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Updated Business Plans of the UNEP Global Mercury Partnership

Note by the Secretariat

The Overarching Framework of the UNEP Global Mercury Partnership sets out a business plan template to provide guidance to the partnership areas in developing the business plans.

The business plans are in the following order

A. Artisanal and Small Scale Gold Mining (ASGM) Partnership Area;
B. Coal Combustion Partnership Area;
C. Mercury Supply and Storage Partnership Area;
D. Mercury Air Transport and Fate Research Partnership Area;
E. Mercury-Containing Products Partnership Area;
F. Mercury Waste Management Partnership Area;
G. Mercury cell chlor alkali production partnership area.

Note that the business plan for the mercury releases from Cement Partnership is being revised.

The Partnership business plans are usually updated for each Advisory Group meeting. For this meeting it was suggested that they may be revised according to discussions at the meeting and especially keeping in mind the potential role of the Partnership with regard to supporting the implementation of the Minamata Convention on Mercury. The Secretariat has compiled the Partnership area's business plans in this document based on previous or updated versions.

A. Artisanal and Small Scale Gold Mining (ASGM) Partnership Area,
August 2013

This Business Plan describes the goals and some of the activities of the Artisanal and Small Scale Gold Mining (ASGM) partnership area of the United Nations Environmental Programme (UNEP) Global Mercury Partnership. It serves as a planning and communication vehicle both for Partners and others.

The purpose of the business plan is to provide a framework for articulating common goals, and to facilitate the development and implementation of projects by Partners whom are aligned with these goals. The business plan serves as a resource for providing a common, cohesive structure for implementing the UNEP Global Mercury Partnership.

The Partnership is open for participation from governments and other stakeholders. In UNEP Governing Council Decision 24/3 part IV paragraph 27, UNEP is tasked with working in consultation with Governments and stakeholders to strengthen the UNEP Global Mercury Partnerships. New activities and partners are encouraged within the UNEP Global Mercury Partnership.

I. SUMMARY OF THE ISSUE

- The artisanal and small-scale gold mining (ASGM) sector remains the largest global demand sector for mercury (estimates put ASGM mercury use in the range of 877-1940 tonne/year in 2011; see http://www.mercurywatch.org/default.aspx?panename=globalDatabase). Under typical practices, virtually all of the mercury used is released to the environment.
- This sector produces about 12-15% of the world's gold and involves at least an estimated 10-15 million miners, including 4-5 million women and 1 million children. ASGM is the largest employer in the gold extractive sector (estimated at 90% of employment in the sector). Further, another 50 to 60 million people are indirectly dependent on ASGM. With the price of gold rising to over $1800 per oz as of August 2011, a gold rush involving additional poverty-driven miners is currently underway in many countries and the number of miners using mercury is likely increasing.
- Serious long-term environmental health hazards exist for populations associated with or downstream/downwind from mining and gold processing operations, often including indigenous peoples.
- ASGM sites are usually remote and scattered. The practice is typically informal and in some countries illegal. Reaching out to individual miners is challenging. Encouraging sustained behaviour change of miners and the gold supply chain infrastructure requires understanding and overcoming social and cultural barriers as well as political commitment.
- Mercury amalgamation is currently the most commonly used method to extract gold in artisanal and small-scale gold mining due to its ease of use, low cost, and abundant supply. Whole ore amalgamation dramatically increases the potential for the mercury that is used to be released to the environment. In some cases, this excess mercury approaches 90% of the total in use. Alternative techniques include many options for concentrating the ore prior to amalgamation, greatly reducing the amounts of mercury used and thus released to the environment.
- Alternatives to mercury use in artisanal gold mining exist, but at present most are not widely known in artisanal and small scale mining communities, and alternatives are generally ore-specific in their applicability. Cyanide chemical extraction, the only other widely-practiced method, also presents risks to human health and the environment, and its use can create

additional problems. When cyanide is used with or after mercury the production of methylmercury can be enhanced. Widespread adoption of alternatives to mercury-based artisanal and small scale gold mining requires capacity building, which is currently lacking.

- Higher mercury prices (mercury rose ⅓ in the first 7 months of 2011 to $1900 per flask) can act as an economic incentive for miners to reduce mercury releases and can create demand for alternative technologies.
- A market for fair trade artisanally mined gold is emerging. Associated with this market is the opportunity to generally raise awareness on this issue and promote cleaner ASGM practices. Supply of fair trade gold to the market is currently limited. However, there is now a Fair trade and Fair-mined standard for gold from artisanal and small scale gold mining, established by ARM/FLO. Having these kinds of clear standards may encourage the supply chain infrastructure and more artisanal/small-scale miners to produce gold for this market.

