

NGOⁱ Strategy for Addressing the “Global Mercury Crisis” at the February 2007 UNEP Governing Council Meeting

January 2007

(a.) Introduction

Mercury is highly toxic, and the most severe effect is damage to the central nervous system, including the brain. Workers exposed to mercury, e.g. artisanal and small scale gold miners, often suffer from tremors, memory loss and other symptoms of neurological damage. In the environment, mercury can be converted to methylmercury, which accumulates in aquatic food chains. Mercury contamination impacts on one of the world's most important global food sources – fish – as well as to populations relying on fish, shellfish and marine mammals for their daily nutrient supply. Consumption of fish and marine mammals is the largest source of human exposure to methylmercury, with the developing foetus and small children most at risk.

The UNEP Global Mercury Assessment report in 2002 confirmed that mercury is a serious global pollutant warranting immediate action. Since then, small steps have been taken towards a global solution through a number of UNEP decisions at the 22nd and 23rd Governing Councils, including national and regional legislative initiatives, projects and partnerships. Despite these measures, since 1990 global mercury uses and releases have not decreased – as presented in the figures below – indicating that much more globally coordinated action, resources and commitments by governments around the world are needed to reverse current trends.

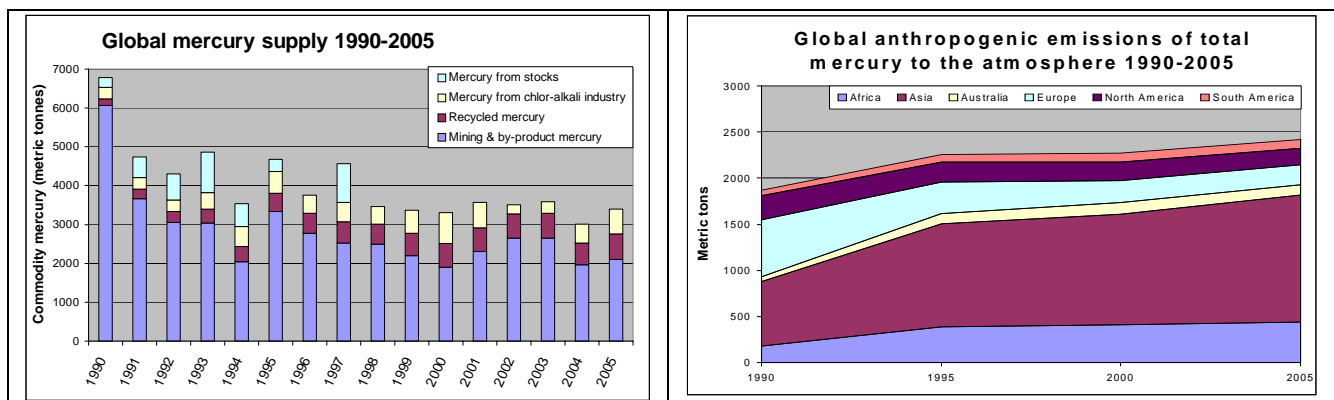


Figure 1 is derived from the recently published UNEP mercury trade report prepared for the 5-9 February 2007 Governing Council meeting, and indicates global mercury use has changed little since 1994 as the developed world exports its excess mercury and outdated technologies to the developing world. Figure 2 is based on the work of Jozef Pacyna and his colleagues, and illustrates that atmospheric mercury releases have actually increased, from sources such as coal combustion, smelting of metal ores (particularly zinc and copper), chlor-alkali plants, and waste handling/disposal of products containing mercury.

Clearly, the stage is set for the UNEP Governing Council to act decisively, constructively and effectively to address the “global mercury crisis” at its early February 2007 meeting.

