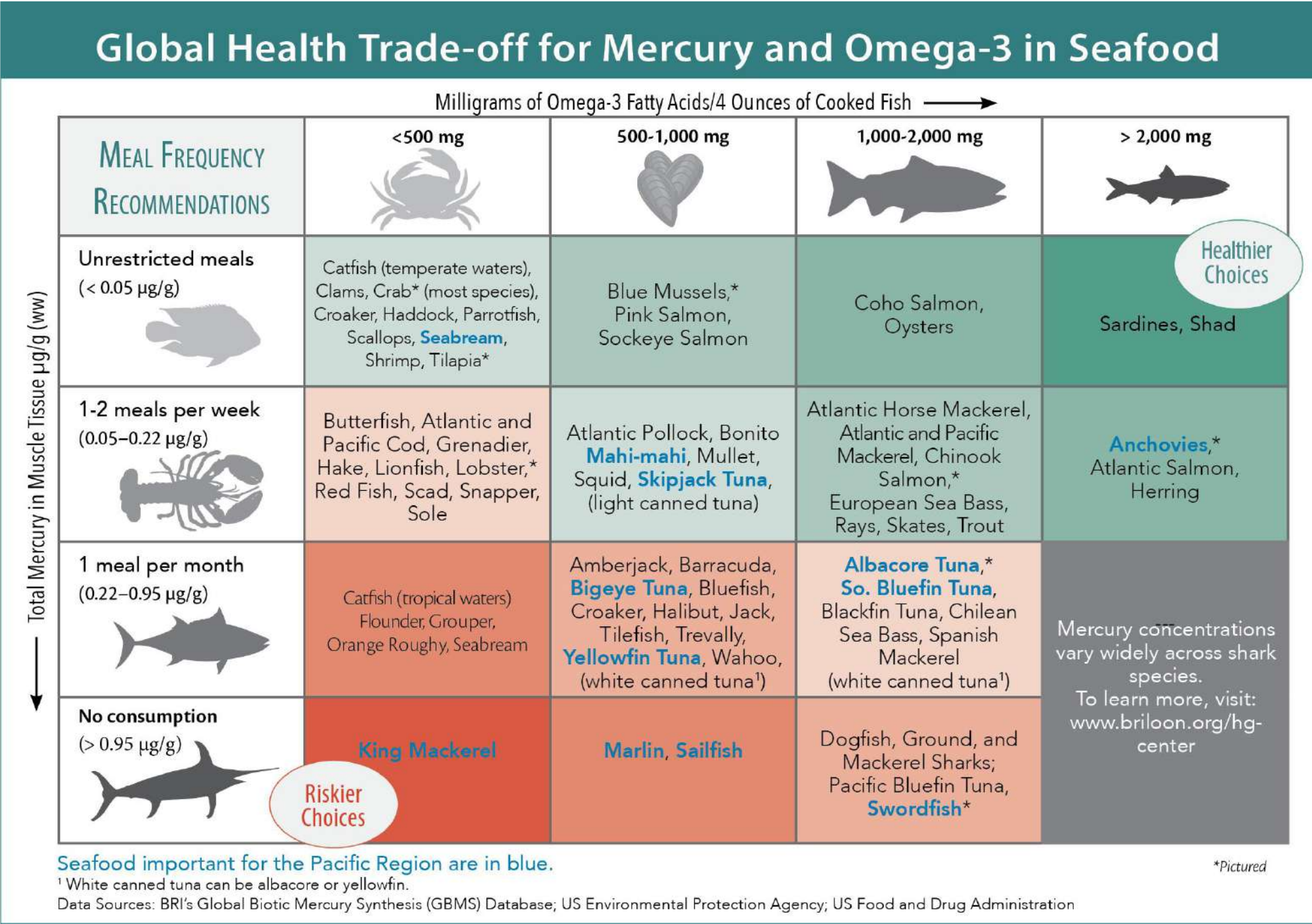
Fig. 1 Population groups with relatively high exposures to mercury and its compounds

Basu N, Bastiansz A, Dórea JG, Fujimura M, Horvat M, Shroff E, Weihe P, Zastenskaya I (2023) Our evolved understanding of the human health risks of mercury. *Ambio*, 52(5), pp.877-896.



Making informed decisions

Fish from the sea or freshwater can be a major source of methylmercury accumulation in humans through consumption.



Data Gaps

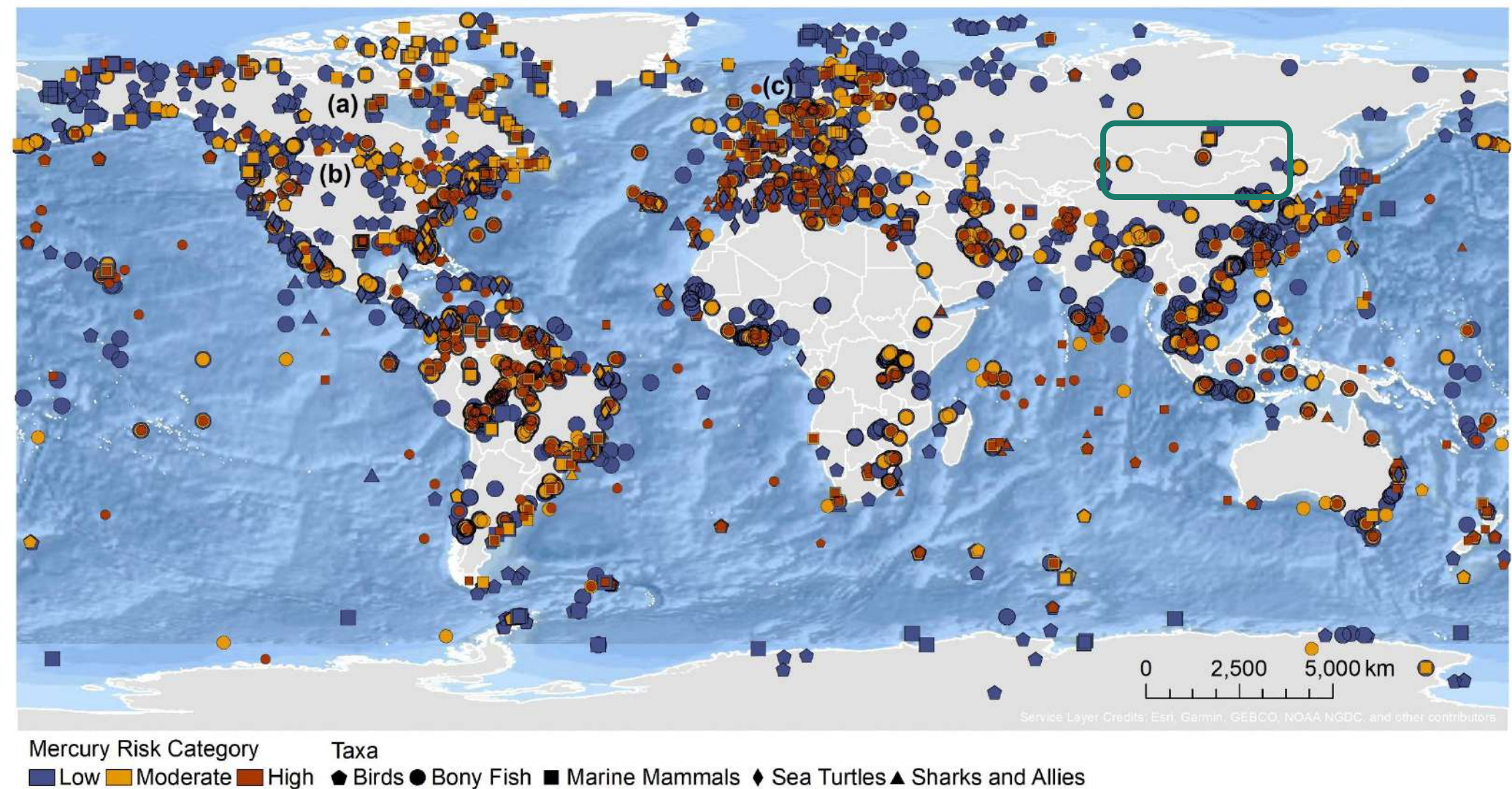


Table 6 Summary of sampling strength of available biotic Hg data (i.e., [number of individuals/sq. km] × 1000)) by priority taxonomic group identified by the Minamata Convention across oceanic and continental geographies

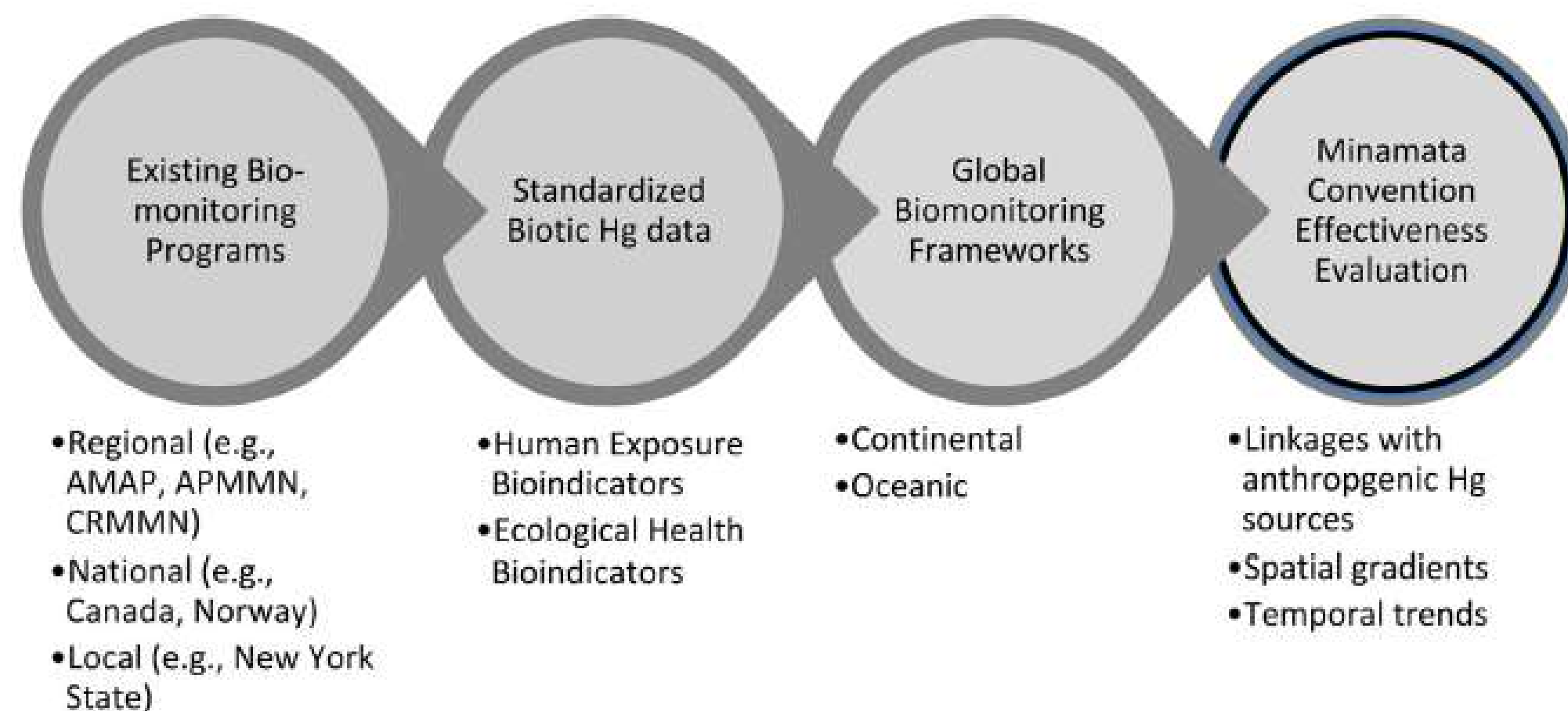
	Fish	Sea Turtles	Birds	Marine Mammals	Subtotal
Continents					
Africa	0.20	n/a	0.01	0.00	0.21
Antarctica	0.00	n/a	0.00	0.00	0.00
Asia	0.32	n/a	0.09	0.01	0.41
Australia	0.04	n/a	0.00	0.00	0.04
Europe	6.30	n/a	0.78	0.02	7.10
North America	7.90	n/a	2.08	0.00	9.99
South America	2.14	n/a	0.02	0.01	2.16
Global coefficient	2.13	n/a	0.43	0.01	2.56
Ocean Basins					
Antarctic	0.06	n/a	0.31	0.09	0.46
Arctic	0.13	n/a	0.54	0.62	1.29
Gulf of Mexico-Caribbean	1.95	0.13	0.11	0.19	2.37
Indian	0.14	0.01	0.03	0.01	0.18
Mediterranean	5.97	0.34	0.89	1.13	8.32
North Atlantic	0.64	0.03	0.34	0.16	1.17
North Pacific	0.31	0.01	0.44	0.09	0.86
South Atlantic	0.31	0.02	0.07	0.03	0.43
South Pacific	0.10	0.00	0.04	0.00	0.14
Global coefficient	0.30	0.01	0.20	0.09	0.60
Total	0.84	0.01	0.27	0.06	1.18

Global averages are used to categorize relative sampling intensity as very high (>4× above global average in blue), high (2× above global average in green), medium (global average in gray), low (2× below global average in orange) and very low (>4× below global average in red)

Data Source: Evers DC, Ackerman JT, Åkerblom S, Bally D, Basu N, Bishop K, Bodin N, Braaten HFV, Burton MEH, Bustamante P, et al. (2024) Global mercury concentrations in biota: Their use as a basis for a global biomonitoring framework. *Ecotoxicology*, pp.1-72.

So – what and where to sample

Fig. 21 Conceptual diagram of the relationships and process for integrating existing data from biomonitoring programs (e.g., Arctic Monitoring and Assessment Program [AMAP], Asia Pacific Mercury Monitoring Network [APMMN], and the Caribbean Region Mercury Monitoring Network [CRMMN]) to design appropriate biomonitoring frameworks to inform global policy objectives of the Minamata Convention



Data Source: Evers DC, Ackerman JT, Åkerblom S, Bally D, Basu N, Bishop K, Bodin N, Braaten HFV, Burton MEH, Bustamante P, et al. (2024) Global mercury concentrations in biota: Their use as a basis for a global biomonitoring framework. *Ecotoxicology*, pp.1-72.

THANK YOU



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Geospatial Scientist



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International Environmental
Specialist

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Tahlia Ali Shah

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WEBSITE: www.briwildlife.org

For more information on mercury supply, sources and trade, download the draft Minamata Secretariat Report at:

https://minamataconvention.org/sites/default/files/documents/other/Global%20Mercury%20Compounds_Draft_FOR_COMMENTS.docx



Mongolia National Training
June 23. 2025

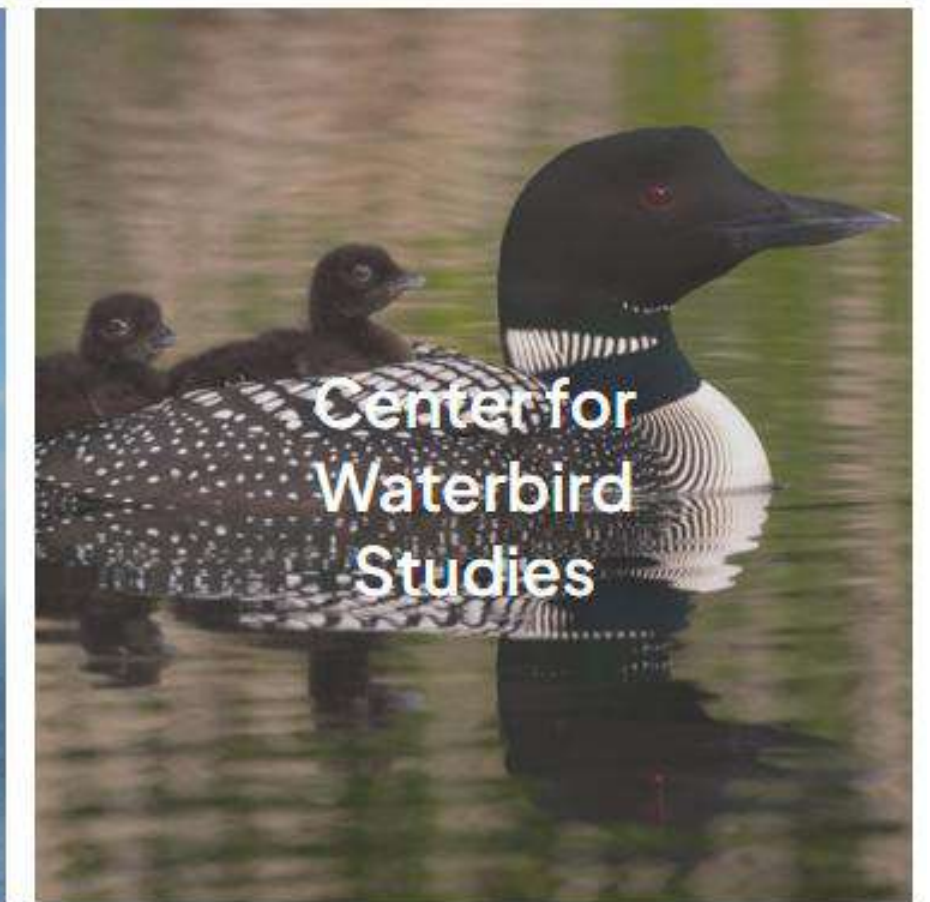
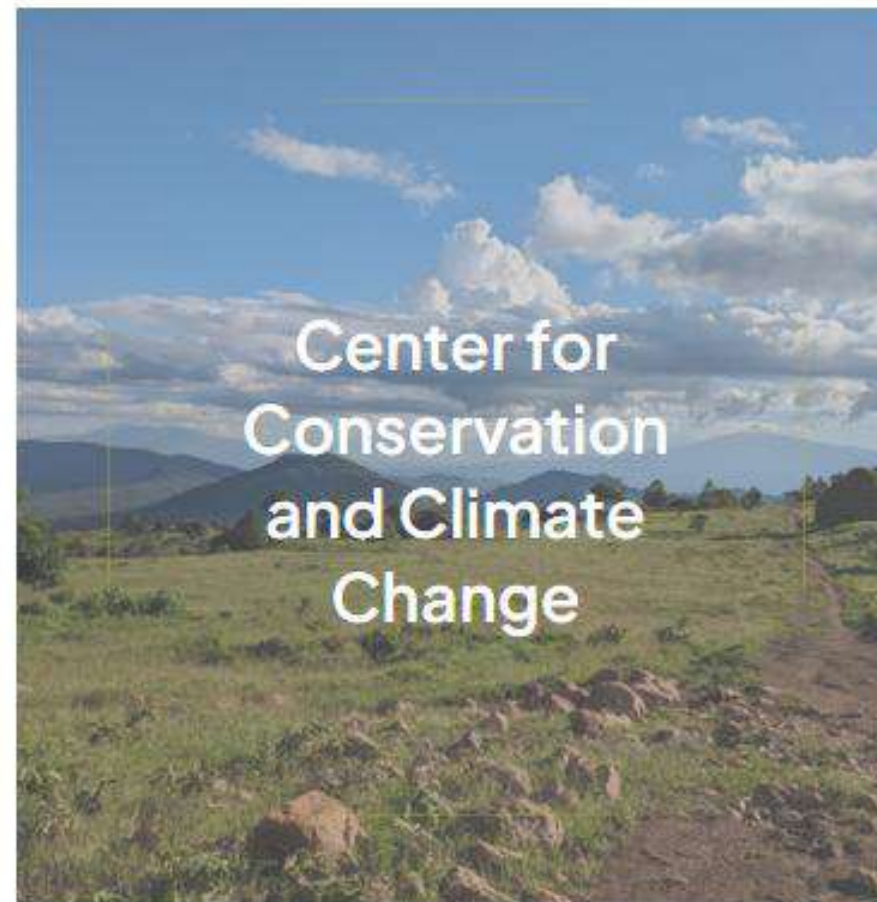
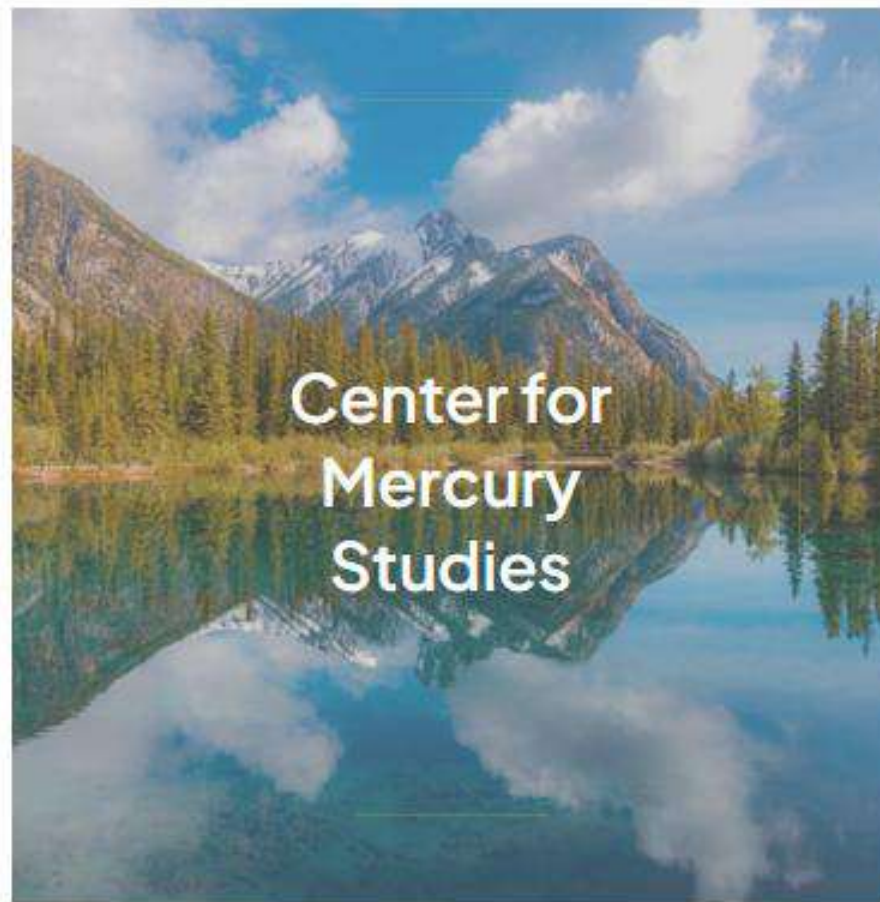
Biodiversity Research Institute (BRI)

Presenter: Mark Burton, BRI
National Training on Strengthening Country-level
Inter-Agency Coordination on Trade of Mercury
Monday 23- Tuesday 24 June 2025,
Ulaanbaatar, Mongolia



Biodiversity Research Institute

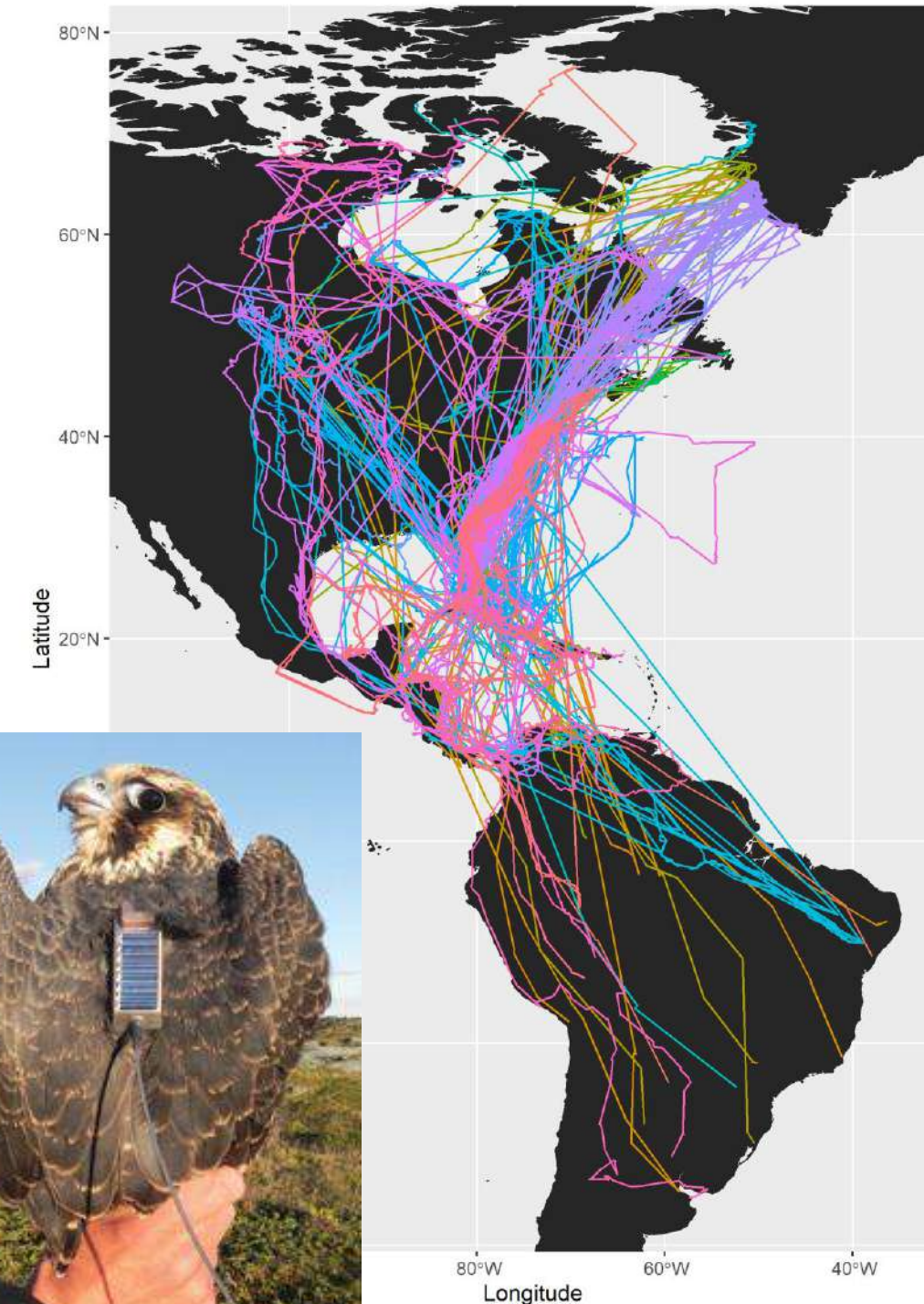
Our mission is to assess emerging threats to wildlife and ecosystems through collaborative research, and use scientific findings to advance environmental awareness and inform decision makers.





Biodiversity Research Institute

BRI biologists work to understand wildlife distributions and movements, and to identify ways to minimize risks from offshore wind energy development.

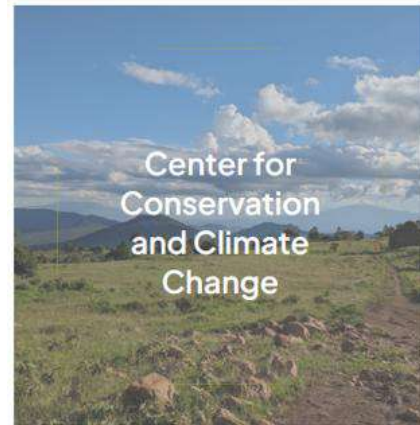


Biodiversity Research Institute

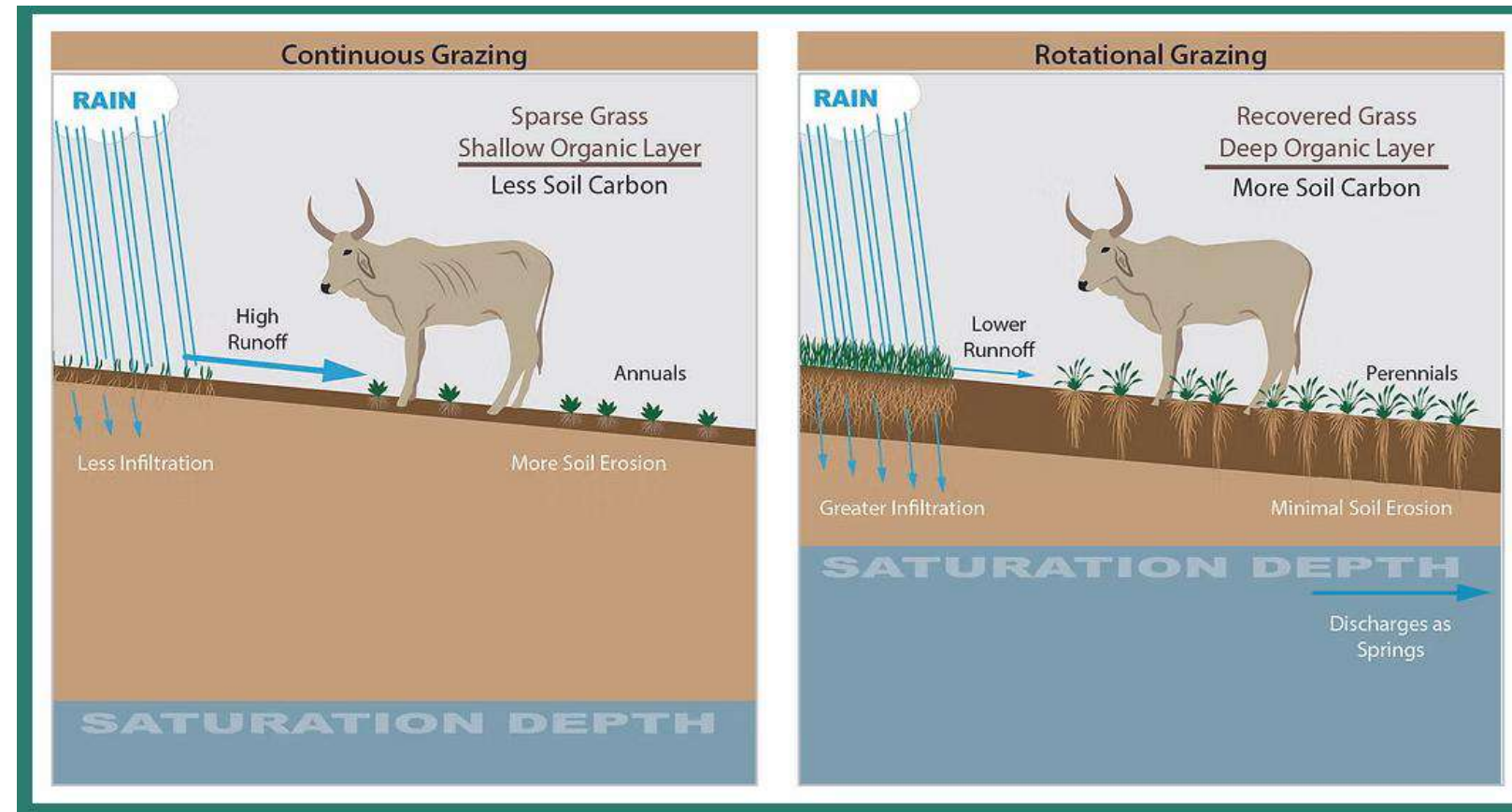


- (1) contaminants monitoring;
- (2) movement and tracking studies;
- (3) avian health.



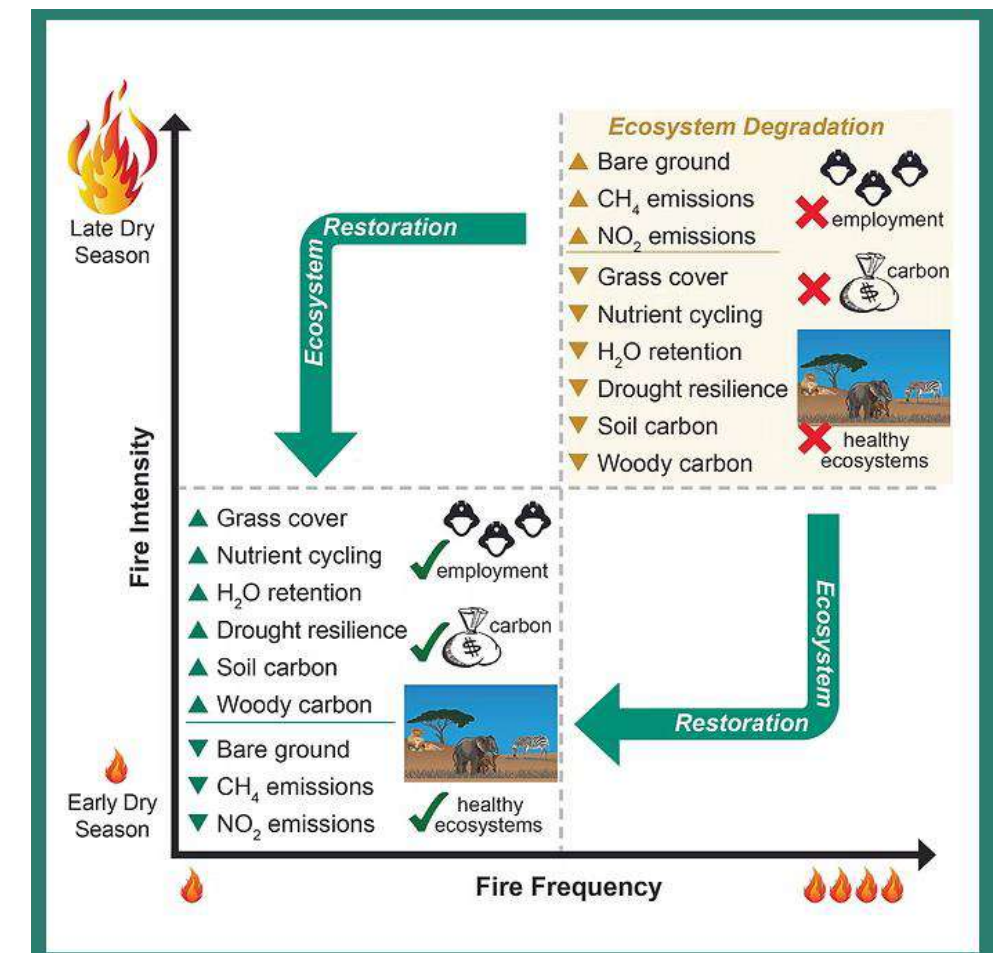


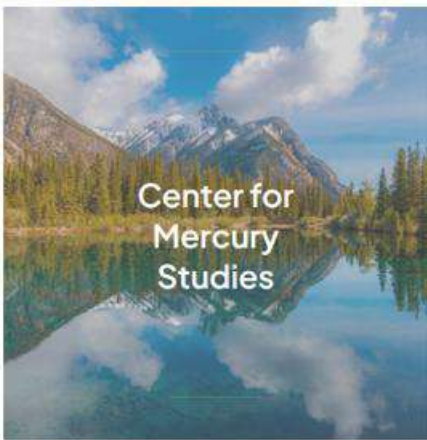
Biodiversity Research Institute



Rotational grazing leads to recovered grass, greater infiltration with lower runoff, and a deeper organic layer that absorbs more carbon. More soil carbon means greater moisture retention and nutrient cycling capacity, making the land more resilient to drought.