II. OBJECTIVE OF THE PARTNERSHIP

The objective of this partnership is continued minimization and elimination, where feasible, of mercury uses and releases in artisanal and small scale gold mining. The Partnership aims to complement and supplement existing programmes in strategically selected ways to ensure that mercury reductions on the ground are globally significant. Consistent with the United Nations Declaration on the Rights of Indigenous Peoples, the partnership area will meet its objectives by supporting activities that:

- Provide assistance to developing countries and countries with economies in transition to formalize / regulate the ASGM sector, and work with governments, NGOs and other stakeholders to develop financial, policy and regulatory options that improve the ability of mining communities to achieve significant reduction of mercury use and emissions.
- Provide economic, technical, and educational information / guidance and capacity building to miners and mining communities.
- Work within supply chains and use other market approaches to promote socially and environmentally sound gold products.

Where feasible, the Partnership will identify sources of, and facilitate access to, financial resources, and facilitate the leveraging of existing resources already available to Partners.

Target: As an aspirational goal, the Partnership promotes a target of a 50 percent reduction in mercury demand in ASGM (based on an estimated 2007 baseline of approximately 1000 tons) by the year 2017. As a key means to achieve this target, the Partnership seeks to eliminate three worst practices in ASGM: whole ore amalgamation; open burning of amalgam; and the use of mercury with cyanide. The Partnership will work to promote alternative practices, including changes in ASGM mining and processing techniques that enhance gold recovery and reduce the need to use mercury, thus achieving measurable reductions in mercury releases. This work will require promoting the formalization/legalization of the sector, which is a necessary condition to any sustainable mercury reduction program.

III. PRIORITY ACTIONS

The Partnership will focus on three priority action areas:

1. Support government efforts in setting national objectives/reduction targets for ASGM, which may include:
   - Facilitate the development of ‘Strategic Country Plans’ using a multi-stakeholder process, including NGOs and miners.

- Provide tools to assist in understanding and addressing policy aspects of the ASGM issue, including establishing good communication with and formalizing the ASGM sector.
- Help with methods to characterize the extent of mercury consumption and emissions, building on existing information where possible.

Any government of a country where ASGM is practiced, and who are members of the Partnership, can request assistance of the Partnership in the form of tools and examples (generally available from the Partnership website) and in the form of identifying potential sources of funding for these activities.

2. Eliminate the worst practices in ASGM (whole-ore mercury amalgamation; open burning without mercury capture; and use of cyanide with mercury or after mercury use) and promote awareness and adoption of clean ASGM practices and technologies among governments, NGOs, miners, cyanide manufacturers, gold shops owners and workers, gold financier and gold processing service providers/suppliers and other stakeholders.

- Eliminating worst practices could include activities that encourage and implement use of Best Available Technology (BAT) and Best Environmental Practices (BEP), to reduce or eliminate mercury consumption and releases into the environment. This would include stewardship on cyanide use and its incompatibility with amalgamation. When possible, the BAT/BET also should cover the proper mining planning, operation, mining closure and post-mining activities. Ideally, the proven BAT/BET should be disseminated and replicated in member countries.
- Promoting alternatives could also include supporting projects that:
    - Create opportunities to locally manufactured, affordable ore concentrating equipment.
    - Expand the use of mercury vapour control technologies and retorting in small-scale gold processing, and establish chain of custody throughout amalgam processing from gold miner to end-user.
    - Document and make available, in a way that is helpful and convincing to miners, ways to increase gold yield from alternative practices compared to existing mercury-based practices.
    - Increase the availability and the dissemination of user-friendly information to communities and community-based groups regarding mercury risks and ways to reduce occupational/ environmental exposures and environmental contamination.
    - Increase cadres of trained local specialists to work in communities on a long-term basis to foster behaviour change among miners, through, for example, regional training centres.

- Where possible, all general awareness-raising and other materials should be available in English, Spanish and French, and Partners should also translate materials from specific country activities into local languages to encourage wide understanding and acceptance.

Capacity building is considered of essence to achieving the previous objectives. NGOs, which often work on the ground in close collaboration with communities, should be included in capacity building and other activities where possible.

