Projects on Mercury Waste Management by UNEP Chemicals

Dr. Heidelore Fiedler

Scientific Affairs Officer
UNEP/DTIE, Chemicals Branch
E-mail: hfiedler@chemicals.unep.ch

Coverage

Mercury waste partnership framework;

Two "distinct" UNEP Chemicals projects:

1. **Mercury waste management** (global)
   (project manager: Heidi Fiedler)
2. **Storage of excess mercury** (Asia and Latin America)
   (project manager: Desiree Narvaez)

- **Both projects are financed by the Norwegian government** (for
  (1) some Mercury Trust Fund)

Background

- **The Global UNEP Chemicals project on mercury waste management and the regional SBC projects on mercury waste management were jointly developed and will be implemented in close cooperation and consultation between Chemicals Branch and SBC;**
- **They contribute to the priority area on “harmful substances and hazardous waste” under UNEP’s medium-term strategy (MTS).**

UNEP Global Mercury Partnership

The partnership areas currently identified include:

- **Mercury Management in Artisanal and Small-Scale Gold Mining**
- **Mercury Control from Coal Combustion**
- **Mercury Reduction in the Chlor-alkali Sector**
- **Mercury Reduction in Products**
- **Mercury Air Transport and Fate Research**
- **Mercury Waste Management**

Proposed business plans are available for the following areas:

- **Mercury Supply and Storage**
- **Non-Ferrous Metals Production**

Mercury Waste Management Partnership

- **UNEP Global Mercury Partnership established the waste management partnership area;**
- **Lead country: Japan – Ms. Keiko Segawa, JME (**2 years**);**
- **Objectives:**
  Minimize and, where feasible, eliminate unintentional mercury releases to air, water, and land from waste containing mercury and mercury compounds by following a lifecycle management approach;
- **Partnership provides the framework for UNEP's global projec on "Management of mercury and mercury-containing waste";**
- **Draft Business Plan for Mercury Waste Partnership dated 7 August 2008 (includes this project).**

1. Global project on management of mercury waste including extended project on contaminated sites

United Nations Environment Programme

UNEP

UNITED NATIONS ENVIRONMENT PROGRAMME

PROJECT DOCUMENT

Section 1: Project identification

1.1 **Title of subprogramme: Harmful Substances and Hazardous Waste**

1.2 **Title of project:** Management of Mercury and Mercury-Containing Waste

1.3 **Project number*:** (to be allocated by BFMS)

1.4 **Geographical scope:** Asia - Cambodia, Pakistan, Philippines; Africa - Burkina Faso

1.5 **Implementation (internal, or cooperating agency or supporting organization)**

1.6 **Duration of the project :** (Total number of months) 17 months

Commencing: 1 August 2008

Completion: 31 December 2009

1.7 **Cost of project: (Expressed in US $)**

	US$	%
Cost to the Environment Fund		
Cost to Trust Fund		
Cost to Earmarked Contribution	462,963	92%
Cost to the Cooperating Agency/Supporting Organization		
Programme Support Cost (8%)	37,037	8%
In-kind Contribution (including UNEP contribution) 20% staff time (30,000 USD); communication services		
Total Cost of the Project	500,000	100%

1.8 **Potential donor: Norway**

For UNEP

Sylvie Lemmet, Director
Division of Technology, Industry, Economics
(DTIE)

Mercury Waste Project

Norwegian package (NF10):

Management of Mercury and Mercury-containing Waste

Period: 8/2008-12/2009

Budget: USD 500,000

Waste management

Waste management | Business plan | UNEP Global Mercury Partnership | Partners

- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal:

  Draft Technical Guidelines on Environmentally Sound Management of Mercury Waste (3rd Version 23 Octobe 2007)

- In support of the Waste Management Partnership under the UNEP Global Mercury Partnership, Chemicals Bran is executing following activities:

  Mercury waste management project (2008-2009)

  Addendum on technical and economic assessment of mercury-containing tailings (2009)

http://www.chem.unep.ch/mercury/Sector-Specific-Information/Waste_management_project.htm

Waste management project (2008-2009)

This project, dealing with the management of mercury and mercury-containing waste, will contribute to the UNEP priority area on harmful substances and hazardous waste under its Medium Term Strategy with the ultimate goal of minimizing the impact of harmful substances and hazardous waste to the environment and human beings. Specifically, the project suppo the UNEP medium term strategy objective by reducing releases of mercury into the environment and reducing the exposu of workers and communities to mercury and mercury-containing waste. The objectives of the project, which is executed b Chemicals Branch and funded by the Government of Norway, are:

(1) to increase the technical capacity of selected countries and other stakeholders in assessing, managing and reducing the risks to human health and the environment posed by mercury and mercury-containing waste, and in doing so,

(2) to test the applicability of the Draft Technical Guidelines on the Environmentally Sound Management (ESM) of Mercury Waste.

This project builds on the results of the national mercury inventories that have been developed using the "UNEP Toolkit for Identification and Quantification of Mercury Releases." Participating countries are Burkina Faso, Cambodia, Chile, Pakistan, and Philippines.

This project will be complemented by a "sister" project presently developed by the Secretariat of the Basel Convention involving four countries from the Latin American region (GRULAC).