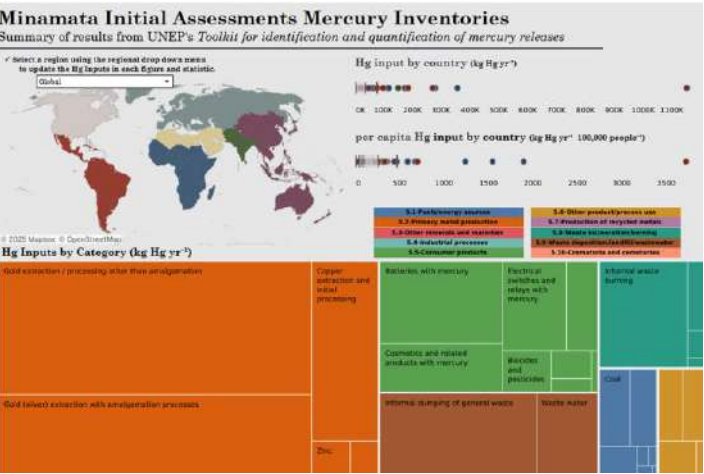
“Cooler” burns early in the dry season use less woody fuel overall but remove enough vegetation to prevent unintended high-intensity fires later in the season. As a result, less carbon emissions are released into the atmosphere, while more carbon is retained in the soil. Both outcomes are quantifiable and sellable as carbon offset credits on the global carbon market.



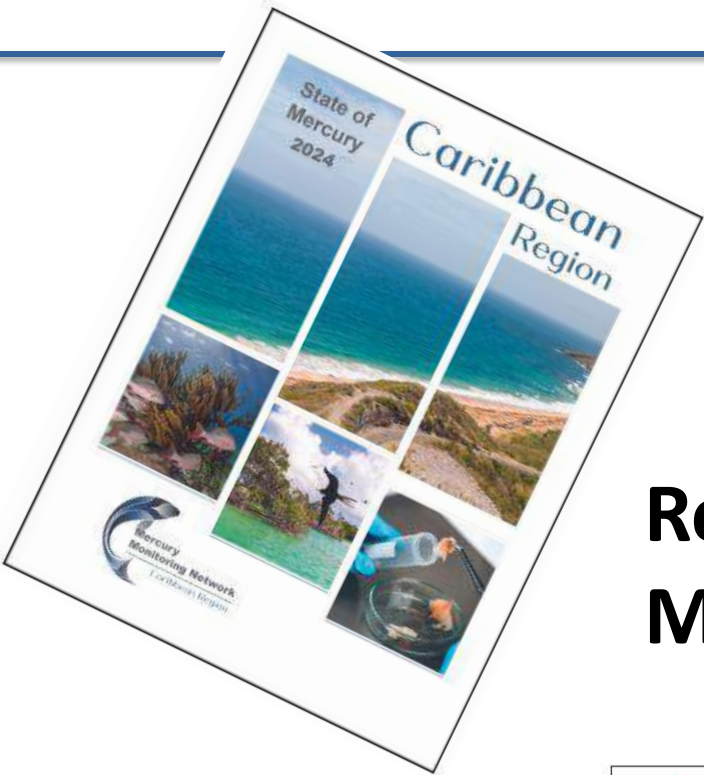


Biodiversity Research Institute

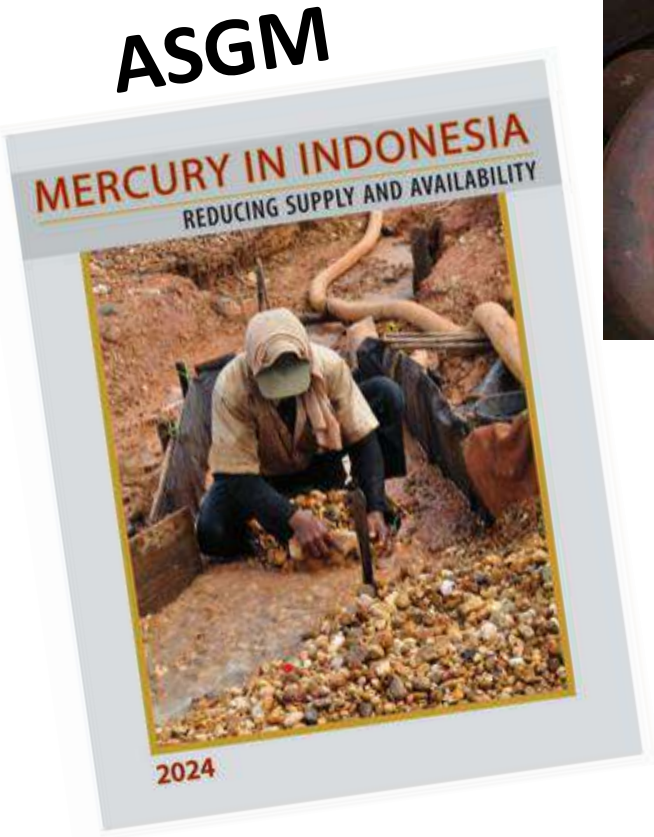
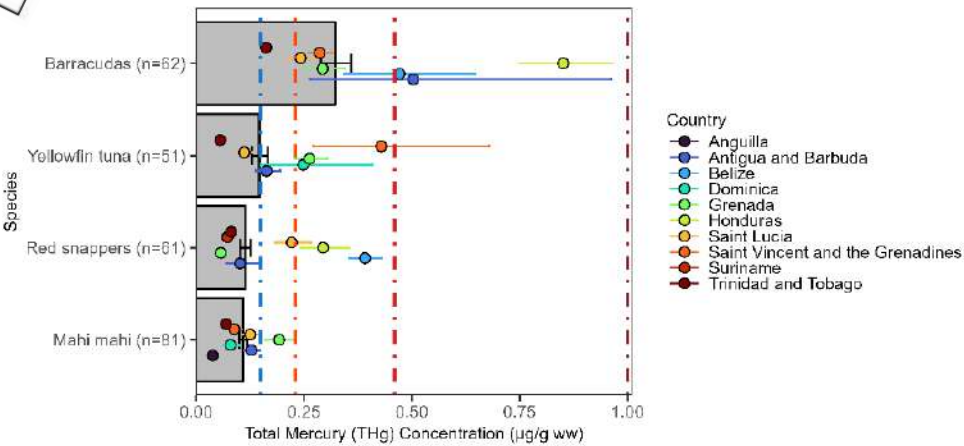
MIAs



BRI helps over 40 countries meet requirements for the Minamata Convention on Mercury through assisting with Minamata Initial Assessments and mercury inventories, reducing mercury use in artisanal and small-scale gold mining practices, and evaluating effectiveness through mercury biomonitoring.

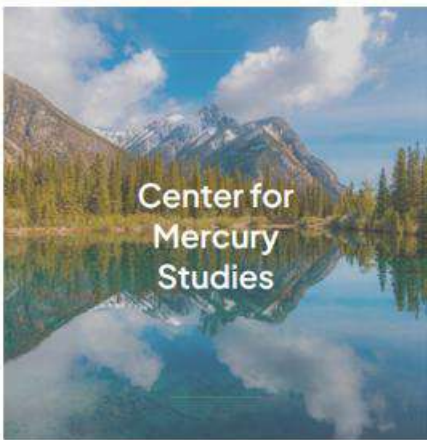


Regional Mercury Monitoring Networks



SLPs



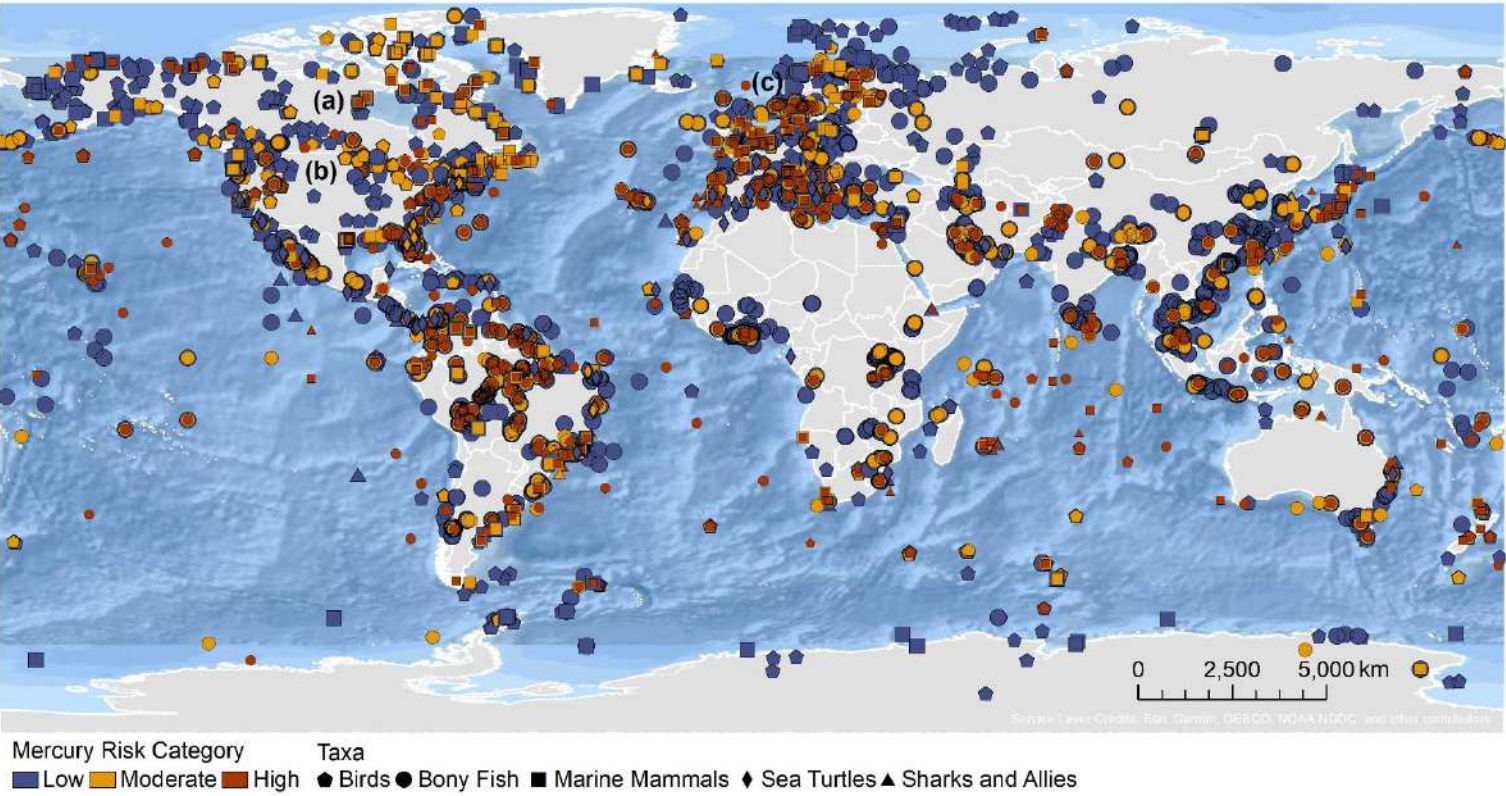


Biodiversity Research Institute



Data PROJECTs

GBMS



OESG

Ref: MC/ES/2024/11
Subject: Invitation regarding the effectiveness evaluation of the Minamata Convention on Mercury

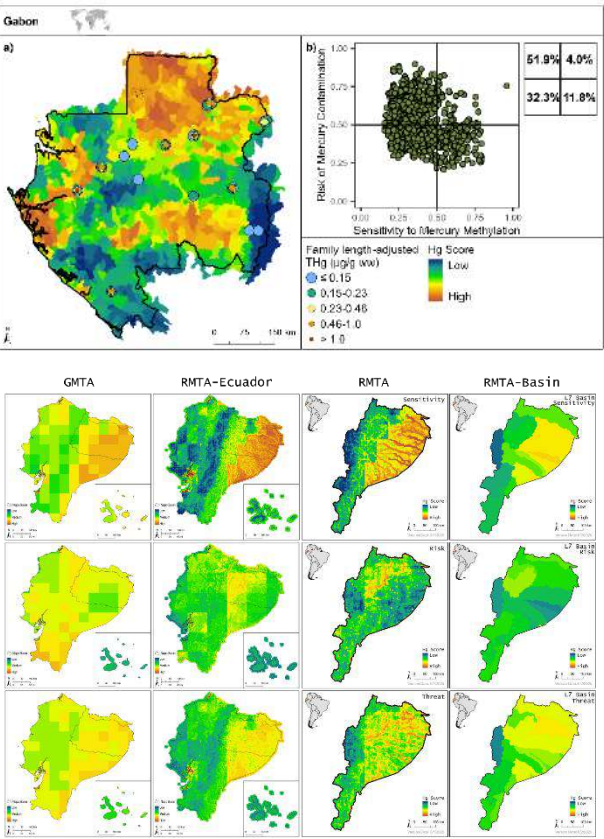
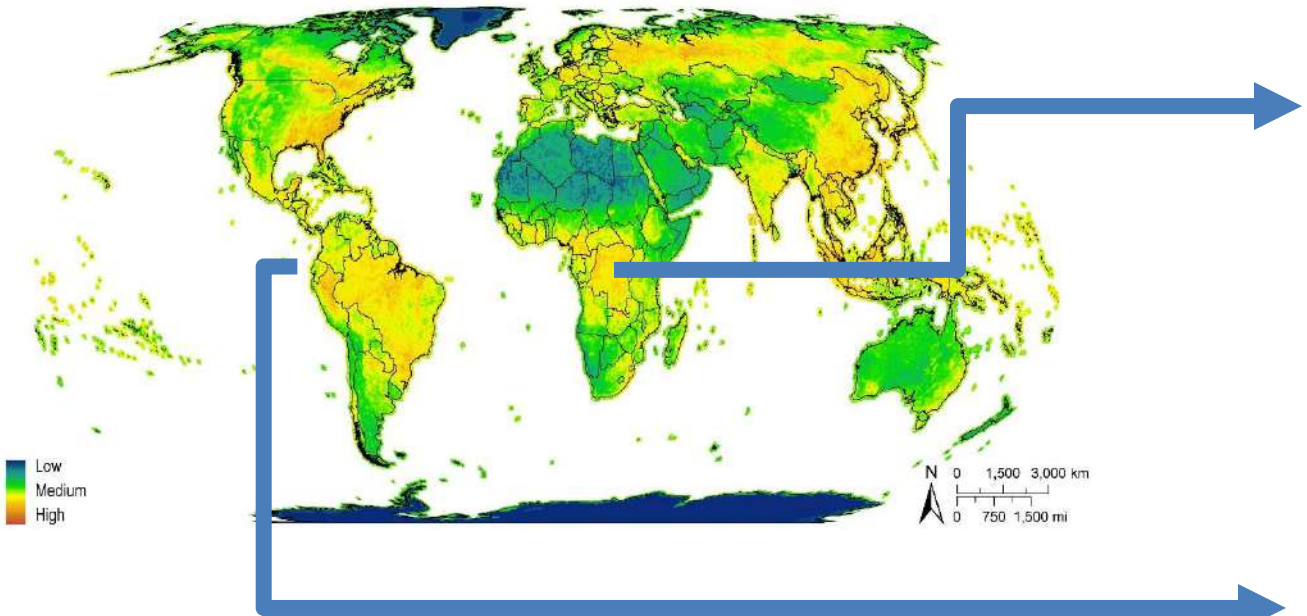
MINAMATA CONVENTION ON MERCURY

Geneva, 16 February 2024

Dear Madam, Sir,

In its decision MC-5/14 on the first effectiveness evaluation of the Minamata Convention on Mercury, the Conference of the Parties to the Minamata Convention (COP) established the Effectiveness Evaluation Group to work in accordance with the terms of reference outlined in annex 1 to the decision and reproduced in annex 1 to the present letter.

Hg Threat Mapping



Monitoring for Mercury



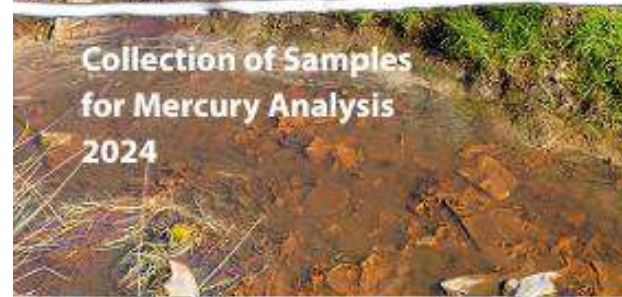
Standardized Sampling ensures consistency across **space and time** so data will be comparable and scientifically sound



Soil and Sea
Field Sampling



Fish Field Sampling



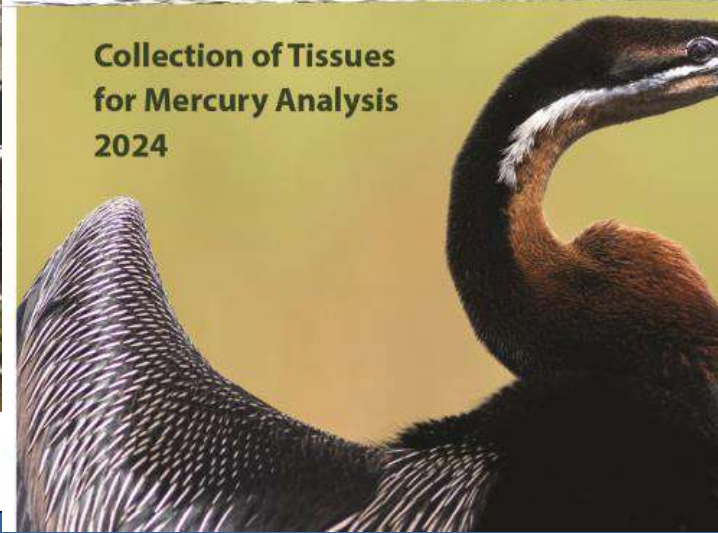
Collection of Samples
for Mercury Analysis
2024



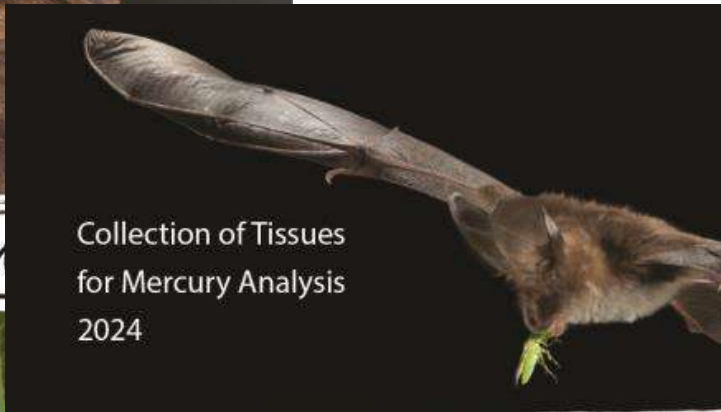
Collection of Tissues
for Mercury Analysis



Bird Field Sampling M



Collection of Tissues
for Mercury Analysis
2024

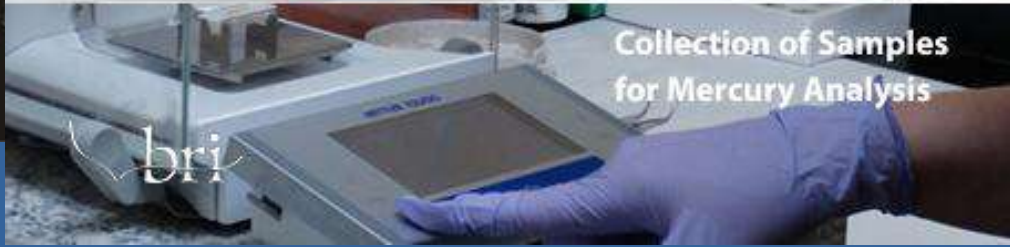


Collection of Tissues
for Mercury Analysis
2024

Bat Field Sampling M



Human Hair
Field Sampling Methods



Collection of Samples
for Mercury Analysis



THANK YOU



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For more information on mercury supply, sources and trade, download the draft Minamata Secretariat Report at:

https://minamataconvention.org/sites/default/files/documents/other/Global%20Mercury%20Compounds_Draft_FOR_COMMENTS.docx



Mongolia National Training
June 23. 2025

Mercury Mass Flow in Mongolia

Kyaw Nyunt Maung
<kyaw.maung@un.org>

Overview

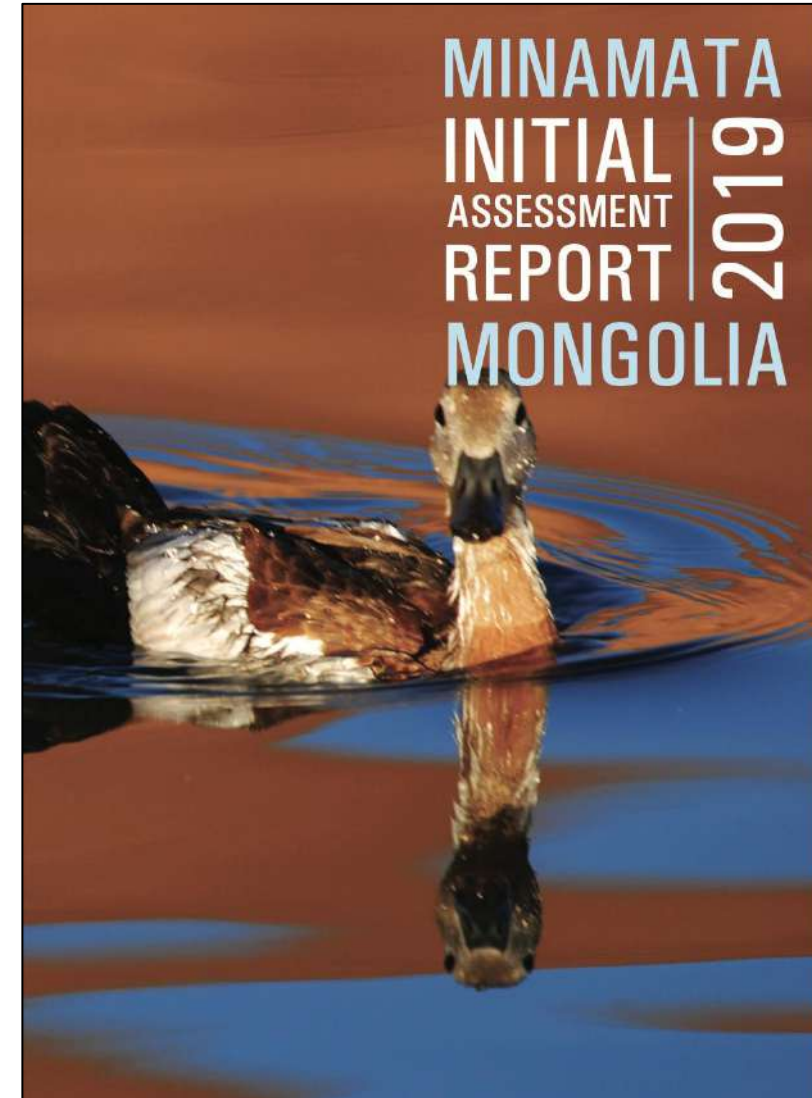
- Mercury Inventory in Mongolia
- Material Flow Analysis (MFA)
- UNEP Toolkit (IL3)
- Mercury Mass flow in Mongolia

Overview

- Mercury Inventory in Mongolia
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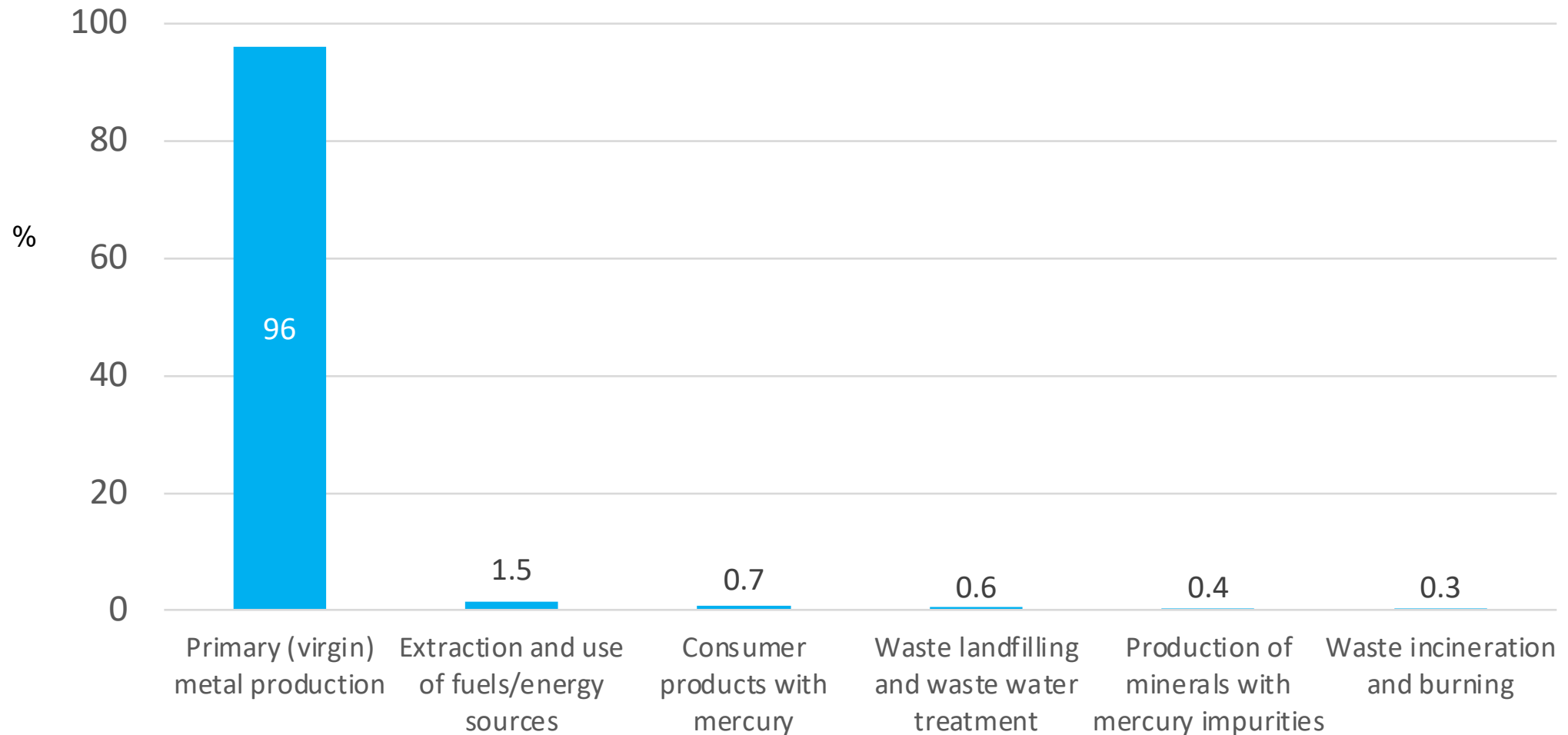
Mercury Inventory in Mongolia (MIA, 2019)

- Mercury inventory developed in 2019 as part of the Minamata Initial Assessment.
- Data Year: 2013-2018
- Data: Government, private business, Yearbook and UN Comtrade
- Scope:
 - Calculation of mercury inputs to society and releases from mercury sources.



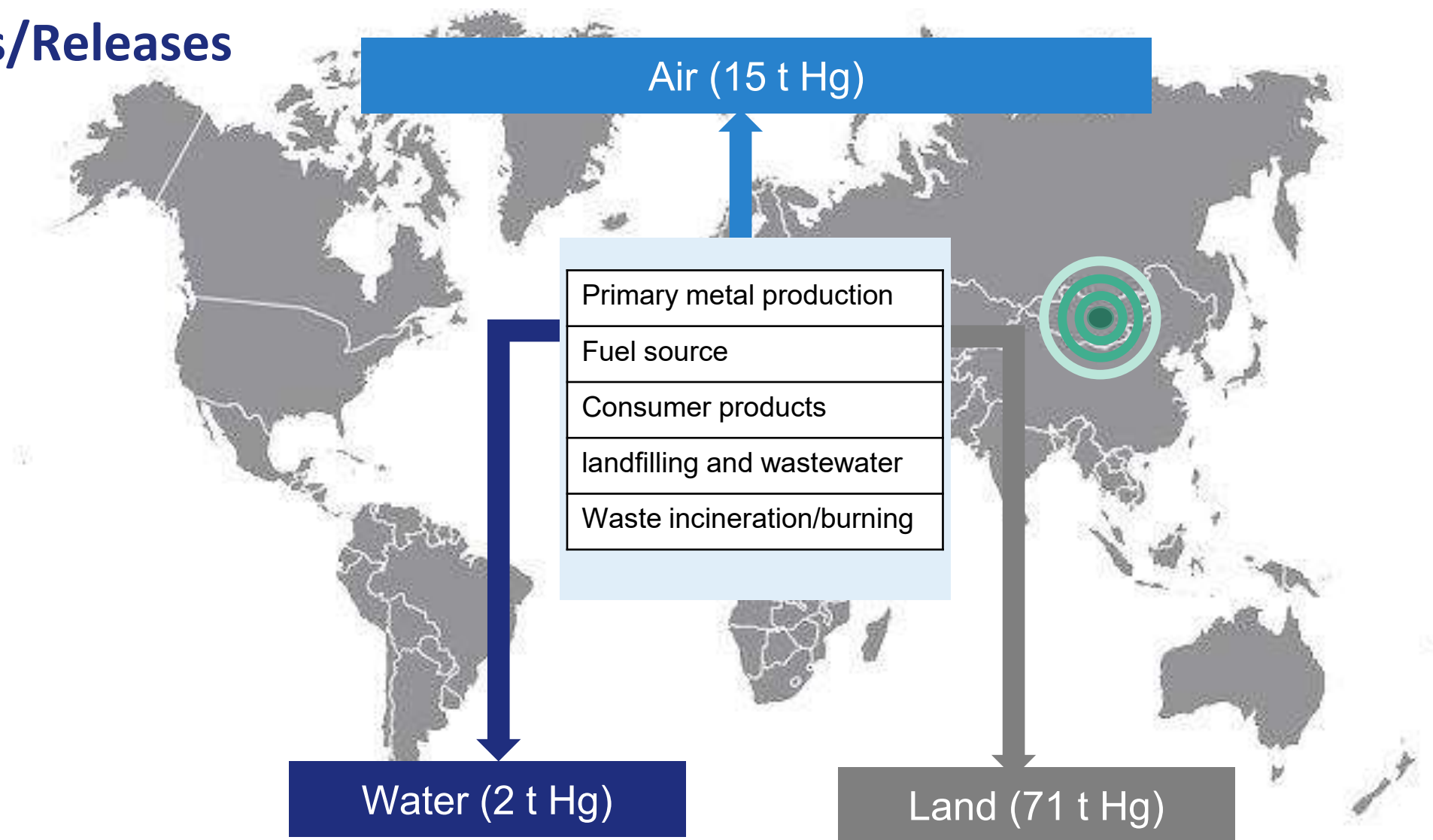
Mercury Inventory in Mongolia (MIA, 2019)

Summary of Mercury Release (by source types)



Summary of the toolkit results (MIA, 2019)

Mercury Emissions/Releases



Mercury added products in the MIAs

	Minamata Initial Assessments (MIAs)								
	Indonesia (2022)	Malaysia (2021)	Maldives (2019)	Mongolia (2019)	Nepal (2019)	Palau (2024)	Philippines (2019)	Sri Lanka (2019)	Vietnam (2016)
Toolkit Inventory Level	2	1	1	2	1	2	2	1	1
Thermometers	S	S	Co	UN	Co	N	S	Co	UN/Co
Electrical switches and relays with mercury	P	N	N	P	P	P	P	N	P
Light sources	S	N	Co	UN	Co	S	S	Co	S
Batteries	S	N	Co	UN	N	N	Co/UN	Co	N
Biocides and pesticides	N		N	N	N	N	S		N
Paints	N	N	Co	N	N	N	N	N	N
Cosmetics	S	N	Co	N	N	N	UN	N	N
Medical blood pressure gauages	S	S	Co	N	Co	N	S	N	N

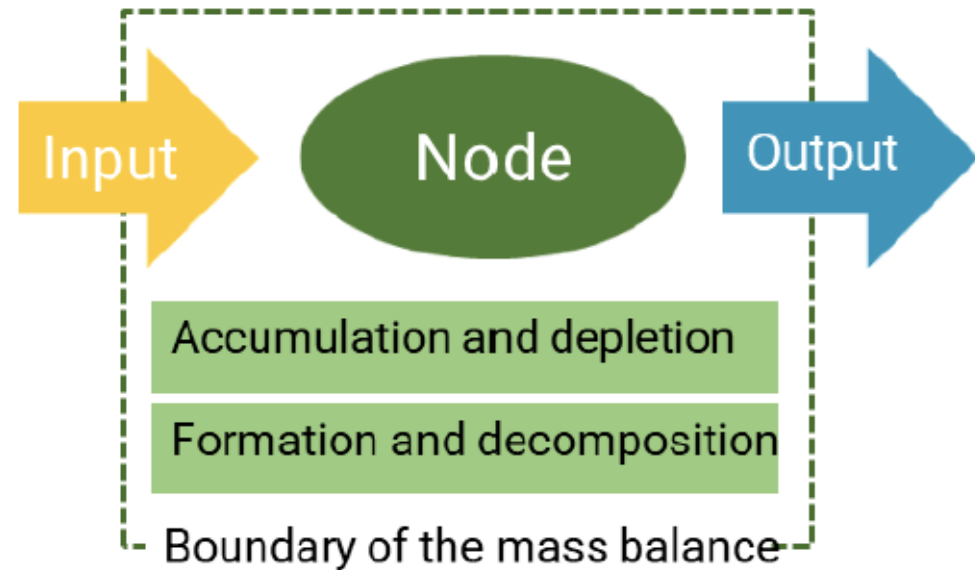
UN - Data from UN Comtrade; Co – Customs data (8-digit HS codes); S - National data (survey, associations, departments, own calculation, market observation, etc.); P – Population (Inventory default method); N – No source presence (or) unknown (or) No data

