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Secretariat of the Minamata Convention on Mercury
mea-minamatasecretariat@un.org
VIA EMAIL

RE: Invitation to Parties and stakeholders to submit information on challenges in implementing the obligations regarding mercury-added cosmetics (Ref: MC/ES/2026/36)

Under the GEF 10810 Project, "Eliminating Mercury Skin Lightening Products" (for Jamaica, Gabon and Sri Lanka), ***Biodiversity Research Institute (BRI)***, in our capacity as co-executing agency, consulted with government institutions, national laboratories and enforcement agencies to review challenges in identifying/monitoring mercury-added skin lightening products. In addition to the project deliverables shared via the UNEP Global Mercury Partnership's Knowledge Hub, BRI also submits the **attached note** with supplementary information for consideration by the Minamata Secretariat in support of the call for information pursuant to decision MC-6/4 of the Conference of the Parties of the Minamata Convention on Mercury.

For further information or clarifications, kindly contact Ashley Bastiansz (ashley.bastiansz@briwildlife.org) and Tahlia Ali Shah (tahlia.alishah@briwildlife.org).

Sincerely,

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NOTE:

Response from BRI on challenges in implementing the obligations regarding mercury-added cosmetics

Prepared by Ashley Bastiansz, Tahlia Ali Shah and Cassie Gilham

Through work conducted under the GEF 10810 project, "Eliminating Mercury Skin Lightening Products", data on over 4,000 skin lightening products (SLPs) were assessed and findings showed that the majority of mercury-added SLPs on the global market do not indicate that mercury/mercury compounds are an ingredient based on product packaging and labels. Therefore, to enforce bans on mercury-added SLPs, national enforcement agencies must employ various measures to actively screen products being manufactured, imported or exported to ensure compliance with mercury phase out requirements. This presents some key challenges as follows:

1. **Defining threshold limits for mercury in SLPs as part of national regulatory requirements**

Previously under the Minamata Convention on Mercury, a 1 part per million (ppm) mercury limit was placed on mercury-added cosmetics that were allowed to be manufactured, imported or exported. In 2025, the decision was made to remove the "1ppm" wording with a further note that the phase-out obligation did not apply to cosmetics, soaps or creams with "trace contaminants of mercury". These obligations may present some challenges to Parties and enforcement agencies in developing regulations with defined threshold limits for mercury in SLPs (and other cosmetics) due to:

- Lack of information on mercury concentrations or presence in SLPs being traded;
- Screening equipment such as x-ray fluorescence (XRF) analyzers having limits of detection above 1ppm *(and other analytical and laboratory capacity constraints noted in the following section);*
- Uncertainty regarding the definition of "trace contaminants of mercury" where mercury may be present as an unintended impurity from raw materials or manufacturing processes versus mercury that has been intentionally added during production. Without a defined trace concentration threshold, Parties may face uncertainty in determining how to interpret and respond to very low levels of mercury

detected in products, particularly when assessing compliance and enforcement actions.

2. Constraints in Analytical and Laboratory Capacity and Available Resources

Many Parties currently lack the analytical infrastructure required to routinely test cosmetic products for mercury, particularly at low concentrations. Available testing technologies range from semi-quantitative and nondestructive screening tools, such as X-ray Fluorescence (XRF) analyzers, to quantitative laboratory-based methods, including Direct Mercury Analyzers (DMA), Cold Vapor Atomic Absorption Spectroscopy (CVAAS), and Inductively Coupled Plasma Mass Spectrometry (ICP-MS), among others.

Among these options, XRF analyzers are generally more affordable and accessible to regulatory authorities and customs agencies. However, their limit of detection (LOD) for mercury can range from approximately 5 to 40 ppm, which may limit their effectiveness for identifying products containing mercury at lower concentrations. While XRF remains a valuable screening tool, it may not provide sufficient sensitivity for definitive regulatory determinations in all cases.

In contrast, quantitative analytical methods such as the DMA, CVAAS, and ICP-MS offer significantly greater sensitivity and accuracy and can detect mercury at much lower concentrations. Although quantitative analyzers share similarly low LOD, method detection limit (MDL) will vary between laboratories, even among identical methodologies. An MDL will vary depending on laboratory environment, equipment, method settings, calibration, and sample preparation protocols. Variations in detection limits may impose further complications for developing a standardized definition of “trace” mercury concentrations.

Additionally, quantitative analyzers require specialized laboratory infrastructure, robust quality assurance and quality control systems, regular equipment maintenance and calibration, and trained technical personnel. The costs associated with acquiring, operating, and maintaining such equipment can be difficult for many Parties, particularly those with limited laboratory capacity and resources.

Many Parties face significant challenges in monitoring and testing SLPs for mercury due to limited technical and financial resources. These challenges include restricted access to laboratory networks, insufficient funding to support routine product testing, and a lack of certified reference materials needed to ensure analytical accuracy and quality assurance. In addition, many countries have limited access to equipment maintenance and calibration methods, which can affect the reliability and sustainability of testing programs.