3. Explore innovative market-based approaches, including:
- Support the development and implementation of fair trade/fair-mined standards while also clearly articulating the advantages and disadvantages of such programs.
- Build capacity among miners to meet mercury management components of fair trade programs.
- Promote environmentally sound gold products locally, regionally and globally through, for example, raising awareness of gold buyers and consumers.

IV. EVALUATION

The ASGM Partnership Area will report periodically to all Partners regarding ongoing efforts (at least twice per year, but more often as warranted by Partners' news and activities) and will report biennially to the UNEP Governing Council through UNEP on progress under the Partnership[1]. Partners should also provide periodic reports to UNEP upon completion of priority activities. To the extent possible, results will be reported in terms of measurable results related to the Partnership objectives, consistent with the targets and milestones identified in the Partnership efforts. The particular metrics used for reporting will differ depending on the type of activity undertaken.

- On a field project level, the Partnership will encourage implementing Partners to report measureable field project results, such as:
    - Number of miners (or other target recipients) trained.
    - Production of awareness raising materials/ training materials.
    - Successful completion of demonstration of alternative technology.
    - Where possible, typical number of kilograms of gold produced by ASM for one kilogram of mercury used and/or typical emissions reductions achieved.
    - Typical amount of mercury purchased, used and traded by ASG miners before and after intervention.
    - Availability of environmental quality data in relevant areas.

- For broader policy-level activities, results indicators could include updates on:
    - Number of partners or member countries involved in the Partnership.
    - Numbers of projects/studies conducted by the individual partnership members, with clear indications of how the Partnership supported or facilitated the work, or if the work is independent activity that aligns with Partnership goals.
    - Number of developing countries involved/assisted.
    - Status of data gathering in assisted countries.
    - Delivery of tools and models on national strategies, formalization, technologies and other products that will assist governments and others to promote mercury reductions in ASGM.
    - Successful use of these tools by the intended audience.
    - New opportunities or initiatives that could benefit from Partnership support.

Measurement of the overall global reduction of mercury that results from Partnership activities will be difficult to track and measure, given the lack of reliable global trade and use data for this sector. Where data are available to support the evaluation, the Partnership should reflect on how the Partnership activities are contributing to the overall mercury reduction goal of the Partnership. For example, when tracking potential global reductions, the field level estimates of mercury used by ASGM in the target countries before and after interventions could be considered in light of the country-specific mercury inventory data for that target country (baseline is the 2005 data from the 2006 UNEP Trade Report).

In 2011, UNEP engaged David Murphy, an independent consultant with significant experience in partnership development and implementation, to undertake an independent strategic review of the work to date of the artisanal and small-scale gold mining (ASGM) partnership area of the Global Mercury Partnership (GMP). This review will be made available to the Global Mercury Partnership Advisory Group at its meeting in November 2011. The scope of the review is limited due to limited financing. The review will focus on the following key elements with an aim to improve the partnership area effectiveness over time:

[1] UNEP will develop a systematic reporting format and timeline for the partnership areas to follow.

- Identification of the main achievements, challenges and lessons learned to date (including both partnership outcomes and the partnering process with a particular emphasis on communications and participation).
- Guidance on improving communication between partners, and enhancing the participation and engagement of current and prospective partners (in particular the private sector).
- Scoping of the most promising opportunities for financing, other forms of resource mobilization and the scaling up of ASGM partnership activity.

V. RECENT/CURRENT/ONGOING EFFORTS OF THE PARTNERS

Below is a description of various projects and activities of a number of Partners. These projects are not directly funded by the Partnership, as the Partnership is not a funding entity. However, many of these have been facilitated through provision of information, references, models and advice from the Partnership. Others are examples of projects carried out independently by Partners that align with Partnership objectives and provide examples/models of successful interventions that can be built on by other Partners. Information, reports and results from many of these projects are available on the Partnership webpage, where such information is made available to the Partnership. More information on the recent and future activities of the partnership can be found in Annex 1 of this document.