- Activities. Inception workshop (Draft agenda, participant' information)
- Project document: Project approved, Annex (country information)

Objectives – Partners

Objectives:

- **To increase the technical capacity to manage mercury waste in an environmentally sound manner;**
- **Contribution to the further development of the Draft Basel Technical Guidelines** (⇒ OEWG, May 2010)

Participating developing countries:

- **Burkina Faso, Cambodia, Pakistan, Philippines (NF), and Chile (Hg-TF)**
- **Sister project in Latin America by SBC** (Argentina, Costa Rica, Uruguay → SBC presentation).

Activities under the UNEP Hg Waste Project

1. Review of the national mercury inventories;
2. Prioritization of mercury sources and the corresponding sectors;
3. Development of a national mercury waste management plan;
4. ESM application in selected sources and sectors;
5. Sampling and mercury analysis of environmental and human samples;
6. Final national reports and final project report; lessons learned; evaluation of project.

Supplementary Environment Fund

- Technical/chemical and economic assessment of mercury-containing and Hg-contaminated tailings from the mining sector in developing countries;
- Period: 1/12/2008-31/12/2009; Grant: USD 200,000;
- Participating countries: Chile (CONAMA) and Ghana (NEPA);

Objectives

- In the mining sector – at large scale or small scale - mercury has two roles:
  1. Mercury is extracted from cinnabar as a sellable product, and
  2. Mercury is used in extraction of precious metals, *e.g.*, gold, silver, copper;
- Both processes leave tailings containing quite high concentrations of heavy metals around the excavation and production sites; thus, making them "contaminated sites";
- The tailings may pose a risk to the environment - through leachates, evaporation and erosion - and the general population;
- Undertake a feasibility study on cost-benefit analysis and assess the options that the mercury or the precious metal content – as a sellable product – will pay for the environmentally sound remediation of such sites.

Project Activities Underway

- **WebPage developed http://www.chem.unep.ch/mercury/Sector-Specific-Information/Waste_management(1).htm;**
- **International consultant contracted for Hg Waste Management Project;**
- **Agreements made with participating countries** (4 out of 5 signed);
- **Mercury expert laboratory identified =University of Aberdeen, TESLA** (ca. 100 human or abiotic samples for mercury analysis);
- **Inception workshop for Mercury Waste Management Project held, 4-6 March 2009, Siem Reap, Cambodia, with 18 participants.**

Inception Workshop Included:

- Presentation of mercury inventories and country situation as to presence/absence of regulatory framework for waste management at the national level (strengths, obstacles, gaps, barriers);
- Overview of Draft Basel Guidelines on ESM of Hg waste;
- Overview on Hg analysis, including pros and cons of matrices;
- Sectors/issues short-listed: Gold mining (large and small scales), handling/storage/disposal of Hg-containing equipment, dental amalgams, medical waste incinerators, municipal waste disposal (incineration in dedicated plants, open combustion; landfilling/dumping), chlor-alkali, coal combustion;
- Samples to be analyzed include biota and abiotic samples (potentially exposed and controls);
- Agreement on timetable and workplan.

2. Regional projects on storage of excess mercury in Asia and Latin America

Reduce Mercury Supply and Investigate Mercury Storage Solutions

- The project aims to establish an agreed plan in the Asian and Latin American regions for development of environmentally sound storage facilities for mercury taken out of the supply chain;

Activities include:

1. Regional advisory committee formed, surplus estimate prepared for both regions;
2. Options development and analysis for both regions;
3. Feasibility study (including detailed proposal on design, costs/financing options, location, other considerations for both regions);
4. Separate regional consultations for each region.

Funding is provided from the Norwegian government (USD 377,000).

Workshop Conclusions (BKK)

- Report on mercury supply and consumption for 2005 and 2050 prepared;
- Despite absence of national action plans, activities on storage welcomed;
- Experiences from USA (above ground facility/ warehouse) and EU (underground storage facility/salt mines) presented;
- Questions/concerns on management and infrastructure include:
  - social/political acceptability, health/environmental impact
  - political stability/sustained leadership (ASEAN level?)
  - centralized large facility *vs.* national small facilities
  - "Polluter pays principle", operating/maintenance costs
  - site specific requirements and natural disasters;
- Next step is call for proposals for options analysis and feasibility studies (results expected towards end of 2009).

Executive Committee (Asia)

- Nominations for membership include India, South Korea, Papua New Guinea, Japan, Nepal, and Zero Mercury Working Group;
- Tasks include:
  - Catalyze regional action that will address excess mercury supply;
  - Explore options and issues in addressing excess mercury supply taking into consideration costs/benefits, social/political acceptability, technical/environmental factors, public health, infrastructure, regulatory requirements, and site selection;
  - Agree on the ToRs for call for proposals/feasibility studies for most suitable option;
  - Communicate project issues and concerns to stakeholders, convene meetings as needed to facilitate progress;
  - Recommend appropriate legislation/policies consistent with the establishment of a terminal storage facility.

References

- **Mercury waste partnership: http://www.chem.unep.ch/mercury/Sector-Specific-Information/Waste_management.htm**
- **Mercury waste management project: http://www.chem.unep.ch/mercury/Sector-Specific-Information/Waste_management_project.htm**
- **Draft Basel Guidelines on ESM of Mercury Waste: http://www.basel.int/techmatters/mercury/guidelines/301007.doc**
- **Mercury storage project: http://www.chem.unep.ch/mercury/storage/main_page.htm**