



Distr.: General
27 March 2010

Original: English



**United Nations
Environment
Programme**

**Intergovernmental negotiating committee
to prepare a global legally binding
instrument on mercury**

First session

Stockholm, 7–11 June 2010

Item 4 of the provisional agenda*

**Preparation of a global legally binding
instrument on mercury**

**Potential costs and benefits associated with each provision listed
in paragraph 27 of Governing Council decision 25/5**

Note by the secretariat

1. At its first meeting, which took place in Bangkok from 12 to 16 November 2007, the Ad Hoc Open-ended Working Group on Mercury discussed a number of strategic objectives and possible measures for achieving them, which are listed in annex I to the report of that meeting (UNEP(DTIE)/Hg/OEWG.1/6). Also at that meeting the working group requested the secretariat to undertake intersessional work on the costs and benefits associated with each of the strategic objectives to inform the working group at its second meeting, which took place from 6 to 10 October 2008 in Nairobi. In response to that request the secretariat prepared the report set out in document UNEP(DTIE)/Hg/OEWG.2/5/Add.1, which was a draft report based on a study of mercury emissions being conducted by the United Nations Environment Programme (UNEP).
2. At its meeting in Bangkok from 19 to 23 October 2009, the ad hoc open-ended working group to prepare for the intergovernmental negotiating committee on mercury agreed on a list of information that the secretariat would provide to the committee at its first session to facilitate its work. Among other things, the secretariat was requested to provide an update of the report set out in document UNEP(DTIE)/Hg/OEWG.2/5/Add.1.
3. The secretariat has accordingly prepared an updated version of that report, which discusses the potential costs and benefits of each of the provisions listed in paragraph 27 of UNEP Governing Council decision 25/5. The report comprises an executive summary and a detailed discussion. For ease of reference, the executive summary has been reproduced in the annex to the present note. The full report, including both the executive summary and the detailed discussion, is presented as an information document under the symbol UNEP(DTIE)/Hg/INC.1/INF/8, in English only. The executive summary and the full report are being circulated without formal editing.

* UNEP(DTIE)/Hg/INC.1/1.

Annex

Report on potential costs and benefits associated with each of the provisions listed in paragraph 27 of Governing Council decision 25/5

Executive summary

1. Mercury is an important environmental contaminant. This contaminant is toxic, persistent and long-lived in the atmosphere and can be transported globally. International action is required to reduce environmental and health risks on the local, regional and global scales.
2. This report presents a qualitative assessment of potential costs and benefits associated with each of the provisions identified for inclusion in a comprehensive and suitable approach to mercury by the Governing Council in paragraph 27 of its decision 25/5. It was originally prepared to present the potential costs and benefits associated with each of the strategic objectives identified by the ad hoc open-ended working group on mercury at its first meeting in from 12 to 16 November 2007. The report has been updated to reflect the publication of the new report on emissions presented to the Governing Council at its twenty-fifth session held in Nairobi from 16 to 20 February 2009. It has also been reorganized to present the available information in accordance with the issues within the comprehensive approach on mercury as set out in paragraph 27 of decision 25 of the Governing Council. Within this structure, it can be seen that there is some information available for measures which may be developed under each of the areas identified in decision 25/5.
3. The costs include the economic costs of introducing the necessary equipment or technological solutions as well as possible other actions to obtain the mercury reduction. Costs are defined as being small, medium and large, based on the highest cost of abatement for a given strategy, whether that be a technological answer or another means to address the challenge.
4. Benefits of reducing mercury emissions include economic, ecological, human health and social benefits. For ingested mercury, the benefits are estimated to be \$12,500 USD per kg of mercury.¹ For inhaled mercury, the benefits are between \$1.34 and \$1.22 per kg of mercury.
5. In conducting the cost-benefit analysis, the benefits are assessed on the basis of the impact of the reduction of mercury releases, and are then related to costs. Statements regarding the benefits of activities are based on the consideration that the benefits are large if they exceed the costs by at least a factor of 2. If the benefits are equal or lower than costs, then it is considered that the benefits are small. Medium benefits are between the large and small benefits.
6. While all provisions to be addressed in the negotiations have been assessed, assessment in detail was possible only where information was available. In particular, the costs and benefits of reducing emissions from coal burning have been addressed in some detail in this report.
7. In assessing ways to reduce anthropogenic mercury emissions, technological and non-technological measures have been considered. A number of technological measures are available for reducing mercury emissions from anthropogenic sources where mercury is a by-product (for example, power plants, smelters, cement kilns, other industrial plants), waste disposal and other uses. These measures differ with regard to emission control efficiency, costs, and environmental benefits obtained through their implementation. Very often mercury emissions are substantially reduced by equipment employed to reduce emissions of other pollutants. The best example is the reduction of mercury emissions achieved through the application of desulfurization measures.
8. The analysis also took account of the range of efficient, non-technological measures and pre-treatment methods which are also available for the reduction of mercury releases from various uses of products containing mercury. These measures include bans on use of products containing mercury, and cleaning of raw materials before their use (for example coal cleaning). These measures also include energy conservation options, such as energy taxes, consumer information, energy management and improvement of efficiency of energy production through a co-generation of electricity and heat in coal-fired power plants.