(b.) Recent UN studies reinforce the need to address global mercury crisis

Recent observations from UNEP and UNIDO November 2006 trade reports¹, to be submitted to the Governing Council in early February 2007, confirm that the global mercury crisis continues unabated. The UNEP trade report confirms that country-to-country and region-to-region commercial ("trade") flows of mercury are now understood well enough to show the consistent transfer of

¹ Both available in a single document at <http://www.chem.unep.ch/mercury/Trade-information.htm>

mercury from higher to lower income countries. While further information on commercial mercury transactions would be useful, the report reiterates that in order to effectively reduce the quantities of mercury circulating in the biosphere, there is an urgent need to simultaneously reduce both the supply of mercury and demand for mercury worldwide.

The report prepared for the Governing Council by the UNIDO/UNDP/GEF Global Mercury Project (GMP) states that there are artisanal and small-scale gold mining (ASM) activities occurring in more than 50 countries (involving around 15 million miners, including 4.5 million women and 1 million children), and estimates mercury consumption (and releases) in the ASM sector at 650-1000 tonnes annually. That is equivalent to about 25% of global consumption, and most of that mercury originates in or transits through industrialized nations.

The GMP report confirms the overwhelming need to reduce the global mercury supply through export restrictions and other mechanisms, in order to increase the market price of mercury and pressure the ASM sector to significantly reduce demand, and subsequent releases. The GMP report also stresses that parallel field-work is critical to provide miners with the necessary information about alternatives to their current excessive and often inefficient use of mercury. With such measures in place, the GMP estimated that mercury consumption— even for such a diverse and seemingly intractable sector as the ASM community—could be reduced by some 50% over the next 10 years – largely by focusing on the elimination of mercury use in processing the “whole ore.”

(c.) Industrialized countries exporting surplus mercury to developing countries

Recognizing the dangers of mercury, an increasing number of countries, including Canada, Norway, Switzerland, the Europe Union, and many states within the United States are taking important steps and adopting measures to limit releases and phase out mercury's uses in industry and commerce, and to ultimately substitute them with safer alternatives. An unfortunate result of these progressive policies is that, as mercury is removed from use in the more developed economies, it is typically sold at a low price to less developed economies. There it finds its way to a range of hazardous applications, not only putting at risk local populations and creating “hotspots,” but also creating dangerous pollution that travels around the globe, and ironically, eventually cycling back to the air, soil, water and fish consumed in the more developed economies.

In October, the European Commission proposed a regulation on banning mercury exports and requiring the safe storage of metallic mercury; in parallel the world's largest mercury mine, in Almadén, Spain, has also shut down. These are important steps forward because a large number of mercury-cell chlor-alkali plants will be closing in Europe in the near future, making available some 12,000 tonnes of mercury for the world market, if steps are not taken to prevent this.

In late December 2006, the U.S. Government announced that it was not planning to sell its Federal stocks of surplus mercury and was also developing a plan to manage non-Federal mercury stocks. This is welcome news. Several years ago, the U.S. Department of Defense recognized the dangers of mercury to health and the environment when it voluntarily took its own excess mercury supply off of the market, after conducting a thorough Environmental Impact Statement to consolidate its 4,000 plus tons of mercury into long-term storage at one facility in Nevada.

To address the continuing problem of mercury exports from the United States to developing countries, in 2006 U.S. Senator Barack Obama introduced the Mercury Market Minimization Act (S. 3627), which he plans on re-introducing shortly into the United States Senate. Senator Obama's bill would establish a plan for storing its surplus mercury and prohibit exports of mercury, either from the Federal stockpile of mercury held by the Departments of Defense and Energy, or from the non-Federal mercury stocks from chlor alkali plants, byproduct mercury, and other quantities of mercury collected through industry, state and local programs.

4. Incorrect Assumptions that Export Restrictions Lead to More Primary Mining

Some recycling industry representatives and others have speculated that restricting mercury exports would create a supply deficit, resulting in increased primary mining. To address this concern we examine its two assumptions. The first is that tight mercury supplies lead to higher prices. This has recently been demonstrated, and many consider it a positive development that helps to dampen demand. The second is that higher mercury prices may encourage increased virgin mercury mining. The latter is not likely to happen for at least three reasons.