Priority Action 1: Support governments in setting national objectives/ targets

Strategic Action Planning: Several Partner governments have begun the process of developing national strategic action plans that describe a specific timeline of activities for achieving specified mercury reductions in their countries. The Partnership has played a role in providing advice on the structure of these projects and in mobilizing resources from donors:

Regional Strategic Planning Project for Francophone West Africa. This project kicked off in December 2009. The project was funded by UNIDO, US EPA (through UNEP) and Finland. Six countries participated: Burkina Faso, Mali, Senegal, Guinea, Cote d'Ivoire and Niger. The objective of the kick-off meeting was to collect data and raise awareness among stakeholders about the problems related ASGM in their countries. Countries were then provided funds to initiate national strategic action plans. Burkina Faso, Mali, Senegal, and Cote d'Ivoire have already provided draft plans. Due to local issues, Guinea and Niger are still in the process of producing drafts. As follow-on to these activities, Mali received funds from the SAICM Quick Start Program to create a more comprehensive national action plan. Also, a new regional project for this region will be implemented as part of a new GEF program on mercury.

ASGM Asia Regional Strategic Planning Project. With the SAICM Quick Start Program funding, and with the assistance and advice of Partnership members, the governments of the Philippines and Cambodia participated in a regional strategic action planning project. Both countries prepared national plans as part of this process. The Philippines prepared an ASGM National Strategic Action Plan that commits specific agencies to specific actions. The Department of Environment played a key role in bringing the various government agencies and stakeholders to the table; importantly the plan is also based on substantial consultation with miners and mining communities. Cambodia created a National Strategic Action Plan, but is still in the process of updating this plan with additional consultations. These plans were presented at the project conclusion workshop in March 2011, where several other countries from the Asia region were in attendance: China, Indonesia, Malaysia, Mongolia, Viet Nam, and Laos. The presence of these countries allowed the participants to identify additional opportunities for regional cooperation among the countries on ASGM.

Latin American Regional Strategic Planning Project. With the SAICM Quick Start Program funding, the governments of Peru and Bolivia are participating in a regional strategic

action planning project. Both countries are preparing national plans as part of this process, which should be discussed at the project conclusion workshop scheduled to be taken place in Peru during the last week of September or first week of October 2011. Colombia and Ecuador will be joining complementary efforts to this project. An eight-month project entitled "Contribution to the development of a strategic regional plan for the reduction of the use of mercury in the ASGM sector" started on 1 August 2011, an activity between UNEP and Ministry of Environment, Housing and Territorial Development in Colombia.

In a related development, Peru's Multisectorial Technical Commission has prepared a technical proposal document for the National Plan for the formalization of artisanal mining activity. This plan calls for the implementation of a management tool capable of linking organizational, technical, legal and environmental issues surrounding the value chain of artisanal mining and its stakeholders, as well as makes recommendations for facilitating this process.
(http://www.minam.gob.pe/index.php?option=com_content&view=article&id=1258:propuesta-plan-nacional-para-la-formalizacion-de-la-mineria-artesanal&catid=124:populares&Itemid=145)

Anglophone West Africa Regional Meeting on Mercury Use in ASGM. US EPA, with advisory support from the Partnership, supported a regional multi-stakeholder workshop for Anglophone West Africa sub-regional action planning on mercury use in artisanal and small scale gold mining. The meeting was held from 8-10 June 2011 in Lagos, Nigeria. The meeting provided an opportunity for very lively and important discussions and sharing of experiences among countries in the region, and also enhanced communication among the various stakeholder agencies and ministries (Environment, Mines, Health) who must work together on this issue. UNEP/USEPA will also support a limited number of follow-up planning activities in these countries. As an additional follow-up to this meeting, Nigeria and Liberia have requested UNEP to support them in the development of a SAICM Quick Start Regional Strategic Planning project, similar to and building upon the project funded in Asia. A project proposal was submitted to the SAICM Quick Start Fund for the August 2011 project submission.

Indonesia Training and Technology Transfer on Mercury Use in Artisanal and Small Scale Gold Mining. The project, funded by US EPA, will build on the success of the previous and existing project work of some partners in Indonesia. The project will support two national workshops to raise awareness among policymakers of the problems of ASGM and encourage the development of a national action plan, as well as conduct field work in selected regions to promote better ASGM practices (mercury-free methods, retorts, etc.) and educate mining communities about health risks.

