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**Intergovernmental negotiating committee  
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**Preparation of a global legally binding  
instrument on mercury**

**Update on activities related to mercury supply and the  
environmentally sound storage of mercury**

**Note by the secretariat**

The secretariat has the honour to provide, in the annex to the present note, a submission containing an update on activities under the supply and storage partnership area of the UNEP Global Mercury Partnership. The submission has been reproduced as received and has not been formally edited.

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

## Annex

### Update on activities related to mercury supply and the environmentally sound storage of mercury

1. At its twenty-fifth session, in its decision 25/5 III, the Governing Council called upon the Executive Director of the United Nations Environment Programme (UNEP), coordinating as appropriate with Governments, intergovernmental organizations, stakeholders and the Global Mercury Partnership, subject to the availability of resources and concurrently with the work of the intergovernmental negotiating committee, to continue and enhance, as part of the international action on mercury, existing work in a number of areas, including enhancing capacity for mercury storage and reducing the supply of mercury from, for example, primary mercury mining.

2. The present document is an updated and expanded version of document UNEP(DTIE)/Hg/WG.Prep/1/INF/3, Report on activities related to mercury supply and the environmentally sound storage of mercury which was made available at the meeting of the ad hoc open-ended working group to prepare for the intergovernmental negotiations on mercury held in Bangkok from 19 to 23 October 2009, and describes updated activities related to mercury supply and storage for the information of participants in the current meeting.

#### I. Partnership area on supply and storage

3. During the meeting of the UNEP Global Mercury Partnership Advisory Group held in Geneva from 31 March to 2 April 2009, the importance of mercury supply and storage was acknowledged. At that time, the member representing the Zero Mercury Working Group indicated the Group's willingness to act as interim lead on mercury supply and storage partnership area. The Partnership Advisory Group accepted the offer with thanks. The Zero Mercury Working Group has since then, actively coordinated activities that relate to the partnership area on mercury supply and storage.

4. A business plan for the partnership area has been drafted and circulated to partners and other stakeholders for input. The partnership area's objective as set out in the business plan is "to contribute to the minimization and, where feasible, elimination of mercury supply, considering a hierarchy of sources, and the retirement of mercury from the market as a result of environmentally sound management". It recognizes that "mercury supply and trade are priority areas for the intergovernmental negotiating committee and aims to halve the global supply of mercury by 2013".

#### II. Supply activities

5. The Government of the Kyrgyz Republic operates the last remaining primary mercury mine known to export mercury globally. The mine is located in Khaidarkan in the Ferghana Valley and is estimated to produce 300–350 tons of mercury per annum. The UNEP Report on current supply and demand for mercury, including projections considering the phase out of primary mercury mining (UNEP(DTIE)/Hg/OEWG.2/6) study indicated the Kyrgyz Republic's contribution to the global mercury supply is important but not indispensable.

6. Action to assist the Kyrgyz Republic in moving away from primary mercury mining has been recognized as a priority by the international community. Technical, social and economic assessment reports and a national action plan were initiated with the assistance of funding from the Governments of Switzerland, the United States of America and Norway and implemented jointly by UNEP, the United National Institute for Training and Research (UNITAR) and the United Nations Development Programme (UNDP). At the national level, the project is led by the State Agency of Environmental Protection and Forestry in cooperation with other government agencies and stakeholders through the inter-ministerial working group established for this purpose.

7. Further support will be required to assist the Kyrgyz Republic in any future mine transition process. Despite possible concerns about recent political developments in the Kyrgyz Republic, UNEP and UNITAR consider that the programme assistance to the Kyrgyz in respect to the mercury mine will remain well-regarded amongst the national authorities at all levels and that it is important to maintain ongoing momentum to address the challenges facing the country.

