



**United Nations
Environment
Programme**

Distr.: General
20 August 2019

Original: English

Workshop on Synergies in Mercury Waste Management
Osaka, Japan, 30-31 May 2019

Chair's Summary of Workshop on Synergies in Mercury Waste Management¹

Introduction

1. The Workshop on Synergies in Mercury Waste Management was held in Osaka, Japan on 30 and 31 May 2019, co-organized by the Japanese Ministry of the Environment, the Secretariat of the Minamata Convention on Mercury and United Nations Environment Programme through its International Environmental Technology Centre. The primary objective of the workshop was to promote the environmentally sound management of mercury wastes through identifying needs and gaps on capacity-building, technical assistance and technology transfer as well as opportunities for synergistic implementation not only within the Minamata Convention but also between the Minamata Convention and other global frameworks. The workshop was attended by 41 participants and chaired by Mr. Teruyoshi Hayamizu, National Institute for Environmental Studies, Japan. This workshop was held in conjunction with the face-to-face meeting of the group of technical experts on mercury waste thresholds established by the Conference of the Parties to the Minamata Convention at its second session.

Session 1: Opening of the Workshop

2. In the opening session, Mr. Eisaku Toda, the Secretariat of the Minamata Convention, delivered his opening remarks, highlighting the presence of strong synergies between mercury waste management and global/regional environmental frameworks. He also mentioned the importance of synergies between Article 11 and other articles of the Minamata Convention in promoting the life-cycle management of mercury, reminding the tragedy of Minamata Disease. Mr. Yutaka Matsuzawa, Deputy Director General of Regeneration and Resource Circulation Bureau, Ministry of the Environment, Japan, warmly welcomed participants as a host country and outlined the objective and agenda of the workshop. He also expressed the firm determination to contribute to the update of the Basel technical guidelines on mercury wastes that was decided at the Conference of the Parties to the Basel Convention at its 14th session.

Session 2: Identification of the needs for capacity-building, technical assistance, and technology transfer on mercury waste management

3. Following the brief introduction of this agenda item by Mr. Shunichi Honda, United Nations Environment Programme, four speakers gave presentations. Mr. Keith Alverson, United Nations Environment Programme, raised the importance of developing strategies and conducting assessments and monitoring in line with mercury waste management for enhancing capacity-building and creating positive synergies between them.

¹ This document has not been formally edited.

4. Ms. Misuzu Asari, Kyoto University, who served as the lead of the Mercury Waste Management Area of the Global Mercury Partnership of United Nations Environment Programme, shared its activities including the development of the Global Mercury Waste Assessment (2017) and the Practical Sourcebook on Mercury Waste Storage and Disposal (2015). She highlighted that the uniqueness of this area lies at the collaboration with other partnership areas, exemplifying a joint project with United States Environmental Protection Agency, a lead of the Mercury Reduction in the Chlor-alkali Sector Area, which intends to identify needs and challenges that chlor-alkali industry in Uruguay and the government of Uruguay have faced with. She also touched on future plans of the partnership such as information sharing and collaboration activities.

5. Ms. Reiko Sodeno, Shibaura Institute Technology, presented her estimation that the surplus mercury is projected to generate in 2030 at the latest. She underscored that the development of an inventory and material flow of mercury, together with a national implementation plan would be instrumental in developing a national scheme for the environmentally sound collection and treatment of mercury wastes. She also addressed relevance between the Minamata Convention and the Sustainable Development Goals 2030. Finally, she concluded that a holistic approach would be crucial for enhancing synergies with other international policies, taking into account negative aspects thereof and vulnerable population.

6. Mr. Zhang Xin, China Chlor-alkali Industry Association, introduced the current situation and prospect of polyvinyl chloride industry in China. He explained that the calcium carbide process has still been widely used due to the resource endowment in China, and the capacity of polyvinyl chloride production has been almost stable over the last several years. In China, catalyst that has been applied to polyvinyl chloride production since 2015 contains less mercury than that applied before, and the combination of low-mercury catalyst and other mercury control technologies would enable mercury recovery rate of 95% in the carbide process. He also highlighted that stricter regulations have been put in place in China, partly in response to the Minamata Convention, to control mercury emissions and releases from the polyvinyl chloride industry.

