TESTIMONY OF
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ON BEHALF OF:
NATURAL RESOURCES DEFENSE COUNCIL

BEFORE THE
COMMITTEE ON ENERGY AND COMMERCE
SUBCOMMITTEE ON ENVIRONMENT AND HAZARDOUS MATERIALS

AT HEARING ENTITLED:

H.R. 1534
MERCURY EXPORT BAN ACT OF 2007

JUNE 22, 2007

Good morning and thank you for this opportunity to testify on H.R. 1534, a bill to prohibit the sale, distribution, or transfer of mercury, to prohibit the export of mercury, and for other purposes. I am Linda E. Greer, Ph.D., the Director of the Health Program at the Natural Resources Defense Council (NRDC). I have a Ph.D. in environmental toxicology and have worked at NRDC on environmental health issues for over 15 years. NRDC is a not-for-profit environmental advocacy organization with over 1 million members and activists whose mission is to safeguard the Earth: its people, its plants and animals and the natural systems on which all life depends.

NRDC's Health program focuses on toxic chemical pollutants in air, water, food, and shelter. Over the years, we have focused our particular attention on the "biggest pollutants" in these media, the ones disproportionately responsible for the biggest threats to human health. This has led to successful efforts to substantially reduce diesel air emissions from trucks and buses, for example, and to take a number of dangerous and outdated pesticides off the market. There are more than 70,000 chemicals in commerce, but some are much more toxic than others, and we can make great progress in environmental health protection if we focus on the smaller number of chemicals that have the biggest impact.

Mercury is a top priority for NRDC because it is one of the most serious, if not THE most serious, toxic contaminant in the U.S. food supply. Even in low doses, mercury exposure

may influence a child's neurological development, affecting attention span, fine-motor function, language, visual-spatial abilities (such as drawing) and verbal memory. In adults, chronic mercury poisoning can cause memory loss, tremors, vision loss, and numbness of the fingers and toes and can contribute to heart disease among other problems. EPA and FDA calculations have determined that women of childbearing age/pregnant women should eat no more than 12 ounces of fish per week, which is only two cans of tuna fish or one fish dinner and a tuna fish sandwich per week, to avoid unsafe exposures to this toxic metal. Children should eat much less. This advice is based on an analysis undertaken by the National Academy of Sciences, which issued a report on this issue in 2000.

Of course, the solution to the problem of mercury pollution is not to stop eating fish, an otherwise healthy food. It is to eliminate mercury pollution. And this mission brings us to today's hearing, and the need for H.R. 1534.

As I will explain in my testimony today, scientific experts and motivated governments agree that the way to eliminate mercury pollution is to reduce global supplies and global demand for this toxic metal in commerce.[1] NRDC has participated in a large number of policy deliberations around the world on this issue over the past five years, including those hosted by the United Nations Environment Program and the European Union, and our testimony today is informed by these deliberations.

[1] There are other sources of mercury releases, such as from coal fired power plants that must be addressed in other ways, but such releases are not the subject of today's hearing, which focuses on intentional uses of mercury in commerce.

The time is ripe for action. As you will hear in more detail this testimony: the United States and most of the rest of the developed world is already well on its way to reducing mercury demand. In our opinion, policies to further reduce demand here in our country are important, but not our highest priority. We need to focus primary attention on the U.S. contribution to global supply. The critical first step – in fact, the single most important thing that the U.S. and other developed nations must do to reduce pollution from the use of mercury in commerce -- is to stockpile the surplus mercury we are accumulating as we remove this toxic chemical from our products and industrial processes. This will stem the tide of mercury flow into the developing world, where demand for this toxic metal in industry remains robust and pollution from its use is rampant.

H.R. 1534 takes this important first step on the global mercury pollution problem. In banning the export of surplus mercury from the U.S., and mandating permanent storage of existing government stockpiles, the bill provides an opportunity for our country to take leadership on reducing mercury in the food supply. We are very pleased to testify this morning in support of this important bill.

Why should we care about U.S. exports of mercury?

Ask most people to identify the sources of mercury pollution, and they will correctly point to coal-fired power plants. Mercury is a naturally-occurring ("unintentional") contaminant of coal released during combustion, and power plants comprise the largest

remaining source of mercury pollution within the U.S., contributing a little less than 50 tons to the global total.

However, there are other large and important sources of mercury pollution in the world that stem from the intentional use of mercury as a commodity metal in products and industrial processes, which are the focus of our hearing today. Specifically, 3000-3500 tons of mercury are consumed each year by various industries around the world -- in chemical manufacturing, mining, battery production, and more. And, because of the highly dispersive nature of most of these uses and the poor degree of environmental control where used, much of the mercury "consumed" in these sectors ultimately winds up as air and water pollution, where it becomes available to enter our food chain.

What's worse, mercury is a global pollutant; when released from a source in one country, it readily disperses around the world, often falling far from its source of release and entering distant food supplies. These characteristics have led to surprisingly and disturbingly high concentrations in places with no significant local mercury pollution sources at all. The Arctic region, in particular, is a global mercury hotspot, acting as a giant "sink" for the pollutant circulating in the Earth's atmosphere. People there are some of the most highly contaminated on Earth. Of more direct relevance to H.R. 1534, scientists have estimated that up to a third of U.S. mercury air pollution has traveled to the U.S. from Asia, where mercury pollution is extensive.[2] [3] And, I'd like to point out,

[2] C. Seigneur et al.2004. "Global Source Attribution for Mercury Deposition in the U.S." . Environmental Science and Technology 38: 555-569.

much of the fish that we eat in the U.S., including tuna fish, is imported from the south Pacific, off the coast of China and other countries, and is highly vulnerable to proximate sources of contamination from immediately adjacent shores.

These facts underscore the need for a global focus on mercury, in order to substantially reduce mercury contamination of the U.S. food supply. Unlike diesel pollution or pesticides applied to cracks and crevices in your home, many of the major sources of mercury contamination in our food come from quite a far distance from our shores.

There is a second, dollars-and-sense reason that we should care about mercury exports: Our states, local governments, and some companies are expending much-welcomed time and money to collect mercury for recycling. But absent a coherent policy for safe storage of this material, many will appropriately question the long-term wisdom of this effort. Let me explain.

An increasing number of states and others, alarmed by the ubiquitous high levels of mercury in their lakes and streams, have initiated collection efforts to retrieve mercury from products such as auto switches, thermometers, and thermostats at the end of their useful lives. This collection and separation from the waste stream is important to prevent mercury releases from the almost inevitable product breakage and/or releases from combustion that would occur during incineration or other disposal.

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[3] U.S. sources of mercury pollution such as from coal fired power plants remain quite important nonetheless, because so much of the mercury emitted from these sources deposits locally and regionally quite heavily.

Mercury collected by state and local authorities is currently consolidated and sent to "recyclers" such as Bethlehem Apparatus, who trade in mercury as a commodity metal, much like silver or zinc or copper. The problem is that recyclers often sell this mercury to buyers in the developing world, or to traders who resell it to the developing world, where mercury demand remains high.

Recycling mercury for re-use in highly polluting industries is not a step in the right direction for environmental or public health protection.The unfortunate fact of the matter is that – because mercury is a global pollutant -- **if we take the time and trouble to collect these multitudinous small sources of mercury, we should not then send it off to a country in the developing world that will use it in poorly controlled industrial applications, spewing the mercury into the air to come right back at us in fish in our grocery stores or in air currents over the Pacific.**

Specifically, let us take a look at where U.S. mercury exports went in 2004, one of the latest years with comprehensive statistics available. USGS statistics show that over 90% of the mercury exported from our country that year went to four countries: Vietnam (79 tonnes), Mexico (64 tonnes), India (63 tonnes) and Peru (47 tonnes).[4],[5] These developing countries have little in the way of environmental control systems, and it is very likely that the mercury was used in highly dispersive applications, particularly such as artisanal mining, described below.