### III. UNEP mercury storage projects

8. The Chemicals Branch of the Division of Technology, Industry and Economics has initiated mercury storage projects in Asia and the Pacific (Asia) and Latin America and the Caribbean (LAC), supported by the Government of Norway. These projects are aimed at reducing the eventual release of mercury to the environment by initiating regional processes that will support the sequestration of excess mercury in these regions, thereby preventing its re-entry into the global marketplace. More information about the projects can be found at the secretariat's website.<sup>1</sup>

9. During the inception workshops, executive committees (execom) for both regions have been established. These have an advisory role for the project and serve to catalyze policy development consistent with the development of a long-term safe terminal storage facility or facilities. The need for additional legislation and regulatory measures at the national level such as those related to mercury trade and demand was recognized as one of the committees' urgent tasks. For Asia and the Pacific, the Project Executive Committee is composed of representatives from the governments of Japan, India, Nepal, Papua New Guinea, Pakistan, and the non-government organization, Zero Mercury Working Group. For the Latin America and the Caribbean, the Project Executive Committee is composed of representatives from the governments of Brazil, Chile, Peru, Mexico, Panama, Barbados, Dominican Republic, as well as from non-governmental organizations, namely, ACPO-Zero Mercury Working Group, Asociacion Argentina de Medicos Por el Medio Ambiente and the World Chlorine Council. The project execom in both regions have been meeting through conference calls. A face to face meeting of the Asia execom took place in Bangkok last October 2009 while that of the LAC took place in Sao Paolo, Brazil in December 2009.

10. At the project inception workshops, options for safe, long-term storage solutions were presented to Governments and interested stakeholders. Options included above-ground storage facilities (such as warehouses), underground storage facilities and export to foreign facilities. Governments in both regions agreed to proceed with an options analysis and feasibility study that would investigate the three options with due consideration of a broad range of criteria (technological, social, political, environmental and health impacts, economic and financial viability, among others). Experience gained in the United States with an above-ground warehouse facility and in the European Union with an underground geological formation facility was considered valuable in assessing the available options.

11. The "US Department of Energy Interim Guidance on Packaging, Transportation, Receipt, Management, and Long-term Storage of Elemental Mercury" and the "Potential Export of Mercury Compounds from the US for Conversion to Elemental Mercury" by the US Environment Protection Agency were found useful references in the options analysis studies in Asia and the LAC regions. The documents are respectively available at [www.mercurystorageeis.com](http://www.mercurystorageeis.com) and at [www.epa.gov/mercury/pdfs/mercury-rpt-to-congress.pdf](http://www.epa.gov/mercury/pdfs/mercury-rpt-to-congress.pdf)

12. In addition, the study by the European Commission (EC) on mercury stabilization and waste acceptance criteria in relation to current legislation provided the projects useful information on the option to pre-treat elemental mercury before eventual storage and disposal. The EC study on the "Requirements for Facilities and Acceptance Criteria for the Disposal of Metallic Mercury" is available at <http://www.bipro.de/mercury/sub/workshop.html>

13. A regional consultation for Asia was held back to back with the open ended working group to prepare for mercury negotiations in Bangkok, Thailand in October 2009. The Asia draft options analysis study was presented by the Asian Institute of Technology/Regional Resource Center for Asia and the Pacific. A regional consultation for the LAC region also took place in Panama City in April 2010 where the LAC options analysis study was presented by the Laboratorio Tecnológico de Uruguay.

14. At the regional consultation workshops, governments, non-government organizations, and stakeholders in Asia and in the LAC regions confirmed that initiating storage activities in both regions could contribute to demand reduction and that they were willing to consider the option of storage. Issues raised include financial consideration for a predictable, sustainable mechanism for a viable and sustainable storage option. The need for clear definitions and common understanding of terminologies, to include but not limited to "waste" – "commodity" – "storage" – "interim storage" – "long term storage" – "final disposal" was recognized. The need to define "ownership" – who owns the waste/commodity/facility – was expressed and recommended that the INC may wish to deal with this

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1 [http://www.chem.unep.ch/mercury/storage/main\\_page.htm](http://www.chem.unep.ch/mercury/storage/main_page.htm)

issue. A concern was raised about the cross linkages with other regional projects and that projects must be approached in an integrated manner, with regional priorities taken into account.

