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Item 5 of the provisional agenda*

International cooperation and coordination

Report on the mercury-related activities of relevant international bodies

Note by the secretariat

1. In paragraph 2 (c) of article 24 of the Minamata Convention on Mercury, the Convention includes among the functions of its secretariat the function of coordination, as appropriate, with the secretariats of relevant international bodies, particularly other chemicals and waste conventions.

2. Since the entry into force of the Convention on 16 August 2017, numerous international entities have engaged in mercury-related activities. In order to bring those efforts to the attention of the Conference of the Parties, the secretariat invited those entities to submit reports on their activities for consideration by the Conference of the Parties. The reports are set out in the annexes to the present note, as follows: the report of the secretariat of the International Whaling Commission (annex I); the report of the United Nation Development Programme (annex II), the report of the secretariat of the Convention for the Protection of the Marine Environment of the North-East Atlantic (annex III), the report of the Secretariat of the Pacific Regional Environment Programme (annex IV), and the report of the Group on Earth Observations (annex V). The reports are presented as received, without formal editing.

3. The reports set out in the annexes to the present note should be read alongside a number of other reports, including the report of the Executive Director of the United Nations Environment Programme to the Conference of the Parties to the Minamata Convention on Mercury at its fifth meeting (UNEP/MC/COP.5/INF/29), the report of the Council of the Global Environment Facility to the Conference of the Parties to the Minamata Convention on Mercury at its fifth meeting (UNEP/MC/COP.5/INF/14), the report on activities undertaken within the Global Mercury Partnership of the United Nations Environment Programme (UNEP/MC/COP.5/INF/32), the joint report on cooperation and coordination between the secretariats of the Minamata Convention on Mercury and of the Basel, Rotterdam and Stockholm conventions (UNEP/MC/COP.4/INF/28); the report of the World Health Organization and the International Labour Organization (UNEP/MC/COP.5/INF/30/Rev.1), and the update on the Strategic Approach to International Chemicals Management and the intersessional process considering the Strategic Approach and the sound management of chemicals and waste beyond 2020 (UNEP/MC/COP.5/INF/33).

* UNEP/MC/COP.5/1.

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Annex I*

Work of the International Whaling Commission relevant to the Minamata Convention on Mercury

International Whaling Commission secretariat

1. The International Whaling Commission (IWC), established in 1946, is the global authority in charge of whale management and conservation with 88 member countries. As additional conservation concerns have emerged the IWC work program has evolved to include bycatch and entanglement, ship strikes, maritime noise, pollution and debris, and sustainable whale watching. The nature of these issues necessitates close collaboration with other organisations. The IWC has participated in the Liaison Group of Biodiversity-related Conventions (BLG) as part of the preparation of the post-2020 framework for biodiversity and associated targets and indicators. The IWC Secretariat is participating in the Kunming-Montreal Global Biodiversity Framework process, including determining how the IWC's scientific and stewardship initiatives can track and meet the goals and targets. So far 12 Targets have been identified which current IWC workstreams can contribute to, including Target 7 on pollution.

2. The IWC has been concerned about the impact that chemical pollutants, mercury and other heavy metals, may have on cetacean populations since the early 1980s. This is a complex issue given the huge number of synthetic chemicals and elements introduced into the environment, the ways in which they may interact with each other, the difficulty in establishing whether they cause adverse health effects, and the difficulty quantifying any potential impacts on whale populations. In response to this challenge, the IWC Scientific Committee (SC) has initiated four comprehensive and consecutive research programmes, adapting as our knowledge and understanding increase. Pollution 2000, Pollution 2000+, Pollution 2020 and most recently Pollution 2025.

3. In addition, exploratory global maps have been produced displaying the concentration of contaminants in cetaceans, over time. These currently focus on PCBs, DDTs and **mercury (Hg) concentrations** in tissues as they have been the main focus of monitoring programmes over the last few decades. These results can be used as gross indicators of changes in the uptake, exposure and effects of pollutants. They should only be used as general indicators because of differences in the analytical methods used. However, the maps do help identify hot spots and data gaps. The contaminant mapping tool has been updated allowing the documentation and mapping of decadal trends (1960-2000s) and providing an update of the current status of mercury and key persistent organic pollutants in cetacean populations http://www.smru.st-andrews.ac.uk/IWC_Contaminant_Explorer/.

