# Workshop on

## "Reduction of demand of mercury, in mercury containing products in Bangladesh"

***Venue*: *The Daily Star Azimur Rahman Conference Hall, 64-65*, Dhaka**

***Date:*** *17th December, 2015*

***Time:*** *10.30 AM to 4.30 PM*

**Event Brief:**

**1st Session:**

- Project Completion Workshop on "Reduction of demand of mercury, in mercury containing products in Bangladesh"

**2nd Session:**

- Discussion on "Source Book Toolkit on Mercury Storage and Disposal"

**Objectives of the workshop:**

- Disseminate study findings among the stakeholders
- Exchange views and share ideas to create public awareness and Policy intervention
- Assist the Government to understand opportunities to control the import of mercury added products and to promote mercury free alternatives in accordance with the Minamata Convention on Mercury.
- Possible suggestions and recommendations of the stakeholders, expertise for best practices and management.
- Enhance the capacity of governments as well as industry and the general public to store and dispose mercury wastes in an environmentally sound manner
- Future partnership and collaboration with the shared mission of a reduction of demand for mercury in mercury added products and processes.

**Brief on the Study Report:**

This commitment to addressing the global adverse impacts of mercury pollution was reinforced by 27 Governments and regional economic integration organizations at the 23rd session of the Governing Council in February 2005. The Governing Council also requested UNEP, in cooperation and consultation with other relevant organizations, to facilitate and conduct technical assistance and capacity building activities to support the efforts of all countries to take action on mercury pollution.

In response to the Governing Council's request, UNEP has established a mercury program within UNEP Chemicals (UNEP Division of Technology, Industry and Economics), with the immediate objective to encourage all countries to adopt goals and take actions, as appropriate, for the identification of mercury-exposed populations, for the minimization of mercury exposure through outreach efforts and for the reduction of anthropogenic mercury releases.

Environment and Social Development Organization-ESDO has also undertaken the project titled "Reduction of demand of mercury in mercury containing products in Bangladesh" in collaboration with UNEP to raise awareness and document mercury use and mercury added products in Bangladesh. This initiative also aims to

support Bangladesh government towards ratification of Minamata convention.

Inventories of releases of priority hazardous substances constitute an important decision making tool in the process of mitigating environmental impacts from the pollutants in question. Such inventories are often vital in the communication with stakeholders such as industry, trade, manufacturers and the public.

This report is mainly focused on the preliminary field survey on mercury uses and releases, within Bangladesh territory. These surveys were undertaken during January-May, 2015 throughout Bangladesh by the ESDO team. The team followed the UNEP toolkit format in the design of the survey. Based on the preliminary data, the findings are on,

#### MERCURY TRADING: IMPORT-EXPORT

- According to the source of NBR, 2015, around 3.73 MT Mercury is imported each year in Bangladesh.
- During the field survey, ESDO found that in Bangladesh there are approximately 40 chemical importers that import "mercury" chemicals, mainly from China and India. Most of them import and sell two forms of mercury. These are: encapsulated and liquid mercury.
- According to the survey it was found that around 58 MT mercury is imported by the importers (both legally and illegally).
- Target customers are;
  - Dental Colleges/Chambers/ Quacks
  - Dental Assistants
  - Beauty Product or Cosmetics Producers
  - Jewelry Producers (used to re-collect gold from the waste)
  - Pharmaceutical Companies
  - Pesticide/biocide companies

The information on mercury pollution contained in this report can be used to determine which sources of mercury should be addressed in Bangladesh for release reduction initiatives. Moreover, baseline inventories and related information can be used to set effective approaches and to draw further attention of the concerned government officials and stakeholders to take appropriate actions and measures.

  - Laboratories (Academic institutions/private sectors)

#### MERCURY USAGE INVENTORY IN PRODUCTS AND PROCESSES

- Major consumers of mercury are: the industrial sector (Chlor-alkali, paper and pulp, cement production), the healthcare sector (healthcare instruments, dental amalgam), the energy sector and processes, the electronic sector (electronic device, batteries, CFLs), the cosmetics sector, the jewelry sector and others.