[4] In 2005, more than half of our mercury went to the Netherlands, but did not stay there; the Netherlands has a booming business in global mercury trade, with large quantities exported to the developing world annually.

[5] USGS Mineral Yearbook 2005. August 2006. Table 2

Fortunately, as a technical matter, it is quite easy to store mercury, which is not reactive explosive, or otherwise difficult to contain. Storage in flasks or stainless steel tanks in a warehouse will do the trick. We will need a very small amount of space for this storage as well; NRDC has calculated that the typical annual U.S. export of mercury could fit comfortably into one U-Haul rental truck.[6] And we are not talking about something with enormous value: our annual shipments are worth roughly $ 6 million on today's trading market -- roughly a quarter of the advertising campaign the tuna industry announced in 2005 to encourage people to eat more of its product.[7]

Global mercury use and trade

The last 40 years have witnessed a significant increase in mercury emissions from coal combustion around the world. This trend has been offset to some degree by a reduction in industrial uses of mercury worldwide, from more than 9000 tons per year in the 1960's to less than 4000 tons per year today. (Figure 1) The overall decline in industrial mercury use has occurred largely because various developed countries including the U.S. have made conscious decisions to decrease mercury use, eliminating it in products such as batteries and paints and converting industrial processes, such as chlor-alkali plants, to mercury-free technology.

[6] NRDC calculation is as follows: 278 tonnes of mercury at a density of 13.55 g/cubic centimeter requires 724.54 cubic feet of storage space. A 17-foot long box U-Haul truck contains 855 cubic feet.
[7] San Diego Union Tribune, July 27, 2005. "As canned tuna sales dive, companies plan ad blitz to reel buyers in". by Terry Rogers.

However, as Figure 1 indicates, the past 10 years have been stagnant with regards to mercury use reductions; we are hovering at continued consumption of about 3500 tones per year globally. What's worse, **over the past decade, the location and type of demand has shifted to the developing world**, into applications that are highly polluting and dispersive. (Figure 2) As I will detail below, the industrial uses typical of the developing world, such as artisanal and small scale gold mining, pose large local risks to human health and contribute substantially to the total quantities of mercury pollution circulating the globe. Therefore, although we are holding steady in total global use, we are losing the war against mercury pollution, because the types of uses that are occurring are more dispersive than those used in the industrialized world.

Reduction of Mercury in Commerce

Fortunately, economically viable alternatives to mercury are available for nearly every industrial use of mercury. This has been well documented by the United Nations Environment Program, which has been working on mercury as a global priority since 2001. UNEP has recently reported on mercury use around the globe by sector and projected demand reduction under two scenarios: a "status quo" scenario, where no policies change in any country, and a "focused reduction" scenario, where countries undertake feasible policies to discourage and discontinue mercury use.

The news from the UNEP is good; it predicts that even **under the status quo, with no further government attention, mercury demand will decrease by 535 tons by 2015**

(compared against the midpoint estimate of use in 2005). **Applying a "focused reduction scenario", wherein countries take steps to reduce supply and demand, UNEP predicts demand reduction by 1115 tons by 2015**.[8]

These projected decreases in demand should allay concerns we have heard that a ban on U.S. exports of mercury, which currently amount to only about 200-300 tons per year, will cause severe problems in the world mercury market – either by sparking new mining initiatives or by depriving the very small number of critical uses of mercury that have no alternatives. The projections should also motivate countries to reduce supply -- in order to avoid flooding the market with excess mercury as demand goes down, lowering prices, and thereby beckoning new and wasteful uses of the toxic metal.

Table 1 presents details on current uses of mercury in commerce and reductions that are possible in each sector from the United Nations report. [9]

Small scale/artisanal gold mining: The use of mercury for artisanal and small scale gold mining (ASM), the largest use of mercury in the world, and the one growing the most rapidly, is of special concern and deserves the top attention of all those worried about mercury pollution of the globe. Roughly one-third of global mercury consumption is consumed in this sector, a terrible practice for the world's poorest citizens which I describe more fully below. UNEP predicts demand reductions of 175 tonnes per year in this challenging sector (from the midpoint estimate of use in 2005) under the status quo

[8] UNEP Chemicals. Summary of Supply, Trade and Demand Information on Mercury. November 2006.
[9] Table 22. Global mercury demand by sector. 2005. From: UNEP Chemicals. Summary of Supply, Trade and Demand Information on Mercury. November 2006.

and 425 tons reductions under a focused reduction scenario. As discussed below, gold mining experts elsewhere at the United Nations are more optimistic and believe a 50% reduction in global demand by 2017 is achievable with supply side restrictions like export bans in place.[10]

Vinyl chloride manufacturing: Vinyl chloride is manufactured using mercury almost exclusively in China, where it is used as a catalyst in a unique chlorination process.[11] UNEP considers this sector to be a mid- to longer term challenge, with no easy solutions in sight, although mercury releases can likely be greatly reduced with improved management practices. It predicts no reductions by 2015 in this area; in fact, it projects an increase in usage of 300 tonnes. NRDC believes this prediction is unduly pessimistic, but for the purposes of simplicity, we will stick by the UNEP predictions in our testimony today. Increases in use in this sector are more than compensated by large decreases in other sectors in the UNEP projections.

Chlor alkali production: Chlorine and caustic soda are manufactured from brine using several types of production processes. The most outdated process is mercury-based, whereas the others use no mercury at all. In the United States, nearly all our chlor-alkali plants have now converted to non-mercury based production, and the industry has pledged conversions by certain deadlines in both the European Union and India. UNEP

[10] UNIDO Global Mercury Project. Global Impacts of Mercury Supply and Demand in Small Scale Gold Mining. A Report to UNEP Governing Council. February 2007.
[11] China requires mercury as a catalyst in production because it manufactures VCM from acetylene, rather than from ethylene, which is typical of the rest of the world.

predicts reductions of 150 tonnes of demand by 2015 under the status quo in this sector and 250 tonnes under the focused reduction scenario.

Products: UNEP predicts that with no policy interventions whatsoever, demand from battery manufacturing, electrical and measuring device production, dental use, and lighting will be reduced 38% from 1345 tonnes (midpoint estimate of use in 2005) to 830 tonnes by 2015. With a focused reduction scenario, under which countries put policies in place to promote or require substitutions in these low-hanging-fruit areas with readily available alternatives, usage drops 54% to 620 tonnes, and demand is reduced by 725 tonnes.

Use in artisanal and small scale gold mining: a clarion call for the need to restrict supply

The use of mercury in artisanal/small scale gold mining (ASM) is the largest, fastest growing, and surely the most alarming use of this toxic metal around the globe. In this practice, miners with little or no economic capital, who operate often illegally and with little organization, separate trace quantities of gold from soil or sediment by mixing it with elemental mercury. The mercury amalgamates with the gold, and the mixture of mercury and gold is then heated with a blow torch. The heat vaporizes the mercury, which escapes into the atmosphere, leaving a small trace of the gold for collection and sale. (See photos, Attachment 1).

With few exceptions, these miners do not conserve or capture any of the mercury used in their daily operations; the price of mercury is low enough relative to the value of the gold that its loss is economically inconsequential. Virtually one hundred percent of the mercury is lost to the environment.

A resurgence of artisanal and small-scale gold mining began in the early 1980s, accelerated by the rising value of gold, and it is booming. The practice takes place all over the developing world, particularly in China and Indonesia, but also in many countries of South America and Africa. The United Nations Industrial Development Organization (UNIDO) estimates that there are between 10 to 15 million artisanal miners world wide in 55 countries, forty percent of whom are women, and 1 million who are children, involved in this practice.

With nearly 100 percent of the mercury used by these miners dispersed into the environment, the health and environmental impacts of the practice are staggering. Mercury concentrations at the mining sites are often exceedingly high, and many miners themselves exhibit severe mercury-poisoning symptoms such as tremors, vision loss, and the inability to reproduce simple geometric shapes. In addition, air and local waterways are heavily contaminated from these practices, greatly expanding the number of people whose health is affected by these practices.