4. The latest programme, Pollution 2025, is focusing on cumulative effects and multiple stressors. An expert workshop in November 2021 reviewed new and improved methods, considered case studies and assessed the scope to transfer approaches between different species and populations. They concluded that, whilst mitigation planning for individual pollutants is now relatively straightforward, mitigating cumulative stressors is much more difficult and further research is required (see the Workshop report)

5. Pollution 2025 is also setting out a multi-disciplinary, 'One Health' approach, recognising that the health of people, animals and our environment are closely connected, and pollutants can be just one component of multiple stressors. The IWC has a recommendation that it *communicate with the Stockholm and **Minamata Conventions** to consider the explicit inclusion of cetacean blubber (of model species) as a core media for long-term (and retrospective) monitoring of chemicals of Arctic/Antarctic concern (CEACs) to demonstrate biomagnification potential and hereby facilitate expedited chemical regulation* (SC21208). Recent exchanges have been positive and the IWC Secretariat looks forward to developing this communication and collaboration.

6. Communication with the Minamata Convention followed the adoption of Resolution 2016-4 – which seeks, *inter alia*, collaboration with the Conference of the Parties of the Minamata Convention to exchange information, contribute in monitoring mercury levels in cetaceans and advance progress for the protection of cetacean health and related issues. The following paragraphs summarise work and recommendations since 2017 specific to Mercury in response to this Resolution.

* The present annex has not been formally edited.

7. A review (SC/67a/E04) was presented at the Scientific Committee meeting (SC67A) in 2017 providing a snapshot of peer reviewed papers and technical reports on levels and trends and the significant amount of reported data on mercury in cetacean species since the 1970s. In addition, the paper provided an evaluation of which species could be considered more at risk for mercury and in which ocean basins (See IWC recommendations SC17340 and SC17341).

8. Further work was presented in 2018 highlighting the continued global exposure and potential effect of mercury on cetaceans (SC/67b/E08). Although cetaceans have a unique detoxifying mechanism which may protect them from the effects of organic mercury, the resulting mercuric-selenide complexes may cause adverse effects in individuals experiencing other physiological and metabolic challenges. Research into identifying the toxic thresholds for mercury in cetaceans is still required. The Committee also received several papers presenting information on mercury in cetaceans including river dolphins (SC/67b/E06), humpback whales (SC/67b/E09) and gray whales off Chukotka (SC/67b/E03). The Committee highlighted the need for standardisation in reporting units. It also discussed preferred tissues for mercury analyses.

9. Recommendations made during the 2018 meeting included calling on researchers to continue to provide details of mercury in cetaceans (both wet and dry weight) and for Contracting Governments to support monitoring to assess the impact of the Minamata Convention (SC1883). More specifically SC18100 encouraged a review of "*the effects and the scale of contaminant and heavy metal (e.g. mercury) pollution on river dolphins in key areas of the Amazon (Japura/Caquetá, Içá/Putumayo, in Brazil and Colombia) and Orinoco (Venezuela) basins."*

10. Several papers were discussed in 2020 including Hg levels in Colombian delphinids (Barragán-Barrera et al, 2019a), Endangered Panamanian bottlenose dolphins (Barragán-Barrera et al, 2019b) and an overview of Hg contamination trends in cetaceans (Kershaw and Hall, 2019).

11. During the 2021 meeting details of small cetaceans with total mercury (THg) levels in liver samples and the majority of kidney, muscle, and blubber samples, exceeding the FAO/WHO human consumption advisory level were discussed (McCormack et al., 2020). All results indicated that the Caribbean is a region where heavy metals, including mercury, are significant contaminants in cetacean products consumed by local people. This resulted in a recommendation to *monitor and assess heavy metal contamination in tissues of cetaceans taken in the local hunt* and *research on trace element contamination in cetaceans of the Caribbean be prioritised* (See SC2164, SC2165).

12. Finally, in 2022 the Scientific Committee heard about three species of dolphin with high Hg concentrations off South Africa (SC/68D/E/01), contaminant studies in south American river dolphins (SC/68D/SM/13), and concerns of contaminants in ice which many be released with climate change included in the State of the Cetacean Environment Report (SOCER, SC/68D/E/12).

13. In summary, the IWC hopes to work with the Minamata Convention on information sharing and specifically to encourage the inclusion of cetacean blubber as a core media for the monitoring of mercury. The IWC welcomes an update from the Minamata Convention on discussions at its Conference of the Parties and to consider supporting collaborative efforts on mercury monitoring in cetaceans, including as part of the envisioned contribution of the Minamata Convention to the Global Biodiversity Framework.

