



International Conference on Waste Management 2015 in Osaka

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Joint Workshop on Regional Workshop on Environmentally Sound Management (ESM) of Mercury Wastes and Regional Inception Workshop on Minamata Initial Assessment (MIA) Biennium Meeting of the Global Partnership on Waste Management (GPWM)
Osaka, 16-18 December 2015

Report of the workshop and meeting

I. Introduction

1. Joint Workshop on Regional Workshop on Environmentally Sound Management (ESM) of Mercury Wastes and Regional Inception Workshop on Minamata Initial Assessment (MIA) was organised by International Environmental Technology Centre (IETC) of United Nations Environment Programme (UNEP) on 16-17 December 2016 in Osaka, Japan, as part of the International Conference on Waste Management 2015. The joint workshop focused on capacity-building on sound manage of mercury and mercury waste in participating countries for early implementation and ratification of the Minamata Convention on Mercury.
2. Regional Workshop on ESM of Mercury Wastes was part of the project on ESM of mercury waste funded by Government of Japan. The overall objective of the project was to assist participating countries to accelerate the ratification of the Minamata Convention with special emphasis to the mercury waste management pursuant to the provisions of Article 11 of the convention.
3. In addition to the joint workshop, Regional Inception Workshop on MIA as a solo workshop was organised as part of the joint workshop on 18 December 2015. The workshop was part of the project on development of MIA in three Asian countries funded under the Global Environment Facility (GEF) Trust Fund. The MIA project focused on ratification and early implementation of the Minamata Convention facilitated by the use of scientific and technical knowledge and tools by national stakeholders in participating countries.
4. The Biennium Meeting of the Global Partnership on Waste Management (GPWM) was also organised during the International Conference on Waste Management 2015 on 17 December 2015. The GPWM Biennium Meeting had the sessions on the GPWM and ESM-MIA.

II. Joint Workshop: Day 1 of the joint workshop

A. Opening session

5. Mr. Surendra Shrestha, Director, UNEP IETC and Mr. Yoshihiro Mizutani, Deputy Director, Industrial Waste Management Division, Waste Management and Recycling Department, Japanese Ministry of the Environment, gave the opening remarks. UNEP IETC introduced the project and workshops.

B. National situations on mercury wastes

6. The representatives from Cambodia, Indonesia, Japan, Malaysia, Pakistan, Philippines, Thailand and Vietnam made the presentations on national situations of mercury wastes. Although there are some countries wherein these wastes were brought to licensed facilities for storage, pre-processing, or treatment, most countries face the challenge of wastes containing mercury and mercury compounds being generally mixed with other waste and treated as municipal wastes. Various types of laws, regulations, acts and sub-degrees of not only waste management but also emission control and wastewater management stipulates some sort of mercury management. In general among the countries, mercury waste is regulated by hazardous waste management regulations.

7. Inventory of mercury was limited. For example, Indonesia estimated that they released about 340 kg-mercury in 2012 (57.5% was mercury emission from Artisanal and Small Scale Gold Mining (ASGM), Pakistan estimated about 36,900 kg-mercury (at maximum) in 2008, and the Philippines estimated about 127,300 kg-mercury from primary virgin metal production including ASGM, extraction and use of fuel and energy resources, and other intentional use in 2008. Only Japan had the inventory of mercury waste management including material flow. Although inventory provided statistical understanding of mercury generation and its sources to appropriately develop a national regulatory framework of mercury and mercury waste management, it was clearly identified that development and continuous update of mercury inventory was difficult for many countries.

8. Threshold limits on mercury waste existed in some countries: Indonesia: Danger category 1 of hazardous waste more than 10 ppm and danger category 2 of hazardous waste between 0.3-10 ppm; Japan: 0.005 mg-mercury/L as the elution standard to distinguish between disposal in landfills for domestic and industrial wastes and disposal in landfills for hazardous industrial waste; Philippines: >0.1 mg-mercury/L based on analysis of an extract; and Thailand: 20 mg-mercury/kg as total threshold limit concentration and 0.2 mg-mercury/L as soluble threshold limit concentrations.