Review of National Strategic Action Plan Guidance Document. UNEP, in collaboration with the Partnership, has prepared a guidance document on the formulation of national strategic action plans for the ASGM sector. This guidance was prepared particularly for countries participating in the regional strategic action plan projects in South East Asia and Latin America but is broadly applicable to any country that wishes to create such a plan. The Guidance was updated in July 2011 based on the experience in applying it in Asia to date (this updated version is available in English only on the UNEP web-site). As needed, it will also be updated based on the experiences in the Latin American countries. The original draft document (in English, French and Spanish) can be found on the link below, under "Draft Guidance Document":
http://www.unep.org/hazardoussubstances/Mercury/PrioritiesforAction/ArtisanalandSmallScaleGoldMining/Reports/tabid/4489/language/en-US/Default.aspx

Formalization/ Legalization Document. UNEP is developing an ASGM Formalization Guidance Document to examine the economic and social factors underpinning mercury use in ASGM, and to provide case studies of formalization and legalization in this sector. The creation of the guidance was

first recommended at the Partnership Advisory Group (PAG) meeting in 2009. The creation of this guidance acknowledges that if progress is to be made on reducing harm from mercury use in this sector, social/ legal factors must be understood and considered when designing policies to reduce mercury use. UNEP engaged the Alliance for Responsible Mining (ARM) to act as the lead drafter and coordinator of the document. The document will include case studies on Mongolia, Peru, Ecuador, Tanzania and Uganda. There will also be a main document summarizing important issues and lessons from formalization, which will draw on experiences throughout the world. The draft document will be completed and circulated for comment in the second half of 2011, with aim for completion by the end of 2011.

MercuryWatch. The Mercury Watch Database is a project of the Artisanal Gold Council (AGC), with support from UNEP. The project (www.mercurywatch.org) is dedicated to collecting, analyzing, and publicly serving information needs about mercury use and emissions around the world, with a focus on artisanal and small scale gold mining (ASGM). This information is needed by governments and other stakeholders in order to prioritize actions on ASGM.

Economic Perspectives Document ASGM provides an important employment opportunity where alternative livelihoods are often not easily found or developed. ASGM is recognized as the largest job provider of the gold extraction sector. Yet, ASGM currently cannot reach its full potential to contribute to economic development, in part due to improper use and management of mercury in artisanal gold production. What is more, mercury-intensive AGSM operations, as well as the other segments (MSM, LSM) of the sector, also have negative external impacts on other economic sectors. To examine these issues, UNEP DTIE Chemicals Branch is conducting a desktop study, entitled "Environment for Development Perspectives: Mercury Use in Artisanal and Small Scale Gold mining", to explore the potential environmental and development co-benefits from elimination, reduction and safer use of mercury. UNEP DTIE Chemicals Branch is working in close collaboration with members of the Global Mercury Partnership and other stakeholders. A draft version of the study was circulated to the Partnership for comment in August 2011, the final draft is expected by the end of 2011.

Options Document on Financing the Transition away from Mercury. One of the panels of the Global Forum (described in the "Completed Efforts" section) focused on measures for financing ASGM operations, in particular mechanisms for financial assistance to help miners in the transition away from the use of mercury. UNEP has initiated the development of an options document that explores different approaches for financing the mercury transition in artisanal and small scale gold mining based on existing models. A draft version of the work will be made available for public comment during the second half of 2011.

Priority Action 2: Eliminate worst practices and promote alternatives

***Mercury Use in Colombia*.** UNIDO, with the University of British Columbia, is implementing a project in the Colombian province of Antioquia. The project, financed by the state of Antioquia, aims at raising awareness of the mining communities on the risks involved with the use of mercury amalgamation and at introducing mercury recycling and alternative methods. The expected results will be the replication to other regions. Initial successes of this project have led the Government of Antioquia to renew its support for the project and the Government of Choco has now provided funds for a similar action in its area of jurisdiction.

***Mercury Emissions Control from Gold Shops*.** US EPA has demonstrated with measureable results a simple and an affordable ($450) mercury capture system for gold shops in Brazil and in Peru (see "Completed Efforts"), with at least 80% efficiency of mercury capture, and will now continue to provide information to enable other ASGM projects to incorporate the Mercury Capture System in their outreach and implementation efforts, including the UNEP regional projects. In a related effort, USEPA recently conducted speciated monitoring and assessment around gold shops in a variety of settings in Peru to provide comprehensive characterization of airborne mercury emissions from small-

scale gold processing shops based on a longitudinal study of the mercury aerosol and vapor releases of gold shops, data on the ambient mercury concentrations in the study communities, and qualitative estimates of human health risk from the gold shops to adjacent populations. Training and outreach videos about the Mercury Capture System are available from US EPA.