Notwithstanding focused work by UNIDO and others to address this problem, the scale of the resources available to develop and promote the viable alternatives to mercury for

gold mining and/or effective practices to recapture mercury during retorting has to date not been at all proportional to the scale of the global problem that mercury use and release in this sector represents. Experts in UNIDO have therefore recommended that countries of the world decrease the global supply of mercury, thereby increasing its price, so that miners have a natural reason to capture and reuse this toxic metal or convert to non-mercury based production alternatives.

I attach to this testimony a recent report by the UNIDO Global Mercury Project, which strongly endorses the need for supply restrictions to achieve improvements in these deadly operations and describes the availability and effectiveness of alternative practices that vastly reduce or eliminate the use of mercury in this sector. The UNIDO report concludes that a 50% reduction in use of mercury in this sector is achievable by 2017 with the following statement, in boxed, centered, and highlighted for emphasis to readers:

> **"The Global Mercury Project calls on nations around the world to achieve the [goal of reducing mercury use in ASM] by reducing mercury supply through export controls and other mechanisms that will encourage the transition to alternative technologies."** [12]

Will there be unintended consequences of a U.S. mercury export ban?

[12] UNIDO Global Mercury Project. Global Impacts of Mercury Supply and Demand in Small Scale Gold Mining. A Report to UNEP Governing Council. February 2007.

Since the introduction of H.R. 1534, questions have been raised whether a mercury export ban would be counter-productive, sparking an increase in mercury mining around the world.

There is no evidence to support the allegation that a ban on mercury exports will lead new mercury mining. In fact, there is evidence to the contrary. Over the past seven years, for example, the price of mercury jumped from $140 per flask (in 2000-2003) to roughly $800 per flask (in 2005) before falling back to roughly $550-650 per ton at present.[13] No new mines exporting mercury opened during this period, and there has been no "law of unintended consequences" in evidence to date.

There are at least two reasons why new mining is not likely to be sparked in the coming years either. First, most countries do not have viable mercury deposits; mercury occurs in economically recoverable deposits in only in a handful of countries around the globe. In each case, there is limited remaining capacity within these countries to significantly expand output.

Specifically, mercury mining for export in recent years has been dominated by only three nations with remaining rich mercury deposits: Spain, Algeria, and Kyrgyzstan. Only the mine in Kyrgyzstan remains. (China mines considerable amounts of mercury but uses it only for its own robust home market.)

[13] Personal Communication with Peter Maxson, Concorde East/Wast Sprl, June 19, 2007. Mr. Maxson is a leading expert in the mercury trade and is responsible for analysis used both by the European Union and UNEP in their mercury deliberations. A flask = 34.5 kg of mercury.

- The world's biggest mercury mine, in Almadén, Spain, stopped all mining and processing of primary mercury ores in 2003, and is not expected to restart. To the contrary, Spain has shuttered this mine as part of the EU's overall initiative to reduce global mercury supplies, which also includes an export ban similar to H.R. 1534.
- Algeria's mine has suffered for years with poor operating conditions and closed at the end of 2004, in light of continuing technical problems, notwithstanding increased mercury prices that year.
- The last major mercury mine still in operation primarily for export is the Khaidarkan mining complex in Kyrgyzstan, which has not produced more than 500 tons of mercury per year since 2002. According to the World Bank, the quality of the deposit is low at this mine, and there are technical problems with the operation; as a result, the mine has historically required state subsidies to operate. Furthermore, the government of Kyrgyzstan has already recognized the desirability of phasing out mercury mining; at an October 2006 European Commission mercury meeting in Brussels, the head of the mine asked the international community for assistance in transitioning to other economic activities in the region.

Virgin mercury mining continues in the world mainly in China, which mines 700 tons or more per year. [14] Significantly, however, China uses all of this mercury for its own

[14] 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. Note that NRDC has undertaken a comprehensive mercury use inventory with government officials from the Chinese Chemical Registration Center, a branch of the Chinese EPA. This study has also quantified the annual production from virgin mercury mining in the country.

internal market and therefore is not relevant to the supply-and-demand equation for the rest of the world. China has not historically exported much if any mercury into global commerce, and it is not expected to start now. To the contrary, China's largest mine was exhausted several years ago and shuttered. With its remaining deposits, China is mining mercury largely to service its chemical industry there, which uses a unique process to manufacture vinyl chloride for PVC with a mercury catalyst and for a few other smaller volume needs such as for manufacture of measuring equipment[15], and a few other products. In fact, China imports about 200 tons/yr to meet its internal demand for mercury (China law currently limits imports to a maximum of 300 metric tons/yr). It is thus very unlikely that China will begin to export any of its virgin mined mercury to supplement global supplies.

A second reason that the export ban will not lead to new mining is described in detail in my testimony above: mercury demand is on its way down in the world. The EU and other developed countries have a range of national initiatives proposed or in place to help curb mercury demand, including most notably a voluntary commitment from the chlor-alkali sector there to convert its plants to non-mercury production throughout Europe by 2020 at the latest. In the US, a combination of federal legislation, state legislation and industry initiatives will lead to reductions over time in use of mercury in products. India will be phasing out its mercury cell chlor-alkali plants by 2012. It is in light of these and other efforts that UNEP has predicted that the global demand for mercury will decline, even under a "status quo" scenario where governments take no additional steps to

[15] 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

encourage the decline. This trend will clearly work against significant new investment in mining for a shrinking commodity sector. Indeed, international efforts to reduce mercury demand have already led Kyrgyzstan to examine alternative economic growth opportunities for its mercury mine area, as discussed above.

Finally, in closing on this topic, I refer members of Congress to Attachment 3, the UNEP Governing Council resolution on mercury from February of this year. Section 19(d) notes consensus on the value of phasing out primary mining in order to control the mercury pollution problem. If the United States government is really worried about this problem, we should work towards a binding international agreement to ban additional primary mining of this deadly and unnecessary commodity.

Mercury pollution is a global problem that requires a global solution

In 2001, the UNEP Governing Council, a group of 58 countries empowered to make environmental decisions related to an international agenda, initiated a comprehensive global assessment of mercury which concluded two years later that concluded that mercury had “caused a variety of documented, significant adverse impacts on human health and the environment throughout the world, and that further international action was required." Subsequently, UNEP has undertaken workshops and focused on capacity building in developing countries and formed voluntary partnerships to address mercury consumption in key industrial sectors where opportunities presented themselves. Most recently, and most importantly for our hearing today, at the February 2007 UNEP

Governing Council meeting, governments including our own unanimously agreed on the need to reduce supply and demand for mercury in commerce to address the mercury pollution problem, (Attachment 3)[16]

Concurrently during the past several years, on a faster track, the European Union has taken stock of the problem of mercury contamination in the food supply and developed its own aggressive mercury reduction strategy that reduces both supply and demand within the EU. Most notably, the EU is well down the path to ban the export of its surplus mercury by 2011, with legislation roughly parallel to H.R. 1534 being discussed here today. The EU has substantially completed this legislative work on this ban and is poised to adopt the final package in the fall of this year. To further reduce supply, they have shuttered the world's largest virgin mercury mine, in Almadén, Spain. To reduce demand, they have procured commitments from the chlor-alkali sector to phase out of mercury-based production and have eliminated mercury for key products in the future.