Appendix I

Pollution initiatives of the International Whaling Commission – Summary of activities

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Abstract

This summary document lists the major activities and key stages that occurred during the three phases of the Subcommittee on Environmental Concerns Pollution Initiative (2000, 2000+ and 2020). The objective here is *not* to provide a complete list of all the outputs but to simply summarise the key stages in the initiative and document the main phases and developments in order to assist the next phase of the Pollution Initiative, Pollution 2025, in the advancement of this field within the activities and priorities of the Subcommittee.

Key dates and activities

1981 Commission passes a Resolution noting the potential threats to whales raised by heavy metals, Polychlorinated Biphenyls (PCBs) and other Organochlorines (OCs).

1984 Committee adopts a standard approach for the collection of samples and presentation of OC results.

1985 Working group established to consider **chemical pollution** ensuring (a) **consistency of method and reporting** (b) **studies to example mechanisms and effects**.

Also considered that cetaceans although not suitable for monitoring global ocean pollution in a strict sense, may be possible to obtain some information on **trends in certain pollutants**.

In addition, they considered the **problem of using data from stranded animals**.

1993 Work on pollutants reconsidered by SC in broad context of overall environmental change.

1995 Workshop on chemical pollutants held in Bergen to (a) **review current knowledge** (b) **identify tools to investigate cause-effect relationships** (c) **develop initiatives aimed at determining the actual impact of pollutants on cetacean populations and facilitate the design of a monitoring scheme.** Establishment of Pollution 2000 initiative (Reijnders *et al*., 1999).

The workshop recommendations were (a) sufficient data on effects to warrant concern for cetaceans (b) fundamental research needed to address effects of pollutants on cetaceans (c) a multidisciplinary, multinational programme of research was therefore needed.

1998 Proposal for future work submitted to IWC. Reviewed and accepted (Reijnders et al 1999). The rationale was to **study biomarkers in selected populations of the same species subject to a gradient of pollutant exposure.** Species selected were bottlenose dolphins, harbour porpoises and white whales.

1999 Workshop to develop Pollution 2000+ held in Barcelona.

Pollution 2000+ - Phase 1 – biomarker development (including effect of post-mortem time and live biopsy sample biases).

2000 Steering Group for Pollution 2000+ established, dealing with organisational issues and fund raising.

2001 Progress on two subcomponents of project (biomarkers and studies on bottlenose dolphins and stranded harbour porpoise for post-mortem effects). Pared down study due to limited resources.

2004 Workshop on Habitat Degradation, University of Siena. Discussion and recommendations relating to the impact of multiple stressors on cetaceans; linking habitat quality with exposures, including effects of chemical pollutants (IWC, 2006).

2004-6 **Analysis and reporting of Phase 1 studies completed**, papers submitted to SC and published in peer reviewed literature (see Reijnders *et al*., 2007 for list of publications relating to Phase 1).

2007 Publication of Report from the **Pollution 2000+ Phase I initiative** (Reijnders *et al*., 2007) as part of the Report of the Standing Working Group on Environmental Concerns.

2007 Workshop to develop Phase 2 held in Barcelona t**o develop a risk assessment model framework(s) and conceptual models to estimate effects of chemical pollutants on populations**.

2008-9 New Steering Committee formed, and Phase 2 planned.

2010 Workshop on implementing Phase 2 held in Sausalito.

2010-2016 Phase 2 work undertaken, individual based model to assess risks to cetacean populations developed (SPoC) and refined over a number of years to include effects on reproduction and immunity. Steering committee meeting held in St Andrews in 2014. Paper published on final model in Environmental Pollution (Hall *et al*., 2018). Open source model available through websites and user-friendly interface developed (accessible at https://iwc.int/chemical-pollution).

2017-2018 Review of **mercury in cetaceans** completed (following Commission Resolution) and published in Science of the Total Environment (Kershaw *et al*., 2019).

2018-2019 Completion of outstanding tasks –

(a) **include effects of flame retardants into SPoC mode**l – further research and preliminary trials of the model concluded that there is currently insufficient dose-response data available, in any species, for this to produce a meaningful tool.

(b) **contaminant mapping tool to investigate trends** (see earliest objective of pollution initiative in 1985). Completed and available through the IWC website (April 2020, accessible at https://iwc.int/chemical-pollution).

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Appendix II

The International Whaling Commission and the Kunming-Montreal Global Biodiversity Framework

1. IWC68 took place before the scheduled CBD COP 15, therefore the Commission has not considered the final Kunming-Montreal Biodiversity Framework (KM GBF) and it will need to be presented to the next Commission meeting scheduled for Sep/Oct 2024.