9. There are some practices of handling of mercury wastes, in particular fluorescent lamps. The Philippines collect waste fluorescent lamps in a registered Treatment, Storage, and Disposal (TSD) facility and export them to Japan for recovery and final disposal following the Basel Convention procedures. Other TSD facilities utilize the bulb-eater equipment to crush waste fluorescent lamps. The other examples were sound storage in hospitals of spent mercury-added measuring devices such as thermometers, sphygmomanometers, etc.

10. Treatment of wastes contaminated with mercury is one of the biggest challenges. For example, some types of hazardous wastes were sent to cement production facilities. The other challenges are mercury emissions and wastes contaminated with mercury and mercury compounds at ASGM sites.

C. International activities on mercury waste and ESM of mercury waste

11. Following the countries' presentations, the representatives from the Secretariat of the Basel, Rotterdam and Stockholm (BRS) conventions and UNEP IETC provided information on activities for mercury waste management at international level, and an international expert on hazardous waste management presented the concept and some tools for the implementation of the ESM of hazardous waste. At international level, there were several activities and knowledge on mercury waste management, including the development of the Basel Convention Technical Guidelines for ESM of Mercury Wastes, the development of Practical Sourcebook on Mercury Waste Storage and Disposal, Training Tool of Mercury Waste under the Training Resource Pack (TRP+) as well as the ongoing projects on mercury waste management at international and regional level. Furthermore, the BRS Secretariat and the international expert provided the principle and concept as well as practices of ESM. Although the principle and concept of ESM were clear based on the definition of ESM under the Basel Convention, the implementation of the concept for the mercury waste stream still needs to be further elaborated. A holistic approach to the ESM of mercury waste seems to be necessary by taking into account the life-cycle of mercury.

III. Joint Workshop: Day 2 of the joint workshop

A. Challenges toward ESM of mercury wastes

12. Based on the countries presentation, the international expert summarised the current state of some elements of the mercury management in the region as a mapping exercise of the countries' situations on mercury waste management. Common challenges among the countries except for Japan where ESM of mercury waste existed included: 1) Mercury waste was mixed with other wastes; 2) There was no specific law and regulation for manage mercury waste; 3) Mercury waste management was part of hazardous waste management; 4) There were illegal practices including ASGM and contaminated sites due to illegal practices; 5) Facilities of mercury waste in environmentally sound manner did not exist or existed with limited capacity to treat mercury wastes; 6) Technical support to achieve the ESM of mercury waste was limited or not available; 7) Public-private cooperation was limited; 8) Awareness of mercury and mercury wastes was low among general public and professionals.

13. Common solutions to be developed and implemented for ESM of mercury waste were identified as follow: 1) Assessments and studies including inventories of mercury waste and its ESM; 2) Technical support and capacity building on the ESM of mercury waste, including a special training related to use of the Basel Convention Technical Guidelines for the ESM of Mercury Waste, infrastructure for the ESM of mercury waste including the contaminated sites management; 3) Strengthening the law enforcement pertaining to mercury and mercury waste management; 4) Further cooperation among the stakeholders at both local, national international levels; 5) Development and implementation of public awareness programmes on mercury and mercury wastes.

IV. Opening session of International Conference on Waste Management 2015

14. Opening session of International Conference on Waste Management 2015 was organised for all the meeting participants in Meeting of International Advisory Board (IAB), 2nd Workshop on Framework Law on Waste Management, Meeting on Holistic Waste Management, Joint Workshop of Regional Workshop on ESM of Mercury Wastes and Inception Workshop on MIA, and the GPWM Biennium Meeting. Ms. Noronha, UNEP DTIE Director, and Mr. Tanaka, Vice Mayor of Osaka, gave welcome speech, and Madam Koike, UNEP IETC IAB Chairperson, provided opening remarks.