Overview

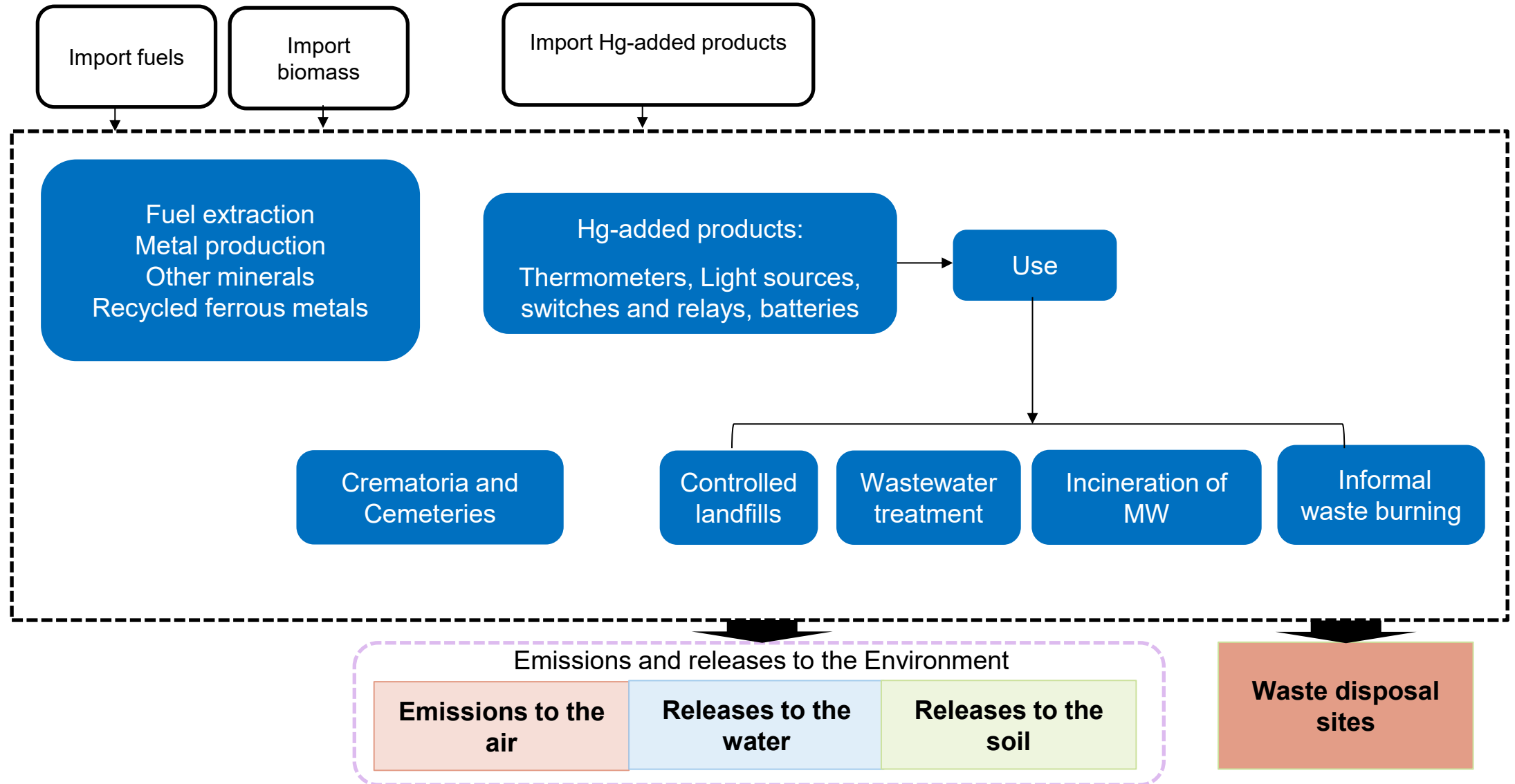
- Mercury Inventory in Mongolia
- **Material Flow Analysis (MFA)**
- UNEP Toolkit (IL3)
- Mercury Mass flow in Mongolia

Material Flow Analysis (MFA)

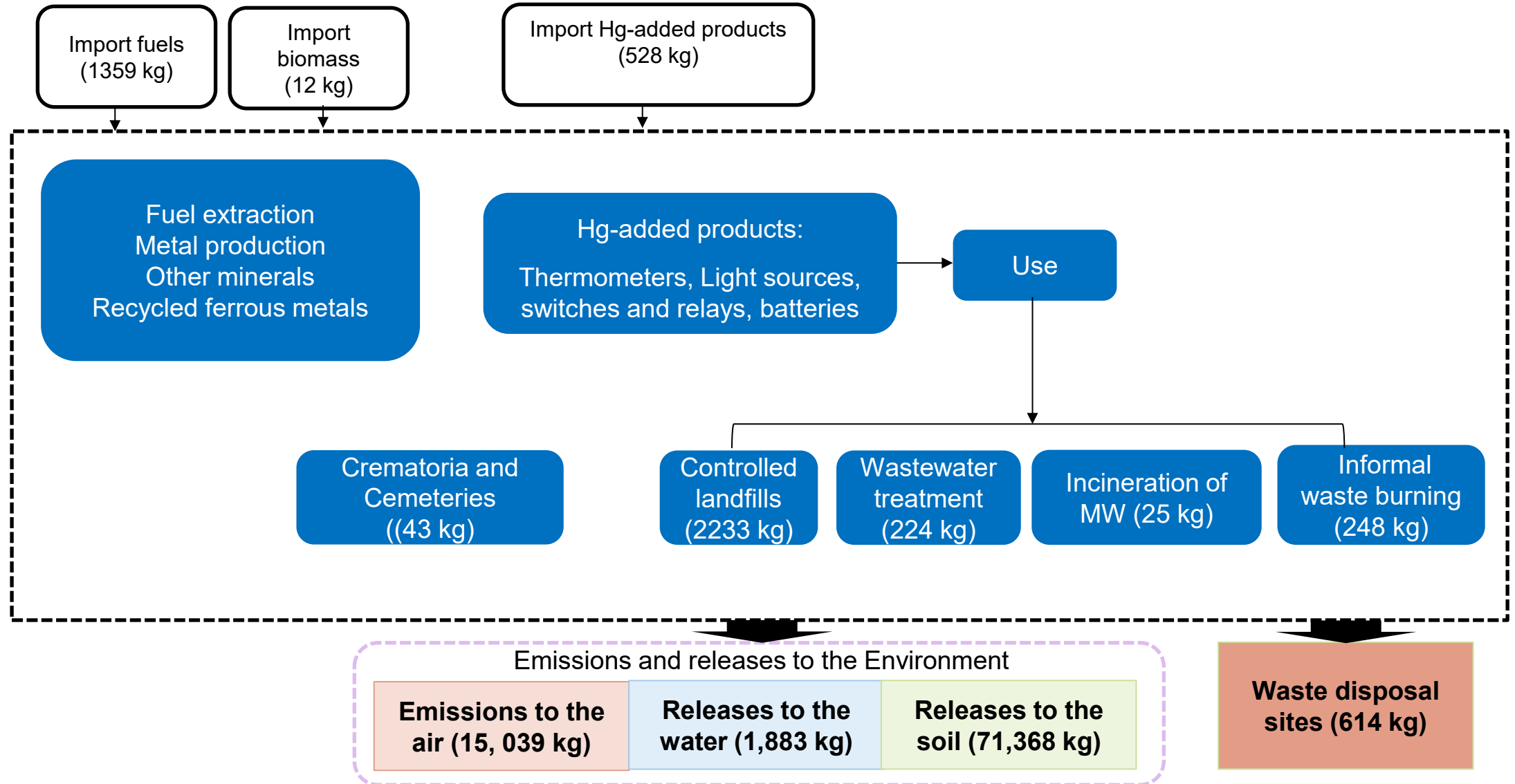
- Method to quantify flows and stocks of materials
- Study for physical/social aspects of human activities
- Principles:
 - System boundary
 - Process balance model
- Applications:
 - National accounting
 - Industrial process
 - Lifecycle of a substance/product



Mercury Mass Flow in Mongolia (MIA)



Mercury Mass Flow in Mongolia (MIA)



Overview

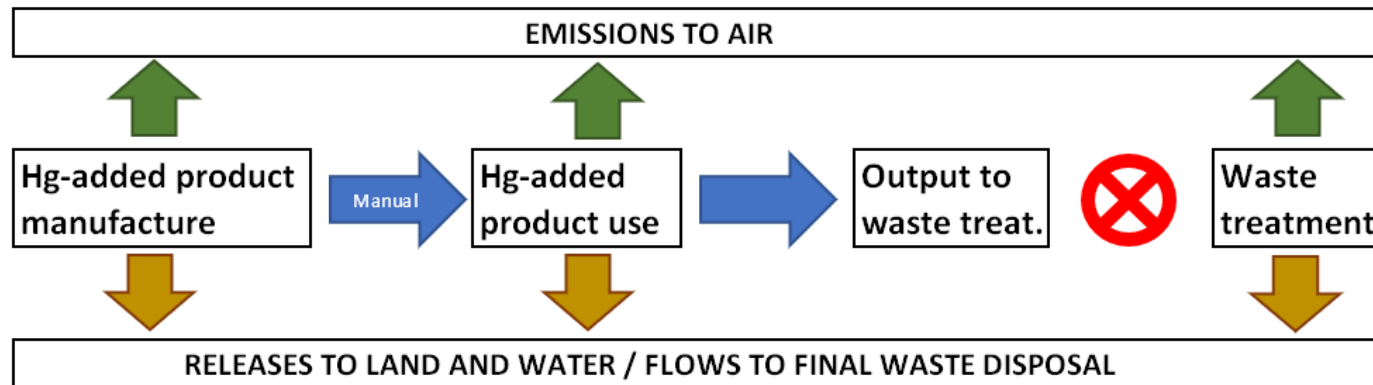
- Mercury Inventory in Mongolia
- Material Flow Analysis (MFA)
- **UNEP Toolkit (IL3)**
- Mercury Mass flow in Mongolia

Toolkit for identification and quantification of mercury releases

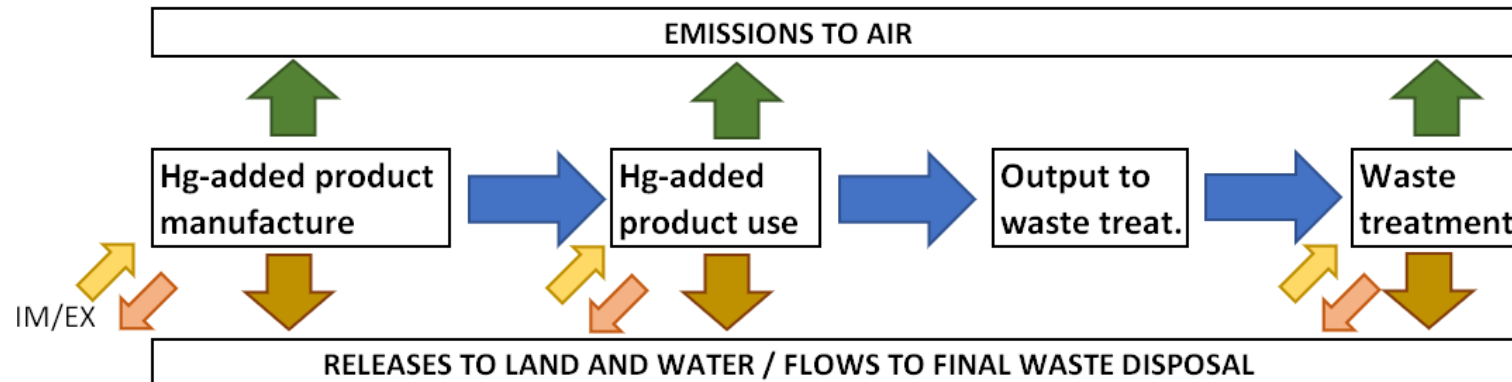
- UN Environment Toolkit is a tool for **estimating** anthropogenic mercury emissions (air) and releases (land and water) in a given country.
- The toolkit has been separated into three levels:
 - Level 1 (Simple, easy-to-use, uncertain)
 - Level 2 (Thorough, a bit complicated, more accurate)
 - Level 3 (full mass balance, further detailed, increase in accuracy)

How is IL3 different from Inventory Level 2?

IL2



IL3



Mercury added products in the MIAs

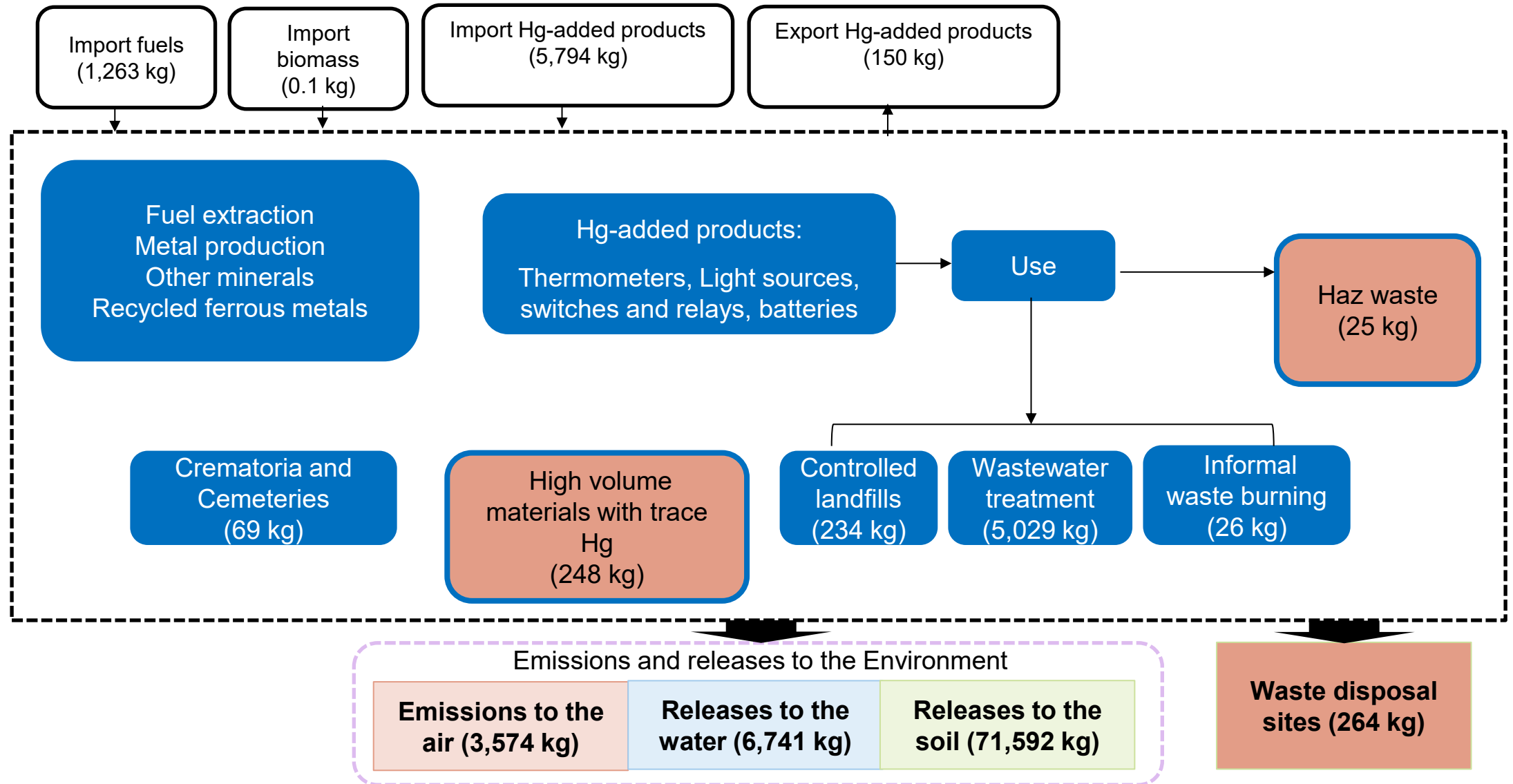
	Mongolia MIA (2019)	IL 3 (2025)
Toolkit Inventory Level	2	3
Thermometers	UN	UN
Electrical switches and relays with mercury	P	P
Light sources	UN	UN
Batteries	UN	UN
Biocides and pesticides	N	UN
Paints	N	UN
Cosmetics	N	UN
Medical blood pressure gauges	N	UN

- Trade data (2018-2022) from the UN COMTRADE database.
- 6-digit HS codes for possible mercury added products (Minamata Convention)
- UNEP Mercury Inventory Toolkit Level 3

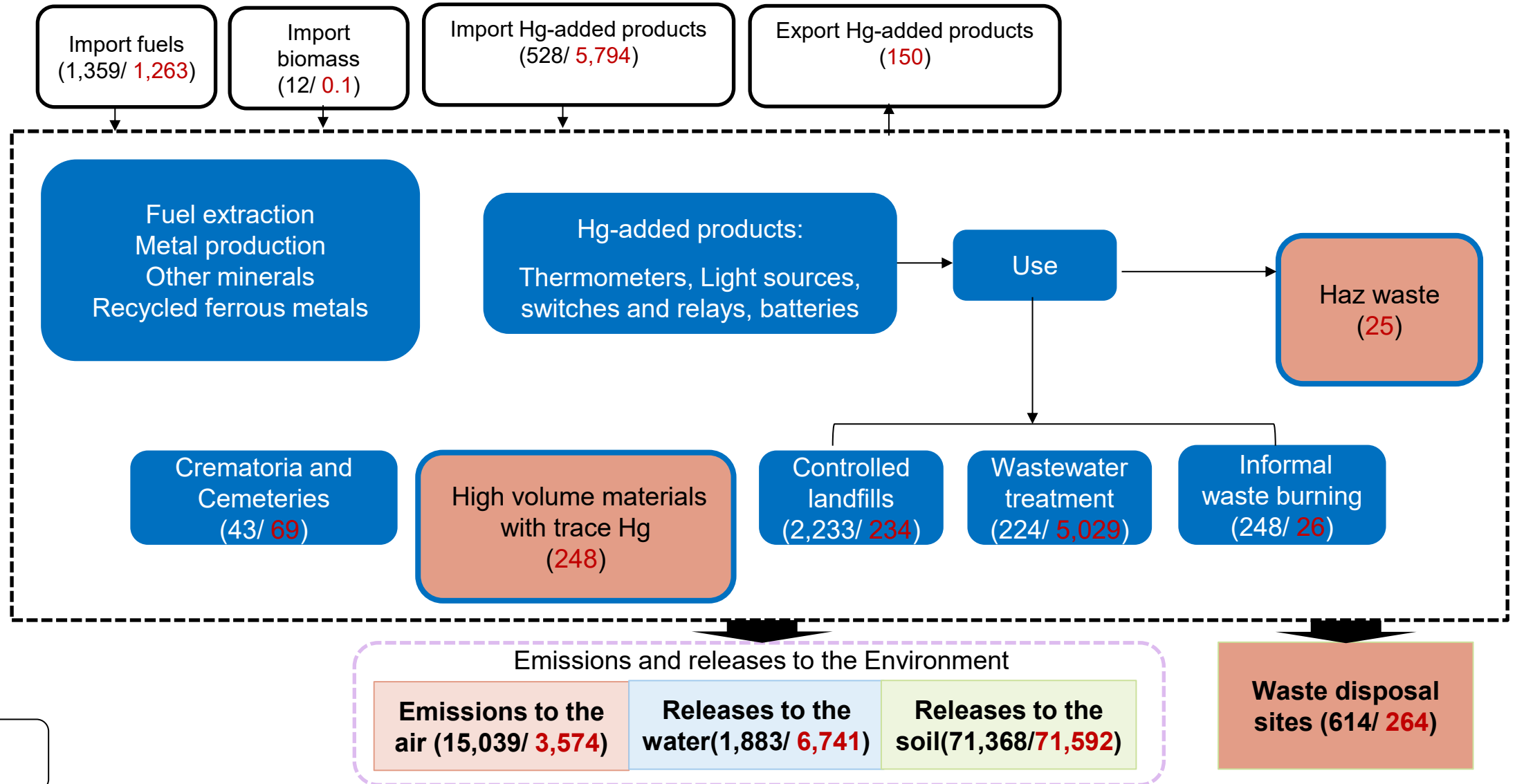
Overview

- Mercury Inventory in Mongolia
- Material Flow Analysis (MFA)
- UNEP Toolkit (IL3)
- **Mercury Mass flow in Mongolia**

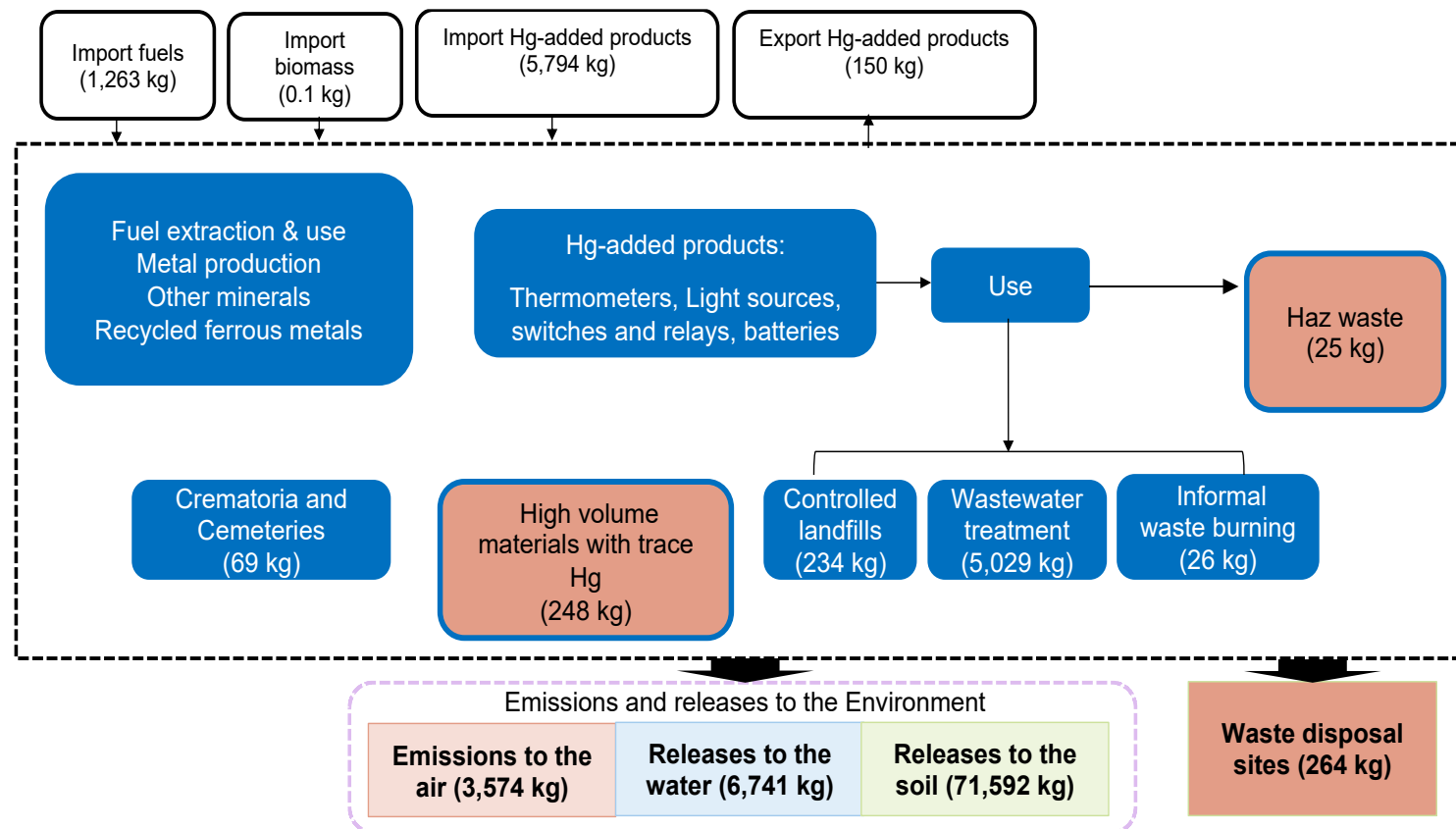
Mercury Mass Flow in Mongolia (IL3)



Mercury Mass Flow in Mongolia (IL3)



Mercury Mass Flow in Mongolia



- Key mercury source types and its emission and release hotspots.
- The implementation of **import regulations** is essential, considering its impact.
- Support in mercury management **through trade control enforcement**

Thank you!

Kyaw Nyunt Maung
<kyaw.maung@un.org>



Managing Mercury Trade, Storage and Disposal in ASGM

Krishna Zaki

General Manager, Nexus3 Foundation

krishna@nexus3foundation.org



About Us



- BaliFokus established on 14 June 2000
- 2019 rebranding as Yayasan Fokus Nexus Tiga or Nexus for Health, Environment, and Development Foundation (Nexus3 Foundation)
- Working to safeguard the vulnerable population from the impact of development to their health and environment, in collaboration with all stakeholders towards a just, toxic-free and sustainable future
- www.nexus3foundation.org



Minamata Convention on Mercury



- <https://minamataconvention.org/>
- Adopted by 128 countries on 10 October 2013 in Kumamoto, Japan
- Entered into force on 16 August 2017
- As of June 2025: it has been ratified by 152 countries, including Indonesia
- Indonesia ratified on 19 September 2017



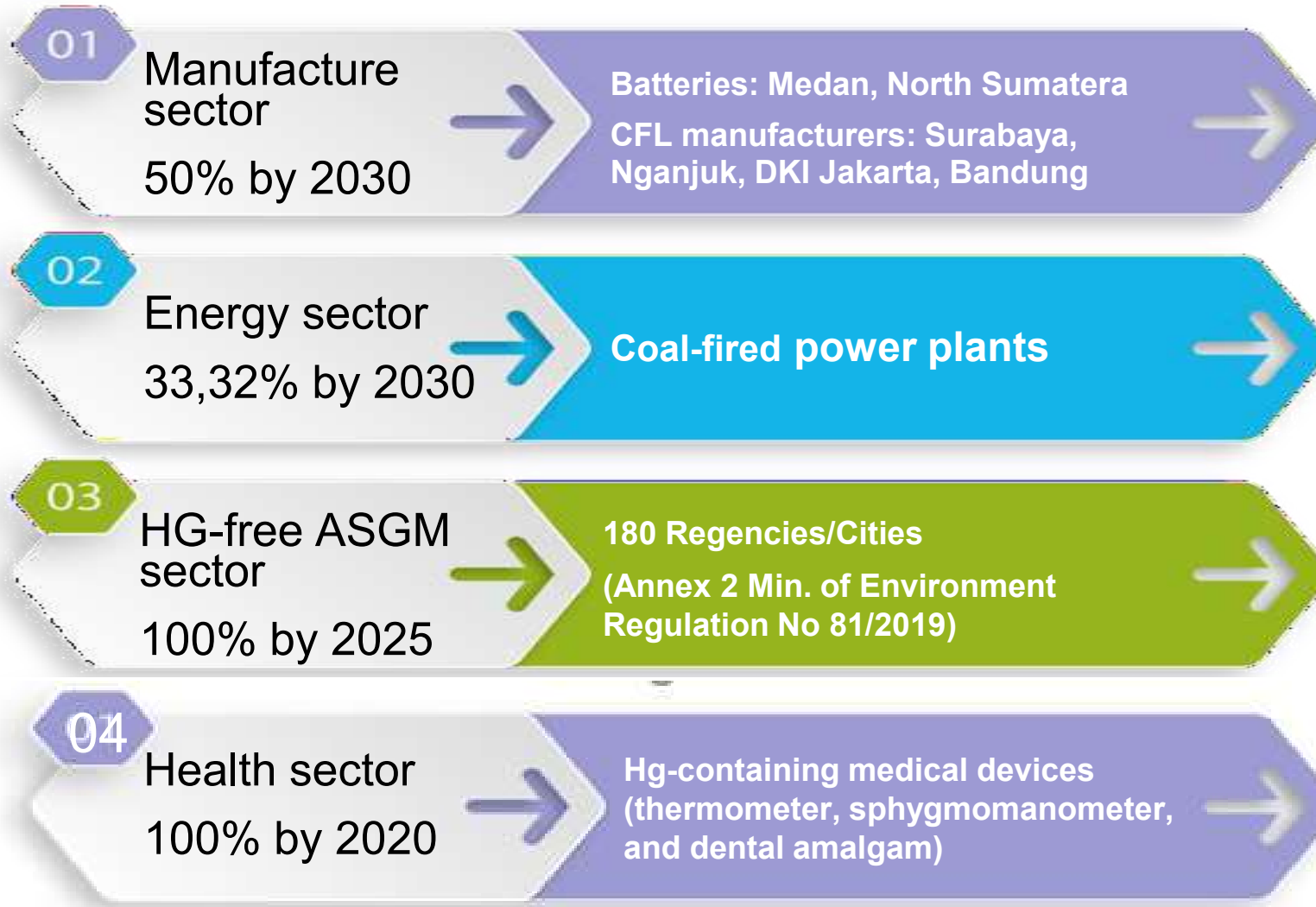
The Implementation of Minamata Convention: Legal Framework

- Law No. 11/2017 on the Ratification of Minamata Convention on Mercury (**UU No. 11/2017 tentang Pengesahan Konvensi Minamata Mengenai Merkuri**).
- Presidential Decree No. 21/2019 on National Action Plan on Reduction and Phasing Out of Mercury (**Perpres No.21/2019 tentang Rencana Aksi Nasional Pengurangan dan Penghapusan Merkuri**).
- Minister of Environment and Forestry Regulation No. 81/2019 on the Implementation of Presidential Decree No. 21/2019 (**Permen LHK No. 81/2019 tentang Pelaksanaan Perpres No. 21/2019**).
- Minister of Health Decree No. 41/2019 on Phasing Out of Health Equipment Containing Mercury from Health Facilities (**Permenkes No. 41/2019 tentang Penghapusan dan Penarikan Alat Kesehatan Bermerkuri di Fasilitas Pelayanan Kesehatan**).
- Minister of Environment and Forestry Regulation No. P.27/2020 on Waste Management of Medical Equipment Containing Mercury (**Permen LHK No. P.27/2020 tentang Pengelolaan Limbah Alat Kesehatan Mengandung Merkuri**).
- Minister of Trade Regulation No. 40/2022 jo. 18/2021 on Prohibited Goods to be Exported and Imported, Attachment X covers medical equipment containing mercury, elemental mercury is excluded from Attachment VII (**Permendag No. 40/2022 jo 18/2021 tentang Barang Dilarang Ekspor dan Barang Dilarang Impor - Lampiran X memuat alkes mengandung merkuri, sedangkan merkuri elemental tidak dicakup dalam Lampiran VII**).