2. However, the IWC's contributions to the CBD process so far have been based on work already mandated, underway or in process. The Commission has endorsed the continued work of the Secretariat to participate in the GBF processes including the Bern process and related CBD meetings. The KM-GBF document will be brought to IWC69 for discussion on next steps and potential adoption of its implementation. This would include consideration of whether the IWC can "adopt" the framework or align its own strategic planning towards it. There are many synergies between the work of the IWC and the framework.

3. The Table below outlines the IWC work areas which contribute to the targets of the GBF. We recognise there are many areas of synergy with other conventions and welcome collaboration and cooperation to enhance the effectiveness of activities contributing to these targets.

GBF Targets	*IWC work/contribution*
Target 4: Ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated species to maintain their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimize human-wildlife conflict for coexistence.	Bycatch and entanglement Strandings Ship strikes Communication- Extinction alert
Target 5: Ensure that the use, harvesting and trade of wild species is sustainable, safe and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spill-over, applying the ecosystem approach, while respecting and protecting customary sustainable use by indigenous peoples and local communities	Conservation Committee and Scientific Committee bycatch work, Aboriginal subsistence whaling work Scientific Committee work on pathogens and One Health approach
Target 7: Reduce pollution risks and the negative impact of pollution from all sources by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects	Resolution 2022 on Plastics, Resolution on underwater noise 2018-4, Scientific Committee workstreams on chemical pollution as well as marine debris Conservation Committee priority threat marine debris, chemical pollution is under development Resolution on Minamata Convention 2016-4
Target 8: Climate change, ocean and biodiversity	Both the Scientific and Conservation Committees have this topic as a priority area; Conservation Committee established new Intersessional Correspondence Group 2022 to consider/ develop IWC climate response program, Resolution 2009-1 on climate and cetaceans
Target 9: sustainable use of wild species	Aboriginal Subsistence Whaling and the Scientific Committee working to help manage this resource. Overall IWC mandate 'to provide for the proper conservation of whale stocks...'

GBF Targets	*IWC work/contribution*
Target 10: Ensure that.., fisheries …. are managed sustainably, in particular through the sustainable use of biodiversity, including through a substantial increase of the application of biodiversity friendly practices	Both the Conservation and Scientific Committee have workstreams working on bycatch and related issues in fisheries working to ensure sustainable use and reduce impacts on biodiversity Aboriginal Subsistence Whaling
Target 11: Restore, maintain and enhance nature's contributions to people, including ecosystem functions and services	SC and CC work on Ecosystem modelling in ecosystem functioning and socio-economic value of the role of cetaceans. This work is driving towards how IWC can assist with 'restore, maintain and enhance' ecosystem functions and services in the future. Resolutions 2016-3 and Resolution 2018-2. Bycatch Mitigation Initiative working with fisheries to ensure sustainable use of the ocean ecosystem
Target 14: Ensure the full integration of biodiversity and its multiple values into policies, regulations, planning and development processes, poverty eradication strategies, strategic environmental assessments, environmental impact assessments and, as appropriate, national accounting, within and across all levels of government and across all sectors, in particular those with significant impacts on biodiversity, progressively aligning all relevant public and private activities, and fiscal and financial flows with the goals and targets of this framework.	Work with Bycatch Mitigation Initiative and Global Whale Entanglement Response Network Conservation Management Plans
Target 15: Take legal, administrative or policy measures to encourage and enable business, and in particular to ensure that large and transnational companies and financial institutions (a) Regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity, [….]in order to progressively reduce negative impacts on biodiversity…	Working with International Maritime Organization, Whale watching industry, Fisheries to improve knowledge, improve practices and capacity build
Target 20: Capacity building	Training in strandings, sustainable cetacean watching, entanglement and bycatch, Reporting on Ship strikes Providing access to Voluntary Assistance Fund to attend IWC meetings, Voluntary conservation Fund (VCF) and IWC funded projects Publication of an open access journal
Target 21: Ensure that the best available data, information and knowledge are accessible to decision makers	Scientific Committee information is available to members and observers and is passed to the Conservation Committee, Commission, NGOs institutes etc on all topics in strategic plans
Target 22: Ensure the full, equitable, inclusive, effective and gender-responsive representation and participation in decision-making, and access to justice and information related to biodiversity by indigenous peoples and local communities, respecting their cultures and their rights over lands, territories, resources, and traditional knowledge, as well as by women and girls, children and youth, and persons with disabilities and ensure the full protection of environmental human rights defenders.	Aboriginal Subsistence whaling work currently underway to ensure IWC meets human rights of indigenous peoples

Annex II*

United Nations Development Programme and the Minamata Convention on Mercury

UNDP has been active in the area of mercury reduction efforts since the 1970s, when it administered the UN Revolving Fund for Natural Resources Exploration (UNRFNRE) from 1975 to 1995 and implemented a number of artisanal and small-scale gold mining (ASGM) projects financed by the revolving fund.