(a.) First, opponents fail to consider the limited ability, for both technical and political reasons, of the few remaining mercury-producing countries to significantly expand their output². Global mercury mining in recent decades has been dominated by three nations mining mercury for export (Spain, Kyrgyzstan and Algeria), and China, which has mostly provided for its own robust home market.

- The world's biggest mercury mine is located in Almadén, Spain. In recognition of the concern surrounding the use of mercury, MAYASA (company operating the mine in Almadén) stopped all mining and processing of primary mercury ores in 2003. It is not expected to restart, in large part due to the anticipated EU mercury export ban. MAYASA – which is also trading mercury around the world – has a voluntary agreement with the EU chlor-alkali industry. The industry sells MAYASA mercury at a low price from decommissioned EU chlor-alkali plants.
- Algeria apparently closed its mercury mine at the end of 2004, in light of continuing technical problems, notwithstanding increased mercury prices.³
- The last major mercury mine still in operation primarily for export is the Khaidarkan mining complex in Kyrgyzstan. This mine is already producing close to its practical capacity of 600 metric tonnes of mercury per year.
- During the last several years, the People's Republic of China has increased domestic production of mercury. Significantly, China has a substantial internal market for mercury, has not historically exported much mercury, and is not expected to do so because the mined mercury is needed to meet China's economic needs, particularly in the production of vinyl chloride monomer (VCM)⁴ (for PVC production) and measuring equipment.⁵ In fact, China still imports about 200 tons of mercury annually to meet this internal demand. NRDC (2006) has recently confirmed that virtually all of China's mercury production is (and has long been) for domestic consumption, and thus not traded globally.

Therefore, as the global mercury supply that used to come from primary mining has declined by about 600 tonnes/yr net since 2002, and global demand has not much changed, the supply has been made up by increased recycling, by-product and chlor-alkali mercury rather than new mining. Especially in a climate of higher hazardous waste disposal costs (and stricter regulations on emissions) than in the past, the recovery of mercury as a by-product of other mining activities may already be higher than it has been in the past.⁶

(b.) Second, global demand for mercury will continue to decline⁷, thereby discouraging significant new investment in a shrinking commodity sector. The US, EU, Canada and other developed countries have a range of national initiatives proposed or in place to help curb mercury demand. Several pieces of legislation exist in Europe concerning electronic equipment, other measuring devices, batteries, paints, pesticides and so on in view of eliminating the use of mercury. In the U.S., a combination of Federal legislation, state legislation and industry initiatives will lead to similar reductions over time, as exemplified by the recent commitment of battery manufacturers to eliminate mercury from button cell battery production by 2011. China and Japan are also developing legislation governing mercury usage in electronic products.

(c.) Third, the assumption of significant primary mercury mining ignores the potent political pressure rapidly developing to encourage just the opposite – to dampen both mercury production and use worldwide. This pressure has already affected the Almadén mine in Spain, and will affect other producing countries now that the EU has formally endorsed the export ban. Indeed, this pressure led Kyrgyzstan to examine alternative economic growth opportunities for the mercury mine area, as discussed at the October 2006 International Conference on Mercury organized by the European Commission in Brussels.

² COM (2005) 20 final - Extended Impact Assessment, on the Community Strategy on Mercury, pg. 25-26 and <http://www.mem-algeria.org>.