V. The GPWM Biennium Meeting 2015

A. Introduction

15. Mr. Gary Crawford, International Solid Waste Association (ISWA), was appointed as the chair of the GPWM Biennium Meeting 2015 based on the result of the GPWM Steering Committee meeting held on 16 December 2015. Mr. Crawford gave opening remarks. UNEP IETC as the GPWM Secretariat introduced the GPWM and the meeting objective and agenda.

B. City's contribution to the GPWM

16. The representatives of the Osaka City Government and Kobe City Government presented the cities' activities on sound management of waste, their successful stories on waste management and their contributions to other countries.

C. The GPWM

17. Mr. Crawford invited Dr. Tanaka, Research Institute of Solid Waste Management Engineering, Japan, as a facilitator of the session on the GPWM. The first half of the session was the presentations on global work on waste management by: Mr. Crawford (ISWA) on Unlocking the mitigation potential from the urban solid waste sector; Ms. Savelli from UNEP's Division of Environmental Policy Implementation (UNEP DEPI) on UNEP's work on marine litter; Mr. Kern (BRS Secretariat) on BRS Secretariat's activities on waste management; Mr. Borongan (Asian Institute of Technology (AIT)) on Partnerships on Waste Management and 3R Activities in the Asian Region; and Ms. Shan (the Basel Convention Regional Centre for Asia and the

Pacific (BCRC China)) on the International and Regional Action to Improve the Environmentally Sound Management of Waste in Asia and the Pacific.

18. Following the presentations, the second half of the session had the panel discussion by all of the presenters and Mr. Tkalin (UNEP Regional Seas Programme Northwest Pacific Action Plan (NOWPAP)), Mr. Nkla (UN Office for South-South Cooperation, United Nations Development Programme (UNDP)) and Mr. Memon (UNEP IETC). They discussed global work on waste, south-south cooperation on waste management, technology development appropriate for recipient countries and technology transfer with necessary support, examples of south-south cooperation on integrated solid waste management (ISWM) and possible future global work on waste in particular through the GPWM.

D. ESM-MIA Session: Hazardous waste management programme of the GPWM

19. In the first part of the session, Dr. Tanaka made a presentation on activities of waste management area in UNEP Global Mercury Partnership. In his presentation, he enhanced the necessary of life-cycle management of mercury in order to implement of ESM of mercury waste. Japanese example of mercury and mercury waste management was presented. Even though Japan had introduced the advanced ESM of mercury waste management and fully enforced the system, mercury was found in fishes and shellfishes that people took because mercury existed all environmental media. Mercury emission was reduced by introducing the co-benefit system not only for mercury but also other pollutants, such as dioxin in Japan. He also enhanced the approach to sound management of waste with the economic aspects, such as the relationship between waste generation and global population, the relationship between waste management level and gross domestic product (GDP) growth.

20. After his presentation, the GPWM Secretariat introduced a new thematic area of hazardous waste management under the GPWM. The participants of the GPWM Biennium meeting welcomed the introduction of the new thematic area to be led by UNEP IETC. The first activity under the new thematic area was the mercury waste management project funded by Government of Japan.

21. The meeting chair invited Mr. Honda, UNEP IETC, to become a facilitator of the second part of the session. The facilitator introduced the discussion on ESM of mercury waste by 2 breakout group in order to have brainstorming discussion among the countries. There were 2 tasks to the groups: 1) Considerations for the development of national and regional ESM strategies for Hg wastes; 2) Considerations on what kind of requirements we would need and how we would meet requirements for ESM of mercury waste. The groups were also asked to consider various factors which would consist of ESM building blocks, such as regulations, organizations, stakeholders, social matters, etc.

22. The groups came up with several ideas on ESM of mercury wastes. ESM would be composed of various components, such as regulatory framework, facility-related matters, waste-related matters, environmental protection matters, occupational safety and health matters, organizational matters and inventory. Although these items were the necessary components of ESM for hazardous wastes as well as waste management, it was recognised that special attention of mercury as a global pollutant should be made based on its characteristics.