Since then, UNDP has continued assisting developing countries and countries with economies in transition in their efforts to reduce the use and release of mercury. Such efforts have mainly focused on the extractives sector, by supporting the phase-out of mercury used in mining to extract gold, and on the health sector, where we support the phase-out of mercury-containing medical devices and the reduction of mercury emissions. In addition, the adoption of the Minamata Convention on Mercury with the Global Environment Facility (GEF) as its financial mechanism has created new avenues and opportunities for providing financial and technical support to countries to assist them in reducing releases of mercury.

To assist countries meet their commitments under the Minamata Convention and reduce releases of mercury from various sectors and release sources, UNDP, with the financial support of the GEF, supports countries in:

Conducting Minamata Initial Assessment (MIA) activities and ASGM National Action Plans (NAPs). MIAs include mercury inventories and assessments of the legal and regulatory frameworks as well as institutional and technical capacity needs.

Reducing emissions of mercury and mercury compounds to the atmosphere from point sources (e.g. coal-fired industrial boilers, incinerators, smelting and roasting processes used in the production/recycling of non-ferrous metals).

Phasing-out mercury-containing products in the healthcare sector (e.g. thermometers, blood pressure meters, dental amalgam, etc.).

Lifecycle management (LCM) of mercury, mercury-containing products and wastes (including treatment and storage).

Reducing and eliminating the use of mercury in ASGM, and minimizing mercury releases to the environment from mining and processing.

UNDP has already provided support to a total of 41 countries to implement mercury-related projects through national, regional and global projects. UNDP's current mercury portfolio amounts to $141 million in GEF grants1.

UNDP is also participating in the PlanetGOLD programme, which is a programmatic approach to tackle the use of mercury in the ASGM sector. UNDP is the implementing agency for eight countries (Colombia, Ecuador, Ghana, Honduras, Indonesia, Kenya, Peru, and Suriname). As one of their main goals, the programmes will develop and connect responsible ASGM producers to international markets through transparent supply chains. Another key objective is to increase the access of small-scale miners and their communities to investment and finance for social and environmentally-friendly practices. Direct funding from the GEF for these eight countries is $38.4 million, with co-financing from governments, sustainable finance institutions and the private sector.

* The present annex has not been formally edited.

[1] In some cases, the management of mercury is a small component of a larger project focusing on reducing/phasing out other chemicals.

UNDP's activities are underpinned by a social and environmental safeguards framework, which includes an assessment of their impact on the human rights of the communities they serve. This framework is applied during the development, implementation and monitoring and evaluation stages of the projects that UNDP implements to reduce the use of mercury in the ASGM sector.

UNDP's key approaches to assisting countries to advance the sound management of mercury include:

Advocacy and Awareness Raising - Campaigning among stakeholders, decision-makers and population groups at risk on the importance of mercury reduction, phase-out and its management.

Capacity Building – Identification of innovative and successful practices; policy, regulatory and institutional enhancements to help countries put in place mercury management systems; identification of financing needs and options; application of lessons learned and experiences from other countries; and development and application of guidelines and tools to facilitate the management and monitoring of mercury.

Technical Assistance – Supporting countries in identifying and introducing Best Environmental Practices (BEP) and Best Available Technologies (BAT), along with customized training for their use and application, which have proven successful elsewhere and will help address national challenges and constraints with regards to the sound management of mercury.

Monitoring – Assisting countries to assess their situation relating to mercury and tracking their progress towards reducing its use and releases.

Annex III*

Report of the Commission for the Protection of the Marine Environment of the North-East Atlantic to the Minamata Convention

Dear Monika,

In 2021, OSPAR adopted a new Strategy for the Protection of the Marine Environment of the North East Atlantic. The strategy reaffirms OSPAR's commitment to prevent pollution by hazardous substances, by eliminating their emissions, discharges and losses, to achieve levels that do not give rise to adverse effects on human health or the marine environment, with the ultimate aim of achieving and maintaining concentrations in the marine environment at near background values for naturally occurring hazardous substances and close to zero for human made hazardous substances. Mercury remains a Chemical for Priority Action by OSPAR Contracting Parties.