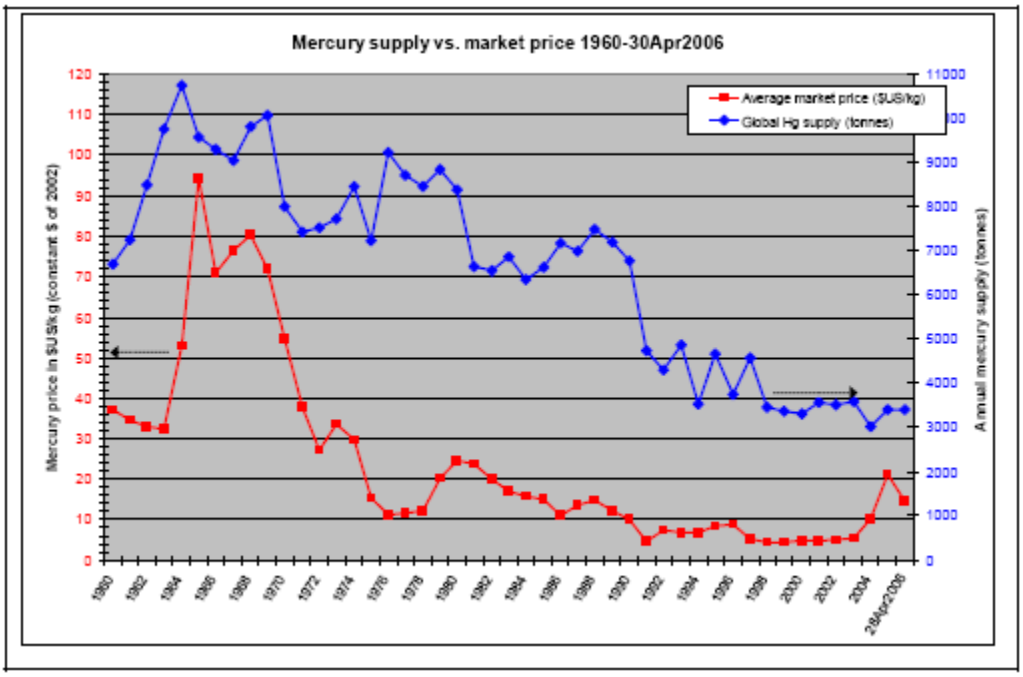
It is time for the U.S. to step up to the plate. U.S. mercury demand within our own country is decreasing on its own. Thus, although the U.S. would benefit from additional regulations and policy to decrease our mercury consumption to zero, this pales in comparison to the benefits of curtailing our contribution to global supply. H.R. 1534 will keep our mercury out of harm's way in the developing world and thereby keep it from coming right back at us from off the coasts of the developing world.

[16] UNEP Decision 24/3: Chemicals Management. Section IV item 19a and 19b.

The single most important role for the U.S. and other developed nations to play in this scheme is to curtail the global supply of mercury, through banning the export of its surplus mercury and maintaining its current federal stockpiles. We strongly support H.R. 1534 for this reason.

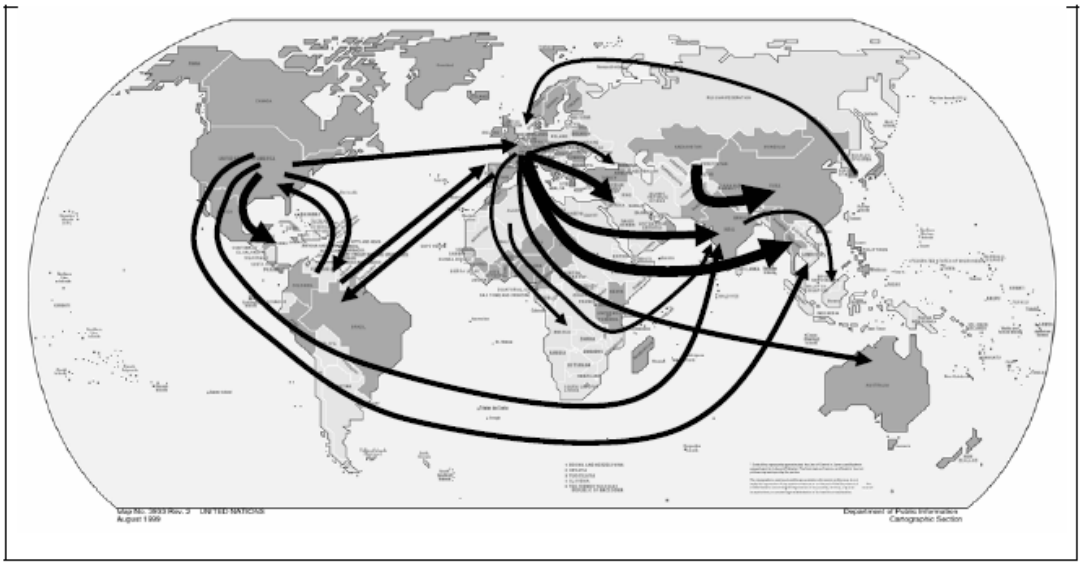
Thank you for the opportunity to testify today.

Figure 1: Global Mercury Supply and spot market price, 1960-2006



Source: UNEP Chemicals. Summary of Supply, Trade and Demand Information on Mercury. November 2006.

Figure 2: Commodity Mercury Shipments among World Regions, 2006.



Source: UNEP Chemicals. Summary of Supply, Trade and Demand Information on Mercury. November 2006.

Table 1: Global Mercury Demand by Sector

Mercury demand projections, by sector (metric tonnes)	Present (2005)	"Status quo" scenario (2015)	"Focused Hg reduction" scenario (2015)
Small-scale/artisanal gold mining	650-1,000	650	400
Vinyl chloride monomer (VCM) production	600-800	1,000	1,000
Chlor-alkali production	450-550	350	250
Batteries	300-600	200	100
Dental use	240-300	270	230
Measuring and control devices	150-350	125	100
Lighting	100-150	125	100
Electrical and electronic devices	150-350	110	90
Other (paints, laboratory, pharmaceutical, cultural/traditional uses, etc.)	30-60	40	30
Total	**3,000-3,900**	**2,870**	**2,300**

Source: UNEP Chemicals. Summary of Supply, Trade and Demand Information on Mercury. November 2006.

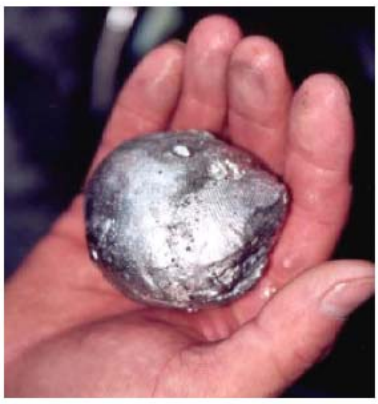
Attachment 1 Photos of the Practice of Artisanal Gold Mining

Attachment 2: UNIDO Global Mercury Project 2007

Global Mercury Project

Report to the UNEP Governing Council Meeting
Nairobi, February 2007

GLOBAL IMPACTS OF MERCURY SUPPLY AND DEMAND IN SMALL-SCALE GOLD MINING



Prepared by UNIDO
United Nations Industrial Development Organization

requested by UNEP Governing Council decision 23/9 IV

October, 2006

Global Mercury Project

Project EG/GLO/01/G34
Removal of Barriers to the Introduction of Cleaner Artisanal and Small-Scale Gold Mining and Extraction Technologies

Report to the UNEP Governing Council Meeting

Nairobi, February 2007

GLOBAL IMPACTS OF MERCURY SUPPLY AND DEMAND IN SMALL-SCALE GOLD MINING

requested by UNEP Governing Council decision 23/9 IV

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Cover Photos: by AJ Gunson (China) and Marcello Veiga (Ecuador & Brazil)

Executive Summary

I. INTRODUCTION

The Global Mercury Project respectfully submits this report in response to the UNEP Governing Council's request (*decision 23/9 IV*) for information on mercury supply, trade and demand in artisanal and small-scale gold mining (ASM). This report highlights some of the Global Mercury Project's findings 2002-2007 and outlines some major policy implications for nations worldwide — particularly nations exporting, importing and/or using mercury, as well as all countries affected by global pollution and/or involved in providing capacity assistance to populations involved in ASM.