7. After all the presentations, three break-out groups were formed (same group formation for the meeting of the expert group on mercury waste thresholds), and each group discussed the needs for capacity-building, technical assistance and technology transfer on mercury waste management. The plenary was resumed following the break-out discussion, and the rapporteur of each group summarized the group discussion.

8. The points of discussion and the corresponding summary of the break-out discussion are as follows:

<i>Points of discussion</i>	<i>Summary of the break-out discussion</i>
Area where capacity-building, technical assistance and technology transfer are needed	<ul style="list-style-type: none"> ✓ Establishment of legal frameworks and strengthening of capacity of enforcement agencies. ✓ Information and data sharing across government agencies to complete the reporting pursuant to article 21 of the Minamata Convention. ✓ Monitoring and analysis of mercury levels in the environment, mercury-added products and wastes. ✓ Efficient waste collection system and ways to recover collection costs. ✓ Waste disposal technologies including the assessment of their availability and efficiency. ✓ Alternatives to mercury-added products. ✓ Identification and management of stockpiles of mercury wastes. ✓ Remediation of contaminated sites. ✓ Awareness raising and education for policy makers, the private sector and the public.
Ways to strengthen capacity-building, technical assistance and technology transfer	<ul style="list-style-type: none"> ✓ Strengthen political commitments by mainstreaming the issue of waste management and integrating it into a national development plan. ✓ Mobilize financial resources by expanding available funding opportunities such as the Global Environment Facility, Specific International Programme, individual projects by intergovernmental organizations, bilateral projects and the private sector (e.g. through industry associations). ✓ Use expertise in the Global Mercury Partnership of United Nations Environment Programme.
Ways of needs assessment	<ul style="list-style-type: none"> ✓ Minamata Initial Assessment for the identification of national priorities. ✓ Further needs assessment may be considered.

Session 3: Synergies with other multilateral environmental agreement in relation to mercury waste

9. Following the brief introduction of this agenda item by Mr. Shunichi Honda, five speakers gave presentations. Ms. Kaoru Oka, EX Research Institute Ltd., explained the overview of the technical guidelines for the environmentally sound management of mercury wastes developed under the Basel Convention (hereinafter referred to as “Basel technical guidelines”) as well as a possible timeline for updating the Basel technical guidelines as per decided at the Conference of the Parties to the Basel Convention at its 14th session. She also introduced her views on areas that need additional guidance for the management of certain mercury wastes in the guidelines.

10. Mr. Shunichi Honda, on behalf of Mr. Nicolas Humez, International Solid Waste Association, presented the importance of taking holistic approaches in managing mercury wastes. He stressed that taking such approach would require the traceability of mercury on the premise and that the inventory plays an important role in prioritizing areas that need special attention.

11. Ms. Melisa Lim, the Secretariat of the Basel Convention, outlined works under the Basel Convention relevant to mercury waste management. She introduced works of an expert group on environmentally sound management including the development of guidance on tools and strategies.

12. Ms. Oluwatoyin Olabanji, Federal Ministry of Environment, Nigeria, raised needs of urgent actions in response to open-burning of wastes, highlighting that it has been the largest source of mercury emissions in Nigeria according to the Minamata Initial Assessment. She underscored that significant challenges remain for the establishment of appropriate national policies, regulatory frameworks to control such practice and to operate the waste separation and collection system. She also mentioned that in ceasing this practice would require capacity building for both governments and the public.

13. Ms. Kakuko Yoshida, Regional Office for Asia and the Pacific, United Nations Environment Programme, presented the overview of the Strategic Approach to International Chemicals Management (SAICM) which aims to achieve the sound management of chemicals throughout their life-cycle by 2020 to minimize significant adverse impacts of chemicals on the environment and human health, with multi-stakeholder and multi-sectoral approaches on the voluntary basis. She also explained the ongoing process of considering future framework of international chemicals and waste management, as SAICM is to complete its role in 2020, for the adoption at the fifth session of the International Conference on Chemicals Management to be held in Bonn, Germany in October 2020.

14. After all the presentations, three breakout groups were formed depending on the interest of the individual participant. Three breakout groups discussed (1) use of the Basel technical guidelines, (2) open-burning of wastes and (3) input to beyond 2020 process and the Sustainable Development Goals 2030, respectively. The plenary was resumed following the break-out discussion, and the rapporteur of each group summarized the group discussion.