OSPAR has adopted several decisions and recommendations to prevent the emission of mercury to the environment. PARCOM Decision 1990/3 committed Contracting Parties to phase out the use of mercury cell technology in chlor-alkali plants. This work was completed in 2020, with the closure or conversion of the final plants to membrane technology[2]. Recommendation 1993/2, on the further restriction of the discharge of mercury from dentistry, is currently undergoing a reporting round which is expected to show that OSPAR Contracting Parties have fully implemented the measures identified in the recommendation. Preparations are underway for a reporting round for Recommendation 2006/2 which seeks to prevent dispersal of mercury from crematoria. This reporting round is expected to be completed by 2026.

In addition to measures to prevent the emission of mercury to the environment, during 2023 OSPAR has published the latest Quality Status Report, describing state of the marine environment as well as drivers, pressures, activities and responses. The assessment includes relevant reports and factsheets describing:

- Modelling of discharges to the marine environment from open circuit flue gas scrubbers on ships in the OSPAR Maritime Area[3];
- Inputs of Mercury, Cadmium and Lead via Water and Air to the OSPAR Maritime Area[4];
- Trends in Deposition of Heavy Metals to the OSPAR Maritime Area in the period 1990-2019;[5]
- Status and Trend for Heavy Metals (Mercury, Cadmium and Lead) in Fish, Shellfish and Sediment[6];
- Integrated biological effects and chemical contaminants approach: a case study[7];
- Status and Trends in Hazardous Substances[8];
- Thematic Report on Hazardous Substances (to be published, September 2023)

The studies indicate that OSPAR Contracting Parties have been successful in reducing emissions of mercury to both water and air – although some of these apparent reductions may be due to

* The present annex has not been formally edited.

[2] https://www.ospar.org/work-areas/hasec/hazardous-substances/discharges-emissions-and-losses

[3] https://oap-cloudfront.ospar.org/media/filer_public/fe/78/fe78b829-5ba5-47e3-805c-09315c16c29c/p00890_modelling_flue_gas_exhaust_scrubber_report_.pdf

[4] https://oap.ospar.org/en/ospar-assessments/quality-status-reports/qsr-2023/indicator-assessments/inputs-heavy-metals/

[5] https://oap-cloudfront.ospar.org/media/filer_public/e6/08/e608e1bd-8ed3-45a3-b748-e55fec7861de/p00897_emep_e_trends_in_heavy_metals.pdf

[6] https://oap.ospar.org/en/ospar-assessments/quality-status-reports/qsr-2023/indicator-assessments/heavy-metals-biota-sediment/

[7] https://oap.ospar.org/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/integrated-biological-effects/

[8] https://oap.ospar.org/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/chase/

improvements in laboratory practices and reductions in determination limits. The principal pathway now appears to be as airborne mercury, requiring global action.

The reduction in inputs appears to be reflected in concentrations in marine sediments: decreasing trends are observed in the sediments of the North Sea, the Atlantic coasts of Ireland and Scotland and in the Irish Sea. No trend could be determined in the English Channel however. Trends in biota are less apparent however, with no trends detectable in most areas and increasing concentrations found in the southern North Sea, the English Channel and the Bay of Biscay. Concentrations remain elevated relative to the background assessment criteria in all assessed areas from the Barents Sea to the Gulf of Cadiz.

The volatility and long-range transport properties of mercury make it particularly sensitive to climate change and effects of climate. Higher temperature increases oxidation rates of mercury in the atmosphere, leading to changes in deposition patterns, more forest fires increase the release of mercury from terrestrial soils, and increased precipitation can lead to higher depositions generally. More oxygen depletion can lead to higher methylmercury production in anoxic sediments, releasing it into the water column. Higher temperatures can also increase the uptake rate in food-webs, and ice-free arctic regions can change food-webs, all leading to higher mercury concentrations in the arctic regions.

OSPAR remains committed to stimulating and coordinating Contracting Parties' efforts to reduce emissions of mercury as well as engaging in the global processes which are essential if the OSPAR objective, to achieve background concentrations in the marine environment, is to be achieved.