Political will: Presidential Regulation and Bali Declaration

<https://peraturan.bpk.go.id/Home/Details/106019/perpres-no-21-tahun-2019>



President Regulation No. 21 year 2019 concerning the National Action Plan to reduce and eliminate mercury

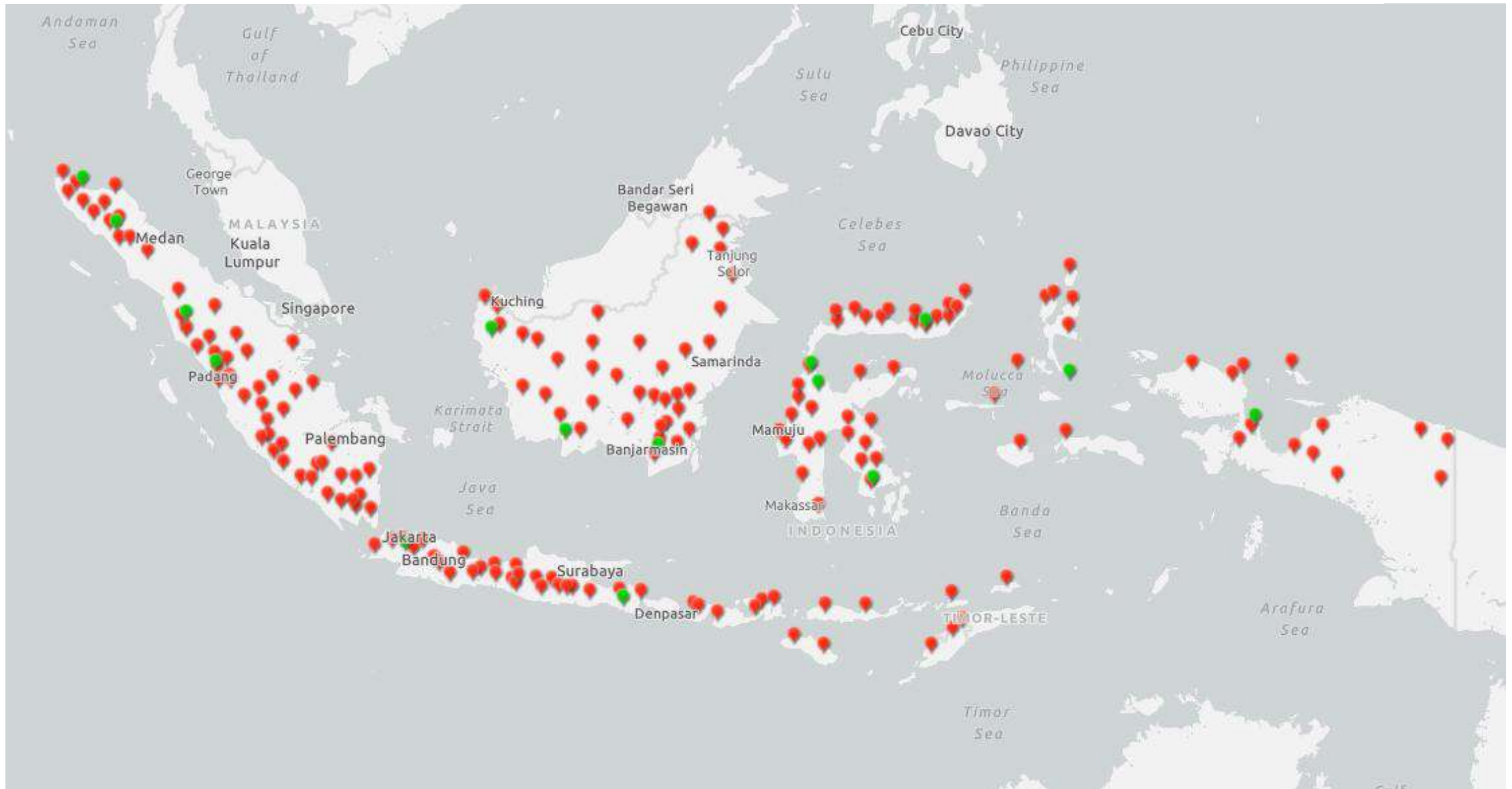


Bali Declaration on Combating Global Illegal Trade of Mercury (COP4 Minamata Convention, March 2022)



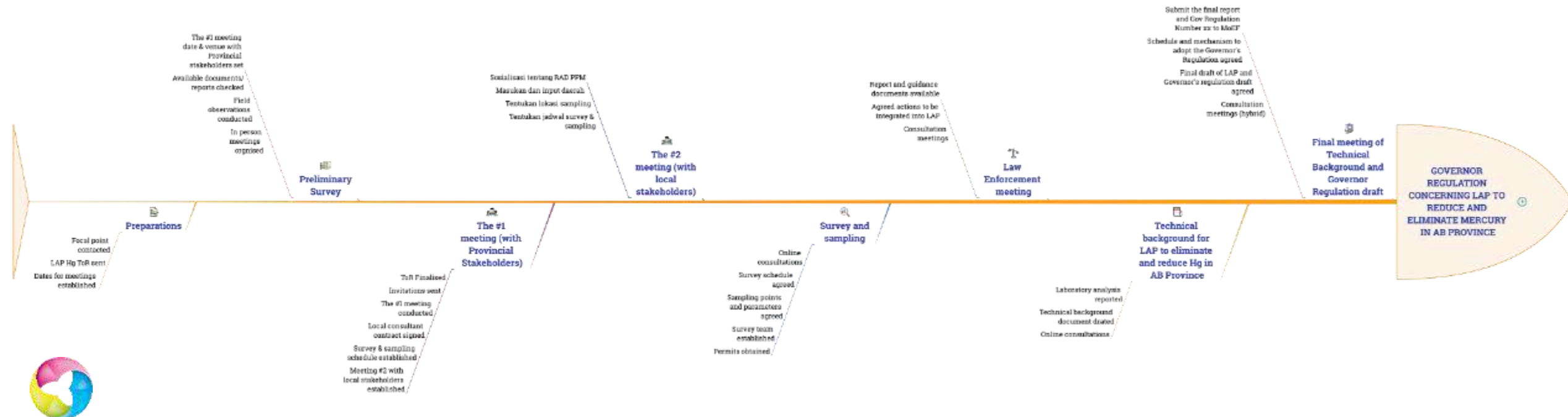
ASGM locations in 190 regencies

<https://bit.ly/2MsPt2M>



Development of Local Action Plans (LAPs) to Reduce and Eliminate Mercury at Sub-national Level

- The development of LAPs to reduce and eliminate mercury is mandated by Presidential Regulation No. 21/2019
- At sub-national level (Provincial level) and or Local Government level (City/Regency)
- Coordinated by the Ministry of Environment and Forestry, facilitated by various groups/projects
- Lead by the focal point of LAP at the Provincial level
- Priority sectors: ASGM, energy sector, trade and manufactures, Hg in products (health sector)
- Additional: Law enforcement, awareness raising, Hg storage and identification of Hg-contaminated sites, Hg monitoring, mitigation and advisories



Cinnabar and Mercury

Approx. 1.2 million miners used about 3,500 tonnes Hg per year

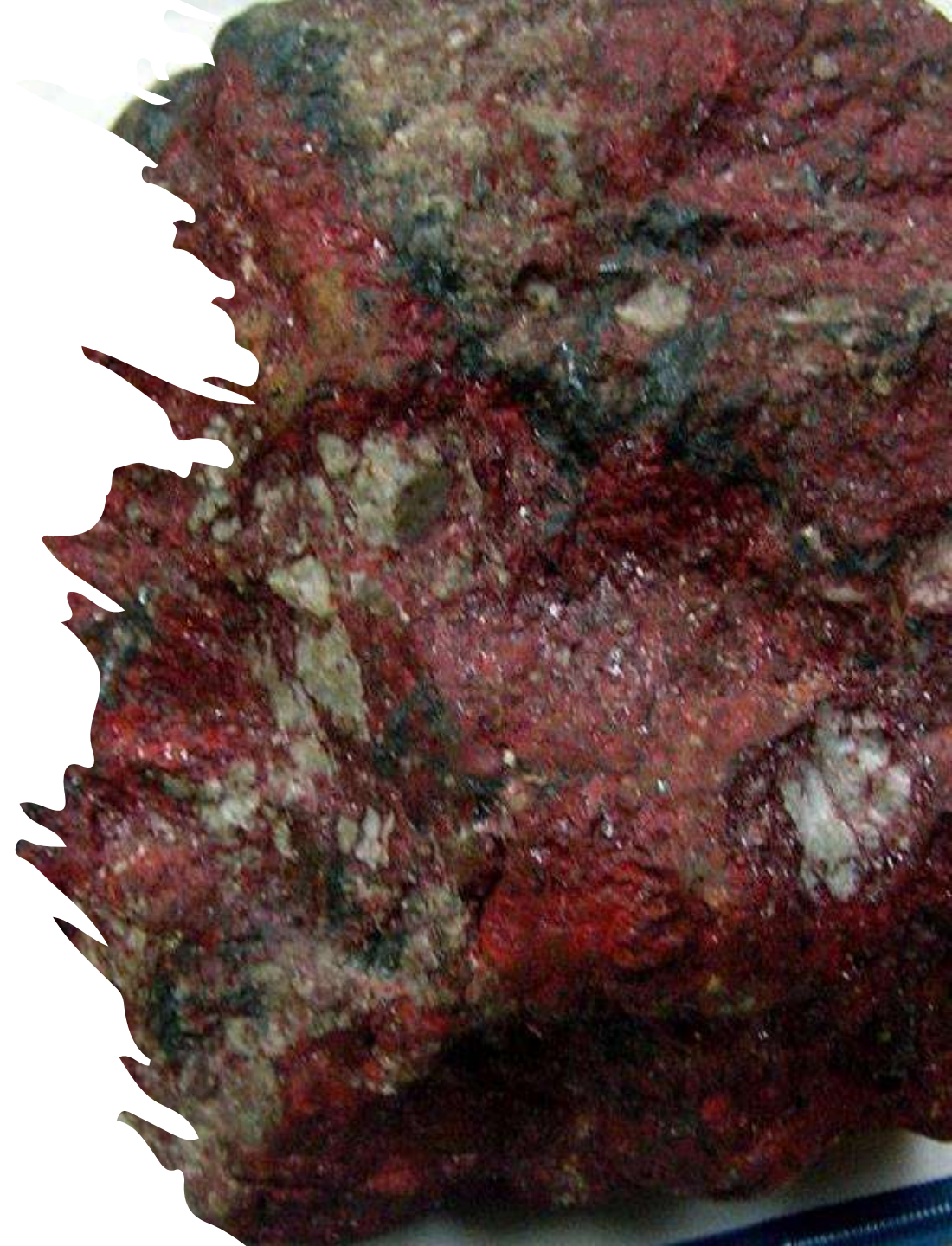
Gold production from ASGM sector approx. 175 ton per year (ESDM)

Gold market value IDR 72 to 135 trillion (USD 4.9 – 9.2 billions)



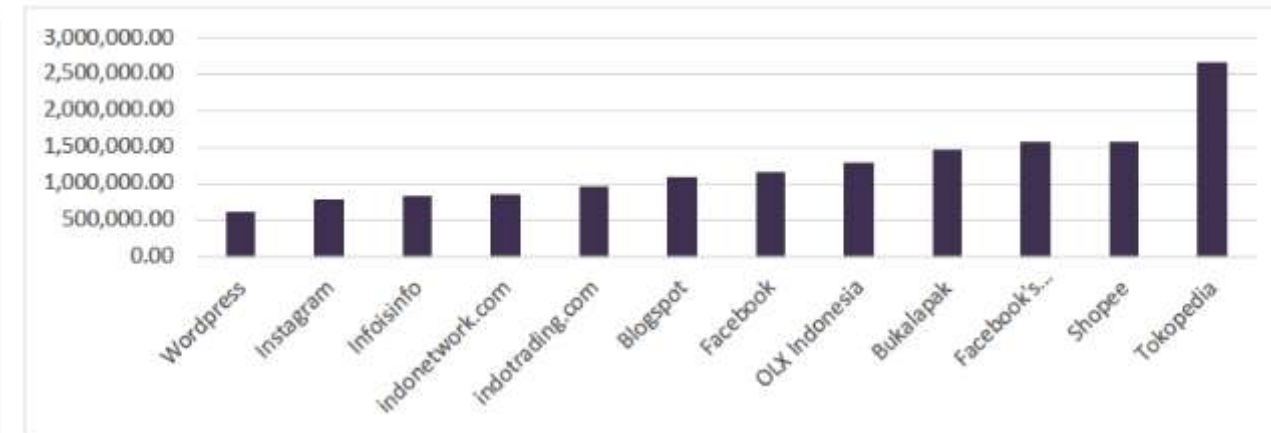
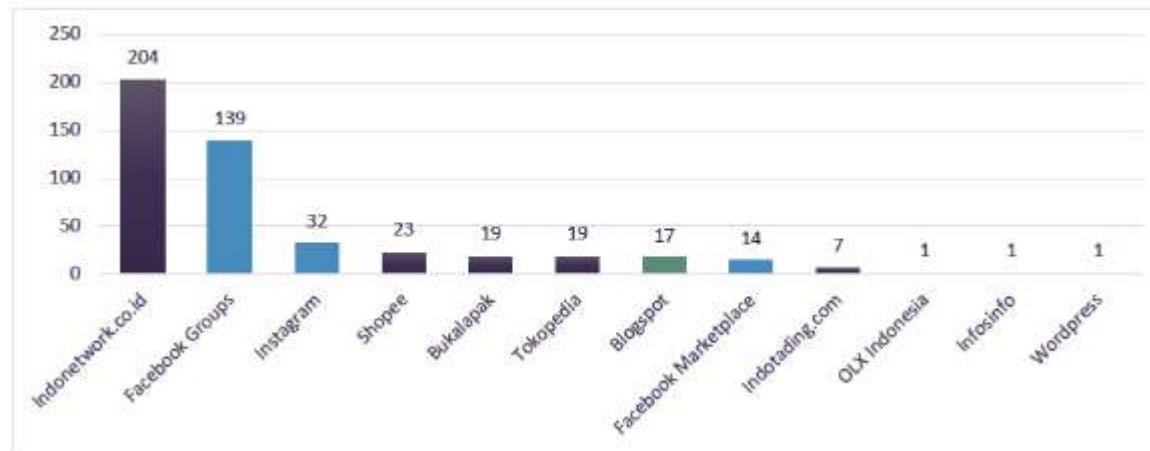
Regulatory Framework of Cinnabar and Hg Refineries

- Based on the Mining Law No. 3/2020, cinnabar is not a metal mineral that is prohibited to be mined.
- There is no regulation that specifically deals with the prohibition of cinnabar mining and refinery, as well as commercialization of mercury.
- In Government Regulation No. 74/2001 regarding Management of Hazardous and Toxic Substances (*Bahan Berbahaya dan Beracun* or B3), mercury is not a prohibited hazardous substances (B3) but a B3 with limited use.
- No criminal provision under Government regulation No. 22 of 2021 regarding the Implementation of Environmental Protection and Management and Minister of Trade Regulation No. 47 of 2019, only administrative sanctions





“Digital” Mercury



Advertisement based on platform: purple: e-commerce, blue – social media, green – other. Source: GITOC

Mean price of mercury sold in social media and e-commerce platform. Source: GITOC



Group Name	Date Created	Number of members	Number of Advertisements
Jual Beli Air Raksa (Mercury Hg)	09 June 2013	3,673	108 (71%)
Penambang emas	18 January 2013	120,344	22 (14%)
info Anak PENAMBANG EMAS	06 August 2020	24,866	5 (5%)
grup pelebur logam mulia nasional.	19 December 2020	2,797	1 (1%)
Facebook marketplace			14 (9%)

Hisyam Mustofa Baswedan
12h · 🌐

Di cari kopi silver 300 kg, trima di sby, klo brg sdh di dpn mata sya, sya bayar kes via transf rek BCA utk yg 200 kg, yg 100 kg sya minta tempo 3 hari. Klo ada yg minat dan percaya sma sya silahkan kirimkan brgx mlm ini juga, oke trims 🙏

👍 2 10 comments

👍 Like 💬 Comment ➦ Share

View 6 more comments All comments ▾

Garang An Saw Ah
Redy sby gan dekat tugu pahlawan 200kg hrg 800/kg.. ambil bnyk negoo kalau minat SMS atw TLP 0858-5321-6308

Like · Reply · Share · 4 h

Hisyam Mustofa Baswedan Author
Klo ga percaya sma sya wes ga usah nawari brg, aku duduk kape maling alias ngetampok

Like · Reply · Share · See translation · 2 h

Write a public comment... 🗨️ 📷 📹 📎 📌

Kawel Kawel
24 September at 17:20 · 🌐

Monggo di borong bos* ... Cod jabodetabek, Jumat berkah.. Ada promo spesial 🎉



CONTACT SELLER: **borong** 📬 Message

Rizal
30 September at 04:16 · 🌐

Jual air raksa hg cod seputaran jakarta dan kalimantan harga 850 ribu sekilo
Wa 082210312538
Pengiriman luar kota
Juga bisa

CONTACT SELLER: **Jual air raksa** 📬 Message

👍 1 17 comments

👍 Like 💬 Comment ➦ Share

View 8 more comments All comments ▾

Mhal Zerro Seveen
Kirim ke bogor bisa gx bos

Like · Reply · Share · 1 d

Tatep
Mhal Zerro Seveen bogor mna kang

Like · Reply · Share · 1 d

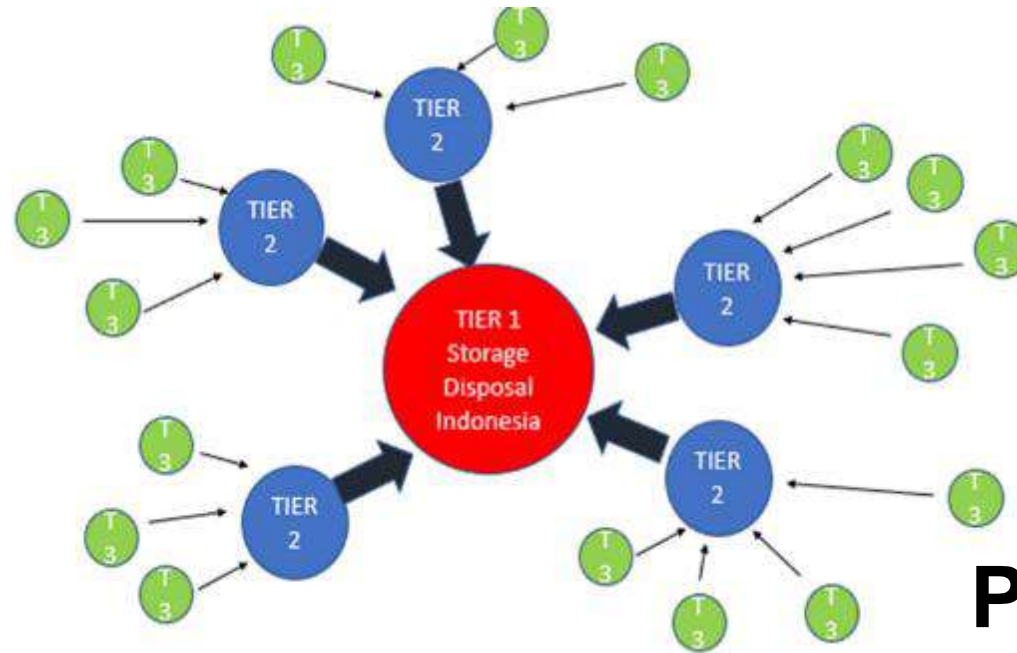
Mhal Zerro Seveen
Tatep nanggung

Qais Mandana Nafsah
18 September at 05:55 · 🌐

Entah isinya apa
Aku gak peduli
Yg penting Happy.
Selamat Ngopi.
harga (nbok atau Japri.
yg penting kualitas tenuji.

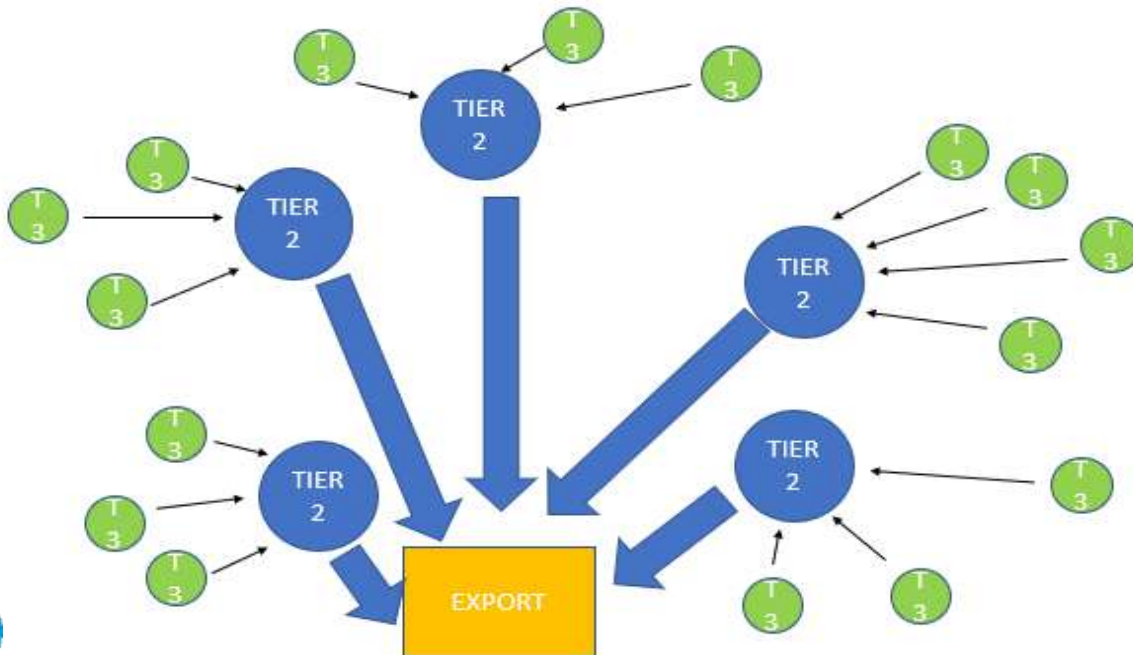


Scenario 1
schematic –
Domestic
mercury
storage and
disposal



Proposed Mercury Storage Scenarios

Scenario 2
schematic –
Interim
storage and
final export



Mercury Storage: Tier 3 Storage (Cities/Regencies Level)

- Small to medium-scale dangerous goods storage.
- Depending on demand in different provinces, numerous Tier 3 storage units of various sizes may be deployed for police, medical facilities and other authorities who directly remove and handle mercury.
- The objective is to provide short term storage that minimises exposure risk to personnel until mercury is collected to Tier 2.



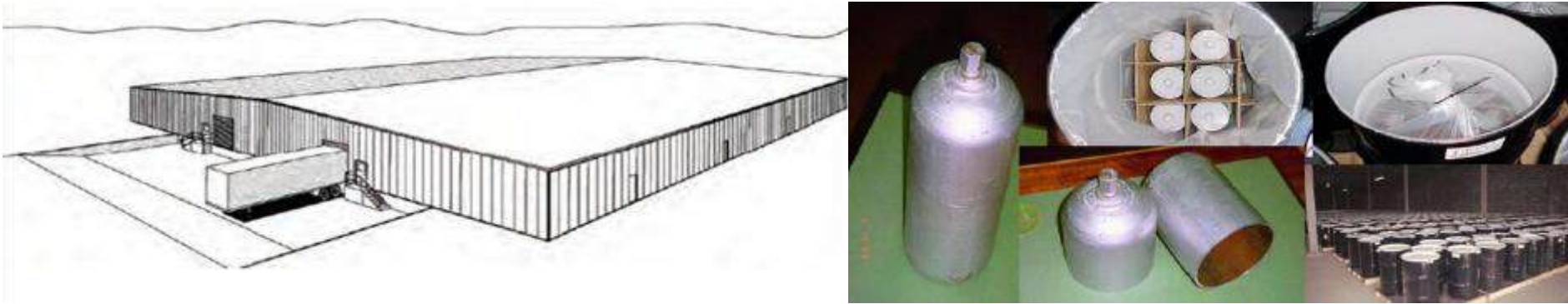
Mercury Storage: Tier 2 Storage (Provincial Level)

- 3-5 compact interim storage facilities located on major islands with ASGM activity.
- Meet high safety and security standards storing up to 10 tonnes of elemental mercury.
- Purpose built with trained staff for storing, decanting, overpacking and shipping of elemental mercury.



Mercury Storage: Tier 1 Storage (National Level)

A single national storage/disposal facility ideally incorporating an elemental mercury treatment/stabilisation facility.



Surface/above the ground long term storage for elemental mercury



Cinnabar (Mercury Sulphide)

Sub-surface long term storage for stabilized mercury and cinnabar



Recommendations

Regulatory Framework

- Mercury is not listed as a prohibited substance to be traded under LARTAS (prohibition and restriction) policy, it can be imported (for non-mining and specific purposes) and it can be exported, so it should be classified and regulated as “prohibited substance”;
- Digital/online mercury trade needs to be regulated and prohibited;
- The policy for phasing out mercury and controlling mercury trade must be comprehensive and include cooperation and coordination between all stakeholders in their respective roles.

Law Enforcement

- Law enforcement should be focused on the masterminds, not only the small players in mercury trade;
- Guidance to identify safe methods to handle and store confiscated mercury and withdrawal mercury from the market is needed especially to implement court orders regarding “the destruction” and/or “the disposal” of mercury;
- The infrastructure for temporary and final storage/disposal of mercury should be prepared and established.



THANK YOU



Website: www.nexus3foundation.org

Email: nexus3@nexus3foundation.org

Operation Planning and Implementation¹

Below this table is a list of actions related to planning and implementing an enforcement operation.

Please **review the actions**, arrange them in a logical order based on your understanding or experience, and then **complete the template for each action to explain its purpose, timing, and responsible stakeholders**. You may also suggest additional actions if you believe they are important to the process.

Action	Timing	Stakeholder	Remarks
1. Planning and preparations			

¹ This Operation Planning and Implementation exercise was adapted from an exercise developed by Anna Ewa KOBYLECKA from the World Customs Organization.

National Training on Strengthening Country-Level Inter-Agency Coordination on Trade of Mercury
23-24 June 2025
Practical exercise

2. Implementation			
3. Evaluation			

1. Planning and preparations

Providing trainings and/or other capacity building activities

Drafting the National Operational Plan

Notifying national participants and partners

Identifying participants and partners

Carrying out national risk analysis, identifying risk indicators and setting up national risk profiles

Identifying the tactical/operational objectives of the Customs administration

Allocating tasks

Identifying/developing and/or providing tools/guidance materials/checklists

2. Implementation

Post-operational phase

Setting up the Contact Points

Pre-operational phase

Briefing

Operational phase

Determine communication channels

3. Evaluation

Press-release

Debriefing

National Report

ATMOSPHERIC SURVEY AND ANALYSIS (MANUAL ACTIVE SAMPLING METHOD)



SAMPLE COLLECTION



OUTLINES OF ATMOSPHERIC MERCURY SURVEY

Type of Atmospheric Mercury Survey

Categorized by the method of sample (air) collection

Automated active sampling

Manual active sampling

Passive sampling



Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Outlines of
Atmospheric
Mercury Survey

Outline of Manual Active Sampling Method (Gold Amalgamation Trap)

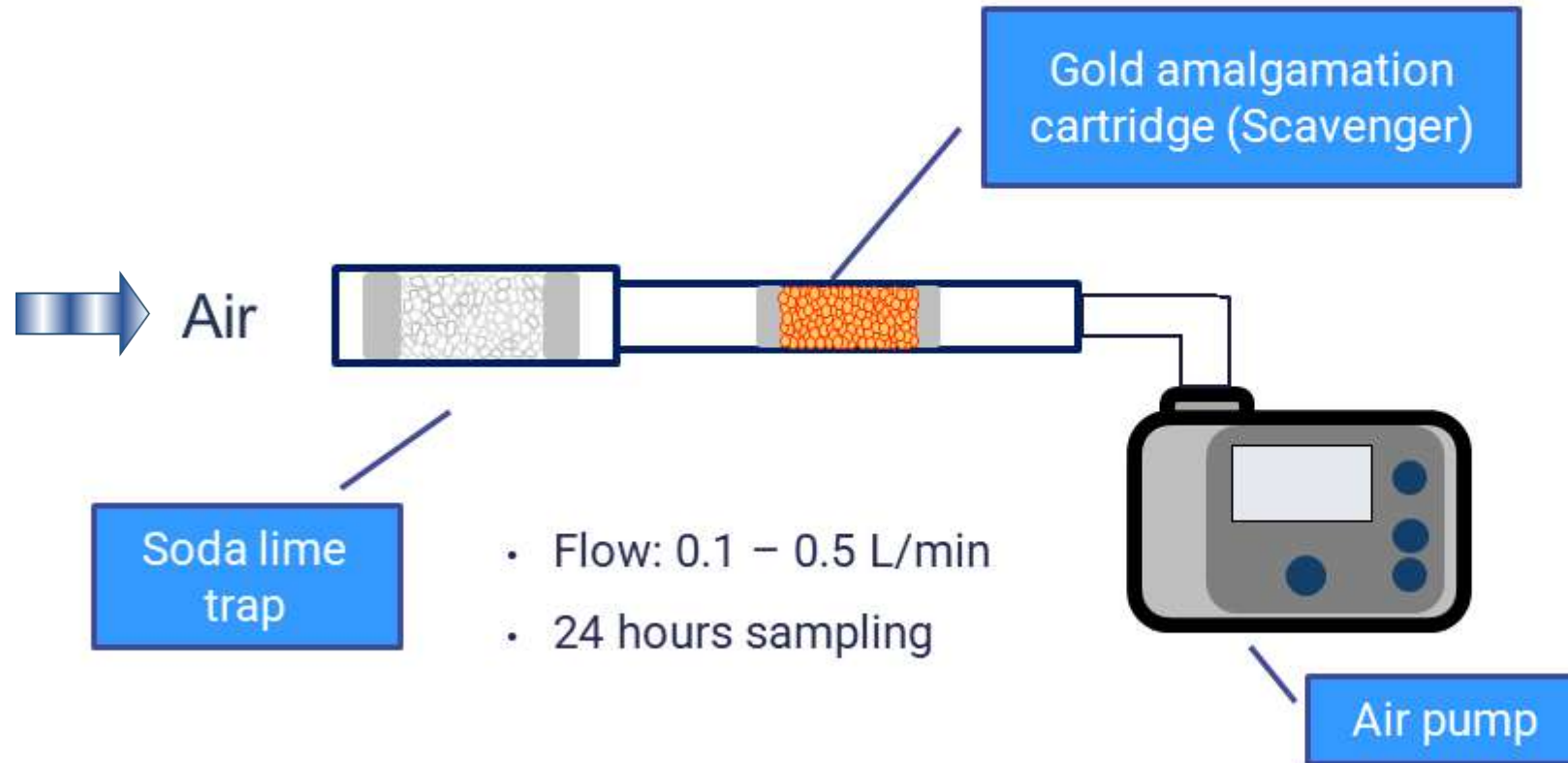


Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Outlines of
Atmospheric
Mercury Survey

Gold Amalgamation Trap Method



- ☐ Collected cartridge is easy to carry and store
- ☐ Reusable



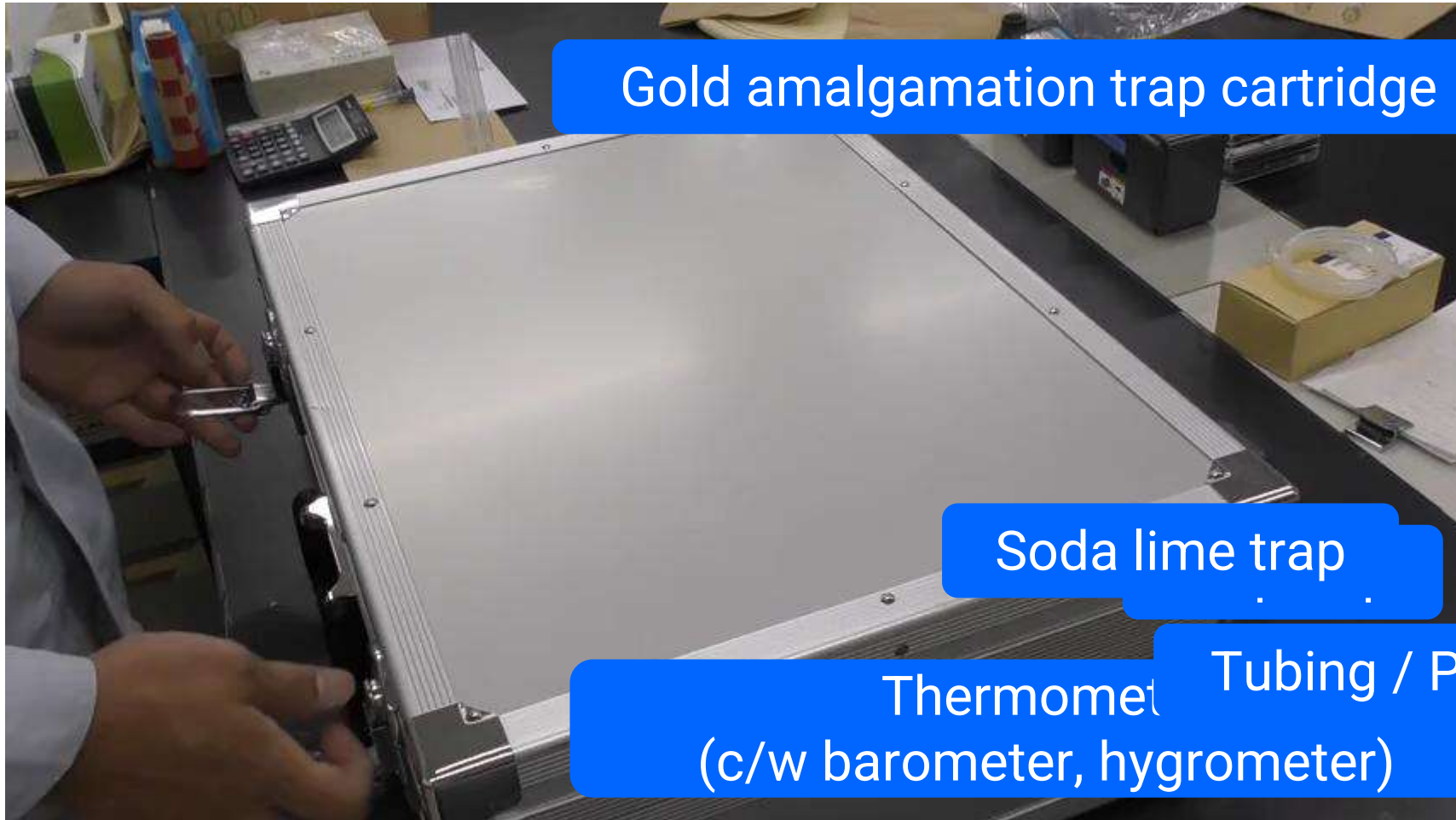
Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Outlines of
Atmospheric
Mercury Survey

SAMPLING EQUIPMENT AND ITS PREPARATION

Sampling Equipment

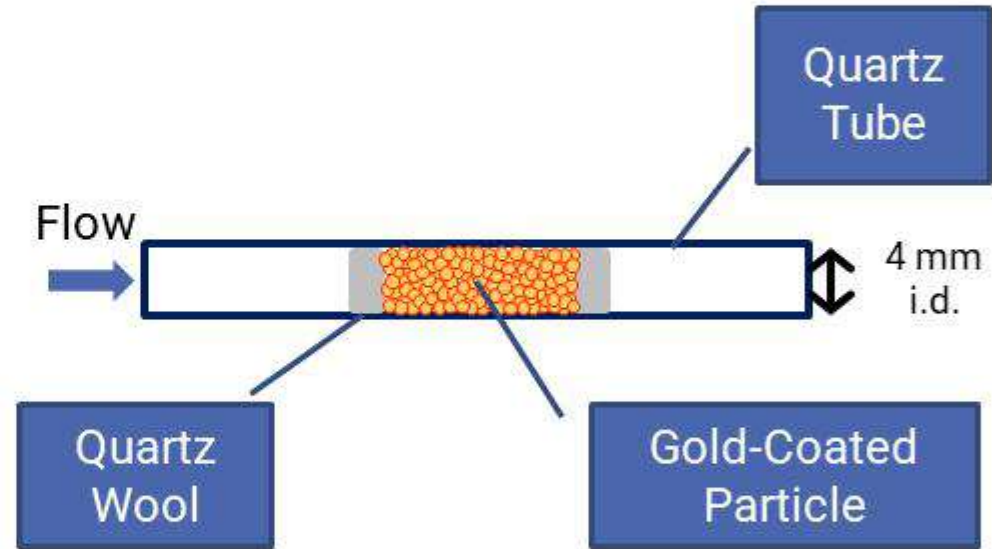
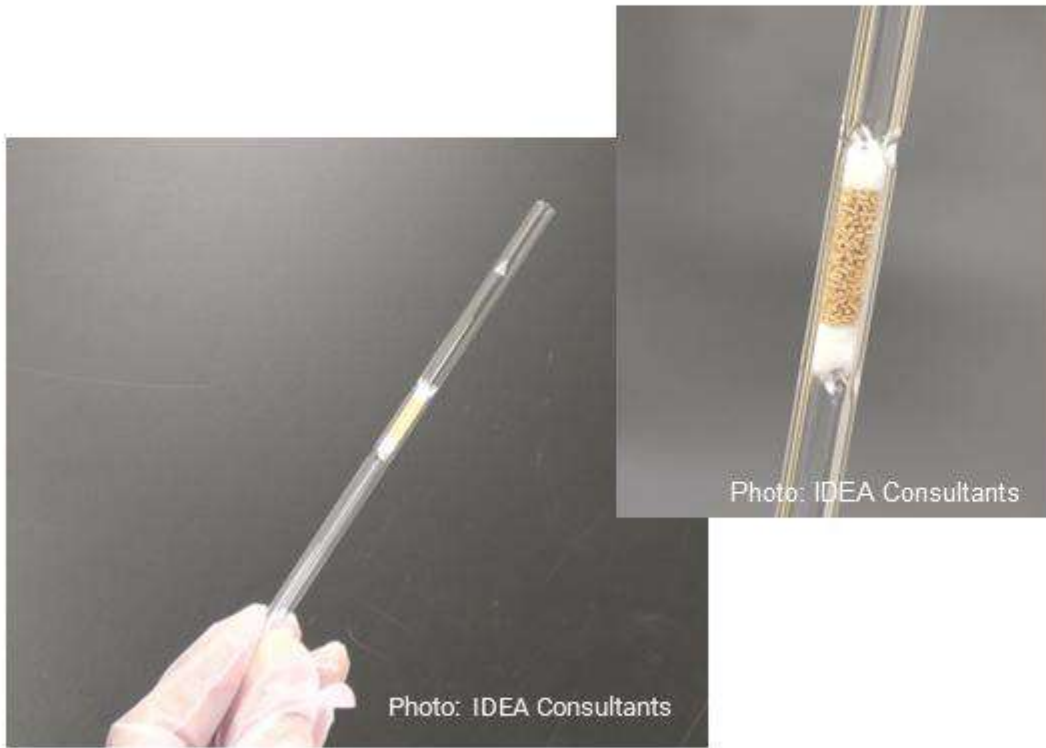


Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Sampling
Equipment and
its
Preparation

Gold Amalgamation Trap



Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Sampling
Equipment and
its
Preparation

Gold Trap Cartridge Preparation



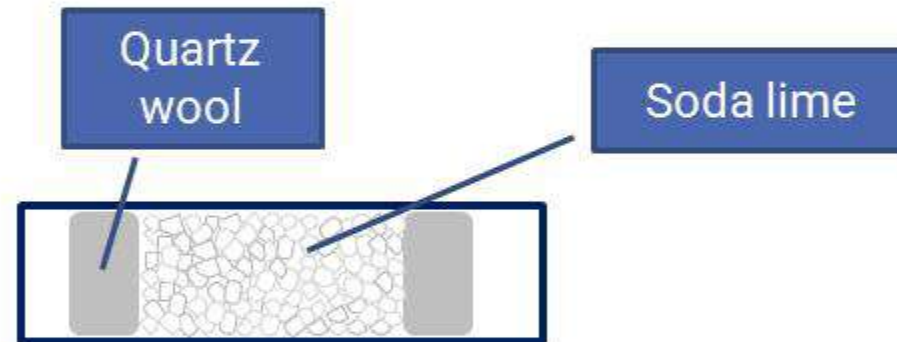
- ☐ Clean the cartridge by heating.
(It is convenient to measure by instrument.)
- ☐ Cleaned cartridge should be stored in sealed container.
- ☐ Periodical “Field Blank” test should be operated.

Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Sampling
Equipment and
its
Preparation

Soda lime Trap



Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Sampling
Equipment and
its
Preparation

Soda lime Trap Preparation



New soda lime should be used for
each sample collection



Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Sampling
Equipment and
its
Preparation

Air Pump



Photo: IDEA Consultants

- ☐ Flow: $\sim 0.5\text{L} / \text{min}$
- ☐ Flow integrator is also necessary.
(There are pumps which combine flow controller / integrator.)
- ☐ To convert the concentration into standard condition, Information of temperature and air pressure is also needed.



Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Sampling
Equipment and
its
Preparation

Tubes



- ☐ Silicon rubber or other sort of plastic.
- ☐ No need to be made of glass/fluoropolymer.
- ☐ On sample collection, it should be confirmed that tubes are **clean** and **no leakage**.

Thermometer, Barometer etc.



Photo: IDEA Consultants

- ☐ Weather information is important (necessary) to assess the sampling situation.
- ☐ If there are weather monitoring station near the sampling site, that data can be used.



Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Sampling
Equipment and
its
Preparation

ATMOSPHERIC SAMPLE COLLECTION

Sampling Location

- ☐ No mercury emission facility near the site
- ☐ No special (local) air flow pattern



Photo: IDEA Consultants



Preparation of sampling point



- ☐ If the ground is bare soil, or with a lot of dust, covering with a sheet is desirable.
- ☐ A shelter to protect the pump from rain and direct sunlight, is necessary (a small tent is sufficient. Or a container with a fan for heat removal may be used.)

Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Atmospheric
Sample
Collection

Stand and Pipe for Gold Cartridge



- ☐ Gold cartridge should be set at 1.5m or more from the ground.
- ☐ Pipe to protect cartridge from the rain, dust, etc.



Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Atmospheric
Sample
Collection

Tubing, Connection of Pump

❑ Check operation of the pump



Setting-up Gold Cartridge



- ☐ Wear groves
- ☐ Open the Field blank case
- ☐ Take the sample cartridge, check the direction, connect the soda lime trap
- ☐ Connect the cartridge and the tube
- ☐ Tilt the sampling pipe
- ☐ Cover the end of pipe with aluminum foil



Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Atmospheric
Sample
Collection

Check Connection



- ☐ Correct cartridge direction?
- ☐ No damage on the tube?
- ☐ No air leak?



Start sampling



- ☐ Start the pump
- ☐ Check the flow condition
- ☐ After starting the pump, close the container of field blanks



Recording

☐ Write the note at the sampling point



Photo: IDEA Consultants

Field Note

Researcher	Keisuke Uchida							
Location	IDEA Consultants, Inc. Institute of Environmental Ecology St. 1							
Condition of Sampling start up	M/D/Y	10 / 11 / 2021	Weather	Cloudy	Air temp. (°C)	18.5	Atmosphere (hpa)	1014.9
Condition of sampling end	M/D/Y	10 / 12 / 2021	Weather	Sunny	Air temp. (°C)	21.2	Atmosphere (hpa)	1012.5

Target: Mercury

Sampling No. or Name	ST. 1	ST. 1 Duplicate							
Pump No.	303	304							
Column No.	6	7							
Sodalime No.	1	2							
Column position Info. (if necessary)	—								
No.	Date & Time	flow rate (L)	flow rate (L)	Instantaneous flow rate (L)	Total Vol. (L)	Instantaneous flow rate (L)	Total Vol. (L)	Instantaneous flow rate (L)	Total Vol. (L)
0	(start time)	0.5	0.5	—	—	—	—	—	—
1	10/11 11:20	0.5	0	0.5	0	—	—	—	—
2	12:20	0.5	60.1	0.5	60.1	—	—	—	—
3	16:20	0.5	150.1	0.5	150.2	—	—	—	—
4	10/12 9:20	0.5	660.2	0.5	660.3	—	—	—	—
5									
6									
7									
8									
9									
10	11:20	—	720.0	—	720.1	—	—	—	—
Total sampling Vol. (L)		720.0	720.1						
Column No. of Travel Blank	8, 9, 10								
Special instruction:									

Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Atmospheric
Sample
Collection

Site Inspection during Sampling

- ❑ For early detection of any error of the survey, revisit and inspect the survey site during the sampling

Field Note

Researcher	Keisuke Uchida							
Location	IDEA Consultants, Inc. Institute of Environmental Ecology ST-1							
Condition of Sampling start up	M/D/Y	10/11/2021	Weather	Cloudy	Air temp. (°C)	18.5	Atmosphere (hPa)	1014.9
Condition of sampling end	M/D/Y	10/12/2021	Weather	Sunny	Air temp. (°C)	21.2	Atmosphere (hPa)	1012.5

Target: Mercury

Sampling No. or Name	ST-1	ST-1 Duplicate				
Pump No.	303	304				
Column No.	6	7				
Sodalime No.	1	2				
Column position info. (if necessary)	—	—				

No.	Date & Time	Atmospheric flow rate (L)	Total Vol. (L)	Atmospheric flow rate (L)	Total Vol. (L)	Atmospheric flow rate (L)	Total Vol. (L)	Atmospheric flow rate (L)	Total Vol. (L)	Atmospheric flow rate (L)	Total Vol. (L)	Atmospheric flow rate (L)	Total Vol. (L)
0	(preliminary - default)	0.5	—	0.5	—								
1	10/11 11:20	0.5	0	0.5	0								
2	12:20	0.5	60.1	0.5	60.1								
3	16:20	0.5	150.1	0.5	150.2								
4	10/12 9:20	0.5	660.2	0.5	660.3								
5													
6													
7													
8													
9													
10	11:20	—	720.0	—	720.1								
Total sampling Vol. (L)		720.0		720.1									
Column No. of Travel Blank		Special instruction:											
8, 9, 10													

Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Atmospheric
Sample
Collection

End of Sampling, Cartridge Collection



After sampling time
(24 hours)

- ☐ Turn off the pump
- ☐ Record sampling volume
- ☐ Open the field blank case
- ☐ Take collected cartridge and put it in the case
- ☐ Close the field blank case

Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Atmospheric
Sample
Collection

Duplicate Sampling



- ❑ To confirm the stability (precision) of the survey, 1 pair of duplicate sampling on 10 samplings is recommended.
- ❑ Deploy 2 (or more) cartridges side by side.

Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Atmospheric
Sample
Collection

ATMOSPHERIC SURVEYS IN SPECIAL SITUATION

Needs of Atmospheric Mercury Survey / Monitoring

- ❑ Atmospheric mercury survey / monitoring is also required other than general environment.
- ❑ For example:
 - In / near the **mercury using or emitting facility**.
 - **Work environment** using mercury.
 - **Waste dumping site**.
 - **Accidental situation** (e.g., mercury is spilled out).

In such situation, there may be especially high concentration of mercury.



Photo: MOEJ

Application of Manual Active Sampling Method

Owing to its **mobility**, manual active sampling is applicable (and useful) for the survey / monitoring of special situation / sites.



Photo: IDEA Consultants

- ☐ Easy to carry sampling equipment
- ☐ Quick to set-up
- ☐ Require small space

However, following should be noted:

- High mercury concentration
- Interfering substances



Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Atmospheric
Surveys in
Special Situation

High Concentration of Mercury (1/2)

- ❑ In some cases, such as work environment using mercury or accidental spill-out field, atmospheric mercury concentration may be **especially higher than general environment** (it is sometimes thousands of times higher).
- ❑ Mercury amount of these samples sometimes **exceeds the range of calibration curve**, or measurement range of the instrument.



Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Atmospheric
Surveys in
Special Situation

High Concentration of Mercury (2/2)

- ❑ Check the **upper limit of measurement** of the instrument
- ❑ If a very high concentration is expected:
 - **Reduce the sample flow rate** (minimum: 0.1 L/min).
 - Make **sampling time shorter**.
 - (On measurement) analyse **higher concentration of standard**.
- ❑ If the level of mercury concentration is unpredictable, it is effective to **collect multiple samples with different sampling volumes**.

Keep in mind collected atmospheric mercury sample cannot be “diluted” on measurement.



Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Atmospheric
Surveys in
Special Situation

Interfering Substances for Mercury Measurement

❑ Restricting the capture of mercury, and causing damage the gold cartridge

- Aerosol

❑ Interfering the CVAAS measurement

- Halogenate gas

- Nitrogen Oxide (NO_x)

- Sulphur Oxide (SO_x)

- Organic compound gas

- (High moisture)

- (Ozone)



High amount of aerosol causes damage to gold cartridge and decreases its recovery rate of mercury.



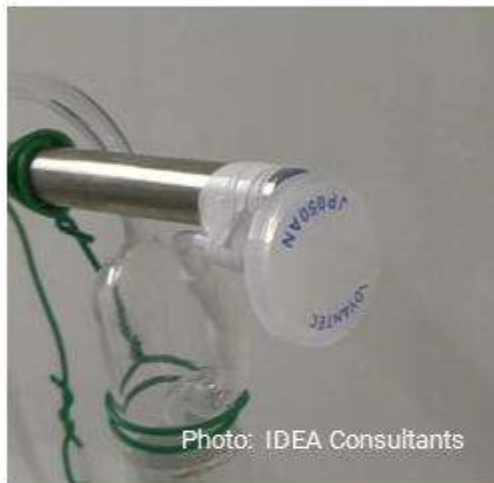
Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

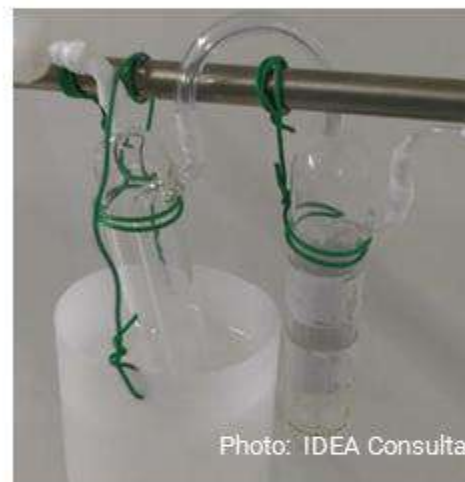
Atmospheric
Surveys in
Special Situation

Countermeasure for Interfering Substances

❑ Particle filter



❑ Gas scrubber (in front of the soda lime trap)



❑ Larger soda-lime trap



If electricity is available, heating the gold cartridge (around 100-150 °C) is effective.

Atmospheric
Survey and
Analysis (Manual
Active Sampling
Method)

Sample
Collection

Atmospheric
Surveys in
Special Situation



MEASUREMENT, DATA PROCESSING AND QA/QC



- ❑ Measurement of gold amalgamation cartridge
- ❑ CVAAS measurement
- ❑ Data processing and QA/QC
- ❑ Maintenance and calibration

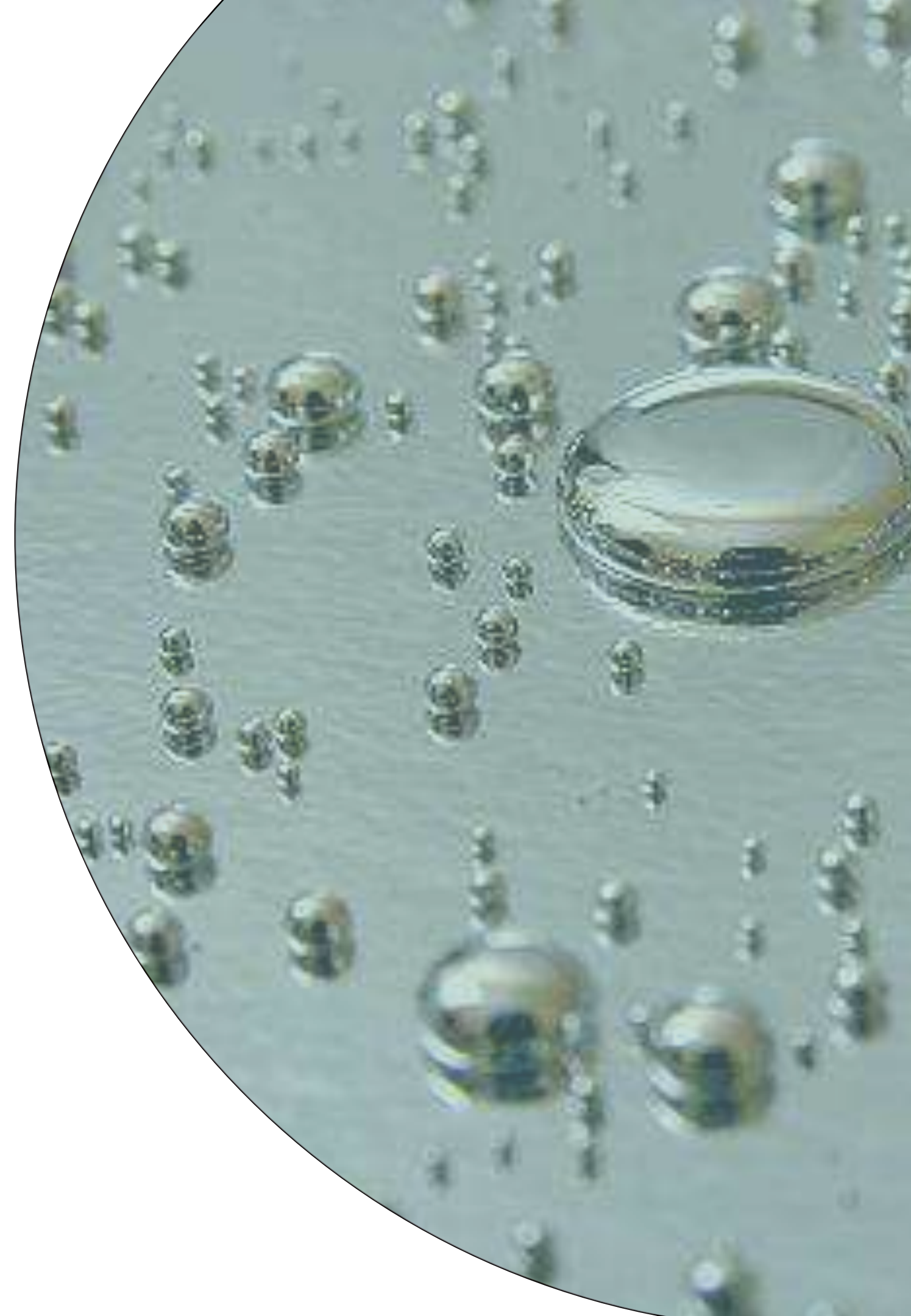
Handling and Disposal of Mercury Waste

National Training on Strengthening Country-Level Inter-Agency Coordination on Trade of Mercury –
Mongolia

23 – 24 June 2025



Presenter: Tahlia Ali Shah, BRI



What are Mercury Wastes?

Under Article 11 of the Minamata Convention, “mercury wastes” refer to substances or objects:

- **Consisting** of mercury or its compounds (e.g. waste mercury catalysts from industrial processes),
- **Containing** mercury or its compounds (e.g. end-of-life mercury added products) *or*
- **Contaminated** by mercury or its compounds (e.g. smelting residue and tailings from primary metal production)

This definition **excludes** overburden, waste rock and tailings from mining, except from primary mercury mining, unless they contain mercury or mercury compounds above thresholds defined by the Conference of the Parties.

Obligations for Management of Mercury Wastes

Under Article 11 of the Minamata Convention, each Party shall take appropriate measures so that mercury waste is:

- 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...
- Only recovered, recycled, reclaimed or directly re-used for a use allowed to a Party under this Convention or for environmentally sound disposal...

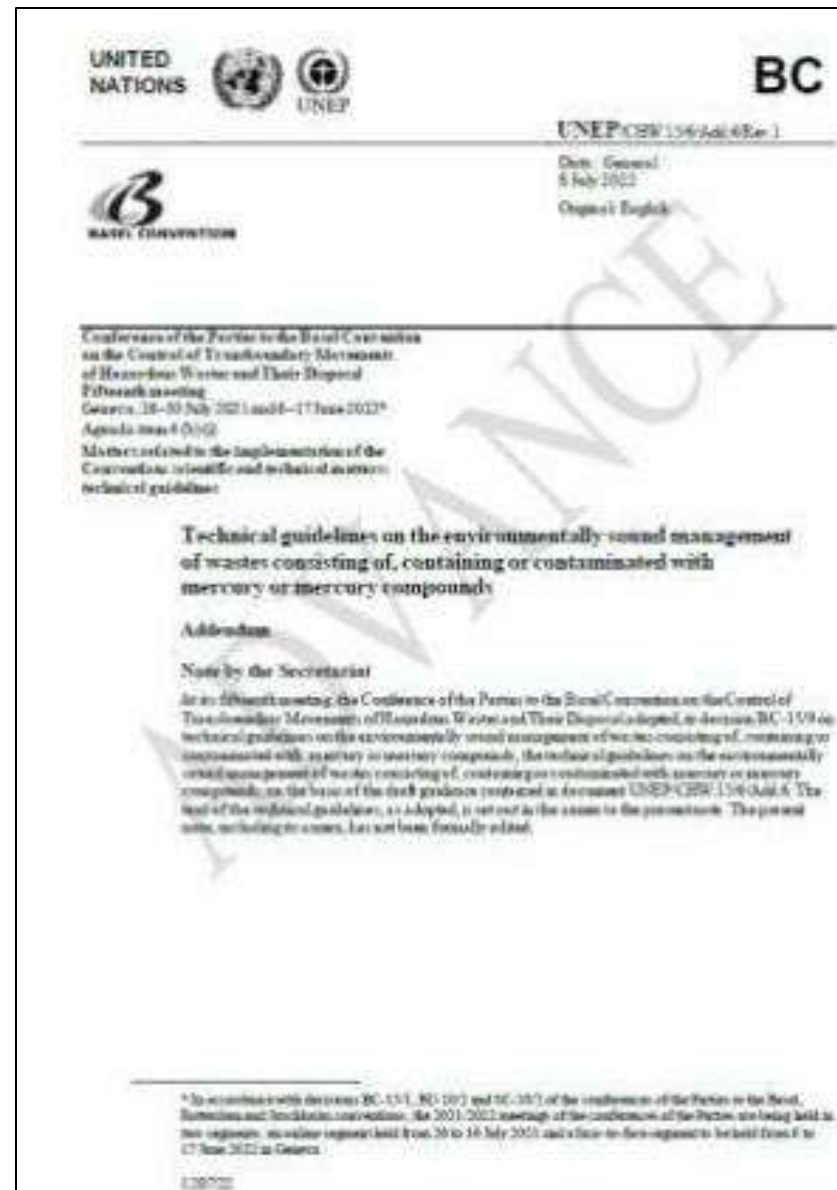
Obligations for Management of Mercury Wastes

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.

Guidelines for Mercury Waste Management

The technical guidelines from the Basel Convention on the environmentally sound management of wastes consisting of, containing or contaminated with mercury or mercury compounds provide guidance on how to prevent, minimize, handle, store and dispose of mercury wastes.



Identification of Mercury Wastes

Identify category (consisting, containing, contaminated by) of mercury waste and understand the potential hazardous characteristics and risks of mercury waste to determine best approach to handling.

Handling of Mercury Wastes

Ensure that waste is handled in a secure manner to prevent evaporation/spillage.

Ensure proper awareness amongst waste handlers and that they wear appropriate personal protective equipment to handle, separate, package, label, transport and store waste.

Storage of Mercury Wastes

Key considerations for storage include:

- Siting
- Design
- Floor
- Equipment
- Structure and interior furnishings
- Forklift
- Temperature
- Signage

Treatment and Disposal of Mercury Wastes

- **Treat** mercury wastes so that they meet the acceptance criteria of disposal facilities.
- **Minimize** mercury emissions/releases from treatment processes of mercury wastes
- **Dispose** of treated wastes in specially engineered landfills and permanent storage

THANK YOU

EMAIL: tahlia.alishah@briwildlife.org

WEBSITE: www.briwildlife.org



BIODIVERSITY RESEARCH INSTITUTE
innovative wildlife science



2025 оны 6 сарын 25

Бичил уурхай ба planetGOLD Монгол төсөл

Д.Хишгээ
Төслийн үндэсний менежер



Санхүүжүүлэгч:



Үндсэн хэрэгжүүлэгч:



Хамтрагчид:



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



БАЙГАЛЬ ОРЧИН, УУР АМЬСГАЛЫН
ӨӨРЧЛӨЛТҮЙН ЯАМ



АГУУЛГА

- ▶ Бичил уурхай
- ▶ Төслийн танилцуулга



Бичил уурхай

Алтны бичил
уурхайн тоо
баримтууд



Дэлхийн алт
үйлдвэрлэлийн **20%**

Жилд
380-450 тонн алт



70 улс орон -
эдийн засгийн боломж
хомс бүс нутгууд



Албан бус салбар
гэж үздэг



Алслагдмал орон
нутгийн **16 сая хүний**
ажлын байр



4-5 сая
хүүхэд,
эмэгтэйчүүд

Шууд бусаар
100 сая хүн

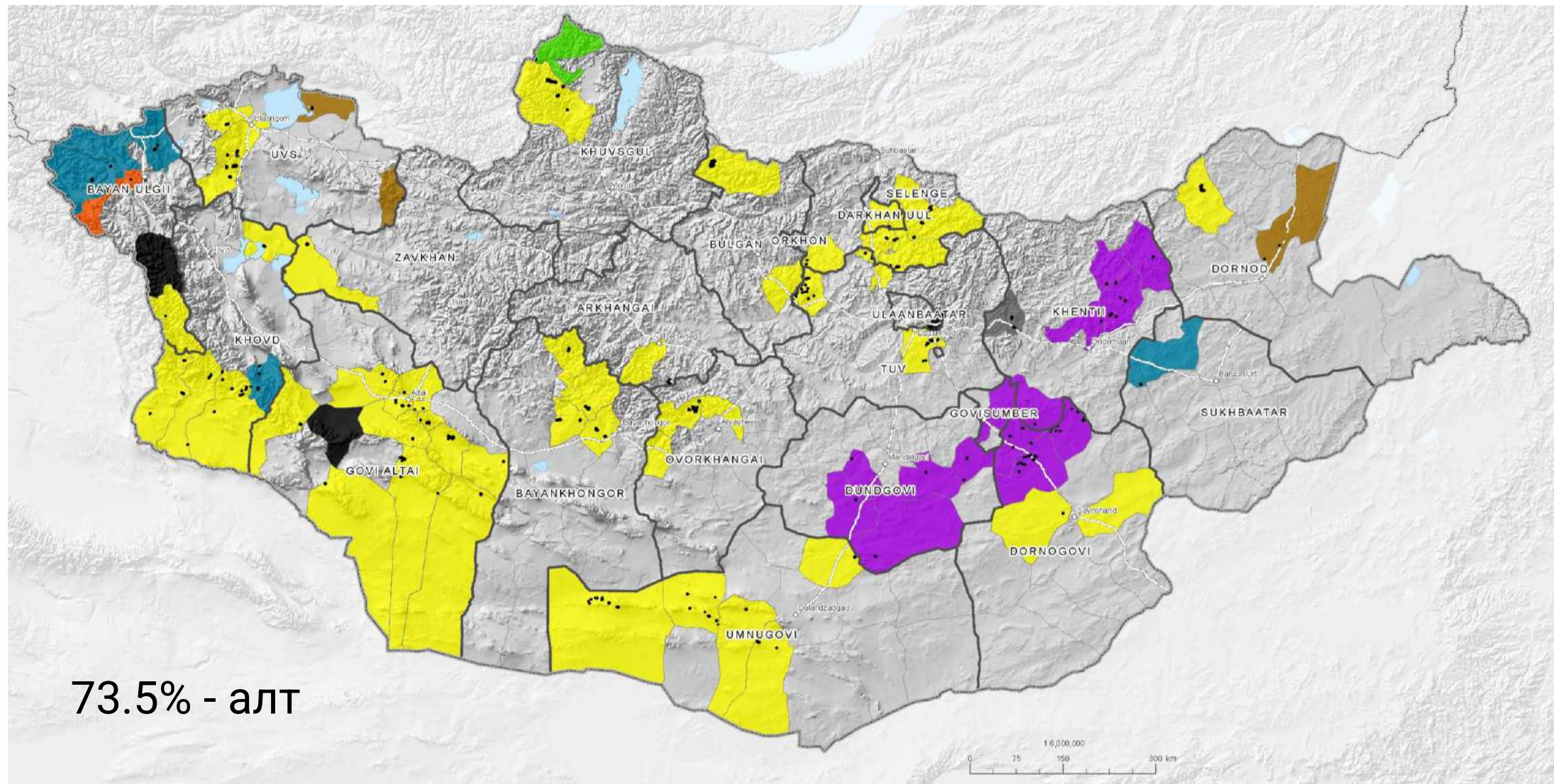


Байгаль орчинд ялгарч
буй **мөнгөн усны**
бохирдлын 38%



Жил бүр
2000 тонн

Монголын бичил уурхайн мэдээлэл



Эрх зүйн орчин

Ашигт малтмалын
тухай хууль

Газрын тухай
хууль

Зөрчлийн тухай
хууль

Эрүүгийн хууль

Иргэний хууль

Бичил уурхайгаар
ашигт малтмал
олборлох журам
(2022 - #296)

Тоон мэдээ

- ▶ Бичил уурхайгаар ашигт малтмал олборлох хүчин төгөлдөр гэрээтэй 36 нөхөрлөл 80.813 га талбайд үйл ажиллагаа явуулж байна. 2025/03/31
- ▶ 36 нөхөрлөлийн 332 бичил уурхайчид
- ▶ 73.5% нь алт олборлож байна.



Бичил уурхай ба Мөнгөн ус





$\frac{Au}{Hg}$
1:1.3



Шатаах



Алт баяжуулалтын нөхцөл байдал

► Бүхэл хүдэрт



► Боловсруулах үйлдвэрт

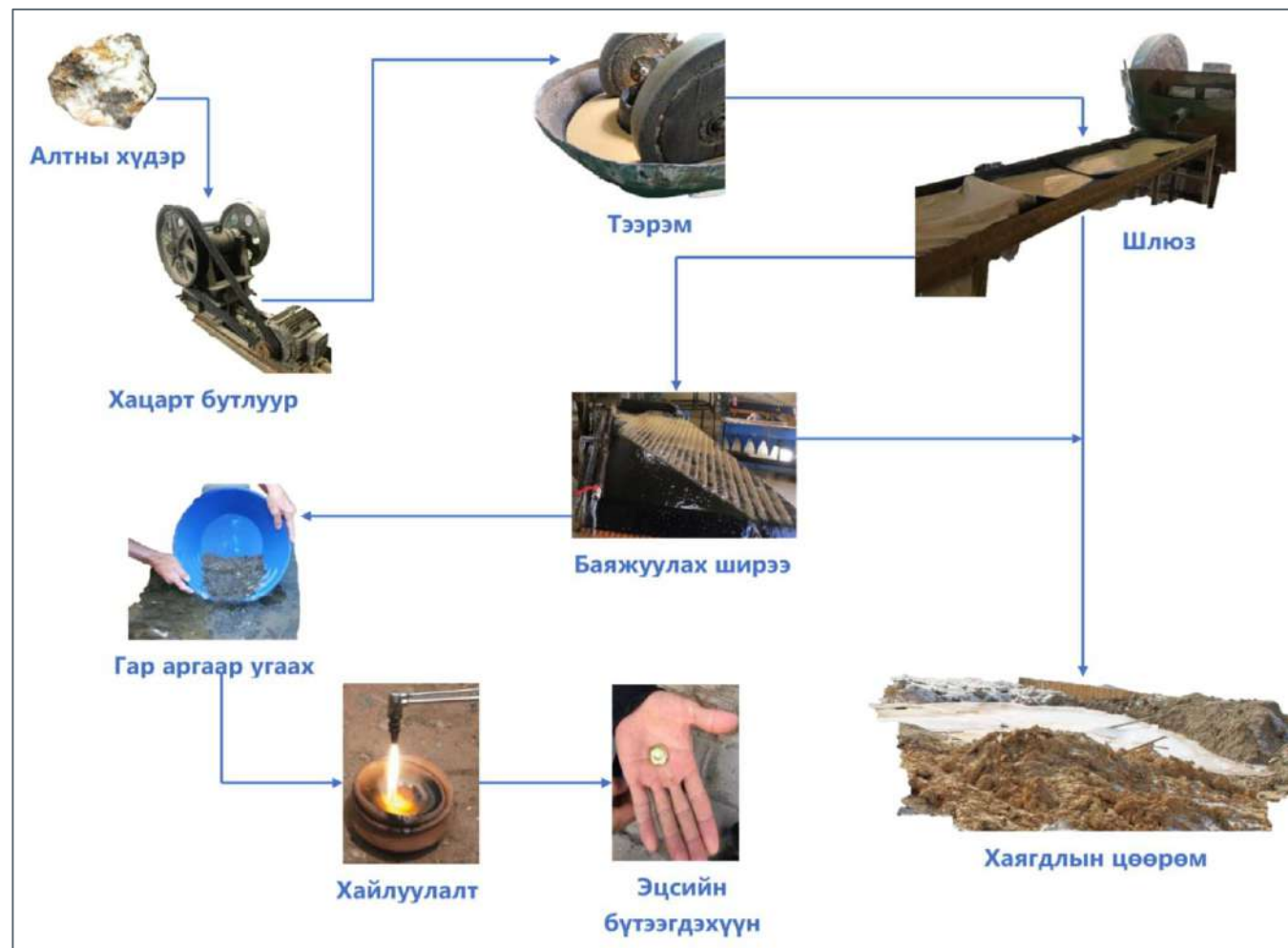




Photo: AGC (Kevin Telmer)

Алт - мөнгөн усны амальгамыг шатааснаар: (80-95%)

- Мөнгөн ус ууршиж асар хүчтэй хордуулдаг!
- Агаар дахь мөнгөн усны концентраци нь шатаасан мөнгөн усны хэмжээнээс хамаардаг.
- Мөнгөн усны уур нь ямар ч үнэргүй мөн өнгөгүй бөгөөд ойр орчмын эд зүйлсдээ амархан наалдаж шингэдэг байна.

Элемент мөнгөн ус
хүний биед нэвтрэх

АРЬСААР - 3%

ХОДООДООР - 1%

АМЬСГАЛААР - 95%

ТАРХИ, БӨӨР, УРАГ,

5

Хүнсэнд загасны хэрэглэх

Метил мөнгөн ус шингэсэн загасыг хүнсэндээ тогтмол хэрэглэснээр хүний бие хордоно.

4

Хоол хүнсний хэлхээнд нэвтрэх

Метил мөнгөн ус нь загас, сүүн тэжээлтний биед хуримтлагдаж улмаар хоол хүнсэнд нэвтэрч орно.

3

Метилжих

Элемент мөнгөн ус нь усан дахь зарим төрлийн бактерийн нөлөөгөөр илүү хортой, биологийн хэлбэр болох метил мөнгөн ус болж хувирна.