15. It was also recognized that a better knowledge on already existing related legislation or those that are entering into force is essential for decision making. It was expressed that trade patterns may change because of bans and increasing mercury surplus. Keen interest was expressed on pre treatment options such as stabilization techniques before storage and/or final disposal

16. In order to meet the concerns raised at the regional consultations, UNEP is working with Integrating Knowledge to Inform Mercury Policy (IKIMP) to develop further and pilot test a "Suggested Framework for Decision Making Framework the Safe Management of Redundant Mercury". This document is a result of the workshop on the "Safe Storage and Disposal of Redundant Mercury" that took place at the Oxford University in October 2009 where UNEP participated. The event supported by UK Department of Environment Food and Rural Affairs was focused on scientific and technical issues, but was followed by a sub-group discussion on considerations for the safe management of redundant mercury worldwide. The IKIMP document is intended to be a simple guide for policy makers at national level when faced with the issue of excess mercury supply needing safe long term storage.

#### **A. Assessment Reports of Excess Mercury Supply, 2010- 2050**

17. As part of the mercury storage project, UNEP commissioned a consultant (Concorde East West Sprl) to provide a report showing projected quantities of excess mercury supply needed long term safe storage in the regions.

18. According to the scenarios assessed in the report, mercury supply and demand are projected to reach a rough equilibrium beginning about 2014-2015 for the Asian region. After 2017 the urgency of an Asian mercury storage capability is likely to depend on the rate of demand reduction. Substantial excess mercury can be expected in Asia after 2030. The quantity of excess mercury, mostly accumulated between 2030 and 2050, would likely amount to just over 5,500 tonnes. According to an alternative policy scenario, in which regional authorities may decide to move forward the storage of excess mercury, the quantity of mercury accumulated may be as high as 7,500 tonnes. The full report is available at the secretariat's website.<sup>2</sup>

19. The future principal sources of mercury in the Latin American and Caribbean region were identified as that recovered as a by-product of mining operations, and recovered from the closure/conversion of mercury cell chlor-alkali plants. A base case scenario suggests that mercury supply may exceed demand as early as 2015 with total excess arising between 2015 and 2050 possibly amounting to over 8,000 tonnes. According to an alternative minimum storage scenario, in which it is assumed that some by-product mercury continues to be exported, and there is a generally slower increase in the generation of by-product mercury, the quantity of mercury accumulated may be closer to 2,000-3,000 tonnes. These scenarios do not reflect the possible adoption of an immediate or near-term regional strategy of sequestering mercury as a way of encouraging reduced mercury demand. Adoption of such a strategy would require development of storage capacity as soon as possible. The complete report is available at the above-mentioned website.

20. Excess supply of mercury in Eastern Europe and Central Asia was assessed in a report prepared in April 2010. Scenarios developed in the report indicate that supply may exceed demand within the next 3 years, implying an urgent need for storage capacity. The urgency of mercury storage capability will depend on the rate of mercury decommissioning, the extent to which countries in the region encourage further reductions in mercury demand through supply restrictions, and the extent to which individual countries have existing facilities for mercury storage. The two main scenarios assessed show that the quantity of mercury arising between 2015 and 2050 that may need to be stored is most likely in the range of 2,000 to 10,000 tonnes, depending on a variety of factors mentioned.

#### **B. Highlights of Initial Options Analysis for the Safe Long Term Storage**

21. As a component of the mercury storage projects, UNEP commissioned studies that examined options for the safe long term storage of mercury in Asia and the LAC regions. In both studies, the important requirements for mercury sequestration and long-term management identified were: dry atmospheric conditions; political, financial and economic stability; security; appropriate infrastructure and environmental security including suitable atmospheric and geological conditions.