With best regards,

Philip Axe

Chair of the OSPAR Hazardous Substances and Eutrophication Committee

Dominic Pattinson

Executive Secretary OSPAR Commission

Annex IV*

Submission by the Secretariat of the Pacific Regional Environment Programme



AP 1/1; AP 6/5/7; MTG 2/1

7 June 2023

Monika Stankiewicz
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Dear Monika,

RE: Invitation for input to the fifth meeting of the Conference of the Parties to the Minamata Convention on Mercury

We thank you for the invitation to submit information relevant to the work that the Secretariat of the Pacific Regional Environment Programme (SPREP) does on the Minamata Convention on Mercury.

As the mandated regional environmental management organization for the Pacific, SPREP has undertaken several activities related to the Minamata Convention. These include:

1. **Minamata Initial Assessment (MIA)**

SPREP was appointed by UNEP in 2019 to be the execution agency for MIA projects in eight (8) of our countries including: Cook Islands, Kiribati, Marshall Islands, Niue, Palau, Tonga, Tuvalu, and Vanuatu.

Implementation of the MIA project was interrupted by the COVID-19 pandemic but we have completed the MIA for Vanuatu (find copy here: Vanuatu MIA Report) and are on track to complete all other MIAs by October 2023.

2. **High level support to make the Pacific mercury free**

SPREP tabled at its 30th Meeting in September 2021, a paper outlining its intentions on making the Pacific free from mercury through the development and implementation of a regional action plan. SPREP Officials noted the paper and unanimously supported the Secretariat's plan to make the Pacific mercury free. SPREP meeting decision 8.3.2 supporting the proposal can be found here 30 SM decision 8.3.2

3. **Education and awareness on mercury**

As part of the plan to make the Pacific mercury free, SPREP has commenced awareness raising activities at targeted high-level events to improve the region's knowledge and understanding of mercury and its impacts on communities and the environment.

* The present annex has not been formally edited.

Sustainable, transformative and resilient for a Blue Pacific

A side event on mercury was held during the Third Clean Pacific Roundtable in 2022. During the side event, presentations on the outcome of MIAs were made by selected country representatives as well as presentations on health impacts of dental amalgams and use of mercury in artisanal and small-scale gold mining.

4. Support for on the ground actions on mercury

SPREP has secured funding from the Global Environment Facility through UNEP to execute the GEF ISLANDS Pacific project in 14 Pacific Island countries including: Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Island, Tonga, Tuvalu, Vanuatu.

Under the GEF ISLANDS Pacific Project, support will be provided to countries who have completed their MIAs to clean up their legacy stockpiles of mercury waste as well as develop legislation to domestic their obligations to the Minamata Convention on Mercury.

The above are four (4) noteworthy activities that we would like to report to the Secretariat. In addition to these activities, our Waste Management and Pollution Control team continue to engage with staff of the Minamata Convention Secretariat on technical advice for our members who have expressed interest in ratifying the Minamata Convention as well as planning of future collaboration on further work on mercury management in the Pacific.

We have also provided technical advice to Parties from the Pacific who virtually attended the Fourth Minamata Convention COP in Bali, Indonesia in 2022.

I would like to take this opportunity to thank you and your good team for the ongoing support to SPREP in matters related to our work on mercury and kindly request that this be strengthened further as we look to increase signatories to the Minamata Convention from the Pacific.

Yours sincerely,

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Director General

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A resilient Pacific environment sustaining our livelihoods and natural heritage in harmony with our cultures.

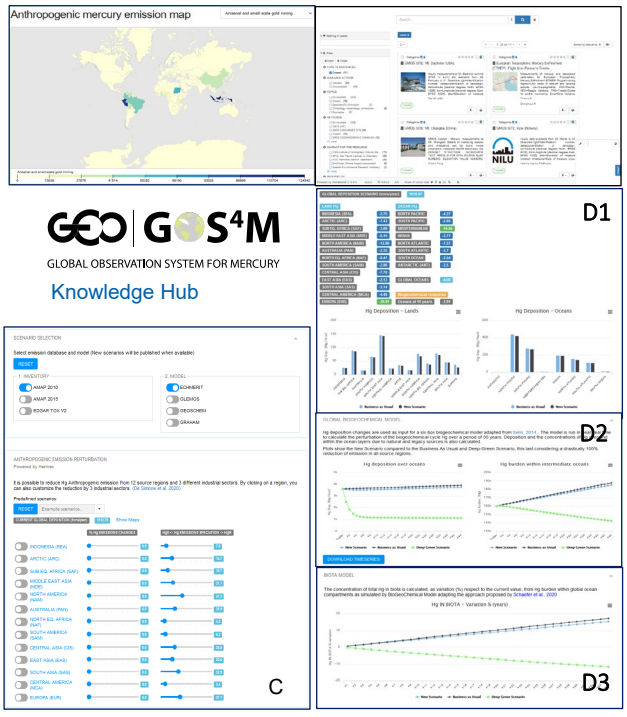
Annex V*

Submission by the Group on Earth Observations to the Conference of the Parties to the Minamata Convention on Mercury at its fifth session