1

Бичил уурхайд мөнгөн ус ашиглах

Мөнгөн усны ууранд уурхайчид төдийгүй түүний ойр тойрны хүмүүс хордох ба тэдний эрүүл мэндэд нь сөрөг нөлөө үзүүлнэ

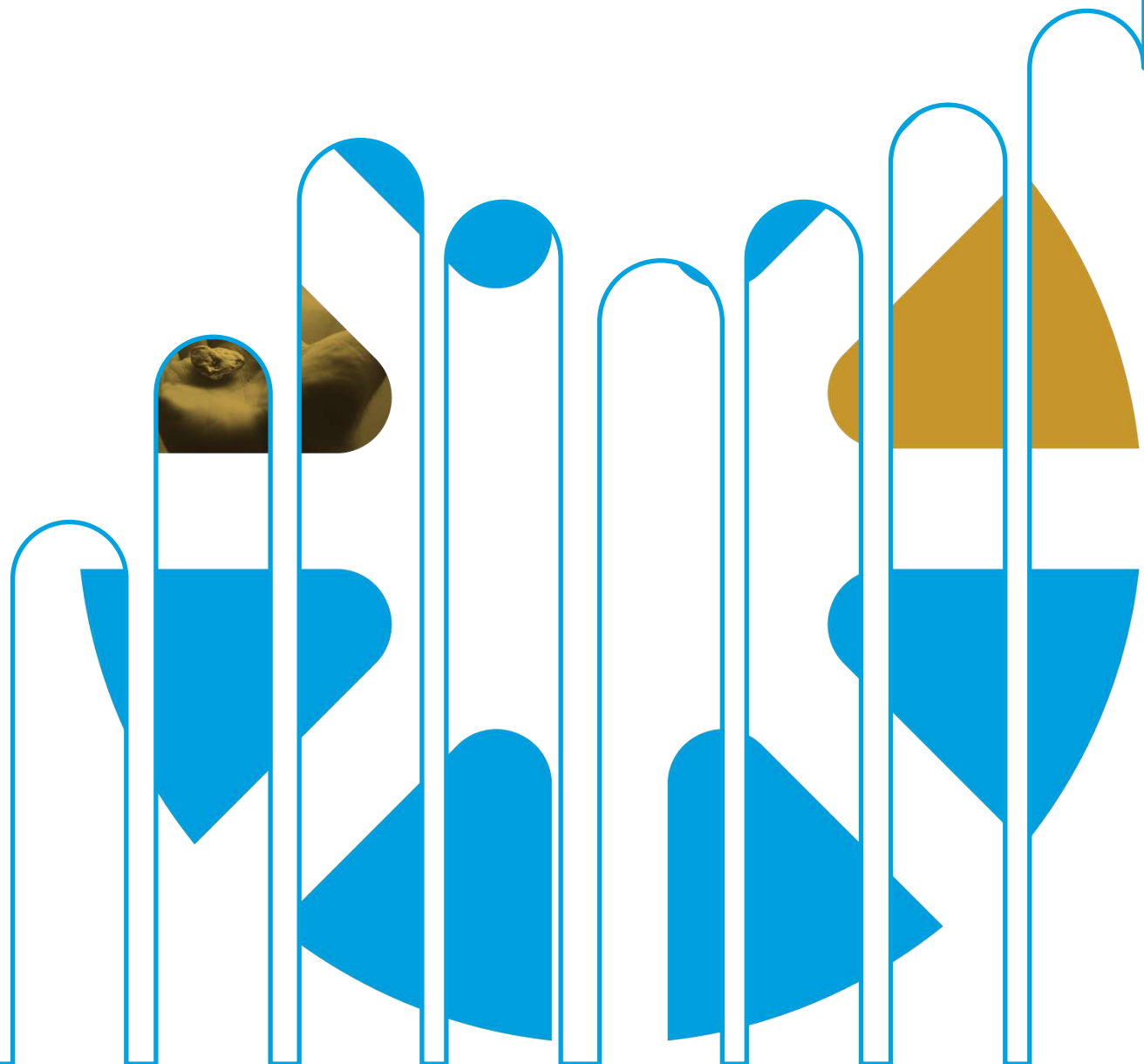
2

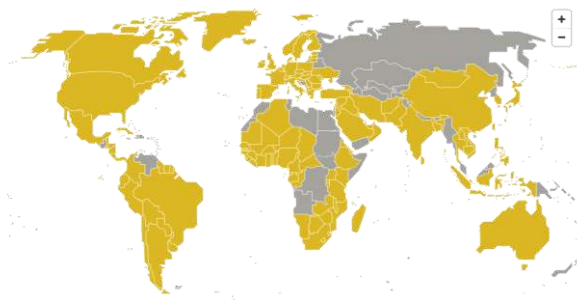
Зөөвөрлөгдөх

Элемент мөнгөн ус нь агаарт дэгдэн буцаж газрын хөрсөнд буудаг. Мөн стандарт бус хаягдлын сан, мөнгөн усаар бохирдсон гол, мөрний усаар зөөвөрлөгдөн усны экосистемд хуримтлагдана.

Төслийн танилцуулга

Минаматагийн конвенц ба planetGOLD Монгол төсөл





152 тал



2015 он



2-р зүйл: Тодорхойлолт

- ▶ (а) “Гар аргаар болон бичил уурхайн үйл ажиллагаагаар алт олборлох” гэж хувь хүн эсхүл жижиг аж ахуйн нэгж хязгаарлагдмал хөрөнгө оруулалттайгаар, хязгаарлагдмал хэмжээгээр алт олборлохыг хэлнэ;

7-р зүйл: Алтны бичил уурхай

- ▶ Тал тус бүр ийнхүү алт олборлох, боловсруулахад ашиглагдаж буй мөнгөн ус, түүний нэгдэл, дээрх үйл ажиллагаанаас байгаль орчинд үүсэж буй **ялгарлыг бууруулах, боломжтой тохиолдолд арилгах алхам хийх үүрэгтэй.**
- ▶ Бичил уурхайн бүхий талууд **Хавсралт В-гийн заалттай нийцүүлэн үйл ажиллагааны үндэсний хөтөлбөр** боловсруулж, хэрэгжүүлэх;

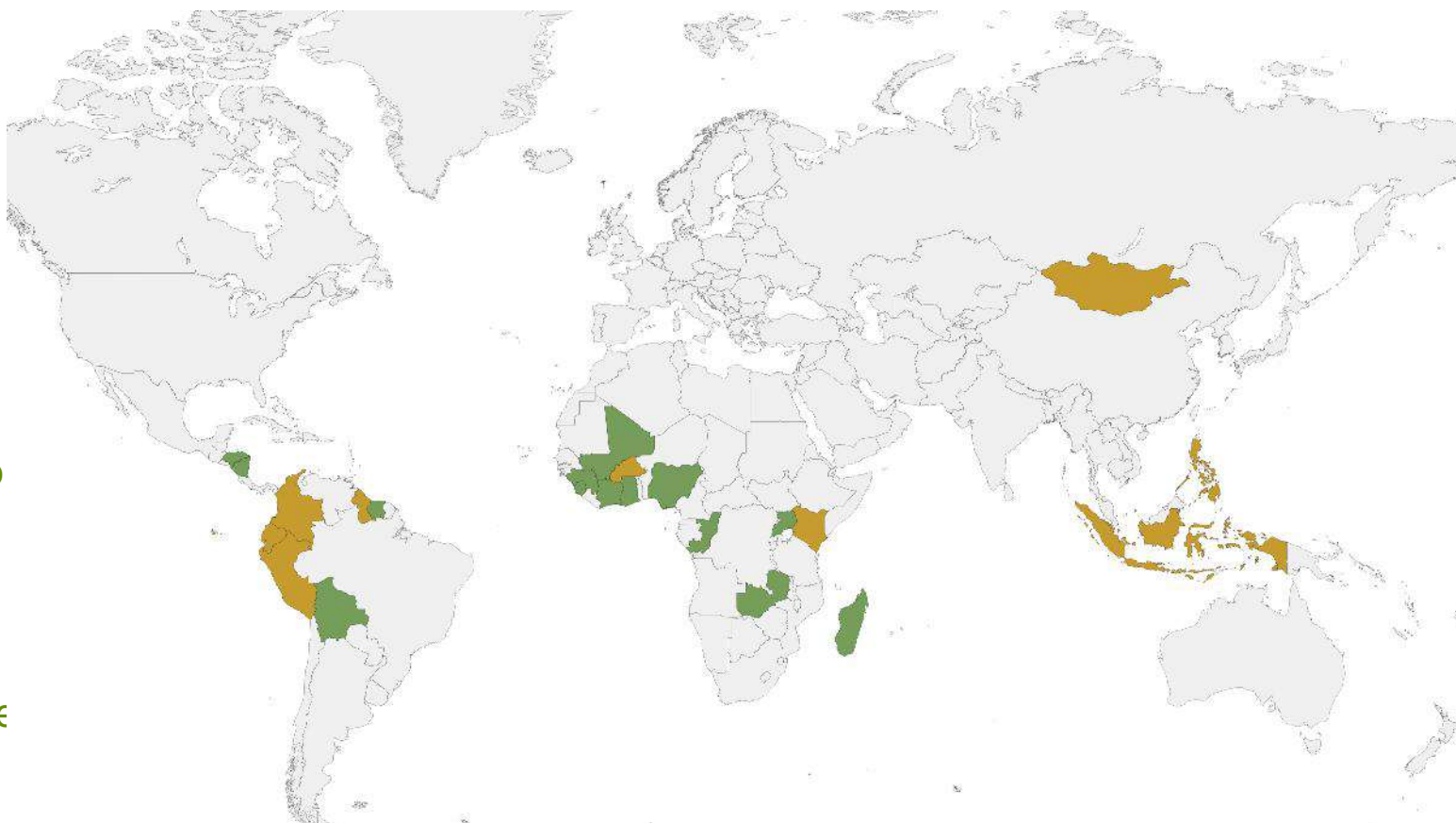
Даян дэлхийн байгаль орчны сангаас Минаматагийн конвенцод нэгдэн орсон улс орнуудад алтны бичил уурхайд мөнгөн усны хэрэглээг бууруулахад дэмжлэг үзүүлэх зорилгоор **planetGOLD** хөтөлбөрийг хэрэгжүүлж байна.

1-р үе шат:

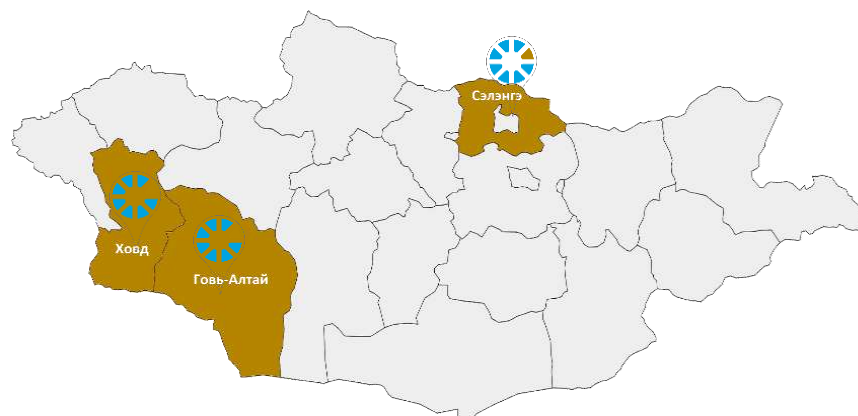
1. **Буркина Фасо**
2. Колумб
3. Эквадор
4. Гайана
5. Индонез
6. Кени
7. **Монгол**
8. Перу
9. Филиппин

2-р үе шат:

1. Болив
2. Конго
3. Гана
4. Гондурас
5. Мадагаскар
6. Нигери
7. Суринам
8. Уганда
9. Зааны ясан э
10. Эквадор
11. Гвиней
12. Мали
13. Никарагуа
14. Сьерра Леоне
15. Замби

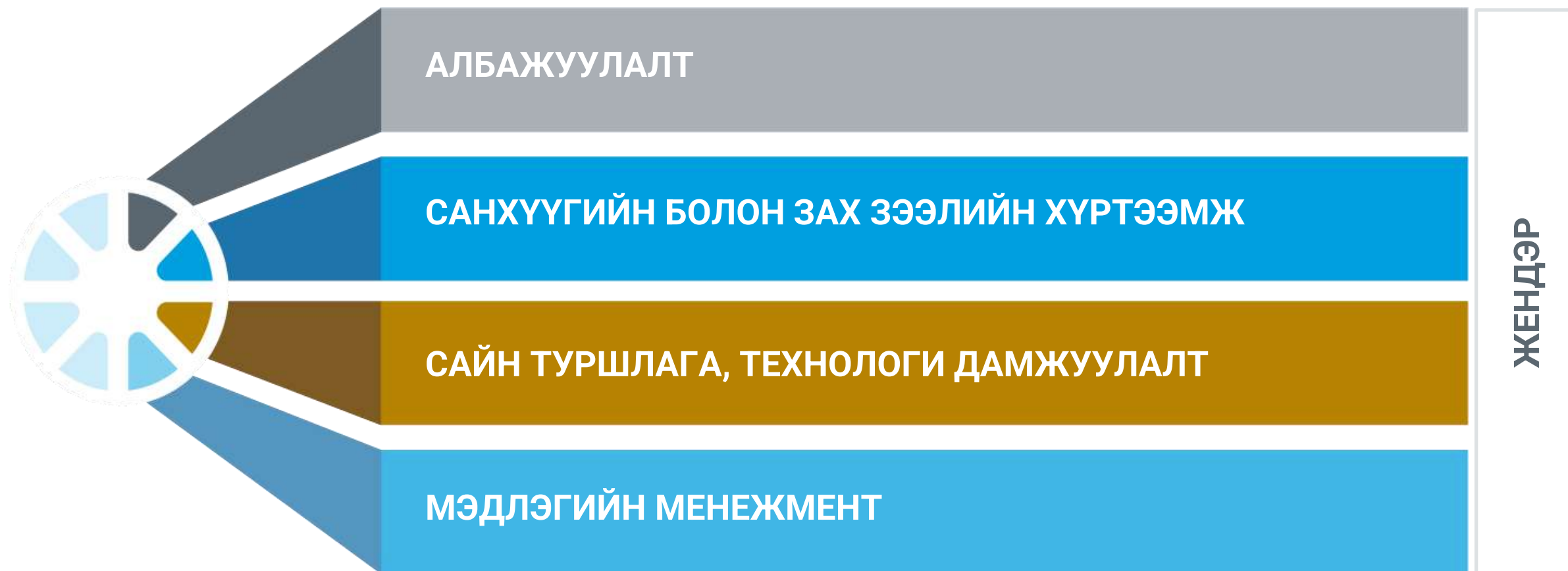


Зорилго: Олборлогчоос цэвэршүүлэгчид хүрэх үйл явцад нийлүүлэлтийн сүлжээний аргачлалыг хэрэгжүүлэх замаар алтны бичил уурхайд мөнгөн усны хэрэглээг бууруулахад хувь нэмэр оруулах



Сэлэнгэ	Баянгол, Мандал сум
Ховд	Булган, Алтай сум
Говь-Алтай	Есөнбулаг сум

Бүрэлдэхүүн хэсгүүд



Бүрэлдэхүүн 1 Албажуулалт

Бодлогын дэмжлэг

- ▶ Алтны бичил уурхайн салбарын эрх зүйн орчны дүн шинжилгээ
- ▶ Бичил уурхайн дахь алтны худалдааны тойм
- ▶ 2022 онд батлагдсан Бичил уурхайгаар ашигт малтмал олборлох журам
- ▶ Орон нутгийн түвшин дэх бичил уурхай

Хэрэгжилтийн дэмжлэг

- ▶ Бичил уурхайн шинэ журмын хэрэгжилт
- ▶ Бичил уурхайн зөвлөгөөн, ойлголт нэмэгдүүлэх үйл ажиллагаанууд
- ▶ Төрийн албан хаагчдад зориулсан чадавх нэмэгдүүлэх сургалтууд
- ▶ Бичил уурхайчдын оролцоо
- ▶ МБУНДХ-д дэмжлэг үзүүлэх

494 төрийн албан хаагч, 1386, бичил уурхайчин



Legal Framework Analysis of the Artisanal and Small-Scale Gold Mining Sector in Mongolia

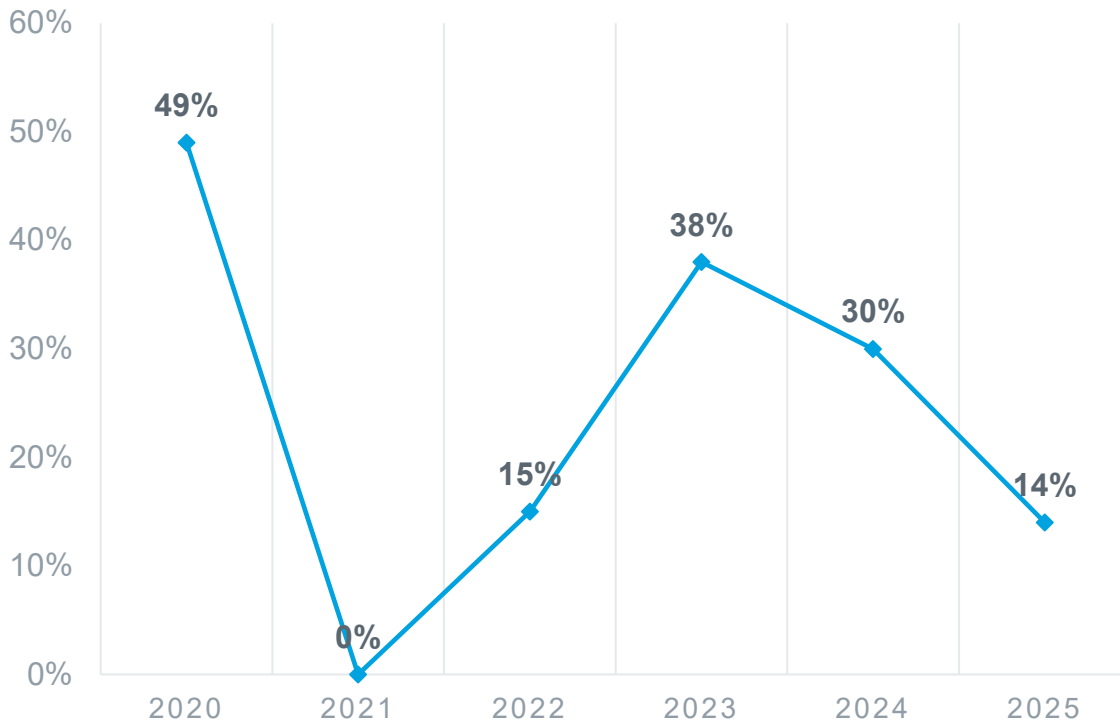
This policy report provides an overview of the current laws and regulations governing the Artisanal and Small-scale Gold Mining (ASGM) sector in Mongolia and provides recommendations to support the professionalization of the sector.

27 January 2022 / Version 3.0



Бүрэлдэхүүн 1: Алтны бичил уурхайн албажуулалт

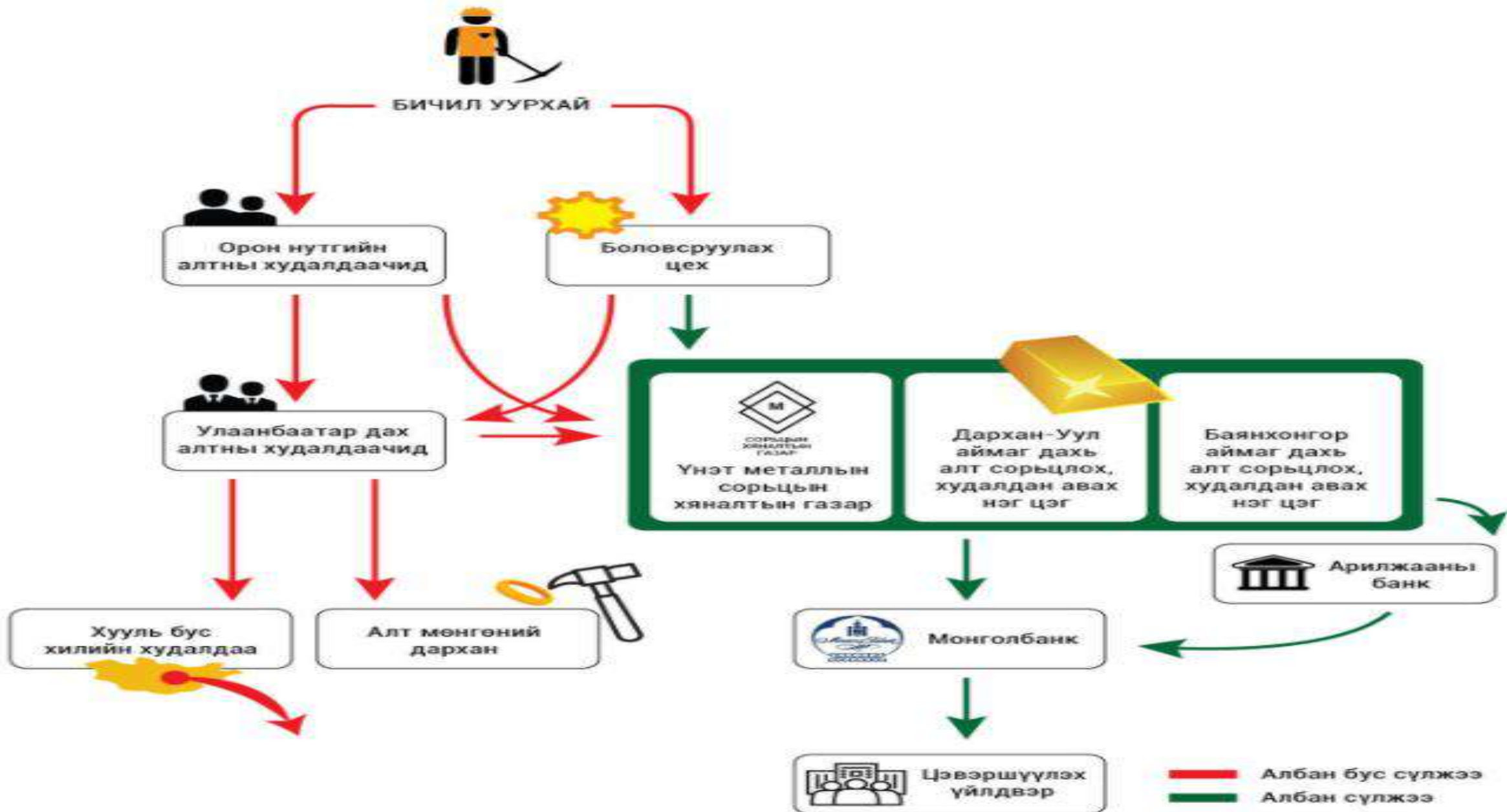
Албажсан бичил уурхайчид



Алтны бичил уурхайн албажуулалтад нөлөөлж буй хүчин зүйлс:

- ▶ Тогтвортой дэмжлэг бүхий бодлогын орчин дутмаг
- ▶ Бичил уурхайн журмыг хэрэгжүүлэхэд шаардлагатай нэгдмэл дэмжлэг сул
- ▶ Бичил уурхайн талуудын оролцоог идэвхжүүлэх
- ▶ Бичил уурхайд чиглэсэн бодлого, хэрэгжилтийг дэмжих үр ашигтай зохицуулалт, хамтын ажиллагаа сул
- ▶ Бичил уурхайчдын хариуцлагыг нэмэгдүүлэх

АЛТНЫ НИЙЛҮҮЛЭЛТИЙН СҮЛЖЭЭ



Бүрэлдэхүүн 2

Санхүүгийн хүртээмж

Бодлогын дэмжлэг

- ▶ Алтны арилжаалагчдыг албажуулалтад дэмжлэг үзүүлэв
- ▶ Бичил уурхайн журамд гарал үүслийн бүртгэлийн асуудлыг тусгав

Ойлголтыг нэмэгдүүлэх

- ▶ 2022 оноос хойш "Үнэт металлын экспо болон форум" хамтран зохион байгуулав
- ▶ Санхүүгийн байгууллагуудтай уулзалтууд зохион байгуулав
- ▶ Үнэт металлын холбооны цахим хичээл
- ▶ Хэвлэл мэдээллийн хэрэгсэлтэй хамтран ажиллав

Санхүүгийн механизм

- ▶ Хадгаламж, зээлийн хоршоо байгуулагдаж, хоршооны гишүүдийн чадавхыг бэхжүүлсэн



Бүрэлдэхүүн 2 Магадлан шинжилгээ (хариуцлагатай алт)

КРАФТ код/planetGOLD шалгуур

- ▶ Баримт бичгийн орчуулга, нутагшуулалт
- ▶ Танилцуулах, чадавхжуулах сургалтууд
- ▶ Мэдлэг түгээх видео контентууд
- ▶ Бичил уурхайн 3 байгууллагатай хамтын ажиллагаа
 - КРАФТ ажилтан томилов
 - 6 дотоод дүрэм, журам боловсруулав
 - Тогтмол тайлагнал, эрсдэлийн үнэлгээ
 - Мэдээллийн самбар, постер, ХАБ-ын аюулгүйн санамжууд
 - Нийт 43 шалгуурын 41-ийг хангав. (газартай холбоотой асуудал)



БИ ХАРИУЦЛАГАТАЙ БИЧИЛ УУРХАЙЧИН



Бүрэлдэхүүн 2: Бичил уурхайчдын санхүүгийн ба албан ёсны алтны зах зээлийн хүртээмж



	Зорилт	Үр дүн
Албан ёсны алтны зах зээлийн хүртээмж (зөвшөөрөлтэй)	100%	100%
Үйлдвэрлэсэн/худалдсан хариуцлагатай алт	1000кг	12.7кг



Бүрэлдэхүүн 3 Сайн туршлага, технологи

Алтны хүдэр баяжуулах мөнгөн усгүй технологийн хоёр цех (МУБЦ)

МУБЦ-1: “Шижир Хишиг” нөхөрлөл

МУБЦ-2: “Түнхэл Манлай” нөхөрлөл

- ▶ Бичил уурхайн талбайн нөөцийн судалгаа
- ▶ Технологийн туршилт, шинжилгээ
- ▶ Колумб ба БНХАУ-н хүндийн хүчний алт баяжуулах тоног төхөөрөмжүүд
- ▶ Барилга байгууламж, дэд бүтэц
- ▶ Мөнгөн усгүй баяжуулах технологийн суурилуулалт, туршилт
- ▶ Баяжуулах үйл ажиллагааны зөвшөөрлүүд
 - Техник эдийн засгийн үндэслэл
 - Байгаль орчинд нөлөөлөх байдлын нарийвчилсан үнэлгээ



Бүрэлдэхүүн 3 Сайн туршлага

Судалгаа, үнэлгээ

- ▶ Талбайн үнэлгээ
- ▶ Нөхцөл байдлын судалгаа
- ▶ Алтны бичил уурхайн салбарын жендэрийн зураглал
- ▶ Бичил уурхайчдын нийгмийн зайлшгүй үйлчилгээний боломж, хүртээмжийн судалгаа

Жендэрийн зөвлөл болон идэвхтнүүдэд дэмжлэг үзүүлэв

- ▶ Жендэрийн идэвхтнүүдийг бэлтгэсэн
- ▶ Жендэрийн зөвлөл байгуулж, чадавх бэхжүүлсэн
- ▶ Жендэрийн зөвлөлөөс гаргасан санаачилгуудыг дэмжсэн
 - ▶ Бичил уурхайчдын эрүүл мэндийн үзлэг
 - ▶ “Мөнгөн уснаас татгалзъя” сэдэвт гар зургийн уралдаан



Монгол Улс дахь
алтны бичил
уурхайн салбар:

planetGOLD Монгол төслийн бүс
нутгийн нөхцөл байдлын судалгаа

Бичил уурхайчдад зориулан сургалтын модуль боловсруулж, хэрэгжүүлсэн



Байгаль орчны сайн туршлага



Албажуулалт



Жендэр ба хүний эрх



Хариуцлагатай бичил уурхай



Бизнесийн удирдлага



Хөдөлмөрийн аюулгүй байдал ба эрүүл ахуй

Чадавхжуулах сургалтууд



**3578 бичил уурхайчин,
төрийн албан хаагч,
бусад талууд**

Албажуулалт гэдэгт бичил уурхайчид зөвхөн зохион байгуулалтад орсноор дуусдаггүй, алтаа албан ёсны худалдаачинд зарах, санхүүгийн баримт бичгээ дүрэм журмын дагуу хөтлөх зэрэг үйл явцыг багтаасан өргөн хүрээний ойлголт болохыг мэдэж авлаа.

Ховд аймгийн төрийн албан хаагч

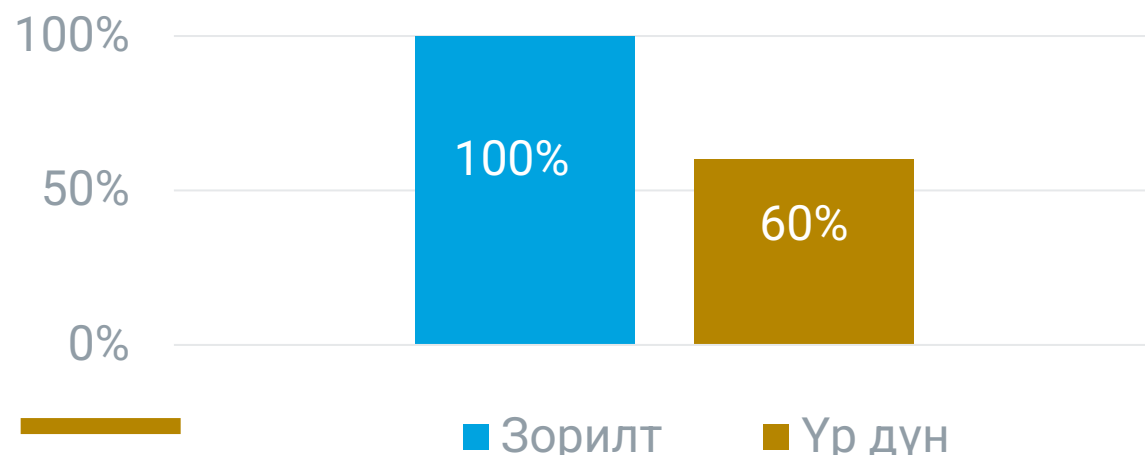
Хүний эрхийн талаар маш олон зүйл суралцлаа. Ялангуяа нийгэм дэх эрэгтэйчүүдийн жендэрийн асуудал, тухайлбал биеийн хүчний ажлын тэгш бус ачаалал, эрүүл байх зан үйлийн дутмаг байдлын талаар энэхүү сургалтаас мэдэж авлаа.

Говь-Алтай аймгийн уурхайчин

Бүрэлдэхүүн 3: Технологи ба сайн туршлага

	Зорилт	Үр дүн
Төслийн нутагт мөнгөн уснаас урьдчилан сэргийлсэн хэмжээ	15 тонн	0.17 тонн

Сайн туршлага хэрэгжүүлсэн



Ололт амжилт

- ▶ МУАХБЦ нэвтрүүлсэн
- ▶ Сургалтын модуль боловсруулж хэрэгжүүлсэн
- ▶ Жендэрийн зөвлөл байгуулагдсан
- ▶ Орон нутгийн төрийн албан хаагчид, МБУНДХ-той хамтран чадавх бэхжүүлсэн

Сургамж

- ▶ Бодит бус зорилт
- ▶ Тогтвортой бодлогын орчин дутмаг
- ▶ Үндэсний хөтөлбөр хүчингүй болсон
- ▶ Бичил уурхайн газрын дүгнэлт батлах үйл явц удаан
- ▶ Эдгээр нь хүдэр нийлүүлэлтийг тасалдуулж, мөнгөн усыг бууруулах боломжид сөргөөр нөлөөлж байна.

Бүрэлдэхүүн 4: Мэдлэгийн менежмент



Нийгмийн цахим сүлжээ,
вебсайт

1,600,000

Хүн



Хэвлэл, мэдээллийн
хэрэгсэл

150

Ярилцлага, нийтлэл



Хэвлэмэл, цахим, видео мэдлэг,
мэдээллийн материал

79

Материал нийтлэгдэв



Олон нийтэд чиглэсэн арга
хэмжээнүүд

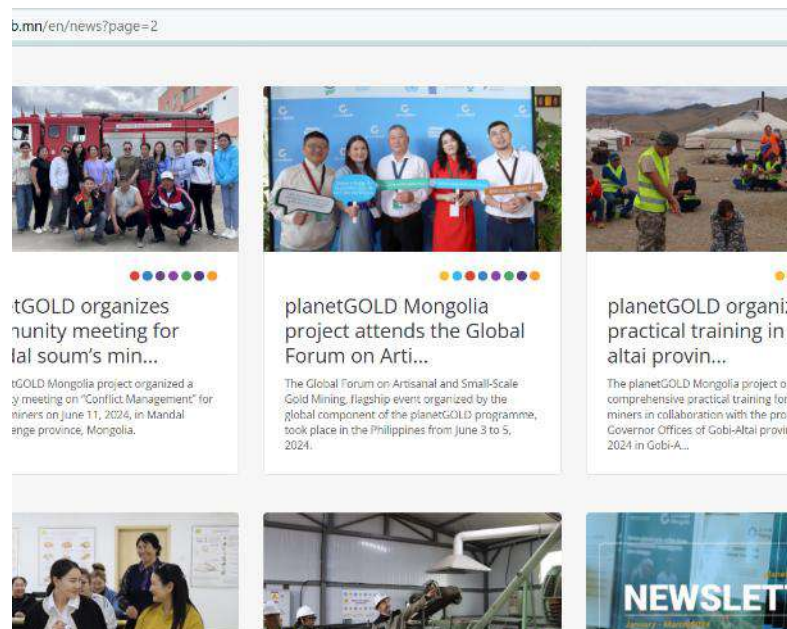
20,000

Хүн

Бүрэлдэхүүн 4: Мэдлэгийн менежмент



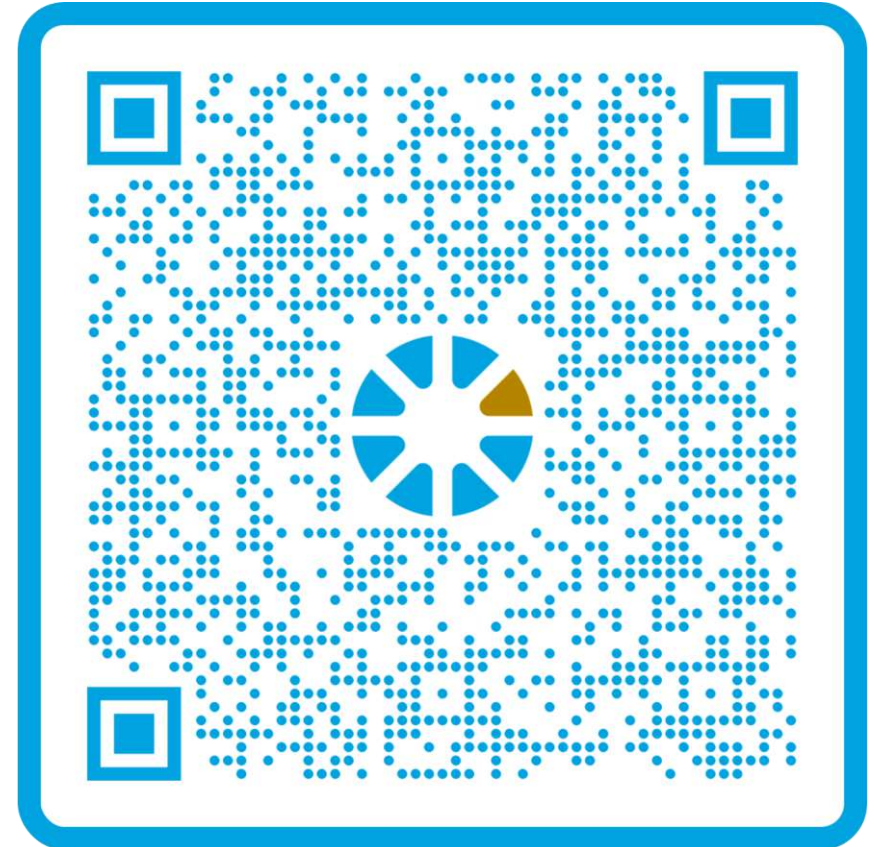
Түншлэл



Олон талт
платформ/мэдлэгийн төв



Мэдлэг, мэдээллийн
хүртээмж



БАЯРЛАЛАА!