Shortages of trained laboratory personnel further constrain analytical capacity, while customs and border authorities often face difficulties in identifying and screening potentially non-compliant products entering national markets. As a result, comprehensive testing of all SLPs available on or entering national markets may not be feasible, highlighting the need for risk-based approaches and complementary tools to support enforcement efforts.

Additional challenges include the growing prevalence of products sold through online marketplaces, where oversight and product traceability can be limited, as well as products with incomplete, inaccurate, or misleading ingredient labeling. Furthermore, variations in analytical methods, testing capacity, and regulatory interpretation among agencies and laboratories may result in inconsistent enforcement outcomes across jurisdictions. To address these challenges, Parties may require harmonized technical guidance, standardized testing protocols, and clear decision-making frameworks to support consistent and effective implementation of the Convention's requirements.

Recommendations for Guidance

1. **Utilization of Existing Databases and other References to Identify Mercury-Added SLPs**

With technical and resource capacity limitations experienced by many Parties, the use of established and verified databases of known mercury-added SLPs can be a useful reference for verifying suspected products. Under the GEF 10810 Project, the development of a centralized database of mercury-added SLPs was initiated and is expected to be further expanded under future initiatives in 2027. The database aims to collate new and existing data on mercury-added SLPs from verified sources such as the European Environmental Bureau/ Zero Mercury Working Group, and databases and reports released by recognized entities (NGOs and monitoring agencies). This database could also support customs inspections, facilitate information sharing among Parties, and strengthen national market surveillance programs by providing timely access to information on products of concern. Parties should utilize existing databases, related government detention and recall lists, regulatory alerts, and other credible sources to identify SLPs that have previously been flagged for containing hazardous substances, including mercury.

Under the project, guidance on sampling and analysis of suspected mercury-added SLPs as well as overall monitoring and enforcement measures are also provided. Resources are all available on the UNEP Global Mercury Partnership's website. Of particular relevance are the following resources:

- Global Analysis of Mercury-added Skin Lightening Products

- Sampling and Analysis Protocol for Suspected Mercury-added Skin Lightening Products
- Customs and Enforcement Guidance/Training Materials

Further guidance on legislative recommendations will be made available by the World Health Organization (WHO) later this year.

2. **Streamlining Analytical and Laboratory Techniques for Testing Mercury-added SLPs**

Implementing Harmonized Testing Protocols

Having standardized sampling procedures, sample preparation methods, quality assurance and quality control requirements, detection and quantification limits, reporting formats, and approaches for interpreting analytical results would improve the reliability and comparability of testing outcomes across laboratories and jurisdictions, helping to ensure more consistent regulatory decision-making and enforcement under the Minamata Convention. Under the GEF 10810 project, a guidance protocol for sampling and analysis of suspected mercury-added products was developed which can be further refined under new initiatives.

Method Detection Limit Studies for Analytical Laboratories

Quantitative analytical methods such as DMA, CVAAS, and ICP-MS typically have very low detection rates. However, it is important for laboratories to calculate a specific Method Detection Limit (MDL) to determine the lowest concentration that can reliably be detected. Establishing the sensitivity of an analytical method is critical in ensuring that the concentration detected is verifiable, and not random variation or background noise caused by laboratory-specific factors, such as contamination from the laboratory environment. Calculating an MDL for specific laboratories will provide regulatory agencies with defensible evidence that trace concentrations of mercury are accurately detected and will be valuable in developing a standard threshold for “trace” mercury concentrations.

Strengthening Regional Analytical Capacity

Countries with limited laboratory infrastructure may benefit from enhanced regional cooperation and capacity-sharing mechanisms. This could include access to regional reference laboratories, shared testing services, interlaboratory comparison exercises, harmonized standard operating procedures, and targeted technical training programs for laboratory and regulatory personnel. Such collaborative approaches can help reduce the financial burden associated with establishing and maintaining national analytical capabilities while improving consistency, reliability, and comparability of mercury testing

results across jurisdictions. Strengthening regional networks may also facilitate knowledge exchange and support more effective implementation of mercury-related regulatory requirements. Existing networks include the Caribbean Region Mercury Monitoring Network and the Central Africa Region Mercury Monitoring and Evaluation Network.

3. **Establishing Guidance on Mercury Limit Thresholds or Concentration Limits for "Trace Contaminants of Mercury" in SLPs**

While it can be left up to the discretion of Parties to determine what feasible and measurable mercury thresholds can be implemented as part of their regulations, it is recommended that guidance be provided to Parties to assist in defining their mercury concentration thresholds for SLPs (based on LODs for recommended equipment if needed) or the mercury concentrations that can be considered "trace contaminants of mercury" for cosmetics. Such guidance could establish clear criteria for determining intentional addition, considering manufacturing practices, ingredient declarations, and other relevant product information. Harmonized guidance in these areas will be beneficial to enhance consistent interpretation and enforcement across Parties.

Conclusion

Successful implementation can be supported by clear guidance on the interpretation of trace mercury levels, practical enforcement approaches, and realistic consideration of national analytical capacities. A combination of standardized guidance, tiered testing strategies, strengthened laboratory networks can help Parties implement obligations effectively and consistently.