14 July 2023

Major highlights of the GOS^{4}M activity relevant to the Minamata Convention on Mercury

The GEO Flagship GOS^{4}M (http://www.gos4m.org/) was designed to support nations, UNEP and all interested Parties to characterize the link between key drivers of Hg contamination (Hg releases to air and water from anthropogenic and natural sources, climate change), impacts on terrestrial and aquatic ecosystems (deposition to and re-emission from), effects of mercury contamination of Earth system (bioaccumulation in abiotic and biological endpoints), potential impacts on human health (through Hg-contaminated food) and assess the financial costs of mitigation measures. The overarching goal of GOS^{4}M was to provide EO data sets (in-situ, off-shore/oceanographic and satellite) and validated multi-model interoperable tools (namely the GOS^{4}M Knowledge Hub) to allow policy makers co-designing policy-driven scenarios to evaluate cost-effective mitigation strategies that nations may implement for achieving the objectives of the Minamata Convention on Mercury (MCM).



The GOS^{4}M-Knowledge Hub (GOS^{4}M-KH) is an operational integrated multi-model and multi-domain computational platform where scientists, decision-makers and citizens can discover, analyse and understand information that characterize temporal and spatial transport and transformation patterns affecting the fate of Hg releases to the atmosphere and marine ecosystems at regional and global scales. It is composed by various modules which include a data catalogue, a multi-media modelling system (comprising a suite of atmospheric models (ECHMERIT and Geos-Chem), a biogeochemical model to assess the Hg accumulation in abiotic marine ecosystems, a trophic model to assess the bioaccumulation of Hg in marine biota), a co-design emission reduction tool along with a cost-model, recently developed, to assess the investment costs associated to various mitigation measures of Hg releases by region and emission source type.

GOS^{4}M is also part of the new ESFRI Research Infrastructure EIRENE RI (www.eirene-ri.eu) aiming to bridge environmental observations to human exposure factors and its effect on human health. In this framework GOS^{4}M has been engaged to develop a new module for assessing the health risk for various population groups exposed to Hg-contaminated fish, by integrating FAO data on fish catches and population diet profile. Long-term trends of atmospheric mercury releases, Hg bioaccumulation in marine biota and human biomonitoring data will be analysed using advanced Artificial Intelligence algorithms to better understand the relative contributions of different sources (anthropogenic and natural) and influencing factors (i.e., climate variability, genetic profile, atmospheric transport and deposition patterns, air-water exchange flux variability) of Hg impact on human health.

* The present annex has not been formally edited.

The GOS^{4}M partnership is an multilateral effort open to all interested Parties with aim to support the advancement of science on Hg fate at various geographical scales and assist all interested Parties at various stages of MCM implementation and verification.

In summary

- GOS^{4}M developed the Knowledge Hub as an operational integrated multi-model and multi-domain computational platform designed to evaluate the potential effectiveness of mitigation measures that nations may implement to reduce the impact of mercury contamination on human health and ecosystems.
- GOS^{4}M is promoting a federation of in-situ monitoring networks that would facilitate the sharing of monitoring data following the GOE Data Sharing Principles. A federated data sharing would allow all interested Parties and research groups to analysis long-term Hg concentration trends in various media as well as to better understand Hg fate patterns with changing emission reduction scenarios and climate.
- Members of GOS^{4}M are carrying out an intensive dissemination and outreach activity in the context of various policy-oriented frameworks, conferences and expert ad-hoc groups such as the OESG (open-ended Science Group) for the Effectiveness Evaluation of the MCM, the UNEP Global Mercury Partnership, the HTAP Task Force of the UNECE-LRTAP convention, and national-scale initiatives.
- GOS^{4}M is also part of several ongoing national and international R&I projects related to various aspects of mercury monitoring, modelling and policy implementation.
- GOS^{4}M is an open and inclusive partnership aiming to support the achievement of goals of various policy and research agendas including the MCM, UN 2030 Agenda on SD, the UNECE-LRTAP-HTAP convention, ESFRI (European Forum of Research Infrastructures) and related R&I projects.