Санхүүжүүлэгч:



Үндсэн хэрэгжүүлэгч:



Хамтрагчид:



БАЙГАЛЬ ОРЧИН, УУР АМЬСГАЛЫН
ӨӨРЧЛӨЛТИЙН ЯАМ



Д.ХИШГЭЭ

planetGOLD Монгол Төслийн менежер

Хаяг: 13311 Улаанбаатар хот, Баянзүрх дүүрэг

36-р хороо, Хүннүгийн гудамж, Их Монгол оффис

Утас: +976 77559695

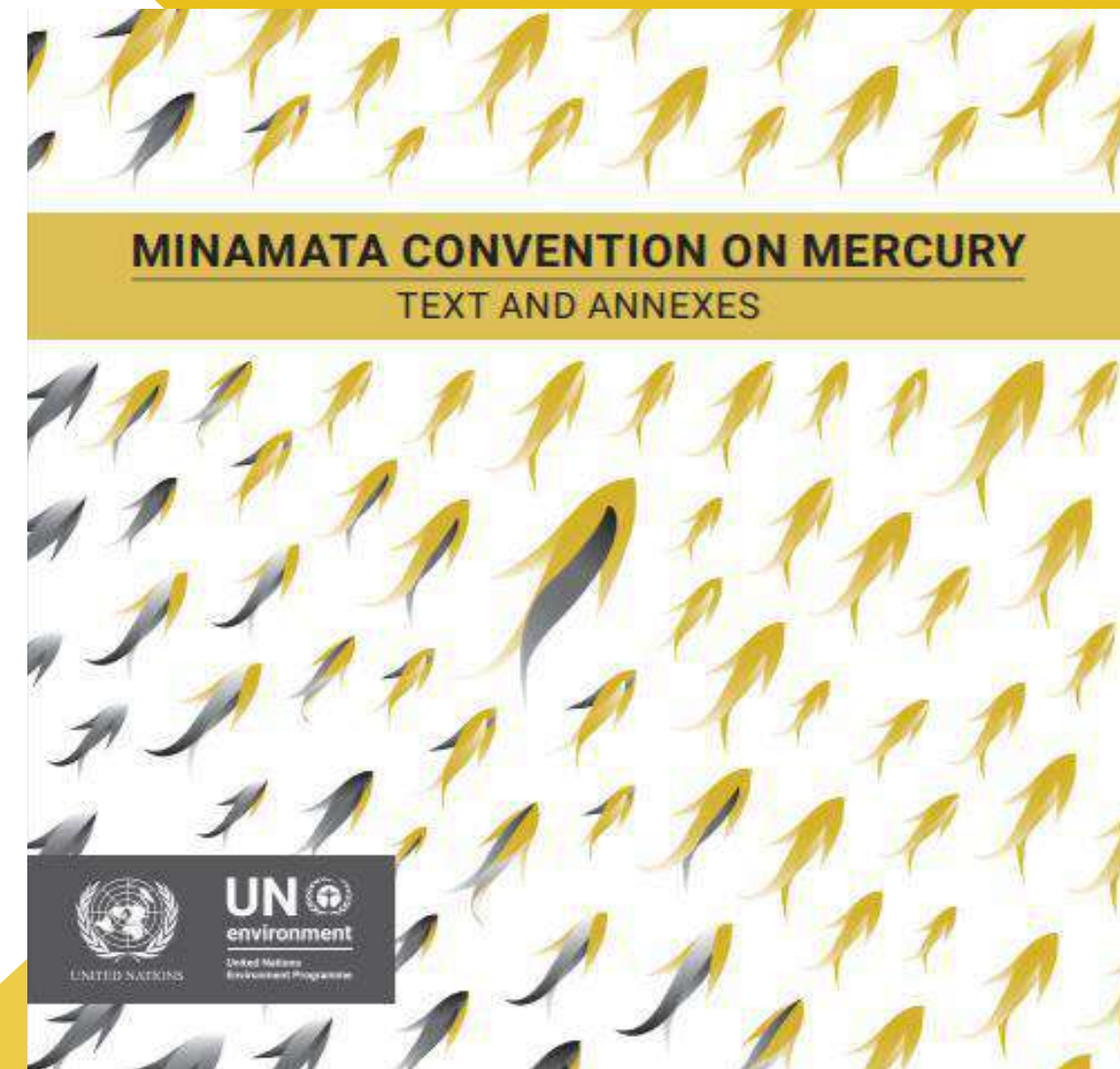
Имэйл: khishgee@artisanalgold.org

Вебсайт: www.planetgold.org; www.artisanalgold.org

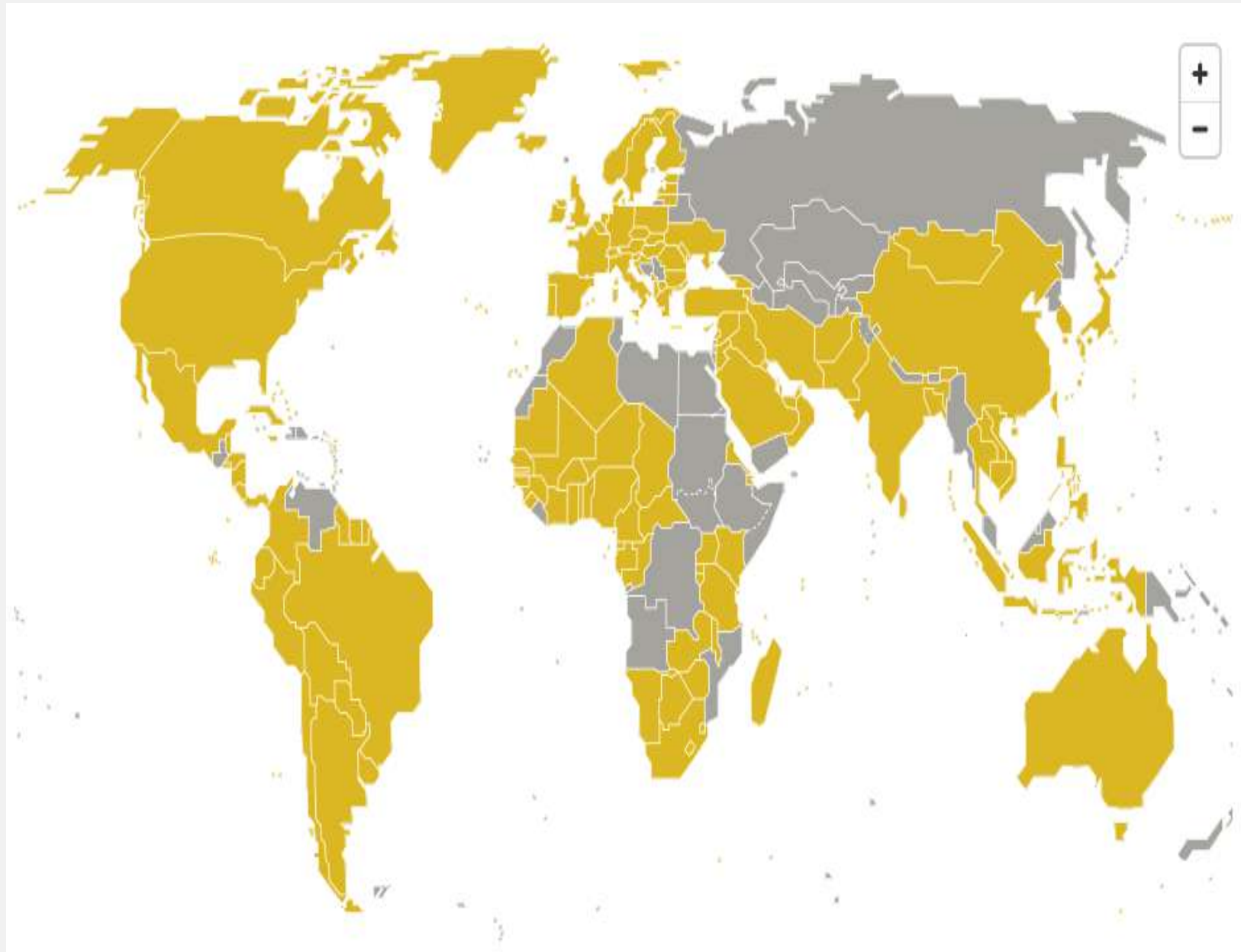
Understanding the Minamata Convention on Mercury in Relation to Trade

Presented by:
Tahlia Ali Shah, BRI

**NATIONAL TRAINING ON STRENGTHENING COUNTRY-LEVEL
INTER-AGENCY COORDINATION ON TRADE OF MERCURY:
MONGOLIA**



Minamata Convention on Mercury



AIM: 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

152 Parties, as of June 2025



Managing different types of mercury under the Minamata Convention:

- **Article 3 Mercury Supply Sources and Trade**

- Article 10 Environmentally sound interim storage of mercury, other than waste mercury

- Article 4 Mercury Added Products
- Article 5 Manufacturing processes in which mercury or mercury compounds are used
- Article 7 Artisanal and Small-Scale Gold Mining

- Article 11 Mercury Wastes

Elemental Mercury (liquid) and inorganic mercury compounds/salts

Prohibiting use of mercury/ mercury compounds in the manufacture of products/industrial processes

Mercury wastes
(from use and disposal of products etc.)



Article 3: Mercury supply sources and trade

Requires Parties to take measures to control trade of mercury with other Parties as well as with non-Parties and reinforces demand reduction control measures (Articles 4–7)

This article covers:

- elemental mercury,
- mixtures of mercury with other substances, including alloys of mercury, with a mercury concentration of at least 95 per cent by weight,
- “Mercury compounds” meaning mercury (I) chloride (known also as calomel), mercury (II) oxide, mercury (II) sulphate, mercury (II) nitrate, cinnabar and mercury sulphide.



Article 3: Mercury supply sources and trade

Main Provisions:

- Not allow the EXPORT of mercury unless the importing country provides **written consent**, the mercury is for an **allowed use or environmentally sound storage**, and all other conditions of Article 3.6 are met.
- Not allow the IMPORT of mercury without government **consent**, ensuring both the mercury **source and proposed use** are allowed under the Convention (and applicable domestic law).
- Restrict the export and use of mercury from **primary mercury mining**, so that it is not available for use in artisanal and small-scale gold mining (ASGM).



Article 3: Mercury supply sources and trade

General Notifications:

- Allows for Parties to issue consent either on an import-by-import basis or through a general notification of consent provided to the Secretariat.
- A general notification of consent may include terms and conditions and may be revoked at any time by that Party or non-Party.



SCENARIO ONE

EXPORTER IS A PARTY → IMPORTER IS A PARTY



Importing Party
has provided
written consent



Mercury is for use allowed under the
Convention, OR for environmentally sound
interim storage



SCENARIO TWO

EXPORTER IS A PARTY → IMPORTER IS A NON-PARTY



Importing non-Party
has provided
written consent



Importing non-Party certifies it has
measures in place to protect human health
and the environment

Importing non-Party ensures its compliance
re: storage and final disposal

Mercury is for use allowed under the
Convention, OR for environmentally sound
interim storage



SCENARIO THREE

EXPORTER IS A NON-PARTY → IMPORTER IS A PARTY



NON-PARTY



PARTY TO CONVENTION



Mercury export
is allowed if:



Importing Party
has provided
written consent



Exporting non-Party has provided
certification that the mercury is not from
primary mercury mining or from
decommissioning chlor-alkali facilities



Minamata Convention Secretariat

The Minamata Secretariat makes public the forms and guidance and keeps a public register of general notification of consent on its website.

<https://minamataconvention.org/en/documents/forms-related-article-3-mercury-trade>

<https://minamataconvention.org/en/documents/guidance-completing-forms-required-under-article-3-related-trade-mercury>



Minamata Convention Secretariat

A draft study has also been developed by the Secretariat on the **global supply, production, trade and use of mercury compounds** to further support countries in understanding the challenges and lessons learnt in managing mercury supply, trade and demand.

Some findings include...



What are the main sources of mercury compounds?

Mercury compounds come from four main sources:

- a) commercial producers of mercury compounds;
- b) byproduct mercury compounds from metal smelting and natural gas processing;
- c) mercury compound waste from catalysts used in oil and gas processing, from discarded products that contain mercury compounds, and from research and medical facilities; and
- d) government or private mercury compound inventories of those involved in the production, recovery, trade or use of mercury compounds.



Reports from EXPORTING COUNTRIES of >5000 kg of mercury compounds (in 2023)

	HS 285210 - Mercury compounds, chemically defined, inorganic or organic, excluding amalgams (net weight in kg)						Sum
<i>Reporter</i>	<i>2018</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>	<i>2022</i>	<i>2023</i>	<i>2018-2023</i>
Thailand	596319	471671	243691	273809	433897	474080	2493467
United States	58696	130411	18675	18755	31303	83841	341681
South Africa	167332	90819	83387	257097	113337	64363	776335
Austria	90420	89789	103947	107428	105789	58755	556128
France	0	0	0	63661	45398	26179	135238
Morocco	91	1550	2605	1010	660	8600	14516
Malaysia	0	0	0	0	0	6200	6200
Source: Trade Data Monitor (2018-2021) and Comtrade (2022-2023)							



Reports from IMPORTING COUNTRIES of >5000 kg of mercury compounds (in 2023)

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<i>Reporter</i>	<i>2018</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>	<i>2022</i>	<i>2023</i>	<i>2018-2023</i>
Italy	599820	504489	208425	238658	1747045	893173	4191610
France	1727960	1299633	1096285	1374556	1009754	488978	6997166
Czechia	269903	311001	455533	301523	281565	178681	1798206
Belgium	11965	10494	4111	435955	784576	125364	1372465
Spain	9659	8124	8488	9141	7818	67406	110636
Luxembourg	5388	5074	3059	5132	1892	48084	68629
Portugal	23261	28080	30836	30032	32255	24565	169029
Netherlands	8475	3326	1340	2437	1022	11034	27634
Canada	18598	69352	10969	17961	7391	12540	136811
Malaysia	130	244	332	1074	309	9656	11745
Germany	66100	37800	24100	21700	6890	7156	163746
Source: Trade Data Monitor (2018-2021) and Comtrade (2022-2023)							



Based on the low average value per kilogram of compound traded, it can be deduced that while the ***HS Code: 285210 – Mercury compounds, chemically defined, inorganic or organic, excluding amalgams*** is meant to be used for only mercury compounds, the volumes reflect that it includes byproduct compounds meaning that identifying commercial trade of mercury compounds is still not fully captured.

The Minamata Secretariat's study is expected to be finalized in 2025.



Thank You!



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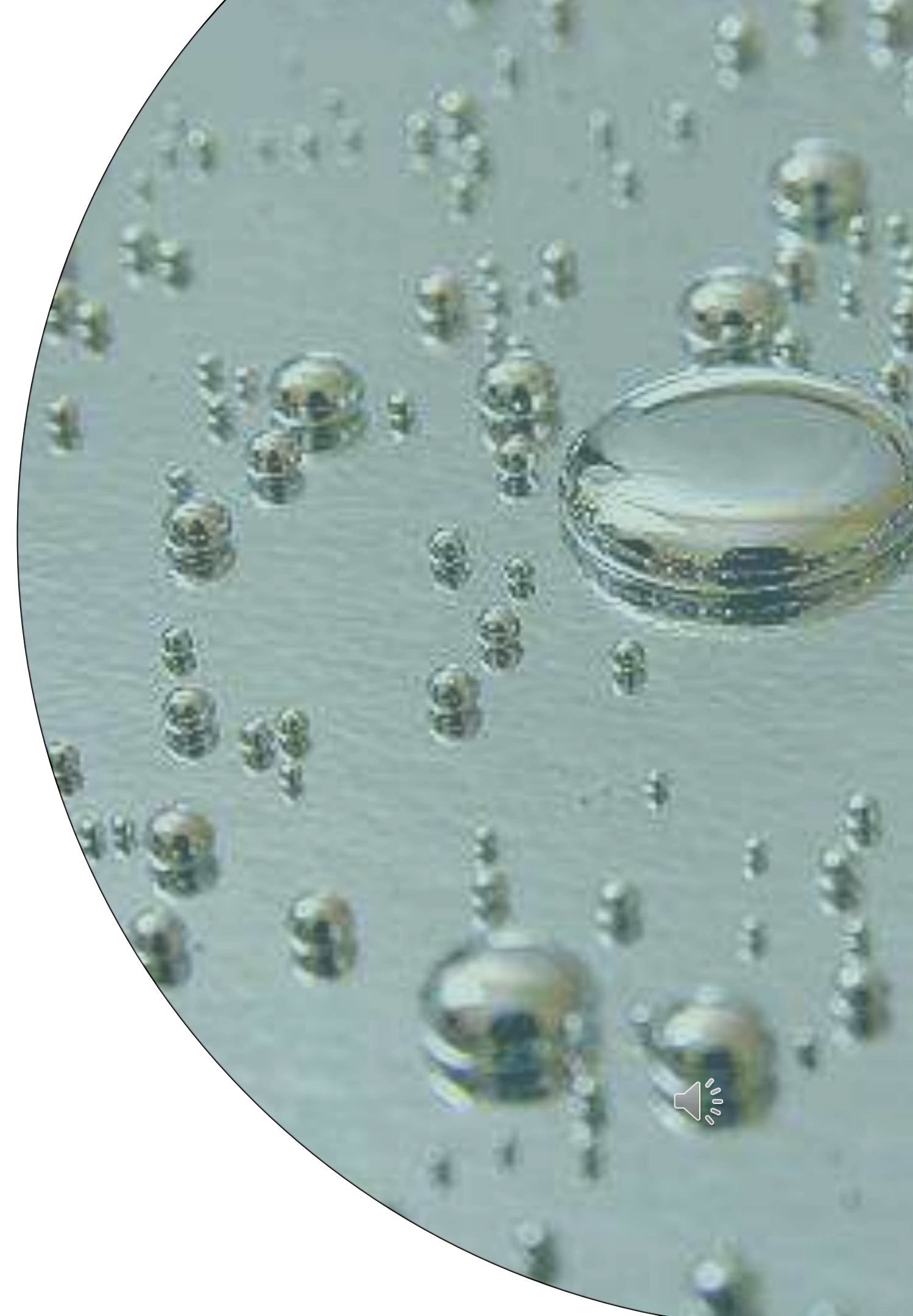
Handling and Disposal of Mercury Waste

National Training on Strengthening Country-Level Inter-Agency Coordination on Trade of Mercury –
Mongolia

23 – 24 June 2025



Presenter: Tahlia Ali Shah, BRI



What are Mercury Wastes?

Under Article 11 of the Minamata Convention, “mercury wastes” refer to substances or objects:

- **Consisting** of mercury or its compounds (e.g. waste mercury catalysts from industrial processes),
- **Containing** mercury or its compounds (e.g. end-of-life mercury added products) *or*
- **Contaminated** by mercury or its compounds (e.g. smelting residue and tailings from primary metal production)

This definition **excludes** overburden, waste rock and tailings from mining, except from primary mercury mining, unless they contain mercury or mercury compounds above thresholds defined by the Conference of the Parties.



Obligations for Management of Mercury Wastes

Under Article 11 of the Minamata Convention, each Party shall take appropriate measures so that mercury waste is:

- 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...
- Only recovered, recycled, reclaimed or directly re-used for a use allowed to a Party under this Convention or for environmentally sound disposal...



Obligations for Management of Mercury Wastes

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.



Guidelines for Mercury Waste Management



The technical guidelines from the Basel Convention on the environmentally sound management of wastes consisting of, containing or contaminated with mercury or mercury compounds provide guidance on how to prevent, minimize, handle, store and dispose of mercury wastes.



Identification of Mercury Wastes

Identify category (consisting, containing, contaminated by) of mercury waste and understand the potential hazardous characteristics and risks of mercury waste to determine best approach to handling.



Handling of Mercury Wastes

Ensure that waste is handled in a secure manner to prevent evaporation/spillage.

Ensure proper awareness amongst waste handlers and that they wear appropriate personal protective equipment to handle, separate, package, label, transport and store waste.



Storage of Mercury Wastes

Key considerations for storage include:

- Siting
- Design
- Floor
- Equipment
- Structure and interior furnishings
- Forklift
- Temperature
- Signage



Treatment and Disposal of Mercury Wastes

- **Treat** mercury wastes so that they meet the acceptance criteria of disposal facilities.
- **Minimize** mercury emissions/releases from treatment processes of mercury wastes
- **Dispose** of treated wastes in specially engineered landfills and permanent storage



THANK YOU

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BIODIVERSITY RESEARCH INSTITUTE
innovative wildlife science



Risk Profiling for Mercury Exercise¹

In this exercise, you will complete templates for each stage of developing and managing a risk profile in Customs enforcement. Follow these steps to guide your analysis and decision-making on the following steps:

1. **Analysis and Identification of Risk** to justify the need for profiling, demonstrating the risk's relevance and control effectiveness.
2. **Selection of Risk Indicators** to choose the most effective indicators to target the identified risk, ensuring they are compatible with existing Customs control systems.
3. **Setting Up and Implementing the Risk Profile** by defining the parameters of the risk profile and set it up to ensure proper application in Customs controls.
4. **Operational Follow-Up Plan** focused on the risk profile, involving national implementation and collaboration with other relevant agencies.
5. **Monitoring of the Risk Profile** by describing the review and update the profile based on new information and ensure that results are shared between relevant authorities.

Complete each section in the templates provided.

¹ This Operation Planning and Implementation exercise was adapted from an exercise developed by Anna Ewa KOBYLECKA from the World Customs Organization.

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23-24 June 2025
Risk profiling - Practical exercise

1. Analysis and identification of risk	Remarks
1. Background	
1.1. Requesting/Responsible Person/Unit within the Customs Administration and/or in the Environmental Authority	
	Contact details of Customs and/or Environmental Authority requesting or designing actions to be implemented • Contact person + contact information
1.2. Time period	
	Suggested period over which the profile is expected to run • Date start / date completed
1.3. Background Information	
	The need for a risk profile • National control plans / strategy • Request from the Environmental Authority • Tip-off / Controlled delivery • Global / Regional / National Joint Enforcement Operation

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	Results of previous enforcement actions / operations
1.4. Focus of the risk profile	
	Focus of the risk profile will depend on the need for a risk profile, and /or the identified risks, and/ or the existing legislation
1.5. Description of risk(s)	
	<i>It is recommended that this section is determined in cooperation with the national Environmental Authority(ies)</i> Assessment of risk(s) related to mercury/mercury-added products that require taking control actions by Customs can be based on the following considerations: 1. Risk of non-compliance with Legal Requirements of mercury-related legislation. 2. Other important Considerations such as: Environmental; Political, Economic: Consumer demand, Regulation and enforcement gaps.

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	3. Risk related to possible/ already identified modus operandi involving illegal trade in mercury 4. Data on legal and illegal trade 5. Feedback from the examination teams related to previous controls 6. Other data such as Police data, Environmental Authority data, Public Prosecution Office data, Open-source data
1.6. Applicable legislation	
	The legal framework for trade in mercury/ mercury-added products: ● International frameworks ● Regional frameworks ● National legislation

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2. Selection of risk indicators		LOW	Each risk indicator can be given a relevant level of risk (high, medium or low risk) to help prioritize the risk(s) ²
		MEDIUM	
		HIGH	
2.1.	Commodity and Goods Description		
Level of risk		<i>It is recommended that this section is determined in cooperation with Environmental Authorities</i> ● Description of commodities/ Photos ● Examples of misdescription of mercury/mercury-added products	
2.1.2.	Tarriff classification		
Level of risk		● Identify relevant HS codes and codes used for misclassification	

² According to the WCO Risk Management Compendium (<https://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/tools/risk-management-compendium.aspx>), risk indicators are specific criteria which, when taken together, serve as a practical tool to select and target movements that pose a risk of potential non-compliance with Customs laws. Note that risk indicators can be chosen to target or to be treated as unwanted for a given risk profile and thus excluded as being low risk (e.g. importers that are low risk, or low risk countries of origin).

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2.2.	Routing	
2.2.1.	Country of export	
Level of risk		• Specific countries based on information and intelligence
2.2.2.	Country of transit	
Level of risk		• Transshipment • Illogical shipment routes • Specific countries based on information and intelligence
2.2.3.	Country of import	
Level of risk		
2.2.4.	Port of loading and port of discharge	
Level of risk		• Depending on information or intelligence, e.g. use ports with a lower risk of being detected or lower level of control, e.g. Inconsistent with shipper's or importer's address.
2.3.	Required documents	
Level of risk		• PIC/ Licenses / other required documents
2.4.	Economic Operators	

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Level of risk		Details of involved economic operators can be used to target high risk importer/exporters with a known history, or conversely to exclude those who have shown compliance. Unknown/new operators may also be in the scope of a risk profile as more likely not to follow the requirements. • Carrier/Shipper • Exporter/Consignee • Importer/Consignor
2.5.	Other	
Level of risk		To be completed where profile request is related to other risk indicators, e.g., Volume/ Weight/ Value / Payment method / Packaging; container number to follow a specific consignment information, e.g. available in pre-arrival information

3. Measures – Implementation of a risk profile

3.1. Suggested level of controls

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	● Hit rate can be expressed as a suggested percentage of consignments to be controlled (e.g. 0,5%) or in total number.
3.2. Type of controls	
	Indicate the scope and type of controls as well as any other relevant measures. Depending on the level of risk and / or focus of the risk profile, there may be identified specific criteria for intervention, e.g.; only documentary control, documentary and physical examination, taking samples for testing. Different levels of risk are usually treated in the following way: ● Automatic release for lowest risk – green channel; ● Documentary controls only for medium risk – yellow channel ● Documentary controls coupled with physical inspection (non-intrusive

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	scanner used first, then inspection depending on scan results) for the highest risk – red channel.
3.2.1. Documentary checks	
	Indicate the scope and guidance regarding documentary checks ● Licenses and permits ● Other useful documentary resources, e.g. Invoices There is a need to compare several documents of a specific shipment and see if there are differences, things which looks strange or are doubtful such as: route, destination, description of goods, date of issue to be consistent with voyage, not professional, late changes on the documents (i.e. description, weight, etc.)
3.2.2. Physical examination	
	Indicate the scope and guidance regarding physical checks, e.g. It is recommended that physical examination involves the following, e.g., Prior to the opening the container: 1. Scanning of the container

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	2. Implementing safety measures Further: 3. Comparing the goods with the export information (composition, packaging, quantity, treatment) 4. Checking consistency of information 5. Container Seal numbers 6. As relevant, physical control may involve sampling.
3.2.3. Taking samples	
	Indicate the scope and guidance regarding sampling, e.g. the need for contacting the Environmental Authority and contact details of a Unit or Person • Contact person/Unit + contact information
3.3. Contact official/unit in the Customs Administration	
	Indicate contact details that facilitate communication and management of the profile in the Customs administration

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	• Contact person/Unit + contact information
3.4. Contact official / unit in the Environmental Authority	
	Indicate contact details that facilitate communication and management of the profile in the in the Environmental Authority • Contact person/Unit + contact information
3.5. Other	
	Any remarks relevant for a given profile • E.g., storage and / or handling guidance

4. Monitoring / Reporting / Feedback – Monitoring of a risk profile	
4.1. Evaluating Unit / Authority	
	• Contact person/Unit + contact information

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4.2. Total Number of profile hits	
	• Number of profile hits
4.3. Number resulting in intervention	
	• Number of documentary checks, number of physical examination
4.4. Results/outcomes of intervention	
	• E.g.: number of samples taken, results of testing, number of consignments seized
4.5. Recommendations	
	• E.g.: maintain, delete, suspend profile; if profile is maintained, recommend its refinement

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Risk-assessment methodologies: Mercury detection and forensic analysis techniques



Ulaanbaatar, Mongolia

23–24 June 2025

Background

- Mercury is a highly toxic heavy metal that affects neurological, renal, and developmental systems, posing serious risks to vulnerable groups such as children and pregnant women
- Risk assessment is essential for identifying and quantifying mercury exposure, supporting regulatory monitoring, and managing risks in mining, industrial, and environmental settings.
- Risk assessment for mercury relies on analytical detection techniques are essential for protecting health, guiding policy, and supporting global efforts like the Minamata Convention.

Applicability of Risk assessment methods

Risk assessment methods can be used to check and assess various mercury shipments, including:

- Elemental mercury
- Mercury compounds
- Mercury-containing waste
- Mercury-added products

For the purposes of this presentation, **mercury-added skin lightening products** will be used as a **case study**.

- This product category represents an **emerging issue** and is **more difficult to identify** than elemental mercury.
- However, the **underlying principles and assessment methods** apply similarly across all mercury forms and product types.

Article 4 – Minamata Convention

- Requires Parties to ban the manufacture, import, and export of specified mercury-added products (e.g., **batteries, switches, lamps, cosmetics, measuring devices**) by set phase-out dates
- Aims to reduce global supply and demand for mercury in products, protecting health and the environment.



Mercury added Skin Lightening Products (SLPs)



- **Mercury compounds** are sometimes added to skin lightening products to inhibit melanin production and lighten skin tone.
- Commonly found in **creams, soaps, and lotions**, especially in unregulated or imported products.
- **Highly toxic:** mercury can be absorbed through the skin, causing kidney damage, neurological issues, and developmental harm.
- They not only pose serious health risks not only to users, but also to family members and the environment through contaminated surfaces and waste.
- Many products **exceed legal mercury limits** (often above 1 ppm or now **0 ppm** in updated standards), violating international safety regulations.
- Banned or restricted under **Article 4 of the Minamata Convention on Mercury** and by health authorities in many countries.



Identifying Mercury in Skin Lightening Products



Importance of testing skin lightening products and cosmetics for mercury

- **Lack of Ingredient Transparency:** Mercury is often not listed on product labels or have ingredients written in different languages, making it difficult for consumers, regulators, and health authorities to identify hazardous products based on packaging alone.
 - **Limited Testing Capacity at Borders:** Many customs agencies lack the equipment, expertise, or resources to routinely test cosmetic products for mercury, allowing dangerous items to enter markets undetected.
- 

Instruments commonly used for testing:

- X-Ray Fluorescence (**XRF**)
- Direct Mercury Analyzer (**DMA**)
- Inductively Coupled Plasma Mass Spectrometry (**ICP-MS**)
- Inductively Coupled Plasma Optical Emission Spectrometry (**ICP-OES**)
- Cold Vapor Atomic Absorption Spectroscopy (**CVAAS**)
- Cold Vapor Atomic Fluorescence Spectroscopy (**CVAFS**)
- Atomic Absorption Spectroscopy (**AAS**)
- Commercially available testing kits

Handheld X-Ray Fluorescence (XRF)

Advantages

- I. Portability:** Highly portable, allowing for on-site, real-time analysis without the need to send samples to a laboratory and cost-effective
- II. Non-Destructive:** sample remains intact after testing
- III. Rapid Results:** Real-time results
- IV. Versatility:** These devices can detect elements other than mercury
- V. Instrument** is not damaged by extreme high mercury concentrations



Disadvantages

- I. Detection Limit:** These devices have a higher detection limit than other instruments available (e.g., Direct Mercury Analyzers)
- II. Heterogeneity of samples:** Accuracy of results are inconsistent with error rates increasing with increasing water content of samples
- III. Calibration curves:** For more accurate results beyond use as a screening tool, an external calibration curve should be used

Desktop X-Ray Fluorescence (XRF)

Advantages

- I. **Higher accuracy and precision:** Generally, offers more stable readings due to controlled testing environment.
- I. **Lower detection limits:** Better suited for detecting trace elements, including low concentrations of mercury.
- I. **Greater analytical power:** Often includes advanced software, vacuum/purge systems, and better X-ray sources.
- I. **Less operator-dependent:** Reduced variability from user handling.



Disadvantages

- I. **Lack of portability:** Requires a lab setting, limiting field applications.
- I. **More expensive:** Higher initial cost and maintenance.
- I. **Slower throughput in some cases:** Especially for batch testing or varied sample sizes.
- I. **Bulky and space-intensive:** Requires dedicated lab space.

Direct Mercury Analyzer (DMA)



Advantages

I. Limit of detection: Detection at very low concentrations (sub-ppb)

II. Ease of use: no digestion step resulting in potential errors in sample preparation and resulting in acid waste

III. Versatility: detect mercury in a wide range of matrices

IV. Speed: Analysis time per sample is about 4-7 minutes

V. Automation: Varying degrees of automation

Disadvantages

I. Destructive: Analysis combusts samples (small amount is used)

II. Cost: Instruments are expensive to both purchase and maintain

III. Sample mass: Small sample analyzed – disadvantageous in non-homogeneous and low concentration samples

IV. Size and mobility: Larger footprint and not as portable as an XRF

V. Very high concentrations in some SLPs can damage sensitive instruments necessitating high-cost repairs or dilution steps

Other analyzers

1. Atomic Absorption Spectroscopy (AAS)

Type: Quantitative analytical technique for metal detection

Pros:

- Established method for mercury detection
- Reasonably accurate and reliable for certain sample types

Cons:

- Limited sensitivity compared to more advanced techniques
- May not be suitable for ultra-trace level detection

2. Cold Vapor Atomic Absorption Spectrometry (CVAAS)

Type: Specialized version of AAS for mercury

Pros:

- Highly specific to mercury
- Often used due to its enhanced sensitivity for mercury

Cons:

- Requires careful sample preparation
- May not be ideal for complex matrices without modification
- Reagents are essential — mercury must be reduced to elemental form using chemical reducing agents
- Dilution is not always needed but may be used depending on sample concentration.

3. Inductively Coupled Plasma Mass Spectrometry (ICP-MS)

Type: Highly sensitive technique for trace metal analysis

Pros:

- Very low limits of detection
- High precision and accuracy
- Applicable to a wide range of sample types

Cons:

- Expensive instrumentation and maintenance
- Requires technical expertise and thorough QA/QC procedures
- Dilution needed to bring concentrations within the instrument's detection range
- Reagents needed for sample digestion

Other analyzers

4. Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES)

Type: Multi-element detection method

Pros:

- Moderate detection limits
- Suitable for multi-element analysis
- Good balance between cost and performance

Cons:

- Expensive equipment and to maintain
- Less sensitive than ICP-MS
- Can struggle with speciation and very low mercury concentrations

5. Cold Vapor Atomic Fluorescence Spectroscopy (CVAFS)

Type: Specialized version of AAS for mercury

Pros:

- Ultra-high sensitivity, one of the most sensitive techniques available
- Highly specific for mercury with minimal interference
- Some systems are portable for field use

Cons:

- Only for mercury detection
- Expensive equipment and to maintain
- Sensitive to trace contamination
- Requires reagents and proper disposal

6. Commercially Available Screening Kits

Type: Rapid test kits for field or consumer use

Pros:

- Inexpensive and easy to use
- Useful for preliminary screening

Cons:

- High detection limits
- Often provide qualitative or semi-quantitative results
- Not suitable for accurate quantification or low concentration detection

Sampling for
Mercury
using an XRF
Analyzer

Thank you! Questions?