The Global Mercury Project (GMP) is an initiative of the U.N. Industrial Development Organization, launched in 2002 with financial support from the U.N. Development Program and the Global Environment Facility, co-financed by partner countries and civil society. The GMP works with governments, NGOs, industry and community stakeholders, building capacity to monitor factors related to mercury use and pollution in ASM and developing policy and institutional capacities to remove barriers to the adoption of cleaner technologies of mineral extraction. Several countries are participating in this pilot program, with primary field activities during the first phase taking place in Brazil, Indonesia, Lao People's Democratic Republic, Sudan, Tanzania and Zimbabwe.

II. GLOBAL MERCURY USE & POLLUTION IN SMALL-SCALE GOLD MINING

At least 100 million people in over 55 countries depend on ASM for their livelihood, mainly in Africa, Asia and South America. ASM produces 20-30% of the world's gold production, or approximately 500-800 tonnes per annum. It involves an estimated 10-15 million miners, including 4.5 million women and 1 million children. This type of mining relies on rudimentary methods

and technologies and is often performed by miners with little or no economic capital who operate in the informal economic sector, often illegally and with little organization. **As mercury amalgamation is an inexpensive, quick and simple way to extract gold particles, it is currently the method most commonly used in ASM.**

As a consequence of poor practices, **mercury amalgamation in ASM results in the discharge of at least 650 to 1000 tonnes of mercury per annum, equivalent to 1/3 (one-third) of all global anthropogenic (human-caused) mercury releases into the environment. This makes ASM the single largest intentional-use source of mercury pollution in the world.** In addition to the severe occupational hazards associated with mercury use, ASM has generated thousands of polluted sites with impacts extending far beyond localized ecological degradation, often presenting serious, long-term environmental health hazards to populations living near and downstream of mining regions. **It is estimated that as much as 300 tonnes of mercury per annum are volatilized directly to the atmosphere, while 700 tonnes are discharged in mine tailings into soil, rivers and lakes. In addition to domestic pollution impacts, both air emissions and tailings discharge contaminate both international waters and air.**

III. ECONOMIC AND SOCIAL DETERMINANTS OF MERCURY CONSUMPTION

Though large-scale gold mine operations have phased out mercury use by adopting alternative technologies, mercury demand in ASM continues to increase. With gold rising from US$260/oz in March 2001 to US$725 in May 2006, a gold rush involving poverty-driven miners is being observed in many countries. This increase in mining activity is compounded by escalating poverty due to factors such the failure of subsistence economies, conflict causing displacement of populations, and diseases such as HIV/AIDS. **Due to the increase in ASM, and based on evidence of mercury use in country-by-country and regional reporting, mercury consumption and demand in ASM may be growing to a historically unprecedented level on the global scale.**

The highest consumption levels are from China (with 200 to 250 tonnes released), followed by Indonesia (100 to 150 tonnes) and between 10 and 30 tonnes in each of Brazil, Bolivia, Colombia, Ecuador, Ghana, Peru, Philippines, Venezuela, Tanzania and Zimbabwe. Mercury may be used in as many as 40 other countries, to varying degrees. Because some mercury used is recycled, the amount of additional mercury demanded is equivalent to the amount of mercury consumed (assuming constant ASM production levels and constant technologies over time). On average, it is conservatively estimated that **at least 1 to 3 grams of mercury is lost to the environment for every gram of gold produced by ASM. Mercury releases primarily depend on the nature of mining technology employed, which is influenced by both social and economic factors.**

While there are numerous social and economic factors that affect technology use, the focus of this report is on how mercury supply and demand relate with respect to available technologies. **Various location-specific GMP training programs and assessments demonstrate that when mercury is less available and/or more expensive, less mercury is consumed due to transfers to more efficient practices, or in some cases, to practices that eliminate mercury use.** GMP assessments emphasize these four critical determinants of mercury reduction:

1) ***Whole ore amalgamation*** **is the largest point source of mercury pollution in ASM (contributing more than 50% of mercury lost in ASM).** Substantial differences in mercury consumption are observed between whole ore amalgamation (i.e. mercury is added to all ore being processed during crushing, grinding or sluicing) and amalgamation of only heavy mineral concentrates. Although amalgamation of the whole ore is an inexpensive way to quickly extract gold, several cost-efficient alternative mercury-free pre-concentration technologies exist as viable options. However, the practice of whole ore amalgamation often persists in many regions due to factors such as: availability of inexpensive mercury, lack of technical knowledge/expertise, lack of organizational support, and lack of environmental health awareness. **GMP assessments in various locations indicate that a rising mercury price is**

a significant added incentive to eliminate this hazardous and economically inefficient practice.

2) *Burning amalgam in open air* is the second largest source of mercury loss to the environment (contributing 20-30% of mercury losses in ASM); however it is the main health problem for miners and nearby communities. The price and availability of mercury also influences whether miners use retorts to contain mercury vapor during the burning stage of amalgamation. GMP field assessments found that effective retorts could be made cheaply (e.g. as little as US$3.20 in some cases), and that these retorts could contain mercury vapor in such a way that allows over 95% of the mercury to be recycled and re-used. Numerous community training programs and assessments have concluded that the mercury price and economic benefits of re-using mercury have a significant impact on whether miners will adopt the retorts, in addition to health and environmental considerations.

3) *Loss of mercury in amalgamation of concentrates* has also been identified by the GMP as a source of mercury pollution (10-15% of mercury losses). Amalgamation of only gravity concentrates is an improvement when compared to whole ore amalgamation. However, even amalgamating the gravity concentration, some mercury is lost. Higher prices of mercury could encourage miners to adopt better techniques to prevent these losses.

4) *Complete phase-out of mercury use* in mining may be a viable option for many miners, though such alternative technologies generally require a higher order of economic investment, organization, and technical expertise. Assessments indicate that a high price of mercury, coupled with capacity-building, may contribute to the transfer to such technologies. The most promising technology to replace completely the use of mercury in any type of gold ore is cyanidation, but this is not quite affordable and technically available to all artisanal miners. Cyanidation methods must be carefully assessed so that cyanide and mercury are not used in any way together, which can exacerbate pollution. Other gravity separation methods have great potential to reduce and in some specific situations eliminate the use of

mercury but many of these cannot be adopted worldwide because ores vary significantly. **In approximately 10% of current ASM cases, gold sources are alluvial ore (free gold) and completely mercury-free-alternatives could be locally available at a very low cost.**

IV. GLOBAL SOURCES OF MERCURY

As mercury is readily available in most countries, it tends to be inexpensive and easily accessible to gold miners. Mercury usually enters developing countries legally, i.e., for use in dental amalgams or the chlor-alkali industry. However, evidence indicates that in many developing countries and countries with economies in transition, by far the majority of mercury imported ends up being used in ASM. Estimates have been undertaken concerning the amount of mercury diverted for use in ASM using import statistics and anticipated consumption for legitimate uses, focussing in the 6 GMP pilot countries and neighbouring countries.

GMP assessments reveal that in 2005, Kenya imported almost 14 tonnes of mercury from German, followed by Georgia (9.5 tonnes) and Japan (4.1 tonnes). **Evidence suggests that most of Kenya's imported mercury is then exported, legally and illegally, to Tanzania, Uganda and the Democratic Republic of Congo, where it is primarily used in ASM. In Tanzania, in 2005, the United States exported approximately 30% of Tanzania's official imports of 3 tonnes, followed by the Netherlands with another 30%.** It is unclear how much of this mercury is used in ASM since the price of imported mercury varies from US$0.18/kg to US$31.2/kg. Officials noted that differences could be attributed to mercury quality variance as well as reporting-related problems.

OECD countries are the main source of mercury to Sub-Saharan Africa, where mercury imports increased from 34 metric tons in 2000 to 57 tons in 2002. In 2000, the Netherlands shipped 245 tonnes of mercury to at least 18

countries, most in the Latin American-Caribbean region. Indonesia imported in 2000 24 tonnes from Spain, 17 tonnes from the Netherlands, 3 tonnes from Australia and 3 tonnes from Japan.