1 A conversion figure of 1 USD = 0.64 € has been used throughout this report.

9. The costs of reducing mercury emissions discussed in this report are linked to the economic costs of introducing the necessary equipment or undertaking other necessary actions to obtain the reduction. These costs include the investment costs and operational and maintenance costs.

10. A summary of the costs and benefits for a number of activities, organized by the provisions set out in the Governing Council decision are presented in Table 1 below.

Table 1: Costs and benefits of Mercury emission reduction for various reduction options

Issues within the comprehensive and suitable approach to mercury	Reduction option	Costs	Benefits
(b) To reduce the supply of mercury and enhance the capacity for its environmentally sound storage	Reduction of supply from mining and extraction	Small → Medium	Large
	Reduction of supply from decommissioned cells and stockpiles	Small → Medium	Large
(c) To reduce the demand for mercury in products and processes	Reduction of Mercury consumption in VCM and chlor-alkali production	Small → Large	Medium → Large
	Reduction of Mercury use in products	Small	Large
	Reduction from dental practice	Small → Large	Medium
(d) To reduce international trade in mercury	Reduction of Mercury trade emissions	Small	Large
(e) To reduce atmospheric emissions of mercury	Reduction from coal usage	Medium → Large	Large
	Artisanal and small – scale gold mining	Small → Large	Small → Large
	Reduction from industrial processes	Medium → Large	Medium → Large
(f) To address mercury containing waste and remediation of contaminated sites	Reduction of waste generation	Small → Large	Large
	Promotion of Mercury waste collection and treatment	Small → Medium	Large
	Reduction from waste disposal	Medium → Large	Large
	Prevention of contamination from spreading	Large	Medium → Large
	Control and remediation of contaminated sites	Small → Medium	Large
(g) To increase knowledge through awareness raising and scientific information exchange	Increase of knowledge among states	Small → Large	Large
	Increase of knowledge among users and consumers	Small	Large

11. It can be seen from this table that costs and benefits vary significantly between sectors.

12. The final conclusion of the reported work is that there are benefits to be derived from investment in reducing mercury emissions and exposure in the future primarily for the sake of improvement of human health and more generally improvement of human welfare, including such effects as a lessening of potential negative effects on intelligence and ability. Measures involving the application of technology, such as implementation of installations to remove mercury from the flue gases in electric power plants, waste incinerators, and smelters are rather expensive (medium to large costs) compared to non-technological measures, such as prevention activity, capacity building, and promotion of mercury-containing waste separation (small to medium costs). Both groups of measures could result in large benefits. Parallel application of these, depending on resources, would be appropriate.