Tanzania Mercury Emissions Reduction Project. Three Partners, the Artisanal Gold Council (AGC), European Environmental Bureau (EEB), and AGENDA, have commenced a project to reduce mercury emissions in two small scale gold mining communities in Tanzania. Following an in-depth assessment exercise performed by AGENDA, the project aims to install mercury vapor condensers into gold shops. The condensers capture mercury vapor that would otherwise be released directly to the environment during the burning of amalgam. The overall goal of the project is to encourage the spread of this technology by demonstrating its economic and health benefits.

Demonstration Projects in Peru and Francophone West Africa. The US State Department is funding a project in Peru to (a) promote more efficient gold mining methods that help artisanal and small-scale gold miners recover more gold from the ores they process using less mercury, and (b) implement awareness campaigns to educate miners and mining communities about the hazards of mercury exposure. In Francophone West Africa, the State Department is funding a project to develop and implement an intervention model that self-replicates, to reduce and eventually eliminate mercury use in small scale gold mining operations, while improving health, environment and wealth of ASGM communities. Self-replication requires incentives and education. Measures of success for the intervention model will include: improvement of economic opportunities for miners and their communities, increased knowledge of health safety, and environment, and a measured reduction in mercury use. Both of these projects were developed in consultation with the Partnership and both involve Partners as implementers.

Ghana Direct Smelting Project. The Artisanal Gold Council (AGC) is working with University of Mines and Technology (UMaT) in Tarkwa, Ghana, to replace mercury amalgamation in gold shops by introducing direct smelting kits. The kit consists of an efficient furnace, a few common compounds, and some other tools which enable gold concentrates to be directly smelted, thereby avoiding the mercury amalgamation step. In this project the direct smelting kits are being subsidized in order to introduce the approach to a wider audience, and to continue to test, adapt, and improve the technology. Education on the negative health impacts of mercury will be delivered along with training on the direct smelting technology.

Technical Guidance Document for ASGM**.** UNEP has commissioned the development of a Technical Document on Artisanal and Small-Scale Gold Mining (ASGM) through the Artisanal Gold Council (AGC). The development of the document was recommended to UNEP in the 2009 PAG meeting. The purpose of the document is to provide examples of existing technologies that can reduce mercury use and emissions in ASM communities. The document will cover various aspects of the mining process where operations could be improved to recover more gold and reduce the need for/use of mercury, including: gold liberation (crushing, grinding and milling); avoiding whole ore amalgamation and improving concentration (sluicing, panning, centrifuges, spiral concentrators, vortex, shaker tables, and flotation circuit); mercury retort /mercury capture systems; cyanide use and mercury; direct smelting; and promising but unproven techniques for reducing or eliminating mercury, such as new leaching technologies. This document will assist governments with the development of mercury reduction programs but is also being designed to be an easy-to-access source of basic education regarding ASGM processing considerations. A draft of the document is scheduled to be completed before the third session of the Intergovernmental Negotiating Committee Meeting in October 2011. The draft will be circulated to the Partnership and to the ASM community widely, for comments.

Artminers, Institute for Sustainable Mining. Introduction of Cleangold (mercury free) mining products to ASM communities**.** Cleangold, a mercury-free technology for artisanal and small

scale gold miners, is now in 32 countries and new distributors in South and Central America have emerged. More information can be found at http://www.artminers.org and http://www.cleangold.com

Priority Area 3: Exploring innovative market-based approaches

Alliance for Responsible Mining/ FLO : The Alliance for Responsible Mining (ARM) and the Fairtrade Labeling Organization have developed a set of standards that cover social, economic, labor, environmental, and trading aspects of artisanal and small scale gold mining which includes strict mercury use criteria (pre-concentration required, retorting compulsory, contaminated tailings management) and even a chemicals free label — Fairtrade & Fairmined Eco — rewarding the nonuse of mercury nor cyanide and stricter restoration criteria. Miners that adhere to the standards can be certified as Fair-trade and Fair-mined Certified gold. These standards underwent substantial public consultation, including input from several of the ASGM Partnership members. The Fairtrade & Fairmined Gold was launched in February 2011in the UK and Canada. FLOCERT is the third party certifier for compliance with the standards. The standards are available at the ARM website www.communitymining.org and the FLO website www.fairtrade.net. Any Artisanal and small scale mining organization (ASMO) wanting to become certified under these standards, can now apply to FLO-CERT.