³ Summary of Supply, Trade and Demand information on mercury, requested by UNEP GC Decision 23/9, November 2006, p.26

⁴ NRDC submission to UNEP in response to March 2006 request for information on mercury supply, demand and trade" Natural Resources Defense Council, Washington, DC, May 2006 <http://www.chem.unep.ch/mercury/Trade-information.htm>

⁵ Executive Finding of Mercury Investigation in Guizhou, Global Village of Beijing, Beijing, People's Republic of China, 2006 , http://www.zeromercury.org/projects/Executive_Summary_of_Guizhou_Mercury_Investigation.pdf

⁶ Mercury Flows and Safe storage of surplus mercury, Concorde East/West, for the European Commission, DG Environment, August 2006, p.51

⁷ Summary of Supply, Trade and Demand information on mercury, requested by UNEP GC Decision 23/9, November 2006, p.55

(d.) There are other, environmentally preferable sources of mercury that could be used to supply the few remaining demands for mercury. These include byproduct mercury, captured from processing of other ores such as gold and zinc, as well as mercury recovered from recycled products and wastes. . In fact, the cost to produce mercury from recycled products is at least competitive, and may be less expensive, than the cost of mining mercury. Therefore, restricting supply through export bans would provide an incentive for additional recovery of mercury from byproduct capture and waste recycling, which would yield substantial health and environmental benefits.

5. Recent assessment of UNEP mercury partnership overstated

In the framework of the UNEP Mercury Programme, and following the 23rd UNEP GC Decision, it was agreed that partnerships could be one useful way to address global mercury pollution. Concerns have been expressed on the US partnership approach by NGOs and others because this was proposed as a substitute to a more globally coordinated and binding agreement, in the first place. A review of the recent UNEP and country reports on these partnerships reveals that partnership activities and achievements have been overstated by sweeping all mercury-related work under the UNEP “partnership” umbrella, regardless of whether an activity would have occurred anyway, or whether it has any specific link to the UNEP initiative. In fact, with very few exceptions, the identified “partnership” activities over the past two years have been limited to a handful of workshops, resulting in little or no direct, quantifiable reductions in mercury uses or releases from these activities to date.

It is therefore clear that the global mercury pollution problem will not – and can not – solely be solved through voluntary partnerships, since they are limited in scope and direction, lack commitment and accountability, and have not produced the sort of concrete progress needed. Partnerships can be a useful complement to other more binding and comprehensive actions – that is their appropriate role.

6. NGO Conclusions and Recommendations

The only long-term solution to the global mercury problem is to simultaneously reduce global mercury supply and demand, set targeted goals and effectively reduce mercury releases from all sources through global agreements, strategies and actions. In terms of managing surplus mercury, the single most important thing the developed world should do, is to stop the exports and place surplus mercury into safe storage, in order to limit the trade of mercury on the global market. That way, we could once and for all stop the cycle of toxic trade in mercury that contaminates our dinner plates.

Clearly, present measures are not sufficient to adequately reduce risks from mercury exposure and comprehensively address the global mercury crisis. Therefore, to curtail mercury’s global reach, coordinated supply – demand reductions activities must be undertaken at the international level as presented in the NGO Global Mercury Demand Reduction Scenario table at the end of this document. In addition, further coordinated and comprehensive actions must be undertaken at the global level, including, but not necessarily be limited, to the following:

Since present measures are not sufficient to adequately reduce risks from mercury (see Figures 1 and 2 below), further coordinated actions must be undertaken at global level, including but not limited to the following:

1. Work should start as soon as possible towards a global binding agreement on mercury.
2. The findings of the trade report conducted for the UNEP Governing Council should be fully utilized, and concrete actions should be taken as follows:
3. Global Mercury Demand Reduction
 - a. A global **mercury demand reduction goal** of 50% by 2012 and 70% by 2017, as compared to 2005, should be established (see table in annex).
 - b. Mercury reduction goals should be achieved through the following means:
 - i. Enactment of legislation phasing out the use of hazardous substances in **electrical and electronic equipment** in all countries with a significant electronic products manufacturing base;
 - ii. Ending the use of mercury in the production of **button cell batteries**;
 - iii. Phasing-out most production of mercury **fever thermometers**, and minimizing the production of other **non-electronic mercury-containing measuring equipment**. International institutions, governments, health care institutions and other large purchasers of medical equipment should facilitate the transition in the developing world to non-mercury fever thermometers through their purchasing power and the development of appropriate regulatory frameworks;
 - iv. Ensuring that **mercury-containing products and mercury-using processes** restricted in industrialized countries are not sent to developing countries;
 - v. Phasing out use of the **mercury-cell chlor-alkali process** as soon as possible. To facilitate this conversion to non-mercury technologies, a financial assistance plan for developing nations should be prepared by UNEP for the 25th Governing Council meeting in 2009; and
 - vi. Establishing a sector-specific demand reduction goal for **artisanal and small scale gold mining** of 50% by 2017 as recommended by the Global Mercury Project of UNIDO, achievable by eliminating the use of mercury in the processing of whole ore, other practicable measures, and coordinating with other countries and organizations to incorporate mercury reduction techniques into their projects in this sector.