15. The points of discussion for (1) use of the Basel technical guidelines provided and the corresponding summary of the break-out discussion are as follows:

<i>Points of discussion</i>	<i>Summary of the break-out discussion</i>
General issues for the use of the Basel technical guidelines	Following measures should be considered for the dissemination of the Basel technical guidelines: <ul style="list-style-type: none"> - translation into local languages; - development of video and interactive module to make it more practical; and - training on how to use the guidelines.
Possible contents for the updating the Basel technical guidelines	<ul style="list-style-type: none"> ✓ Review how the Basel technical guidelines address the management of mercury wastes that are in the list developed by the expert group of mercury waste thresholds as an initial step. ✓ Re-structure the contents by waste type followed by the corresponding practical management techniques. ✓ Ensure the consistency with other relevant guidelines (e.g. technical guidelines on incineration on land being developed under the Basel Convention). ✓ Show practical examples of available technologies at the end of each

<i>Points of discussion</i>	<i>Summary of the break-out discussion</i>
	<p>section.</p> <ul style="list-style-type: none"> ✓ Describe different levels and ranges of techniques, considering different national circumstances (stepwise approaches).
Others	<p>As part of the decision adopted at the Conference of the Parties to the Basel Convention at its 14th session, the Conference of the Parties calls upon the members of the small intersessional working group to consider the update of the Basel technical guidelines, to cooperate with the group of technical experts on mercury waste thresholds established by decision MC-2/2, if invited to do so. The tasks of the group of technical experts on mercury wastes thresholds will be completed with its report to the Conference of the Parties to the Minamata Convention at its third session in November 2019, whereas the work of the small intersessional working group will continue until the Conference of the Parties to the Basel Convention at its 15th session in 2021 at the shortest. Therefore, it was suggested that the possible way of collaboration between two expert groups needs further consideration at the Conference of the Parties to the Minamata Convention at its third session.</p>

16. The points of discussion for (2) open-burning of wastes provided and the corresponding summary of the break-out discussion are as follows:

<i>Points of discussion</i>	<i>Summary of the break-out discussion</i>
General issues of open-burning of wastes	<ul style="list-style-type: none"> ✓ Open-burning of wastes causes air-pollution (mercury, dioxins, NO_x, SO_x and other pollutants). ✓ Working environment at open-burning sites is severe and at high risk for the human health. ✓ Open-burning of wastes entails with social and economic problems, making it more complex and difficult to address. ✓ Different types of open-burning of wastes exist (intentional/unintentional open-burning at dumpsites/backyards). ✓ Levels of mercury emissions from open-burning of wastes are not well understood.
How to prevent open-burning of wastes	<ul style="list-style-type: none"> ✓ Strengthen political commitments to establish a legislative framework. ✓ Develop a waste management plan to promote the transition from open-burning of wastes through sanitary landfills to incineration of wastes with appropriate pollution control measures (and energy recovery). ✓ Introduce polluter-pays principles so that costs for municipal waste management can be paid by residents/consumers/taxpayers. ✓ Consider costs of inaction and benefits of action. Open-burning of wastes is the most expensive waste management practice in the long-term if costs for environmental restoration are considered. ✓ Launch a monitoring programme to measure mercury emissions from open-burning of wastes, and use the data to inform policy makers.

17. The points of discussion for (3) input to beyond 2020 process and the Sustainable Development Goals 2030 provided and the corresponding summary of the break-out discussion are as follows:

<i>Points of discussion</i>	<i>Summary of the break-out discussion</i>
How to synergize between the Minamata Convention, the International Conference on Chemicals Management, and the Sustainable	<ul style="list-style-type: none"> ✓ Goals 3 (Good health and well-being), 11 (Sustainable cities and communities), 12 (Responsible consumption and production) and 17 (Partnership for the goals) are the most relevant to mercury waste management, and addressing these goals in the context of the Minamata Convention need an integrated approach. ✓ Chemicals management should be of great concern for the public health. Health is a key component in enhancing synergies between the Minamata Convention, the International Conference on Chemicals Management and the Sustainable Development Goals 2030. A national plan on health in relation to mercury (e.g. prevention of mercury entry into the food chain) should be developed.