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For more information on the project, visit:
<https://www.unep.org/mercuryfreecosmetics>

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



Ажиллагаа төлөвлөлт ба хэрэгжилт¹

Энэ хүснэгтийн доор нь хууль хэрэгжилтийн ажиллагааг төлөвлөх болон хэрэгжүүлэхтэй холбоотой үйл ажиллагаануудын жагсаалт байна..

Доорх үйл ажиллагаануудыг **хянаж үзээд**, өөрийн ойлголт болон туршлагад үндэслэн логик дарааллаар эрэмбэлнэ үү. Үүний дараа, **тухайн үйл ажиллагаа бүрийн зорилго, хэрэгжүүлэх хугацаа болон хариуцсан оролцогч талуудыг тайлбарлан загвар хүснэгтийг бөглөнө үү**. Хэрэв та энэхүү үйл явцад чухал гэж үзсэн нэмэлт үйл ажиллагаа байвал санал болгож болно..

Үйл ажиллагаа	Цаг хугацаа	Оролцогч талууд	Тайлбар
1. Ажиллагааны төлөвлөлт ба бэлтгэл ажил (Planning and preparations)			

¹ Энэхүү "Ажиллагаа төлөвлөлт ба хэрэгжилт" дасгалыг Дэлхийн Гаалийн Байгууллагын Анна Эва Кобылецкагийн боловсруулсан дасгалаас зохицуулан боловсруулсан болно..

National Training on Strengthening Country-Level Inter-Agency Coordination on Trade of Mercury
23-24 June 2025
Practical exercise

2. Хэрэгжилт (Implementation)			
3. Үнэлгээ (Evaluation)			

1. Ажиллагааны төлөвлөлт ба бэлтгэл ажил
Сургалт зохион байгуулах болон/эсвэл бусад чадамжийг бэхжүүлэх үйл ажиллагаа явуулах
Үндэсний Ажиллагааны Төлөвлөгөөг боловсруулах төсөл бэлтгэх
Үндэсний оролцогчид болон хамтрагчдад мэдэгдэх
Оролцогчид болон хамтрагчдыг тодорхойлох
Үндэсний эрсдэлийн шинжилгээ хийх, эрсдэлийн үзүүлэлтүүдийг тодорхойлох, үндэсний эрсдэлийн профайлыг байгуулах
Гаалийн байгууллагын тактик/ажиллагааны зорилгуудыг тодорхойлох
Ажлын үүрэгийг хуваарилах
Хэрэгсэл, зааварчилгааны материал, шалгах жагсаалтыг тодорхойлох/хөгжүүлэх болон/эсвэл хангах

2. Хэрэгжилт
Ажиллагааны дараах үе шат
Холбоо барих цэгүүдийг тогтоох
Ажиллагааны өмнөх шат
Танилцуулга
Ажиллагааны үе шат
Харилцаа холбооны суваг, аргуудыг тодорхойлох

3. Үнэлгээ
Сэтгүүлчдэд зориулсан мэдээлэл
Дүгнэлт хийх уулзалт
Үндэсний тайлан



МОНГОЛЫН
ГААЛ

ТАРИФЫН БУС ХЯЗГААРЛАЛТАЙ БАРААНЫ ГААЛИЙН ХЯНАЛТ ШАЛГАЛТ 2025.06.23



ГЕГ-ын ХЯНАЛТ, БҮРДҮҮЛЭЛТИЙН ГАЗАР Гаалийн улсын байцаагч Л.Амартүвшин
Техникийн ухааны магистр, Эрхзүйн магистр, МУ-ын Зөвлөх инженер

ХОРИГЛОСОН, ХЯЗГААРЛАСАН БАРАА

“Тарифын бус хязгаарлалт” гэж Монгол Улсын хилээр бараа нэвтрүүлэхийг хориглох, эсхүл эрх бүхий байгууллагын зөвшөөрөлтэйгээр Монгол Улсын хилээр нэвтрүүлэх, тоон хязгаарлалт тогтоох болон бусад арга хэмжээг;

ЭРХ ЗҮЙН ҮНДЭСЛЭЛ /ХОРИГЛОСОН БАРАА/

- **ХУУЛЬ**
- **МОНГОЛ УЛСЫН ИХ ХУРЛЫН ТОГТООЛ**
- **МОНГОЛ УЛСЫН НЭГДЭН ОРСОН ОЛОН УЛСЫН КОНВЕНЦИ**

ЭРХ ЗҮЙН ҮНДЭСЛЭЛ /ХЯЗГААРЛАСАН БАРАА/

- **ЗӨВШӨӨРЛИЙН ТУХАЙ ХУУЛЬ**
- **БУСАД ХУУЛЬ, ОЛОН УЛСЫН ГЭРЭЭ КОНВЕНЦИ**
- **ЗАСГИЙН ГАЗРЫН ТОГТООЛ /2001 ОНЫ 219 дүгээр тогтоол/**

Олон улсын конвенци



Роттердамын Конвенци 1998

Экспортлогч,
импортлогч орнууд
химийн бодисын
худалдааны
талаар хамтран
хариуцлага үүрэх,
Мэдээллийн
хялбарчилсан
тогтолцоо бий
болгох



Стокгольмын конвенци

Удаан задардаг
органик
бохирдуулагчийн
талаархи
зохицуулалт



Базелийн конвенци

**Аюултай хог хаягдлыг
хил дамжуулан
тээвэрлэх
зайлуулахад хяналт
тавих тухай**

Хорт хаягдлын олон
улсын худалдааг
бууруулах,
Хог хаягдлын эх
үүсвэрийн талаар
хүлээсэн үүргээ
хэрэгжүүлэх,
Хог хаягдлыг бууруулах



Минаматагийн конвенци

Хүний үйл
ажиллагааны
улмаас үүссэн
мөнгөн усны
ялгарал,
бохирдлоос хүний
эрүүл мэнд,
байгаль орчныг
бууруулах

ЗӨВШӨӨРЛИЙН ТУХАЙ ХУУЛЬ /Шинэчилсэн найруулга/

1.3 дугаар зүйл.Хуулийн үйлчлэх хүрээ

1.Хүн, хуулийн этгээд хуулиар хориглосон, эсхүл энэ хуулийн 8.1, 8.2 дугаар зүйлд заасан тусгай болон энгийн зөвшөөрөл /цаашид "зөвшөөрөл" гэх/-тэйгөөр эрхлэхээс бусад төрлийн үйл ажиллагааг хууль тогтоомжид нийцүүлэн чөлөөтэй эрхэлж болно.

2.Монгол Улсад зөвшөөрөлтэйгөөр эрхлэх үйл ажиллагааны жагсаалт, зөвшөөрөл олгох эрх бүхий этгээдийг **энэ хуулиар зохицуулна.**

3.Хуулиар зөвшөөрөлтэйгөөр эрхлэх үйл ажиллагааг эрхлэх, эсхүл байгалийн баялаг, төрийн нийтийн өмчийг хязгаартайгаар ашиглахад зөвшөөрөл олгох, сунгах, түдгэлзүүлэх, сэргээх, хүчингүй болгох харилцааг **тухайлсан хуулиар зохицуулснаас бусад харилцааг энэ хуулиар зохицуулна.**

1.14

1.14.химийн хорт болон аюултай
бодис экспортлох, импортлох, хил
дамжуулан тээвэрлэх, үйлдвэрлэх,
худалдах, ашиглах, устгах

Байгаль орчны асуудал
эрхэлсэн төрийн
захиргааны төв
байгууллага

ХИМИЙН БОДИС

Химийн хорт болон
аюултай бодисын
тухай хуулиар
зохицуулагддаггүй
химийн бодис 2.2

Мансууруулах болон сэтгэцэд нөлөөт бодис

Мансууруулах болон сэтгэцэд нөлөөт бодисын эргэлтэд хяналт тавих тухай хууль

Цацраг идэвхит бодис, цөмийн бодис

Цөмийн энергийн тухай хууль

Хүнсний зориулалттай химийн бодис

Хүнсний тухай хууль 3.1.9 “хүнсний нэмэлт”
Стандарт хүнсний нэмэлт MNS CAC 192:2015/

Эмийн түүхий эд

Эм, эмнэлгийн хэрэгслийн тухай хууль

Химийн хорт болон аюултай бодисын тухай хууль



Химийн хорт болон аюултай бодисыг улсын хилээр нэвтрүүлэх боомтын жагсаалт батлах тухай
ЗГ-ын 2006 оны 296, 2007 оны 65, 2010 оны 203



ХИМИЙН БОДИС

Химийн хорт болон аюултай бодисын тухай хууль

5.1. Химийн хорт болон аюултай бодис экспортлох, импортлох, хил дамжуулан тээвэрлэх, үйлдвэрлэх, худалдах, ашиглах, устгах зөвшөөрлийг Аж ахуйн үйл ажиллагааны тусгай зөвшөөрлийн тухай хуульд заасны дагуу олгоно.

15.4. **Зохих зөвшөөрөлгүйгээр** химийн хорт болон аюултай бодисыг улсын хилээр нэвтрүүлэхийг **хориглоно**.

Байгаль орчин, уур амьсгалын өөрчлөлтийн сайдын 2025 оны А/113 дугаар тушаалын хавсралтаар баталсан

**”ХИМИЙН ХОРТ БОЛОН АЮУЛТАЙ БОДИС ЭКСПОРТЛОХ,
ИМПОРТЛОХ, ХИЛ ДАМЖУУЛАН ТЭЭВЭРЛЭХ БОЛОН
ҮЙЛДВЭРЛЭХ, ХУДАЛДАХ ЖУРАМ”**

КАИС ПРОГРАММЫН ТАРИФЫН БУС ХЯЗГААРЛАЛТЫН ТӨРӨЛ

Гаалийн тухай хууль 60.3 гаалийн бүрдүүлэлтэнд шаардах бичиг баримт

60.3.1.гадаад худалдааны гэрээ, эсхүл үнийн нэхэмжлэх;

60.3.2.тээврийн бичиг баримт;

60.3.3.тарифын бус хязгаарлалтад хамаарах бараанд шаардагдах зөвшөөрөл, лиценз;

60.3.4.хуульд заасан бичиг баримт;

60.3.5.Монгол Улсын олон улсын гэрээнд заасны дагуу эрх бүхий этгээд шаардсан тохиолдолд гарал үүслийг нотлох баримт бичиг.

1. ТАРИФЫН БУС ХЯЗГААРЛАЛТ ТОГТООХ

2. БИЧИГ БАРИМТЫН ЖАГСААЛТ

3. БТКУС-ИЙН ТАЙЛБАР ДҮГНЭЛТ

1. ТАРИФЫН БУС ХЯЗГААРЛАЛТ ТОГТООХ

CAIS | Гаалийн автоматжуулсан удирдлагын систем

Гаалийн бүрдүүлэлт | Татвар, хураамж

Хянах самбар | Бүрдүүлэлт | Хяналт | Гаалийн хяналтын бүс | Эрсдэлийн удирдлага | Бүс | Admin

Татварын хувь хэмжээ | Тарифын бус хязгаарлалт

ААН Төрөл, лиценз

Барааны тариф

Барааны ангилал тогтоох

Үнийн мэдээллийн сан

Барааны ангилал

БТКУС-ийн ангилал

Хэсэг

Бүлэг

Барааны код

Үнийн судалгаа

Барааны ангилалын шийдвэрийн сан

Гаалийн үнэлгээ шийдвэрийн сан

Эхлэл (Бүрдүүлэлт) > Татварын хувь хэмжээ > БТКУС-ийн ангилал > Барааны код

БТКУС-ын код засварлах

Барааны код

Барааны код	2903.73.00
Нээх огноо	2012-01-01
Дуусах огноо	2999-12-31
Хэмжих нэгж	[KG] кг
Тарифын бус хязгаарлалт	Хориглосон (Импорт)
Тайлбар(Mongolian)	Бүгд Хориглосон (Экспорт) Хориглосон (Импорт) Хориглосон (Экспорт, Импорт) Хязгаарласан (Экспорт) Хязгаарласан (Импорт) Хязгаарласан (Экспорт, Импорт)
Тайлбар(English)	
Тайлбар(Russian)	

ХЯЗГААРЛАЛТЫН ТӨРӨЛ

- Хориглосон (Экспорт)
- Хориглосон (Импорт)
- Хориглосон (Импорт, Экспорт)
- Хязгаарласан (Экспорт)
- Хязгаарласан (Импорт)
- Хязгаарласан (Импорт, Экспорт)

2. БИЧИГ БАРИМТЫН ЖАГСААЛТ

CAIS | Гаалийн автоматжуулсан удирдлагын систем

Гаалийн бүрдүүлэлт | Татвар, хураамж

Хянах самбар

Татварын хувь хэмжээ | Тарифын бус хязгаарлалт

Бүрдүүлэлт | ААН Төрөл, лиценз

Хяналт | Тарифын бус хязгаарлалт

Гаалийн хяналтын бүс

Эрсдэлийн удирдлага

Бусад

Admin

Эхлэл (Бүрдүүлэлт) > Тарифын бус хязгаарлалт > Тарифын бус хязгаарлалт > Бичиг баримтын жагсаалт

Бичиг баримтын жагсаалт

Барааны код: 29037

Импорт/Экспорт: --select--

Дагалдах бичиг баримтын код: --select--

Зөвшөөрсөн байгууллагын код:

Бүртгэх

☐	№	Барааны код	Барааны нэр	Тарифын бус хязгаарлалт	Импорт/Экспорт	Зөвшөөрсөн байгууллагын код	Дагалдах бичиг баримт төрөл
☐	1	2903.71.00	-- Хлордифторметан (HCFC-22)	Агаарын тухай хууль озон задалдаг бодисын тусгай зөвшөөрөл	Импорт	Байгаль Орчны Яам	Тусгай зөвшөөрөл
☐	2	2903.72.00	-- Дихлортрифторэтан (HCFC-123)	Агаарын тухай хууль ОЗБ-ын тусгай зөвшөөрөл	Импорт	Байгаль Орчны Яам	Тусгай зөвшөөрөл
☐	3	2903.74.00	-- Хлордифторэтан (HCFC-142, 142b)	Аж ахуйн нэгжийн тусгай зөвшөөрлийн тухай хууль 15.6.1, Агаарын тухай хууль 25.2	Импорт	Байгаль Орчны Яам	Тусгай зөвшөөрөл
☐	4	2903.78.00	-- Бүрэн галогенжуулсан бусад уламжлал	Химийн хорт болон аюултай бодисын тухай хууль	Импорт	Байгаль Орчны Яам	Тусгай зөвшөөрөл

3. БТКУС-ИЙН ТАЙЛБАР ДҮГНЭЛТ

Бүртгэх

Excel -рүү гаргах

☐	№	Барааны код	Барааны нэр	Төрөл	Тайлбар
☐	1	2903.74.00	— Хлордифторэтан (HCFC-142/142b)	Гаалийн бүрдүүлэлт	БОАЖЯ-ны тусгай зөвшөөрөл шаардлагатай. Аж ахуйн нэгжийн тусгай зөвшөөрлийн тухай хуулийн 15-р зүйлийн 15.6.1, Агаарын тухай хуулийн 25 дугаар зүйлийн дагуу БОАЖЯ-ны Озоны үндэсний албанаас жил бүр улсын хилээр импортлох озон задалдаг бодис болон бусад оруулах бодис, тэдгээрийг агуулсан тоног төхөөрөмийн тоо хэмжээг баталж, тусгай зөвшөөрөл олгодог.
☐	2	2903.72.00	— Дихлортрифторэтан (HCFC-123)	Гаалийн бүрдүүлэлт	(HCFC-123, HCFC-123a) БОАЖЯ-ны тусгай зөвшөөрөл шаардлагатай. Аж ахуйн нэгжийн тусгай зөвшөөрлийн тухай хуулийн 15-р зүйлийн 15.6.1, Агаарын тухай хуулийн 25 дугаар зүйлийн дагуу БОАЖЯ-ны Озоны үндэсний албанаас жил бүр улсын хилээр импортлох озон задалдаг бодис болон бусад оруулах бодис, тэдгээрийг агуулсан тоног төхөөрөмийн тоо хэмжээг баталж, тусгай зөвшөөрөл олгодог.
☐	3	2903.39.42	— 1,3,3,3-Тетрафторпропен (HFO-1234ze)	Гаалийн бүрдүүлэлт	БОАЖЯ-ны тусгай зөвшөөрөл шаардлагатай. Аж ахуйн нэгжийн тусгай зөвшөөрлийн тухай хуулийн 15-р зүйлийн 15.6.1, Агаарын тухай хуулийн 25 дугаар зүйлийн дагуу БОАЖЯ-ны Озоны үндэсний албанаас жил бүр улсын хилээр импортлох озон задалдаг бодис болон бусад оруулах бодис, тэдгээрийг агуулсан тоног төхөөрөмийн тоо хэмжээг баталж, тусгай зөвшөөрөл олгодог.

Бүгд 41 бичлэг 1 / 1 хуудас

« « 01 » »

Эрсдэлийн
анхааруулга

ХЯЗГААРЛАСАН

БТКУС-ын
ангиллын кодонд
олон төрлийн
анхааруулга гарч
байгааг анхаарах

Гаалийн хяналт, шалгалтын газар

Бүртгэх Excel -рүү гаргах					
☐	17	2903.77.35	Трихлорпентафторпропан (CFC-215)	Гаалийн бүрдүүлэлт	заасан. Хориглосон. Озоны үе давхаргыг задалдаг бодисын тухай Монреалийн протокол, Засгийн газрын 2001 оны 54 дүгээр тогтоолд ЗГ-ын 2014 оны 378 дугаар тогтоолоор нэмэлт орсон "Монгол Улсын хилээр нэвтрүүлэхийг хориглосон барааны кодлосон жагсаалт"-д хориглохоор заасан.
☐	18	2903.77.34	Тетрахлортетрафторпропан (CFC-214)	Гаалийн бүрдүүлэлт	Хориглосон. Озоны үе давхаргыг задалдаг бодисын тухай Монреалийн протокол, Засгийн газрын 2001 оны 54 дүгээр тогтоолд ЗГ-ын 2014 оны 378 дугаар тогтоолоор нэмэлт орсон "Монгол Улсын хилээр нэвтрүүлэхийг хориглосон барааны кодлосон жагсаалт"-д хориглохоор заасан.
☐	19	2903.77.32	Гексахлордифторпропан (CFC-212)	Гаалийн бүрдүүлэлт	Хориглосон. Озоны үе давхаргыг задалдаг бодисын тухай Монреалийн протокол, Засгийн газрын 2001 оны 54 дүгээр тогтоолд ЗГ-ын 2014 оны 378 дугаар тогтоолоор нэмэлт орсон "Монгол Улсын хилээр нэвтрүүлэхийг хориглосон барааны кодлосон жагсаалт"-д хориглохоор заасан.
☐	20	2903.77.33	Пентахлортрифторпропан (CFC-213)	Гаалийн бүрдүүлэлт	Хориглосон. Озоны үе давхаргыг задалдаг бодисын тухай Монреалийн протокол, Засгийн газрын 2001 оны 54 дүгээр тогтоолд ЗГ-ын 2014 оны 378 дугаар тогтоолоор нэмэлт орсон "Монгол Улсын хилээр нэвтрүүлэхийг хориглосон барааны кодлосон жагсаалт"-д хориглохоор заасан.

Бүгд 41 бичлэг 1 / 1 хуудас

Эрсдэлийн
анхааруулга

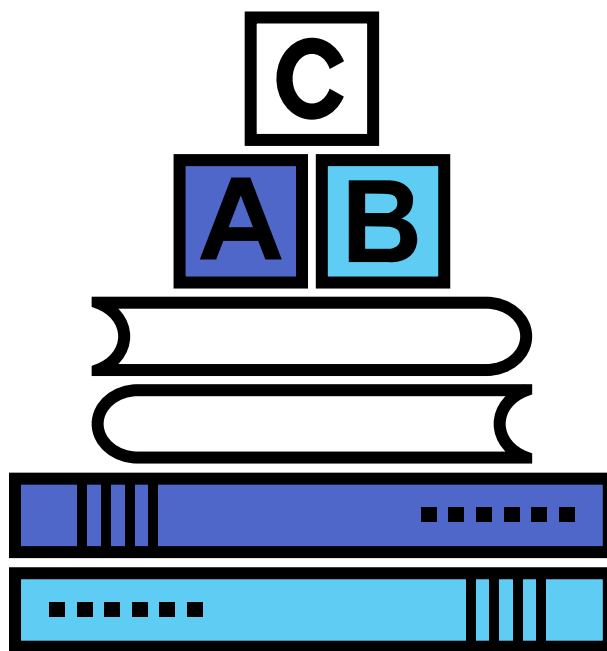
ХОРИГЛОСОН

БТКУС-ын
ангиллын кодонд
олон төрлийн
анхааруулга гарч
байгааг анхаарах



Асуулт ?

Анхаарал тавьсанд баярлалаа





МОНГОЛ УЛС ДАХЬ МИНАМАТАГИЙН КОНВЕНЦИЙН ХЭРЭГЖИЛТ

БАЙГАЛЬ ОРЧИН, УУР АМЬСГАЛЫН ӨӨРЧЛӨЛТИЙН ЯАМ, ХҮРЭЭЛЭН БҮЙ ОРЧНЫ
БОДЛОГЫН ХЭРЭГЖИЛТИЙН ГАЗАР

Мөнгөн усны тухай

Бодисын ердийн нэр	Химийн нэр, томъёо	CAS дугаар	Хэрэглээний түгээмэл хэлбэр	Бодисын онцлог, хоруу шинж чанар
Мөнгөн ус	Mercury (Hg)	7439-97-6	Багаж, тоног төхөөрөмж, уул уурхай, пестицид	Онцгой хортой, хүний биед био хуримтлал үүсгэнэ. Мэдрэлийн систем, үр хөврөлд муугаар нөлөөлнө.
Мөнгөн усны органик ба органик бус нэгдлүүд	Mercury inorganic and organic compounds		Ариутгал халдваргүйтэл, мал эмнэлэг, хуурай зай, фото зураг	Онцгой хортой, хүний биед био хуримтлал үүсгэнэ. Мэдрэлийн систем, үр хөврөлд муугаар нөлөөлнө.



Мөнгөн усны хууль эрхзүйн орчин

Хууль, тогтоомж

Химийн хорт болон аюултай бодисын тухай хууль, 2006

Монгол Улсад ашиглахыг хориглосон буюу хязгаарласан химийн хорт болон аюултай бодисын жагсаалтыг Засгийн газар батална.

“Жагсаалт батлах тухай” Засгийн газрын тогтоол, 2007 оны 95-р тогтоол

Мөнгөн ус ба түүний органик болон органик биш нэгдлүүд нь хэрэглэхийг хязгаарласан химийн бодисын жагсаалтад орсон.

Байгаль орчны сайдын тушаал, 2008 оны 135 тоот тушаал

Монгол Улсад ашиглахыг хязгаарласан химийн онцгой хортой бодис мөнгөн усыг ашигт малтмалын олборлолт, боловсруулалтад ашиглахыг хориглосон.

Эрүүл мэндийн сайд, ОБЕГ-ын даргын хамтарсан тушаал, 2011 оны 07/27 тоот тушаал

Эрүүл мэндийн байгууллагууд мөнгөн ус агуулсан халууны шил, мөнгөн устай даралт хэмжигч багаж, шүдний амальгамыг шинээр худалдан авахыг хориглож, мөнгөн ус агуулсан багаж, тоног төхөөрөмжийн хэрэглээг бууруулах, зогсоох, орлуулах

Мөнгөн усны тухай Минаматагийн конвенцид нэгдэн орох тухай, 2015

Япон Улсын Кумамото хотод 2013 оны 10 дугаар сарын 10-ны өдөр гарын үсэг зурсан “Мөнгөн усны тухай Минаматагийн конвенц”-д нэгдэн орсон.

МИНАМАТА КОНВЕНЦ



Минамата конвенц хүчин төгөлдөр болох:



ЗОРИЛГО: “Хүний үйл ажиллагаанаас үүдэлтэй мөнгөн ус болон түүний нэгдлийн ялгарал, хаягдлаас хүний эрүүл мэнд, байгаль орчныг хамгаалах”.



Минаматагийн анхдагч үнэлгээний төсөл ба алтны бичил уурхайгаас үүдэлтэй үндэсний хөтөлбөр

МӨНГӨН УСНЫ ЯЛГАРЛЫН ТООЛЛОГО

□ Мөнгөн ус, Минаматагийн конвенц, Мөнгөн усны суурь үнэлгээ төсөл MIA 160016 /UNIDO/, 2017:

- Мөнгөн усны үндэсний тооллого (2-р шат) явуулж цаашид авч хэрэгжүүлэх үйл ажиллагааны төлөвлөгөөнд тусгах замаар **мөнгөн усны менежментийн үндэсний чадавхийг сайжруулах**
- Минаматагийн конвенцийг хэрэгжүүлэхэд **эрх зүйн шинэчлэл** хийх шаардлагатай эсэхийг **тодорхойлох**
- Иргэний нийгмийн сайн дурын оролцоог дэмжих зорилгоор **мэдээлэл, мэдлэг түгээх**

АЛТНЫ БИЧИЛ УУРХАЙГААС ҮҮДЭЛТЭЙ ҮНДЭСНИЙ ХӨТӨЛБӨР /ХАВСРАЛТ Г/

2017-2025

- Монгол Улсын алтны бичил уурхайн салбарын суурь цогц үнэлгээ (**хууль эрх зүй, нийгэм- эдийн засаг, эрүүл мэнд**)
- **Алтны бичил уурхайгаас үүдэлтэй үндэсний төлөвлөгөө боловсруулах /UNEP/ төсөл,**

Конвенцийн тайлан



Welcome to the Minamata Convention Online Reporting Tool

Article 21 of the Minamata Convention on Mercury requires that each Party to the Convention shall report to the Conference of the Parties, through the Secretariat, on the measures it has taken to implement the provisions of the Convention, on the effectiveness of such measures and on possible challenges in meeting the objective of the Convention.

Decision MC-1/8 provides that each Party shall report every four years using the full format. For the second full national report, the report covers the period **from 1 January 2021 until 31 December 2024 and is due by 31 December 2025**.

Please click on the links in the table below **to access the Online Reporting Tool (ORT) for the second full national report and past reports from the previous reporting cycles**.

Year - Report	Status	Tasks
2025 - Full report	Finished	View
2023 - Short report	Finished	View
2021 - Full report	Finished	View
2019 - Short report	Finished	View



Нүүрсний олборлолтоос үүсч буй ялгарал

Нүүрсний олборлолт нь хүрээлэн буй орчинд мөнгөн ус ялгарах гол эх үүсвэр болдог бөгөөд нүүрсний төрөл болон тухайн ордын геологийн нөхцлөөс хамаарч өөр өөр агууламжтай байдаг.

Нүүрсний төрөл	2019	2020	2021	2022	2023	Мөнгөн усны ялгаралт (тонн)	Гол бохирдлын замууд
Баяжуулсан нүүрс	7.7	5.6	3.5	6.9	15.6	0.12	Ашиглалт, шатаалт
Коксжих нүүрс	28.6	21.8	12	24.3	50.1	0.45	Дулааны станцууд
Хүрэн нүүрс	-	0.1	0.4	0.1	2.9	0.08	Гэр ахуйн хэрэглээ
Эрчим хүчний нүүрс	0.1	1.2	0.2	0.2	0.7	0.02	Дулааны станцууд
Бусад	0.2	-	0.1	0.1	0.2	0.01	Хаягдлын менежмент
Нийт (сая.тн)	36.6	28.68	16.14	31.66	69.5	0.68	

Эх үүсвэр: Эрчим хүчний яам



Конвенцийн тайлан

Монгол Улсын нүүрсний цахилгаан болон дулааны станцуудын нүүрсний хэрэглээ болон үүнээс үүдэлтэй мөнгөн усны ялгаруулалтын тооцооллыг харуулж байна.

Он	Нүүрсний хэрэглээ (тонн)	Мөнгөн усны агууламж (г/тн)	Нийт ялгаруулалт (кг)	Түгээмэл шингэх хэлбэрүүд
2021	7,036,621	0.07	492.56	Агаар, үнсэн хаягдал
2022	7,694,038	0.07	538.58	Агаар, усны бохирдол
2023	8,114,480	0.07	567.99	Агаар, хөрсний хуримтлал
2024	8,590,720	0.07	601.35	Агаар, био хуримтлал

Нийгмийн эрүүл мэндийн үндэсний төвийн үндэсний лавлагаа лабораторид бүртгэлтэй байгаа мөнгөн ус (Hg) агуулсан химийн бодисын жагсаалт

№	Нэршил	Химийн томьёо	Хэмжээ (мл)	Ширхэг
1	Мөнгөн усны сульфат (II)	HgSO_4	250	1
2	Мөнгөн усны нитрат (II)	$\text{Hg}(\text{NO}_3)_2$	250	2
3	Мөнгөн усны хлорид (II)	HgCl_2	100	1
4	Калийн тетраiodомеркурат (II)	$\text{K}_2(\text{HgI}_4)$	250	1
5	Мөнгөн усны стандарт уусмал 100 мкг/мл	Hg^{2+}	125	1

Тус төвийн үндэсний лавлагаа лабораторид нийт 975 мл мөнгөн усны агууламжтай химийн бодис лабораторийн зориулалтаар ашиглах зорилгоор хадгалагдаж байна



- Эрүүл мэндийн байгууллагуудаас хураан авсан даралт хэмжигч: 15 ширхэг.
- Их, дээд сургуулиудаас хураан авсан термометр: 31 ширхэг.
- Нийт хадгалагдаж байгаа мөнгөн усны хэмжээс: 285 кг

Хууль бусаар ашиглахыг завдсан мөнгөн усны хэмжээ буюу ЭЦА-аас хурааж авсан мөнгөн ус

14,7 кг

0,6 кг

4,2 кг

2021

2022

2023





Монгол Улсад импортлогдсон мөнгөн усны нэршил бүхий химийн бодисын талаархи бүртгэл

- ▶ Гаалийн ерөнхий газраас ирүүлсэн 2021-2024 оны хооронд гаалийн мэдүүлгээр бүрдүүлэлт хийж импортолсон "мөнгөн ус"-ны нэршил бүхий бараа бүтээгдэхүүний мэдээлэл

№	Барааны нэр	Хэмжээ (кг)	Импортлогч байгууллага	Гарал үүсэл
1	Стандарт бодис	0.2		АНУ
2	Стандарт бодис	0.1		ХБНГУ
3	Стандарт бодис	0.2		АНУ
4	Стандарт уусмал	0.02		АНУ
5	Стандарт уусмал	0.02		АНУ
6	Стандарт бодис	0.3		ХБНГУ
7	Стандарт бодис	0.3		АНУ
8	Стандарт бодис	0.3		БНХАУ
9	Стандарт загвар	0.1		Итали
10	Стандарт уусмал	0.8		Япон
11	Стандарт уусмал	0.8		АНУ
12	Мөнгөн усны термометр	10 ш		БНХАУ
	Нийт	3.14 кг		



Хог хаягдлын менежмент ба мөнгөн усны ялгаруулалт

Он	Нийт ашиглалт (мян. тонн)	Хог хаягдлыг булшлах (мян.тонн)	Шатаах (мян. тонн)	Дахин боловсруулах/ ашиглах (мян. тонн)	Байгаль орчинд шууд хаягдах (мян.тонн)	Мөнгөн усны ялгаруулалт (кг)
2020	2,712.70	1,984.20	46.9	285.2	20.8	0.33
2021	2,626.70	1,910.70	236.5	193.6	74.8	1.06
2022	3,067.90	2,238.10	263.3	235.2	58	1.06
2023	3,042.90	2,243.70	151.1	196.3	178	1.38
				Нийт		3.83

- Хог хаягдлыг булшлах (ландфилл): 1 тонн хог тутамд 0.05 г мөнгөн ус ялгаруулна.
- Шатаах: 1 тонн хог тутамд 2.5 г мөнгөн ус ялгаруулна.
- Дахин боловсруулах / ашиглах: 1 тонн хог тутамд 0.02 г мөнгөн ус ялгаруулна.
- Байгальд шууд хаях: 1 тонн хог тутамд 5.0 г мөнгөн ус ялгаруулна.
- Экспорт ба бусад ашиглалт: Дотоодын ялгаруулалтад тооцохгүй.

СОРИЛТ, ЗӨВЛӨМЖ



СОРИЛТ

- Монгол Улсад хууль эрхзүйн хэрэгжилт, хяналтыг хангах санхүүгийн болон боловсон хүчин, техникийн нөөц хомс. Мэргэжлийн хяналтын ерөнхий газар татан буугдсанаас хойш хяналтын тогтолцоо нь тухайн хариуцсан салбарын яам, агентлагуудад харьяалагддаг болсон.

- Мөнгөн усны ялгаруулалтыг хянах дэвшилтэт техник, технологи дутагдалтай.

- Олон нийтийн мэдлэг, сургалт арга хэмжээ хангалтгүй.

ЗӨВЛӨМЖ

- Санхүү, техникийн дэмжлэг авахын тулд олон улсын байгууллагатай хамтын ажиллагааг бэхжүүлэх.

- Мөнгөн усны үндэсний тооллого, тайлагналын системийг сайжруулах.

- Байгаль орчны мэдээллийн санд байгаа хог хаягдлын мэдээлэл, түүний аюултай хог хаягдлын мэдээллийг олон улсын жишгээр ангилж ялгах шаардлагатай байна.

- Дулааны цахилгаан станцуудын ялгаруулалтыг бууруулах технологийг хөгжүүлэх.

- Мөнгөн ус хадгалж байгаа Онцгой байдлын ерөнхий газрын Үндэсний аврах бригадын агуулахын үйл ажиллагааны журам боловсруулах,

- Мөнгөн ус тодорхойлох шинжилгээ хийх мөнгөн усны багаж, тоног төхөөрөмжөөр хангах шаардлагатай.



АНХААРАЛ ХАНДУУЛСАНД БАЯРЛАЛАА