E. GPWM Roadmap for the next 4 years

23. The GPWM Secretariat reported the results of the GPWM Steering Committee meeting. The key points on the GPWM Roadmap during the steering committee meeting were: 1) Development of 2 years roadmap to revive the GPWM itself and meet realistic goals including visibility the GPWM, in particular through the GPWM Knowledge Platform; 2) Development of Strategies to include new partners in order to share relevant waste management information; and 3) Development of the GPWM scientific assessment including platform match-making of waste management projects for donor governments and agencies. Because of the results of the steering committee meeting, the GPWM Secretariat proposed not to have discussion on the draft GPWM Roadmap for the next 4 years and indicated to circulate a revised roadmap among the participants.

F. Summary and conclusions

24. Mr. Crawford summarized the GPWM Biennium meeting and closed the meeting.

VI. Regional Inception Workshop on MIA

A. Opening session

25. Mr. Bernaudat, UNEP DTIE GEF Team gave opening remarks, and UNEP IETC as the executing agency of the GEF MIA project introduced the objectives of the project and workshop.

B. National activities for mercury management

26. The representatives from Cambodia, Pakistan and Philippines as the participating countries in the MIA project made the country's presentations on national activities for mercury management, in particular the latest information of their activities toward ratification of the Minamata Convention. Each country had the national mechanism among relevant ministries and national agencies to prepare national coordination and implement necessary actions at national level for early implementation of the Minamata Convention and preparatory work toward ratification of the convention.

27. They also had several actions to work with local stakeholders as project basis in cooperation with local organizations, such as non-governmental organization (NGO). These activities were the key points to raise public awareness, in particular those who were involved in activities directly or indirectly use mercury and mercury compounds. For example, one NGO in Philippines had been working for local ASGM miners to educate them on mercury issues and train them on sound management of mercury to prevent adverse effect to human health and the environment. It was recognised that involvement of local organisations, such as NGOs, would be important to work with local stakeholders, such as ASGM miners and other informal sectors, to disseminate knowledge and information of mercury.

28. After the presentations, the issue of awareness on mercury was discussed. It was the common understanding that implementation of the provisions stipulated by the Minamata Convention on Mercury would be difficult without people's awareness on mercury. The common challenges among the countries included: prioritization of economic activities rather than health and environmental prevention, no awareness of adverse effect to human health and the environment, good livelihood of informal activities including ASGM, etc. In order to provide opportunities of awareness raising among people, long term strategy of awareness raising activities should be developed and continuously conducted over generations by national stakeholders through various channels, such as school, media, publications, etc.

29. UNEP IETC introduced the MIA project workplan. The project was composed of 6 components: 1) Establishment of coordination mechanism and organization of process; 2) Assessment of the national infrastructure and capacity for the management of mercury, including national legislation; 3) Development of a mercury inventory using the UNEP mercury toolkit and strategies to identify and assess mercury contaminated sites; 4) Identification of challenges, needs and opportunity to implement the Minamata Convention on Mercury; 5) Preparation, validation of National MIA report and implementation of awareness raising activities and dissemination of results; and 6) Information exchange, capacity building and knowledge generation. The current situation of the project implementation was that almost all legal instruments with the countries was completed or was about to be completed, and it was expected that the first payment would be made around the end of January or beginning of February 2016.

C. Updates and activities for mercury management at international level

30. The representatives from UNEP Regional Office for Asia and the Pacific (ROAP), UNEP DTIE GEF Team and the BRS Secretariat gave the presentations on their activities of sound management of chemicals and waste, in particular mercury management at international and regional level.

