

## **Project: “Reduce Mercury Supply and Investigate Mercury Storage Solutions”**

### **Project background and justification**

Environmental mercury levels have increased considerably since the on-set of the industrial age. Mercury is now present in environmental media and food (especially fish) all over the globe at levels that adversely affect humans and wildlife.

Mercury differs from toxics and pollutants previously targeted, in that it is an element and cannot be broken down, degraded or destroyed. This, along with the fact that it and its compounds are particularly toxic and volatile, poses unique environmental management challenges requiring different approaches from those used for other toxic chemicals and waste, .

UNEP Governing Council decision GC 24/3 IV identified seven priority areas for action to reduce the risks from releases of mercury, two of which are:

- To reduce the global mercury supply, including considering curbing primary mining and taking into account a hierarchy of sources; and
- To find environmentally sound storage solutions for mercury.

Mining of mercury is one source of supply. Kyrgyzstan is the only country currently mining mercury for export (China’s mining is for domestic consumption). A program has been developed jointly with UNITAR and UNEP-GRID Arendal, and supported by Switzerland and the US, both of whom see this as an important issue, to address the possibilities for, and approaches to, terminating the mining. Kyrgyzstan had requested assistance to consider options for phasing out mercury mining in their country as part of their national profile, developed in consultation with UNITAR. Initial investigations have been undertaken to explore the country needs and to provide background information about the mercury mine. A desk study being published by UNEP-GRID Arendal will be used for information in the international forum and as a starting point for the development of, and consultation on the economic growth plan. The project is expected to shift Kyrgyzstan’s economy in the Ferghana valley region away from primary mercury mine to more economically and environmentally sound and sustainable productive activities.

Identifying environmentally sound storage solutions for mercury is recognized as a priority. The movement towards use of alternatives to mercury results in mercury surplus to requirements. This surplus, and out of date mercury containing products, must be managed properly and stored, thereby preventing its reentry to the global market. Repository/storage facilities are needed to isolate the mercury from the biosphere and hydrosphere indefinitely to avoid the mercury’s finding its way into the environment. Although the requirements have some similarities to those for some other hazardous waste storage, the permanence and lack of any disposal alternative are unique. While both the EU and US are looking at establishment of terminal storage facilities, there are no such initiatives underway in Asian and Latin American regions. There is significant interest from governments of those regions and from civil society which is prepared to contribute to work under the project. The project will result in an estimation of surplus mercury, the development of options for longterm storage and a feasibility study for a terminal mercury storage facility.

### **Project description and approach**

This project aims to address two of the main issues identified by Governments in the Governing Council decision 24/3 IV, namely:

- To reduce the global mercury supply, including considering curbing primary mining and taking into account a hierarchy of sources

- To find environmentally sound storage solutions for mercury

The work in Kyrgyzstan will primarily focus on the development of an economic growth plan for the Khaidarkan region, where the mine is located and is the major employer. This economic growth plan will be developed in consultation with UNEP-GRID Arendal, who will provide local and technical knowledge, as well as with the government of Kyrgyzstan. Extensive consultations on this growth plan are also included in the project, to ensure that it meets the needs of all stakeholders within the country. The international forum is intended to bring attention of donors to the need for, and interest of the country in, changing the income stream of the area from mercury mining to other, more sustainable activities. It is recognized that significant investment is likely to be required to close the mine, develop alternative activities and potentially remediate the area, and the early involvement of potential donors is seen as key to ensure that all possible options are adequately explored. On this basis, the international forum is to be held prior to the development of the economic growth plan.

In the two regional projects to identify suitable options for the storage of mercury, the first stage will be to form a regional advisory group, made up of interested organizations and governments within each region. Projected mercury surplus from various sources (i.e. closure of chlor alkali plants, end of life products) will be estimated based on inventory, trade and other relevant information for the regions. In the Asia region, it will draw on a multistakeholder project that is supported by Japan and the NGO community. The regional advisory group will explore and analyse the options. In exploring options, the range of factors needed to establish a safe long-term storage or repository facilities will be explored, including criteria (e.g. costs and benefits, social and political acceptability, technical and environmental factors, infrastructure and regulatory requirements) for site selection. This analysis will need to draw on a range of expertise in areas such as chemistry, geology, socio-economic impacts, community consultation, etc to ensure all relevant criteria which may influence the suitability of a proposed site are taken into consideration. Following the development of the options, a feasibility study which further explores the suitability of a proposed site will be undertaken. Country selection for a mercury storage site will be dependent on the results of the analysis and site suitability, and will also be based on agreement within the region.

The feasibility study will develop a detailed proposal on the design, the costs/financing options, location, and other considerations. The development of the feasibility study will be followed by regional consultations to investigate the regional acceptability of the proposal. The regional advisory group will draw policies (such as export ban, primary mining ban) consistent with the establishment of a terminal storage facility. Significant funding will be required to develop storage facilities, and sources for such funding will need to be explored following regional endorsement of the proposal. This will need to be done as part of a later project.

The choice of countries in the Asian region is based on an ongoing multistakeholder mercury storage project in Asia that will initially identify the estimates of mercury surplus in the next 40 years. Surplus of mercury in Asia is projected to largely come from mining, byproduct of nonferrous smelting, as well as from chlor-alkali plants. A number of countries in the Latin American region have likewise been identified to have a significant number of chlor-alkali plants that will either be shifting to non-mercury processes or would be closing down, thus would have the potential of mercury surplus in the region.