In 2005, official import data from Zimbabwe indicated 21.8 tonnes of mercury imported in which South Africa contributes with 13.8 tonnes, the Netherlands with 2.7 tonnes, Switzerland with 4.6 tonnes, and Germany with 0.7 tonnes. However, results from interviewing in 2003 indicated that one single mercury dealer in Zimbabwe unofficially declared importing 20 tonnes of mercury. In the same year, the Zimbabwe official data indicated that the Netherlands accounted for 15.7 tonnes. Given these facts, **it is unlikely that import statistics adequately capture the cross-border trafficking of mercury and the extent of diversion from legal sectors.**

In 2005, Brazil officially imported 43.3 tonnes of mercury, in which 26.9 tonnes came from Spain, 6.9 from UK, 3.4 from Hong Kong, and 3.3 from Kazakhstan, among others. Most of the mercury used in ASM in Brazil is labelled for use in dentistry.

The unregulated trading of mercury from industrialized countries to developing countries makes mercury easily available at the mine sites. **In most countries with ASM, mercury is readily available to miners at ASM sites. In some cases it is given for free, contingent on gold being sold to the mercury provider. Stockpiling of mercury by gold dealers has been identified as a concern. GMP assessments find that monitoring and regulating imports and domestic trade in many developing countries and countries with economies in transition is generally significantly more difficult than regulating mercury supply at the export stage, particularly exports from developed countries.**

V. HEALTH AND ENVIRONMENTAL IMPACTS

The misuse of mercury in ASM produces severe health and environmental hazards. The mobilization of **mercury from mine sites into aquatic systems**

presents a major risk. The major effects of mercury in aquatic life, soils and sediments, were found in Brazil, Zimbabwe and Indonesia. This was attributed to excessive use of mercury (whole ore amalgamation) as well as combined use of mercury with cyanidation. This combined use exacerbates the methylation of mercury. Once methylated, mercury can rapidly move through the food chain, leading to impacts downstream.

Inhalation of mercury during handling, as a result of spills and during amalgamation, which is often undertaken by women and children, also represents a major health concern. Typically, this is conducted with no protection and often takes place in the home. Results of the health surveys have been alarmingly similar across GMP sites. Symptoms of mercury intoxication are widespread, with some people experiencing levels of intoxication that exceed 50 times the WHO maximum public exposure limit. Neurological disturbances such as ataxia, tremors and coordination problems are common. At one project site, almost 50 percent of miners showed an unintentional tremor, which is a typical symptom for mercury-induced damage of the central nervous system. With extremely high mercury concentrations in breast-milk of nursing mothers in GMP communities, infants are especially at risk.

VI. IMPLICATIONS FOR POLICY AND GOVERNANCE

The Global Mercury Project has been working mainly in six countries, and has acquired key lessons in its *Policy and Governance Initiative*. This initiative recognizes that effectively addressing mercury problems in ASM requires an integrated approach that targets capacities of local institutions in the removal of technical, social, economic and political barriers to the improvement in ASM practices. The GMP emphasizes that local participation and locally-driven processes of policy development are of critical value. Since 2005, the GMP has been working with governments and communities on developing and implementing various new policies such as: mercury trade and management laws in Indonesia, national mercury and

mining labour laws in Zimbabwe, policies to legalize and assist indigenous miners in Sudan, and microfinance policy in Tanzania.

In selected sites, the GMP has been focussing on capacity-building pilot programs to remove barriers to the adoption of cleaner technologies. These programs involve mobile training units that can reach miners in rural areas to engage local priorities. This community assistance model is receiving widespread support, and the GMP has already certified teams of local trainers. Yet, the regions benefiting from the GMP constitute only a fraction of the global population impacted by ASM. Further commitment is needed in these and other regions, including additional resources.

Global commitments are critically needed, from community-level issues such as technologies and gender inequities, to broader policies such as international mercury export controls and policies to improve regulation and assistance in the ASM sector. The GMP asserts that it could be possible to achieve at least a 50% reduction of mercury consumption (demand) in ASM by 2017. As called for by the GMP, this goal must be achieved by fostering commitments of diverse stakeholders to development strategies that will empower populations to:

1. eliminate amalgamation of whole ore by replacing by introducing mercury-free concentration process prior to amalgamation
2. reduce mercury use in the amalgamation of concentrates through closed circuit process (mercury is always recycled)
3. eliminate the burning of mercury without the use of a retort to contain emissions and thereby allow recycling
4. introduce completely mercury free techniques where feasible, particularly for ores which preclude the use of mercury.

The 10-year goal of reducing mercury consumption in ASM by over 50% is ambitious but achievable. Given the urgency of the mercury problem in ASM, such an effort cannot be considered a choice – rather it must be seen as a global obligation. The GMP calls on nations around the world to achieve the above goal by reducing mercury supply through export controls and other

mechanisms that will encourage the transition to alternative technologies, as well as by pledging commitments to programs to help build community capacities. Further information on the activities of the Global Mercury Project can be obtained at the project website: www.globalmercuryproject.org

Attachment 3: UNEP Governing Council Resolution 2007

Decision 24/3: Chemicals management

The Governing Council,
Recalling its decisions 18/12 of 26 May 1995, 19/13 of 7 February 1997, 20/23 of 4 February 1999, SS.VII/3 of 15 February 2002, 22/4 of 7 February 2003, 23/9 of 25 February 2005 and SS.IX/1 of 9 February 2006 concerning global policies related to chemicals management and the development of a strategic approach to international chemicals management,
Recalling its decision 23/9 II of 25 February 2005 urging the further development of a strategic approach to international chemicals management and its decision SS.IX/1 of 9 February 2006 endorsing the Strategic Approach to International Chemicals Management as adopted by the International Conference on Chemicals Management in Dubai, United Arab Emirates, on 6 February 2006,
Acknowledging the widespread concerns over the serious adverse effects of mercury on human health and the environment and the urgent need for international action,
Noting the Budapest Statement on Mercury, Lead and Cadmium developed at the fifth session of the Intergovernmental Forum on Chemical Safety held in Budapest, Hungary, from 25 to 29 September 2006,
Expressing appreciation for the activities of the United Nations Industrial Development Organization Global Mercury Project on Small-Scale Gold Mining,
Taking into account the principle of common but differentiated responsibilities as reflected in Principle 7 of the Rio Declaration on Environment and Development[1] in addition to the other relevant Rio Declaration Principles,
Having considered the report of the Executive Director on chemicals management,[2]

I
Cooperation between the United Nations Environment Programme, relevant multilateral environmental agreements and other organizations

1. *Reinforces* the applicability of decision 24/1 to the effective management of chemicals;

II
Strategic Approach to International Chemicals Management

2. *Welcomes* the progress made so far in implementing the Strategic Approach to International Chemicals Management, especially the establishment of the Quick Start Programme to support initial capacity-building activities and the regional meetings held so far or planned, and takes note of the African regional action plan adopted by the participants in the first African regional meeting on the Strategic Approach to International Chemicals Management, which took place from 11 to 14 September 2006;[3]
3. *Also welcomes* the important contributions of the United Nations Environment Programme to the Strategic Approach process;
4. *Expresses appreciation* for the co-responsibility of the World Health Organization in the Strategic Approach secretariat and its belief that such cooperation is of the utmost importance for the success and the intersectoral nature of the Strategic Approach;

[1] *Report of the United Nations Conference on Environment and Development*, Rio de Janeiro, 3-14 June 1992 (United Nations publication, Sales No. E.93.I.8 and corrigenda), (A/CONF.151/26/Rev.1) vol. I: Resolutions adopted by the Conference, resolution 1, annex I.
[2] UNEP/GC/24/7 and UNEP/GC/24/INFs/15, 16, 17 and 21.
[3] SAICM/RM/Afr.1/6, annex V.