31. The representative of UNEP ROAP highlighted that Asia was facing rapid economic growth for the last 10-15 years and Asian countries were getting economic benefits from their

economic development; however, they were facing various environmental challenges due to economic and population pressures. The representative from UNEP DTIE GEF Team shared the overall implementation of the GEF projects and its latest activities to assist the participating countries in early implementation and ratification of the Minamata Convention. He also shared the latest knowledge of global situation on mercury including global mercury trade, situation on unintentional emissions, primary mining, ASGM, etc. The representative of the BRS Secretariat made a presentation on cooperation and coordination between the Basel, Rotterdam and Stockholm conventions and the Minamata Convention. He shared the decisions made by the Conference of the Parties (COP) to the BRS conventions in 2015, such as the decisions on Basel and Stockholm conventions Regional Centres and mercury wastes.

D. Hg inventory

32. The workshop had the session on mercury inventory to share knowledge and expertise how the participating countries would be able to develop and update mercury inventory.

33. The representative from the Japanese Ministry of the Environment presented the example of mercury inventory and material flow in Japan. There were series of national activities to develop material flow to identify source of mercury emission and use in Japan: for example, statistical analysis by using trade statistics, interview with manufactures, survey at waste management sectors and application of research data identifying mercury contents in products. She also enhanced policy implication for sound management of mercury based on mercury material flow in Japan. The international expert gave the lecture on mercury inventory by using the UNEP mercury toolkit level 2. He provided knowledge how to use the UNEP mercury toolkit level 2 based on the existing mercury inventory developed by the toolkit level 1. The representative from United Nations Institute for Training and Research (UNITAR) made the presentation on UNEP-UNITAR MercuryLearn training modules to develop national mercury inventories. UNITAR was conducting various training activities in 15 countries and developed the training modules for the mercury inventory as the on-line tool. He introduced the UNITAR's plan to assist the participating countries to develop and update mercury inventory during the implementation of the MIA project.

34. After the presentations, all the participants had the discussion on how to develop and update mercury inventory. The common challenge among the participating countries was data availability and its accuracy because statistical data relating mercury was very limited in their countries and it was almost impossible to develop mercury inventory without the UNEP toolkits which provided the standard value to estimate mercury data. However, it was recognised that mercury inventory was key information for the countries to develop their management mechanism of mercury appropriate for national situation in order to comply with the provisions of the Minamata Convention on Mercury.

E. Project implementation plan

35. UNEP IETC explained the project implementation plan. Although there were some issues leading to project delay, the project is expected to be completed by the end of 2016 with possible extension of the project implementation period. It was expected that the Minamata Convention on Mercury may enter into force within 2016 and COP 1 of the convention may be organised in 2017. He also explained that the MIA project planned to organise 2 lessons learned workshops during the life of the project. UNEP IETC planned to organise a workshop around June 2016 and the other workshop around November 2016.

