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**Sven Hagemann**
**GRS**

**UNEP Consultation Meeting on**
**Mercury Waste and Storage**

**Geneva, 23 September 2010**

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- GC 25/5 mandated UNEP Chemicals to continue existing work on enhancing capacity for storage of mercury and on the environmentally sound management of mercury
- UNEP reacted by initiating and continuing projects to support developing countries in strengthening their capacity and to develop national/ regional strategy:
  - UNEP mercury waste management projects
  - UNEP mercury storage projects
- Complementary projects by
  - Secretariat of the Basel Convention (e.g. Technical Guidelines)
  - other UN organisations
  - Partnership on Mercury Waste Management

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- Review UNEP mercury storage projects
- Summarize the linkages and gaps between mercury storage issues and experiences from the mercury storage studies towards the Basel Technical Guidelines on Mercury Containing Waste
- Indicative proposal for pilot sector studies to develop handy guidance for use in developing countries

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**Goals**

- Estimation of the amount of excess mercury to be expected in the region between 2010 and 2050
- Assessment of the feasibility of implementing concepts for temporary or permanent storage of excess mercury in the region

**Regional coverage**

- Asia Pacific
- Latin America and the Caribbean
- Eastern Europe and Central Asia (only excess mercury)

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- Conducted by Concorde/ Peter Maxson (Belgium)
- Approach: Estimates on current demand, supply, stocks & prediction of future development
- Different scenarios considered
- Order of magnitude estimates

| Region | Excess Mercury | Earliest possible need for storage |
|---|---|---|
| Asia Pacific | 5,500-7,500 | 2017 |
| Latin America/ Caribbean | 2,000-8,000 | 2013 |
| Eastern Europe/ Central Asia | 2,300-10,000 | 2011 |

**→ Probably early need for regional temporary and permanent storage facilities**

# The UNDESA project: Preliminary feasibility studies

**Arrangements**

- Inception Workshop - Regional Executive Committee
- Studies conducted by institutions from the region:
  - Asia: RRCAP/ AIT, Thailand
  - LAC: LATU, Uruguay

**Considered concepts**

- Permanent storage (underground disposal)
- Temporary storage (above ground)
- Export to another country

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**Results Asia Pacific**

- Permanent storage considered as not implementable in region due to lack of salt deposits and high costs
- Preferred options: temporary storage in desert area or export
- Legal framework required to regulate storage obligation, site selection, licensing, operation and liability
- Need for bi- and multilateral agreements to arrange relationships between countries that export and countries that store mercury.

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**Results LAC**

- Suitable host rock formations (hard rock, clay) for permanent storage available in the region, but more investigations necessary
- Short-term solution: temporary above-ground storage
- Need to better track imports, exports and use of mercury
- Need to improve technical standards regarding ESM of mercury containing waste including disposal
- Need to improve institutional capacity to implement ESM incl. storage/disposal

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| Issue in Basel Technical Guidelines | | Basel Guide. | Asia Excess | Asia options | LAC Excess | LAC Options | EEC Excess |
|---|---|---|---|---|---|---|---|
| 3.2 | Legislative and Regulatory Framework | | | | | | |
| 3.3 | Waste Prevention and Minimization | | | | | | |
| 3.4 | Identification and Inventory | | | | | | |
| 3.5 | Handling, Collection, Packaging, Labelling, Interim Storage, Transportation | | | | | | |
| 3.5.3 | Interim Storage at End Users | | | | | | |
| 3.5.4 | Segregation and Collection | | | | | | |
| 3.5.5 | Transportation | | | | | | |
| 3.5.6 | Storage at Waste Management Centres | | | | | | |
| 3.6 | Treatment and Recovery | | | | | | |
| 3.6.2 | Mercury Recovery Solid Wastes | | | | | | |
| 3.6.3 | Mercury Recovery Liquid and gaseous wastes | | | | | | |
| 3.6.4 | Stabilization/Solidification | | | | | | |
| 3.7 | Long Term Storage and Landfilling | | | | | | |
| 3.7.2 | Best Management Practices | | | | | | |
| 3.7.3 | Packaging, Storage, Storage Building | | | | | | |
| 3.7.4 | Examples of Long-Term Storage | | | | | | |
| 3.7.5 | Specially Engineered Landfill | | | | | | |
| 3.8 | Remediation of Contaminated Sites | ? | | | | | |
| Glossary | | | | | | | |
| Storage of commodities and products | | | | | | | |
| *Legend* | | | *Issue covered* | | *Issue covered only partially* | | |

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**Permanent storage:**

- Consequences of prior stabilization for underground disposal
- Reasonable cost estimates
- Disposal of mercury containing waste
- Outline of site selection process
- Capacitate experts in affected regions
- Further investigate suitability of geological formations in regions
- Options for treatment and disposal of Hg containing waste in regions

**Temporary storage**

- Lack of adequate legislation
- Guidance for temporary (‘interim’) storage at all stages of waste management

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**Other waste disposal issues:**

- Management of Hg containing tailings not addressed
- Little information on other mercury containing waste types (quantity, types, treatment, disposal)
- Up-to-date description of stabilization, permanent, temporary storage options in Basel Guidelines
- Support development of appropriate legislation on Hg waste management (e.g. regulatory toolkit)
- Guidance for management of stockpiles of Hg commodities and products
- Terminology

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**Permanent storage**

- Site selection, licensing, construction: time consuming complex process

→ in the meanwhile: urgent need for:

**Temporary storage**

- Guidance for temporary (‘interim’) storage at all stages of waste management

**Proposed Pilot Project**

- Illustrative guidance on temporary storage of mercury containing waste in the health care sector

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**Status**

- Guideline available (UNDP 2010)

**Challenges**

- Language barrier: English guidance of little value at places with differing local language
- Limited awareness and capacity of health care workers
- Guidelines often not adapted to circumstances in developing countries

**Approach**

- Prepare an illustrative guidance on temporary storage: e.g. a video

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**Features**

- Describes important aspects of mercury waste management and storage in an illustrative, mostly non-verbal way (e.g. video)
  - Types of mercury added products in a hospital
  - Effective response to mercury spillage
  - Storage room and equipment
  - Packaging of waste
  - Destination of temporarily stored mercury
- Based on an example of good practice in a developing country.

**Benefits**

- Shows how sound management of mercury waste could be achieved using locally available resources
- Comprehensible for people without foreign language skills and limited technical knowledge

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**Production and use**

- Could be produced by skilled employees or local media agencies
- Possible addition of subtitles in local language
- Make available through internet (UNEP) and as hard copy (CD, DVD, USB-Stick)
- Same approach for temporary storage at waste collection centres
- Could be basis of virtual UNEP library on good practice

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**Step 1**

- With respect to storage: Are there additional areas you identify as priorities?

**Step 2**

- Does the proposed pilot project reflects the identified priorities?
- Are there other proposal for pilot projects?
- Do you think health care institutions in your country would benefit from this guidance?
- Is the chosen approach adequate for developing countries?
- Is the proposed guidance applicable to developing countries?
- Are there additional aspects of mercury waste management that should be addressed by the guidance?