5. *Underlines* the importance of the Strategic Approach, its overarching goal and its effective implementation and therefore urges all stakeholders to integrate the Strategic Approach into their activities as a priority;
6. *Urges* Governments, intergovernmental organizations, non-governmental organizations and others in a position to do so to contribute financially and in kind to the Quick Start Programme and its trust fund;
7. *Takes note of* the United Nations Environment Programme's plan of work in support of the implementation of the Strategic Approach and requests the Executive Director to encourage the

full participation of Governments and other stakeholders in that plan of work, including initiatives related to indicators and tools for evaluation, and to report on progress to the Governing Council/Global Ministerial Environment Forum at its twenty-fifth session;

8. *Encourages* the Strategic Approach secretariat to explore ways to make more effective use of the funding provisions of the Overarching Policy Strategy of the Strategic Approach to identify those areas that can support implementation of appropriate and relevant objectives of the Strategic Approach;

9. *Requests* the Executive Director to report to the Governing Council/Global Ministerial Environment Forum at its tenth special session on the results of the activities undertaken in accordance with the preceding paragraph;

10. *Also requests* the Executive Director to continue to make provision for the implementation of the United Nations Environment Programme's responsibilities under the Strategic Approach;

11. *Further requests* the Executive Director to continue the collaboration between the United Nations Environment Programme and other participating organizations of the Inter-Organization Programme for the Sound Management of Chemicals and to prepare a report for consideration by the Governing Council/Global Ministerial Environment Forum at its tenth special session on endeavours by the Inter-Organization Programme for the Sound Management of Chemicals in implementing the Strategic Approach;

III
Lead and cadmium

12. *Acknowledges* the data and information gaps identified in the United Nations Environment Programme Interim Scientific Reviews on Lead and Cadmium[4] and that further action is needed to fill those data and information gaps, taking into account the specific situation of developing countries and countries with economies in transition;

13. *Encourages* efforts by Governments and others to reduce risks to human health and the environment of lead and cadmium throughout the whole life cycle of those substances;

14. *Requests* the Executive Director to provide available information on lead and cadmium to address the data and information gaps identified in the Interim Reviews and to compile an inventory of existing risk management measures;

IV
Mercury

15. *Acknowledges* the progress made within the United Nations Environment Programme mercury programme since 2005, including the establishment of and progress made under partnerships and other initiatives;

16. *Recognizes* that current efforts to reduce risks from mercury are not sufficient to address the global challenges posed by mercury;

17. *Concludes*, therefore, that further long-term international action is required to reduce risks to human health and the environment and that, for this reason, the options of enhanced voluntary measures and new or existing international legal instruments will be reviewed and assessed in order to make progress in addressing this issue;

4 UNEP/GC/24/INF/16.

18. *Recognizes* that a range of activities are required to address the challenges posed by mercury, including substitution of products and technologies; technical assistance and capacity-building; development of national policy and regulation; data collection, research and information provision, bearing in mind the need to provide assistance to developing countries and countries with economies in transition;

19. *Commits* to increased efforts to address the global challenges to reduce risks from releases of mercury, taking into account the following priorities:

(a) To reduce atmospheric mercury emissions from human sources;

(b) To find environmentally sound solutions for the management of waste containing mercury and mercury compounds;

(c) To reduce global mercury demand related to use in products and production processes;

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

(e) To find environmentally sound storage solutions for mercury;

(f) To address, considering the results of the analysis referred to in paragraph 24 (d)

below, the remediation of existing contaminated sites affecting public and environmental health;
(g) To increase knowledge on areas such as inventories, human and environmental exposure, environmental monitoring and socio-economic impacts;
20. *Urges* Governments to gather information on means to reduce risk that may be caused by the supply of mercury, considering:
(a) Reduced reliance on primary mercury mining in favor of environmentally preferable sources of mercury such as recycled mercury ;
(b) Options and solutions for the long-term storage of mercury;
(c) Regional activities to improve data on imports and exports of mercury and enforcement of customs control through, for example, the Green Customs initiative;
(d) The market and socio-economic effects of the activities contemplated above;
21. *Urges* Governments to provide the information referred to in the preceding paragraph to the Executive Director;
22. Also urges Governments to develop and analyse options for addressing the trade and supply of mercury, including considering environmentally sound storage and curbing primary mining, drawing on the United Nations Environment Programme report on mercury supply, trade, and demand, and requests the United Nations Environment Programme, upon request, to assist developing countries in this undertaking through the provision of technical assistance;
23. Urges Governments to provide the information in the preceding paragraph to the Executive Director;
24. *Requests* the Executive Director to prepare a report, drawing on, among other things, ongoing work in other forums addressing:
Atmospheric emission
(a) Best available data on mercury emissions and trends including where possible an analysis by country, region and sector, including a consideration of factors driving such trends and applicable regulatory mechanisms;
(b) Current results from modelling on a global scale and from other information sources on the contribution of regional emissions to deposition which may result in adverse effects and the potential benefits from reducing such emissions, taking into account the efforts of the Fate and Transport partnership established under the United Nations Environment Programme mercury programme;
(c) An overview of sector-based best practices for reducing mercury emissions, including costs where possible and an evaluation of emission reduction scenarios
Site-based contamination
(d) An analysis of information on the extent of contaminated sites, the risks to public and environmental health of mercury compound releases from such sites, environmentally sound mitigation options and associated costs and the contribution of contaminated sites to global releases;
25. *Requests* the Executive Director to continue to facilitate work between the mercury programme of the United Nations Environment Programme and Governments, other international organizations, non-governmental organizations, the private sector and the partnerships established under the mercury programme, as appropriate:
(a) To improve global understanding of international mercury emissions sources, fate and transport;
(b) To promote the development of inventories of mercury uses and emissions;
26. *Urges* Governments and other stakeholders to continue and enhance their support of the UNEP mercury programme partnerships, through the provision of technical and financial resources, as a means to achieve reductions in demand for and releases of mercury and thereby to reduce the risks to human health and the environment from mercury;
27. *Requests* the Executive Director, working in consultation with Governments and other stakeholders, to strengthen the United Nations Environment Programme mercury programme partnerships by:
(a) Developing an overarching framework for the United Nations Environment Programme Global Mercury Partnership through, among other means, organizing a meeting of partners and other stakeholders, including:
(i) Development of business plans;
(ii) Identification of partnership goals;
(iii) Development of operational guidelines;
(b) Expanding the number and scope of partnerships to include new, growing or related sectors such as vinyl chloride monomer production, non-ferrous metals mining and cement production

and waste combustion;
(c) Enhancing the artisanal and small-scale gold mining partnership through, among other things, increased cooperation with the United Nations Industrial Development Organization, exploration of innovative market-based approaches and dissemination of alternative capture and recycling technologies;
(d) Endeavouring to secure adequate funds for the Global Mercury Partnership efforts.
28. *Decides*, further, to establish an ad hoc open-ended working group of Governments, regional economic integration organisations and stakeholder representatives to review and assess options for enhanced voluntary measures and new or existing international legal instruments.
29. *Decides* that the ad hoc open-ended working group will be guided by the priorities set out in paragraph 19;
30. *Adopts* the following terms of reference for the ad hoc open-ended working group:
(a) Consider the reports and information referred to in paragraphs 20, 22 and 24 and a compilation by the Executive Director of other available relevant information;
(b) Examine, for each of the priorities set out in paragraph 19:
(i) The range of available response measures and strategies;
(ii) The feasibility and effectiveness of voluntary and legally binding approaches;
(iii) Implementation options;
(iv) Costs and benefits of response measures and strategies;
(c) Also examine each of these response measures and strategies with respect to, among other things, the following considerations:
(i) The respective capacities and capabilities of developed and developing countries and countries with economies in transition;
(ii) The need for capacity-building, technical assistance, technology transfer and suitable sources of finance;
31. *Invites* Governments to consider convening national and regional preparatory workshops, involving relevant stakeholders;
32. *Decides* that the ad hoc open-ended working group will:
(i) Meet twice: once before the tenth special session of the Governing Council/Global Ministerial Environment Forum and once between that special session and the Council/Forum's twenty-fifth regular session;
(ii) Provide a progress report to the Governing Council/Global Ministerial Environment Forum at its tenth special session and a final report reflecting all views expressed, presenting options and any consensus recommendations to the Council/Forum at its twenty-fifth regular session;
33. *Decides* that the Governing Council/Global Ministerial Environment Forum at its tenth special session may provide further guidance to the ad hoc open-ended working group;
34. *Also decides* to consider the outcomes of the work of the ad hoc open-ended working group at its twenty-fifth regular session, with a view to taking a decision on the final report;
35. *Requests* the Executive Director to compile other available relevant information for consideration by the ad hoc open-ended working group;
36. *Invites* Governments and others in a position to do so to provide extrabudgetary resources for the implementation of the present decision, in particular with regard to the participation of developing countries and countries with economies in transition in the ad hoc working group;
37. *Requests* the Chemicals Branch of the United Nations Environment Programme's Division of Technology, Industry and Economics to serve the Ad Hoc Working Group as secretariat and to prepare the analytical and summary reports necessary for its work;
38. *Requests* the Executive Director to present a report on progress in the implementation of the present decision to the Governing Council at its twenty-fifth session.