F. Summary and conclusions

36. UNEP IETC summarized the workshop, and Mr. Bernaudat, UNEP DTIE GEF Team closed the workshop.

Annex 1: List of Participants

Name	Title	Country	Organization	Function, Department
Chanthan Thol	Mr.	Cambodia	General Department of Environmental Protection, Ministry of Environment	Director, Department of Hazardous Substances Management
Laska Sophal	Mr.	Cambodia	General Department of Environmental Protection, Ministry of Environment	Deputy Director, Department of Hazardous Substances Management
Rosalind R. Salindeho	Ms.	Indonesia	Ministry of Environment and Forestry	Head of Section, Restriction/ Directorate for Hazardous and Toxic Substances Management
Iman Darusman	Mr.	Indonesia	Ministry of Environment and Forestry	Section head for Site Decontamination of Hazardous Waste Contamination and Emergency Respond
Muhammad Askary	Mr.	Indonesia	Ministry of Environment and Forestry	Head of sub Directorate of Hazardous Waste Transportation and Treatment
Yoshihiro Mizutani	Mr.	Japan	Ministry of the Environment, Japan	Deputy Director, Industrial Waste Management Division, Waste Management and Recycling Department
Satoshi Watanabe	Mr.	Japan	Ministry of the Environment, Japan	Deputy Director, Office of Waste Disposal Management, Waste Management and Recycling Department
Akiko Inagoya	Ms.	Japan	Ministry of the Environment, Japan	Section Chief, Environmental Health and Safety Division, Environmental Health Department
Yuki Takahashi	Ms.	Japan	Ministry of Foreign Affairs, Japan	Official, Global Environment Division, International Cooperation Bureau
Norhazni Mat Sari	Ms.	Malaysia	Ministry of Natural Resources and Environment	Director, Department of Environment
Iftikhar Ul Hassan Shah	Mr.	Pakistan	Ministry of Climate Change	Joint Secretary (International cooperation), International cooperation wing
Zaigham Abbas	Mr.	Pakistan	Ministry of Climate Change	Deputy Director (Chemical), International Cooperation Wing
Elvira Pausing	Ms.	Philippines	Department of Environment and Natural Resources	Senior Environmental Management Specialist, Environmental Management Bureau
Maria Leonie Lynn Ruiz	Ms.	Philippines	Department of Environment and Natural Resources	Engineer, Environmental Management Bureau

Chalalai Rungraung	Ms.	Thailand	Ministry of Natural Resources and Environment	Environmental, Water Quality Management Bureau, Pollution Control Department
Nguyen Minh Cuong	Mr.	Vietnam	Vietnam Environment Administration	Deputy Director, Department of International cooperation & Science, Technology
Masaru Tanaka	Mr.	Japan	Research Institute of Solid Waste Management Engineering	President
Makoto Mihara	Mr.	Japan	Osaka City Government	Assistant Manager for International Cooperation, Environment Bureau
Yasushi Sawada	Mr.	Japan	Kobe City Government	Director of Business Waste Management Department, Environment Bureau
Dadan Wardhana Hasanuddin	Mr.	Indonesia	-	International Expert on Hazardous Waste Management
Matthias Kern	Mr.	UNEP		Senior Programme Officer, Secretariat of the Basel, Rotterdam and Stockholm Conventions
Heidi Savelli	Ms.	UNEP DEPI		Programme Officer
Alexander Tkalin	Mr.	NOWPAP		Coordinator, Northwest Pacific Action Plan
Denis Nkla	Mr.	UNDP		Chief, Regional South-South Unit, Asia-Pacific United Nations Office for South-South Cooperation
Elisa Tonda	Ms.	UNEP DTIE		Head, Responsible Industry and Value Chain (RIVU) Unit
Feng Wang	Mr.	UNEP DTIE		Programme Officer, RIVU Unit
Ludovic Bernaudat	Mr.	UNEP DTIE		Programme Officer, GEF Team
Kakuko Nagatani-Yoshida	Ms.	UNEP ROAP		Regional Subprogramme Coordinator for Chemicals and Waste
Carlos Marin	Mr.	UNITAR		Consultant
Guilberto Borongan	Mr.	Asian Institute of Technology		Programme Specialist, Regional Resource Centre for Asia and the Pacific (AIT RRC. AP)
Guijuan Shan	Ms.	BCRC China (the Basel Convention Regional Centre for Asia and the Pacific)		Technical Assistant
Gary Crawford	Mr.	France	Veolia	Vice President, International Affairs
Yasuyuki Yamawake	Mr.	Japan	Nomura Kousan Co., Ltd.	Assistant Manager, Sales Department

Kaoru Oka	Ms.	Japan	EX Research Institute, Ltd.	General Manager, Environmental Policy Group
Surendra Shrestha	Mr.	UNEP DTIE IETC		Director
Mushtaq Memon	Mr.	UNEP DTIE IETC		Programme Officer
Mahesh Pradhan	Mr.	UNEP DEPI		Chief, Environmental Education and Training Unit
Shunichi Honda	Mr.	UNEP DTIE IETC		Programme Officer
Azumi Nishikawa	Ms.	UNEP DTIE IETC		Programme Assistant