<i>Points of discussion</i>	<i>Summary of the break-out discussion</i>
Development Goals 2030	✓ Continuous capacity-building is necessary since trained personnel sometimes leave the office or are transferred.
How to involve stakeholders more to implement the Minamata Convention	<ul style="list-style-type: none"> ✓ Inform stakeholders of the Minamata Convention of the relevance between mercury and health care together with food security to promote the involvement of the health sector. Education campaign and awareness raising play an important role. ✓ Establish partnership with support from United Nations bodies and through the associated mechanisms. ✓ Strengthen the involvement of the private sector (food production, distribution of seafood, health-care sector using mercury-added products). ✓ Promote the technology and knowledge development by academia. ✓ Open, transparent and interactive consultation with stakeholders is necessary.

Session 4: Linkage between Article 11 (mercury wastes) and other articles of the Minamata Convention

18. Following the brief introduction of this agenda item by Mr. Shunichi Honda, three speakers gave presentations. Mr. Masaru Tanaka, Research Institute of Solid Waste Management Engineering/Okayama University, argued that waste incineration facilities equipped with integrated pollution control measures are the method for safer disposal and efficient volume reduction of wastes. He also pointed out that heat from waste incineration could be utilized for energy generation (waste-to-energy), which contributes to a low-carbon society since the consumption of fossil fuels could be curbed. He stressed that energy recovery from waste incineration is positioned right under 3Rs (waste reduction, reuse, and recycling) in the waste management pyramid.

19. Mr. Greg Helms, United States Environmental Protection Agency, outlined linkages between Article 11 (mercury wastes) and other articles of the Minamata Convention. He mentioned that guidance materials describing linkages between Article 11 and other articles being developed for consideration by the Conference of the Parties may help the Parties better understand and implement the Minamata Convention.

20. Ms. Budi Susilorini, Pure Earth/Blacksmith Institute, introduced current practices and challenges on mercury use in artisanal small-scale gold mining in Indonesia. According to Minamata Initial Assessment in Indonesia, annual mercury emissions and releases to the environment from the artisanal small-scale gold mining sector amounts to 345.7 tons. She explained that miners have no access to alternative techniques although they acknowledge mercury amalgamation is not the best practice. National and local governments have been struggling with intervening artisanal small-scale gold mining activities since mercury has been used illegally. She emphasized that the establishment of regulatory frameworks, a national action plan and formalization of artisanal small-scale gold mining communities are critical in combatting artisanal small-scale gold mining using mercury. As such, she mentioned the importance of communication and coordination within inter-governmental entities, together with awareness raising and capacity-building.

21. After all the presentations, three breakout groups were formed depending on the interest of the individual participant. Three breakout groups discussed (1) mercury-added products, (2) mercury emissions and releases and (3) artisanal small-scale gold mining and contaminated sites, respectively. The plenary was resumed following the break-out discussion, and the rapporteur of each group summarized the group discussion.

22. The points of discussion for (1) mercury-added products provided and the corresponding summary of the break-out discussion are as follows:

<i>Points of discussion</i>	<i>Summary of the break-out discussion</i>
Current progress and challenges to meet "the cut-off days" of mercury-	<ul style="list-style-type: none"> ✓ Many countries have already developed a national plan to phase-out mercury-added products listed in Annex A of the Minamata Convention, but many exemptions were submitted. ✓ Some countries have faced with difficulties in developing a national plan

<i>Points of discussion</i>	<i>Summary of the break-out discussion</i>
added products listed in Annex A part I	<p>since the phase-out date (2020) is just around the corner.</p> <ul style="list-style-type: none"> ✓ Experiences in other countries could be referenced to in the national plan as a guidance for achieving the phase-out of mercury-added products. ✓ Governments play important roles in identifying national challenges and priorities. ✓ Information sharing on good practices and alternative technologies are necessary since challenges remain within industries for the manufacturing of alternatives of mercury-added products.
Challenges to manage dental amalgam	<ul style="list-style-type: none"> ✓ There are still demands for dental amalgam in some countries; the phase-down of the dental amalgam, as provided in the Convention, should be pursued.
Others	<ul style="list-style-type: none"> ✓ Extended Producer Responsibility (e.g. labelling of mercury-added products) should be considered, and the guidelines on Extend Producer Responsibility system could be developed. In this context, cooperation between governments and industries are necessary.