10th meeting
9 February 2007

Attachment II: Strengthening Mercury Partnerships

Mercury partnerships are an important voluntary opportunity that complement and enhance government and stakeholder commitments on mercury.

Partnerships can be an effective and useful mechanism in achieving immediate results and can drive creative solutions. They also provide an opportunity for effective

coordination and cooperation on mercury related activities.
Governing Council Decision 24/3 requests the secretariat, working in consultation with Governments and other stakeholders, to strengthen the mercury partnerships programme.
To facilitate the strengthening of the partnerships program, UNEP is planning to hold a small exploratory meeting in June 2007 with key individuals interested in undertaking work on the partnership areas. This meeting will provide opportunity for:
i. Initial scoping and building of the current partnership programme.
ii. Input from possible donors on areas of funding interest within a mercury partnership framework.
iii. Increased momentum and leadership, particularly from those who haven't actively participated in the partnerships programme to date.
Government and stakeholders are invited to express interest in participating in this exploratory meeting as soon as possible. Limited funding may be available to support attendance at this meeting. Updates on the meeting logistics will be posted on the UNEP mercury web-page as they are available at:
http://www.chem.unep.ch/mercury/new_partnership.htm.
Consistent with the recommendation that a meeting of the partners be organised to agree on business plans, goals and operational guidelines and building on the June 2007 exploratory meeting, UNEP plans, subject to available funding, to hold a full Partnership Meeting in the first half of 2008.
The objective of the Partnership Meeting would be to have presentations from the lead for each of the partnership areas, setting out the overall goal, plans and measurable outcomes for each of the partnership areas. The discussion at this meeting would then be able to focus on overarching objectives for the overall partnership programme, and address opportunities for cooperation and synergies between the partnership areas. The results of these discussions would be made available to the second meeting of the ad-hoc open-ended working group that is considering options to address mercury.
The current partnership areas were developed following an invitation to governments in May 2005 to identify priority partnership areas. Following the establishment of the priority partnership areas, governments were invited in a follow-up letter in July 2006 to identify progress in these partnership areas. The current partnership areas and objectives are included on our mercury partnership web-site at:
http://www.chem.unep.ch/mercury/new_partnership.htm.
In strengthening of the mercury partnership programme, the decision calls for a review of the existing partnership areas and the associated objectives as well as to expand the number and scope of partnerships to include new, growing or related sectors such as vinyl chloride monomer production, non-ferrous metals mining and cement production and waste combustion.
UNEP has also been mandated to enhance the artisanal and small scale gold mining partnership by increased cooperation with UNIDO, exploration of innovative marketbased approaches and dissemination of alternative capture and recycling techniques.
As a start, I seek initial input from governments and stakeholders on the current partnership areas and objectives as well as input on the expansion of current programme. You are also invited to carefully consider and identify partnership areas in which you have a particular expertise or interest, and indicate that you would be able to either participate in or lead, during this period of work.
As a first step, I invite your comments in response to this Annex by 31 May 2007.

We at UNEP appreciate your interest in mercury partnerships and look forward to working with you in this important area.

Attachment III

Mercury information requested from Governments

The decision:

Urges Governments to gather information on means to reduce risk that may be caused by the supply of mercury, considering:

(a) Reduced reliance on primary mercury mining in favour of environmentally preferable sources of mercury such as recycled mercury;

(b) Options and solutions for the long-term storage of mercury;

(c) Regional activities to improve data on imports and exports of mercury and enforcement of customs control through, for example, the Green Customs initiative;

(d) The market and socio-economic effects of the activities contemplated above.

Urges Governments to develop and analyse options for addressing the trade and supply of mercury, including considering environmentally sound storage and curbing primary mining, drawing on the United Nations Environment Programme report on mercury supply, trade, and demand and, to provide this information to the Executive Director.

Requests the Executive Director to prepare a report, drawing on, among other things, ongoing work in other forums addressing:

Atmospheric emission

(a) Best available data on mercury emissions and trends including where possible an analysis by country, region and sector, including a consideration of factors driving such trends and applicable regulatory mechanisms;

(b) Current results from modeling on a global scale, and from other information sources, the contribution of regional emissions to deposition which may result in adverse effects, and the potential benefits from reducing such emissions, taking into account the efforts of the Fate and Transport partnership established under the United Nations Environment Programme mercury programme;

(c) An overview of sector based best practices for reducing mercury emissions, including costs where possible and an evaluation of emission reduction scenarios

Site based contamination

(d) An analysis of information on the extent of contaminated sites, the risks to public health and the environment of mercury compound releases from such sites, environmentally sound mitigation options and associated costs and the contribution of contaminated sites to global releases

Information relating to the third report (to be prepared by UNEP) may include indications of work you are aware of in other forums, including national, subregional or regional agreements, or work underway in other multilateral environment agreements. Should you have national emissions or monitoring data, particularly data which demonstrates trends in emissions, please also submit that. UNEP may also take the opportunity to request specific information which may have been referenced in other sources. With regard to the information on contaminated sites, we would appreciate the submission of any relevant information you may have, along with an indication of whether such information is publicly available.

Deadlines for information

The above information is requested to be submitted to UNEP Chemicals NO LATER THAN **15 June 2007**. We regret the short timeframe, however this is necessary to make as much information available to the first meeting of the ad-hoc open-ended working group as possible. Should you have additional information which you are not able to provide in this timeframe, please submit a brief statement of the information you are planning to submit, and the approximate date of submission, and this statement will be made available to the working group.

Attachment IV

Lead and Cadmium

Decision:

• acknowledges the data gaps identified in the Interim Scientific Reviews on Lead and Cadmium, and that further action is needed to fill those data and information gaps, taking into account the specific situation of developing countries and countries with economies in transition.

• requests UNEP to work to address these data gaps and also to compile an inventory of existing risk management measures.

Data gaps:

• Exposure assessments and use and release inventories, especially in developing countries

• Modelling for the southern hemisphere (ocean transport)

• Contribution of anthropogenic versus natural sources

• Levels in various media

• Data regarding accidental spills

• Concentration levels in large migrating marine mammals

• Quantities disposed of in the environments, particularly in developing countries

• Level of contamination of drinking water

• Global flow in products

For lead – mechanism of lead toxicity is not well understood, with exposure-response relationship incomplete for many effects.

For cadmium – sources of cadmium contributing to waste are not well investigated. Also, some aspects of consumer exposure and aspects of cadmium toxicity may warrant further investigation.

Plan for further work

Data addressing the above gaps should be submitted to UNEP Chemicals by 30 September 2007

Reports will be amended accordingly and circulated for comment.

Comments will be addressed and reviews finalised to be submitted to GC 25.

Deadline for information

To allow work to progress in a timely fashion, data is requested no later than **30 September 2007**.