This mercury storage project will complement the approved Norway funded mercury waste project that aims to improve the technical guidelines on the environmentally sound management of mercury waste done in coordination with the Secretariat of Basel Convention (SBC). Long term storage is critical in the ESM of mercury waste. The mercury waste project is underway to being implemented in 2 countries in Asia, being managed by UNEP Chemicals, and in 2 countries in Latin America, being managed by the SBC.

## **Project linkages to poverty alleviation and gender equality**

All humans are exposed to some levels of mercury. A number of factors determine the occurrence and severity of adverse health effects. The fetus, the newborn and children are especially susceptible to mercury exposure because of the sensitivity of the developing nervous system. As a result, new mothers, pregnant women, and women who might become pregnant are also considered susceptible populations in terms of potential danger of methyl mercury. Exposure to mercury is debilitating, and can lead to inability to work. Poorer communities are at greater risk of exposure through the workplace and waste stream. Curbing primary mercury mining and promoting long term environmentally sound storage solutions are considered important steps in limiting mercury availability globally. These activities represent a unique opportunity to decrease mercury use and exposure globally.

The Haidarkan mercury mine in Kyrgyzstan is the last exporting primary mercury mine globally and action in this area is considered a global priority. One of the major concerns about the closure of the mercury mine is the effect on the local economy from the consequent decrease in employment options, although the mine has had difficulties in attracting suitable personnel for some time. As such, the development of the economic growth plan and consultation on this plan within the affected area is a key component in moving forward. One of the main areas is the identification of suitable alternative activities for those who are made unemployed by the mine closure.

The project considering the establishment of sites for safe environmental storage in Asia and Latin America will have a positive impact on reducing poverty in the region by limiting mercury exposure through long term storage. Mercury exposure could lead to high public health costs, lost productivity, and a legacy of health and environmental problems. Mercury contamination could also lead to the degradation of environmental resources (e.g., bodies of water) and the attendant disruption of economic activities. Thus, prevention of exposure to mercury through establishment of a storage facility will have economic benefits for health and environment in the long term.

In assessing any potential sites, the effects on local populations will be considered, and a consultation process would be required prior to establishing a storage site. Consideration of the impact of a storage facility on the local environment, and in particular the effects on sensitive subpopulations such as children and women of childbearing age will be a major factor in assessing sites for suitability.

## **Institutional framework per component**

### **Kyrgyzstan component:**

UNEP Chemicals is responsible for overall project management and for overseeing the project progress. UNEP-GRID Arendal will provide technical input to the project, and deliver on the ground activities. UNITAR will assist in the provision of any training needs associated with the development of the economic growth plan, as well as providing assistance with the coordination of the international forum. The Administrative Service Centre (ASC) based in Geneva will provide the financial backstopping. The relevant ministries in Kyrgyzstan will be involved throughout the project, including taking the responsibility for the overall development of an appropriate plan designed to meet their national needs. The regional office for Asia will be kept fully informed of the activities under this project, particularly as the project develops options for future implementation. However, as UNEP-GRID Arendal has been working in this region of Kyrgyzstan for a number of years with good local knowledge, and the outputs from the project will not be directly applicable to other countries within the region, the primary contact with Kyrgyzstan will be coordinated through Geneva.

## **Storage project in Asia and Latin America**

UNEP Chemicals is responsible for overall project management and for overseeing the project progress through the monitoring and evaluation of project activities and progress reports, including technical issues. The Administrative Service Centre (ASC) based in Geneva will provide the financial backstopping.

For each region, a regional advisory committee will be formed, including representatives of governments, industry and non-governmental organizations. This committee will provide a steering role to analyze options and make recommendations to Governments and other interested stakeholders on the activities within the project, while UNEP will facilitate the work and distribute necessary funds for activities including any consultancies required to develop the feasibility study. The regional advisory committee will assist in the organization of the regional consultations, while the regional offices (ROAP and ROLAC) will also be involved in these regional consultation activities. Suitable technical input from other areas of UNEP, such as UNEP-GRID Arendal will be sought as necessary. Activities will also be coordinated with the Basel Convention Regional Centers to ensure that these activities are consistent with the requirements being developed under the Basel Convention to address the sound management of mercury-containing waste.

## **Monitoring and reporting of the project**

The project monitoring will be carried out by the project coordinator at UNEP Chemicals Branch, who will regularly report on the progress and quality of the implementation of the project activities, including any encountered difficulties and actions taken to overcome them. Partners will be requested to provide feedback and advice as appropriate.

All correspondence regarding this project should be addressed to:

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**ing mercury supply by addressing Kyrgyzstan mercury mine**

	Shifting Kyrgyzstan’s economy in the Ferghana valley region away from primary mercury mine to more economically and environmentally sound and sustainable productive activities				
	<b>Indicators</b>		<b>Means of verification</b>		<b>Assumptions</b>
th ational d for	1.Economic growth plan developed  2.Consultation process completed  3. International forum held with high level of representation of relevant donors		1. Economic growth plan available on UNEP Chemicals website for consideration 2. Record of consultation meetings available to stakeholders 3. Record of international consultation meeting, including any agreements reached		1. All sectors of Kyrgyzstan government willing to provide necessary information and participate in consultations 2. International stakeholders willing to participate.
	<b>Responsible UNEP Divisions</b>	<b>External partners (names)</b>	<b>Amounts</b>	<b>Global, Regional or National</b>	<b>Engage MEAs (yes?-names)</b>
ers for	DTIE/GRID	Kyrgyzstan government		National	No
ngoing	DTIE/GRID	Kyrgyzstan. government		National	No
	DTIE/GRID	Kyrgyzstan government		National	No
ze and	DTIE/GRID	Kyrgyzstan. government		National	No
e yzstan	DTIE	Kyrgyzstan government, relevant donor governments, World Bank		Global	No