4. Global Mercury Emissions Reduction

UNEP should prepare a global mercury emissions inventory and provide recommendations on 5 and 10 year global emission reduction goals for consideration at the 25th Governing Council meeting in 2009. The inventory should strive to fill in data gaps on sources poorly characterized to date, and the recommendations should take into account demand reduction goals already established.

5. Global Mercury Supply Reduction

- a. A **hierarchy of mercury supply sources** should be established for use in commerce, favoring mercury from byproduct production and the recycling of wastes and products over mercury from primary mining and decommissioned chlor-alkali plants. Primary mining is the least preferred mercury supply source because it creates new mercury and is a significant source of emissions.
- b. Excess mercury supply should be prevented from entering into global market consistent with this hierarchy through the following means:
 - i. **Restricting mercury exports** from developed nations;
 - ii. Including mercury in the Rotterdam Convention on **Prior Informed Consent** before any mercury waste shipments;
 - iii. **Promoting alternative development to replace primary mining** where it is still conducted; and
 - iv. Establishing a working group to develop recommendations for the coordinated diversion from commerce and **management of mercury from closing chlor-alkali facilities**.

6. Financial Assistance

Developed countries should provide **new and additional financial resources** to support these activities in developing nations, and GEF and/or other global institutions should create a financial assistance mechanism to support global mercury activities consistent with the above proposals.

Annex

NGO Global Mercury Reduction Demand Scenario

Sector	2005	2012	2017	Comments – Path to Reduction
Batteries	400	50	25	Global Phase-out of Hg in button cells
Chlor-alkali	620 (535 net)	300	0	Global phase-out by 2015; India meeting its current commitment to phase out by 2012
Measuring Devices	250	75	50	State action achieves tipping point in USA; EU and China prohibit sale
Switches/Relays	250	50	50	EU and China RoHS Directive; state action in USA reaches tipping point
Lighting	120	150	110	Use of fluorescents peak in 5 years, then alternatives grow
Dental	270	135	75	Dental use reduces in response to cosmetic preferences and regulatory actions
Small-scale gold mining	800- 1,000	600	400	Global focus on elimination of mercury use in amalgamation of whole ore and other available techniques for reducing mercury use – see UNIDO report to UNEP
PVC	700 (350 net)	550	300	Most demand in China; catalyst efficiency gains to slow rate of growth and then obtain reductions; progress on alternative production technique to begin transition by end of 10 year period
Other	50	25	10	Vaccines/paints, etc.
Total	3,460 to 3,660	1,885	1,020	Keys to achieving desired demand reductions over next 10 years are: phase-out of Hg in button cell production in China, EU, and Japan; achieving phase-out in measuring equipment production in EU and China; progress on mercury-cell chlor-alkali phase-out; more efficient use of VCM catalyst in China; restricting mercury supply to increase prices for ASM; and elimination of whole ore amalgamation in ASM

ⁱ The **Zero Mercury Working Group**, www.zeromercury.org, is an international coalition of more than 48 public interest non-governmental organizations from around the world formed in 2005 by the European Environmental Bureau and the Mercury Policy Project/Ban Mercury Working Group. The aim of the group is to reach "Zero emissions, demand and supply of mercury, from all sources we can control, towards eliminating mercury in the environment at EU level and globally."