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2 <http://www.chem.unep.ch/mercury/>

22. In Asia, initial results reveal that variations in the sub-regional and intra-regional political, socio-economic and environmental conditions are such that no single universally preferred option could be proposed and so case-based approaches have to be used. In the study, possibilities for regional hosting either above-ground or underground long term storage facilities were considered. According to the report, the options of *above-ground specially engineered warehouse* and *export to foreign facilities* were found to be most appropriate options. Countries that have deserts and stable socio-political situations are recommended for further consideration as locations for an above-ground storage facility. On the other hand, below/underground geological formations (e.g. salt mines, special rock formations) in Asia might not be pursued because of their likely excessive cost and lack of appropriate sites. Countries possessing large scale industries using mercury in the operational processes but geographically not located in the desert zone (i.e. situated under humid atmospheric conditions) or experiencing are recommended to export excess mercury to countries where safe, long term mercury storage facilities can be arranged.

23. The report proposes further policy planning and agreements at national and regional levels to ensure that excess mercury will not be available for artisanal and small scale gold mining in Asia. This should be accompanied by the region's largest exporters beginning to restrict mercury supplies in the region. It is further recommended that a Declaration of Asian Countries be prepared to facilitate joint coordination in both legal and infrastructure development.

24. At present, the LAC region is characterized more as importer of mercury than as exporter, especially due to the chlor alkali plants and artisanal and small scale gold mining. This situation may change in the near future, in particular with the improvement of regional trade of mercury. The bans on mercury exports from Europe and USA may encourage chlor alkali plants adapt to mercury free technology

25. Legislation to control mercury use is improving in various countries of LAC. This includes legislation on waste management and initiatives to phase out the use of mercury. This scenario is likely to accelerate mercury surplus in the LAC and the need to establish a storage facility.

26. According to the LAC report, underground facilities are an unlikely solution in the short term for most countries in the region, owing to the lack of reliable information on the potential geological and environmental resources that could host a storage facility. Geographic, legal and cultural conditions to host an underground facility may not be met. Economic factors can influence the decision, given that the infrastructure required in underground storage facilities may demand very high investments.

27. The LAC report reveals that above-ground engineered warehouses may be the most suitable and feasible facilities for the long-term storage of mercury for the region. However, mercury stays in the biosphere. Political and institutional stability are conditions to keep and ensure mercury sequestration. An above-ground engineered warehouse may be a short-term solution for mercury storage in the LAC region

28. The option to export excess mercury was considered in the report as a short term solution for those countries with a very small mercury surplus. This option can be combined with interim storage in above-ground facilities located near harbours or airports. This solution requires bilateral cooperation agreements for the approval of exports and reduction of the costs entailed by the final disposal.

### **C. Identifying the next steps**

29. The current options study for Asia lacks the necessary data that could be used as basis for an in-depth feasibility study. Further work is needed to identify and address data gaps as well as refine the technical options, so that governments in Asia are able to make informed choices. There is need to investigate further the legislative and regulatory measures at both the national and regional levels that would facilitate and be consistent with the establishment of safe, long-term storage facilities.

30. For Latin America and the Caribbean, the current options analysis study points to the following recommendations: harmonization of the trade of elemental mercury, mercury-containing products and salts in the region, legislation to prohibit imports of goods for which regionally mercury free options are available; pre-feasibility studies of geologic resources that might be suitable to host an underground facility (in the long term) as well as possible dry and accessible areas suitable for above ground facilities; further development of stabilization and solidification techniques for the safe long term storage of mercury. Noting the needs of the LAC region to address end of life mercury containing products, the report strongly recommends reference to the Basel draft technical guidelines for the environmentally sound of mercury waste for standards in the management of mercury containing waste.

31. The next steps will be to define site selection criteria and technical parameters and specifications for use in narrowing the search for potential storage sites and undertaking more detailed feasibility studies in the two regions. Possible funding models will also be developed. The results of these studies will be recommendations for countries in each region to proceed with the most feasible option for the safe long term storage of mercury.

32. Noting the urgency to address storage capacities in Eastern Europe and Central Asia, a similar project is being planned in this subregion. Funding for the proposed project is currently being sought.

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