23. The points of discussion for (2) mercury emissions and releases provided and the corresponding summary of the break-out discussion are as follows:

<i>Points of discussion</i>	<i>Summary of the break-out discussion</i>
How to apply Best Available Technology and Best Environmental Practices for emission and releases, in particular waste incinerators	<ul style="list-style-type: none"> ✓ Raw minerals (e.g. coal) and mercury-added products are the main source of mercury inputs into incinerators. Waste separation at source helps identify the origin of mercury wastes that are brought into incinerators and the corresponding emission/release control measures. ✓ Identification of mercury-added products not listed in Annex A is also important. ✓ If "best" practices cannot be put in place, consider the next best approach to be "good enough". Review of the Basel technical guidelines should be practical, or at least second-best approach should be addressed to ensure the environmentally sound management considering national circumstances.
Necessary measures to prevent emission and releases of mercury from waste sectors	<ul style="list-style-type: none"> ✓ Prevention and minimization of waste generation would be the premise, and mercury recovery from wastes would curb the emissions and releases of mercury. ✓ Financial incentives for the informal sector to separate mercury wastes from other waste may be effective in promoting the environmentally sound management of mercury wastes. ✓ Separate collection of mercury wastes may not be needed if mercury recovery is not possible. ✓ Priority should be identified. The medical waste management system should be considered separately from the usual municipal waste management system.
Others (how to address wastewater under the Minamata Convention)	<ul style="list-style-type: none"> ✓ Whether wastewater and wastes are being regulated under different laws or under a single law varies by country. Further discussion is needed among the expert group on releases under the Minamata Convention whether wastewater should be addressed within the context of Article 9 or Article 11 of the Minamata Convention, acknowledging that the provision of Article 9 applies to the relevant point sources not addressed in other provisions of the Minamata Convention.

24. The points of discussion for (3) artisanal small-scale gold mining and contaminated sites provided and the corresponding summary of the break-out discussion are as follows:

<i>Points of discussion</i>	<i>Summary of the break-out discussion</i>
How to identify contaminated sites	<ul style="list-style-type: none"> ✓ Focus should be placed on artisanal small-scale gold mining sites, oil exploration sites and sites where waste electrical and electronic equipment and/or healthcare wastes are disposed of. ✓ Soil sampling and analysis are needed. Use of portable site-screening devices of mercury is effective, but these are very expensive.

<i>Points of discussion</i>	<i>Summary of the break-out discussion</i>
	<ul style="list-style-type: none"> ✓ Identification of contaminated sites is difficult because the authority cannot handle the increasing demand for site investigation. ✓ Capacity-building and technology transfer are needed for quick assessment of contaminated sites. ✓ Identification should be proceeded in line with a risk assessment procedure. ✓ Hazard-based approach can be used for the identification.
How to manage contaminated sites	<ul style="list-style-type: none"> ✓ Use the updated analysis and monitoring devices. ✓ Reclamation of contaminated soil can be one of the options. ✓ Cost recovery from the operator liability is needed. ✓ Risk-based approach can be used for the management. ✓ Establish a pool of funds for investigation and remediation activities (e.g. funds pooled from waste tipping fee)
How to prevent contaminated sites	<ul style="list-style-type: none"> ✓ Local governments assist miners to form a cooperative to ensure the sound management of mining sites. Collection of tax/fee is necessary to create a reserve for unforeseen contamination cases. ✓ Formalization of artisanal small-scale gold mining communities is promising. ✓ Stop whole ore amalgamation. ✓ Make retorts available with extensively subsidized price. ✓ Promote the application of mercury-free gold mining methodology. ✓ Empower environmental controllers/inspectors.

Session 5: Summary of the Workshop and Closure

25. In the closing session, the chairperson encouraged the participants to bring back lessons learned in the workshop and use them for the effective implementation of the Minamata Convention in their home countries.

Field Visit

26. Participants visited the Kansai Factory Nomura Kohsan Co., Ltd., in Osaka, where fluorescent lamps are treated for material recycling.

Annex

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