### Industrial Sector

- Calculations based on existing Chlor-alkali plants, those using previous technology for producing chlorine ($Cl_2$), suggest that, in total, 4.49 MT of mercury per year is being released.
- Though 33 cement industries are present in Bangladesh, only 8 have clinker and cement manufacturing facilities. It is estimated that the release of mercury from the 8 cement factories of Bangladesh is 0.14 MT per year.
- Based on calculation on existing Aluminum production companies, total emission of mercury into air is 0.011 MT per year.
- Based on same calculation it was found that 0.16 MT mercury is being emitted

into air during steel production

- **Health care sector**

- ESDO's baseline survey on mercury containing products in 2015 found that 887472 thermometers are used yearly, and 37.8% of these thermometers break (552007.58). Similarly, yearly use of the number of sphygmomanometers is 305926 and 10% (275333.4) of the total sphygmomanometers break.
- It is estimated that, in a year, approximately 0.69 tons of mercury is released into the environment and atmosphere due to thermometer breakage, and that 3.3 tons of mercury is released due to sphygmomanometer breakage.
- Based on the same ESDO survey, 1.09 MT to 6.22 MT Mercury vapor is released from mercury amalgam fillings per year from the dental sector in Bangladesh.

- **Energy sector and processes**

- In Bangladesh a major contributor of mercury emissions into to atmosphere in the near future will be coal burning in power plants. The processing of mineral oils, natural gas and fossil fuel extraction are also sources of mercury emission to the atmosphere.
- Based on ESDO's country situation analysis, it is estimated that the potential mercury emissions from the energy sector (coal, gas, oil refining etc.) is 3058.158 Kg.
- It is estimated that 11 kg mercury can emit into the air during aluminum production and 160 kg mercury emit from the by-product during pig iron and steel production.

- **Electronic sector**

- Based on ESDOs baseline survey, the total CFL production in Bangladesh is 19,688,097.2 units in the period of 2012-2014 and the mercury released from CFL light bulbs is 0.118 MT.

process per year.

- During the field survey of ESDO in 2015, it was found that each button cell battery may contain 1-2 ppm mercury as impurities in the salted layer.
- Button cell batteries also contain mercury as impurities. According to the survey the total mercury release from button cell batteries in Bangladesh are estimated 0.0179 MT per year.

- **Others**

Based on ESDOs baseline survey on 2015;

- Mercury release from jewelry sector was estimated to be 4.1 MT
- Based on calculation mercury release from measuring devices were 0.85 MT.
- According to the report of "Mercury Sources: Products and Hotspots in Bangladesh" prepared by ESDO in 2012, mercury concentration in beauty products ranges from 4653 ppm to 3361 ppm.
- Mercury releases from the chemicals, reagents, solvents use in laboratories are 538.263 Kg.

## MERCURY WASTE AND RELEASE INTO ENVIRONMENT

- Mercury has a very long life span, therefore, mercury in waste, sludge, and by-products is not destroyed with disposal but rather continues to subsist in environment. Based on ESDO baseline survey, it is estimated that 1.12 MT mercury waste is generated and released every year into environment through waste deposition, land filling and waste water treatment.

## Brief on Source Book Toolkit:

The project for the preparation of the "Practical Sourcebook on Mercury Waste Storage and Disposal" is a joint initiative of UNEP Chemicals Branch, Division of Technology Industry and Economics (DTIE), UNEP's International Environmental Technology Centre (IETC) and the International Solid Waste Association (ISWA) under the UNEP Global Mercury Partnership.

The Sourcebook is a practical introduction to mercury waste storage and disposal. The overall objective of the development of the "Sourcebook" is to enhance the capacity of governments-but also industry and the general public to store and dispose mercury wastes in an environmentally sound manner. The sourcebook aims to do so by providing information on commercially available storage and disposal technologies. The Sourcebook synthesizes existing knowledge in the field of storage and disposal to provide answers to mercury waste generation, recovery and its recycling process. It will thus allow relevant stakeholders to make informed choices and ensure the environmentally sound management (ESM) of mercury wastes.

The Sourcebook aims to provide a practical perspective to existing technical documents, such as the Basel Technical Guidelines. The Sourcebook may also identify issues and approaches governments may wish to evaluate when planning their implementation of the Minamata Convention on Mercury, in particular Article 11 on mercury wastes.