Artisanal Gold Fund. The Artisanal Gold Council (AGC) has launched the Artisanal Gold Fund, a development fund dedicated to improving small scale gold mining communities worldwide. The fund has been launched with a symbolic coin now available from the AGC (www.artisanalgold.org/artisanal-gold-fund). The fund will be partly monetized through trade in gold that entered the global pool from artisanal mining over the last 150 years. Proceeds contribute directly to AGC projects on environmental stewardship, poverty alleviation and health improvement. Reduction in the use of mercury is a strong focus of these projects.

VI. COMPLETED EFFORTS OF PARTNERS

This section of the business plan highlights key activities that the Partners completed in the past. Although many of these (though not all) were carried out independently of the Partnership (some prior to the formation of the Partnership), these activities are noted here because they provide important information on successful approaches to improving the ASGM sector and reducing mercury use, and represent valuable knowledge and experience that Partners possess, which can be built upon by other Partners for future activities.

Priority Action 1: Supporting governments in setting national objectives

UNEP Global Mercury Partnership Meeting on Approaches to Reduce the Use of Mercury in Artisanal and Small Scale Gold Mining, Tanzania. In collaboration with the World Bank, the Partnership held a meeting on Approaches to Reduce the Use of Mercury in Artisanal and Small Scale Gold Mining in Dar Es Salaam, Tanzania on October 15, 2010. The purpose of the workshop was to gather a cross sector of organizations involved in the ASGM sector in Tanzania (the Tanzanian government, the World Bank, local and international NGOs and the private sector) to share their experiences and plans for work, with emphasis on activities to reduce mercury pollution. Through this dialogue, the partnership identified areas of potential collaboration and developed recommendations for potential cooperation.

UNEP Global Forum on ASGM, Manila. From 7 - 9 December 2010, UNEP and the Global Mercury Partnership hosted a Global Forum on ASGM. The meeting brought together approximately 100 delegates representing 17 governments, NGOs and mining communities from many of the important ASGM regions. The meeting provided a venue for concrete dialogue on ASGM and in raising awareness among the participants. The meeting identified and discussed significant technical,

social, economic, financial, legal and regulatory issues associated with ASGM. The meeting was organized into four panels: (1) Mercury Use in ASGM; (2) Legal and Regulatory Issues; (3) Social Issues; and (4) Financing the Transition Away from Mercury. The panels were followed by a session to discuss the INC process and the implications of a future legally binding instrument on mercury for the ASGM sector.

The meeting conclusions were:

- ASGM is a complex global development issue that presents challenges and opportunities in many countries.
- A number of technical solutions exist that can significantly reduce the use of mercury in ASGM and there is a willingness by the miners to adopt these technologies.
- In order to facilitate the transition, the following steps can be taken:
    - Establishing baseline information on ASGM;
    - Creating a favorable climate to move towards low-mercury and mercury- free alternatives;
    - Formalizing the sector; and
    - Building upon model financing schemes.

***Commission for Sustainable Development(CSD) Learning Center and Training*:** USEPA, with help of UNIDO, and Partnership member Sam Spiegel, organized a "Learning Center" at the U.N. Commission for Sustainable Development, May 2010, on the topic of mercury use and mercury reduction in ASGM. The Learning Center provided three hours of training to participants from all over the world on best practices and strategic planning to address mercury use in the sector. Also, the Partnership co-lead presented information about the Partnership during a UNEP training session at CSD. Materials can be found on the UNEP Partnership website under "Meetings and Meeting Documents" at:
http://www.unep.org/hazardoussubstances/Mercury/InterimActivities/Partnerships/ArtisanalandSmallScaleGoldMining/tabid/3526/language/en-US/Default.aspx

Priority Action 2: Eliminate worst practices and promote alternatives

UNIDO Global Mercury Project (GMP). The Global Mercury Project focused on reducing mercury use and enhancing clean production practices for ASGM in six pilot countries: Brazil, Sudan, Indonesia, Lao's People's Democratic Republic, Tanzania and Zimbabwe.

Many lessons were learned from the first round of UNIDO's GMP efforts with relevance to future application:

- There is no single solution that can be applied to all sites.
- Identifying the needs of the miners proved helpful but other issues may have prevented a complete solution.
- Artisanal miners will only implement any process if they feel that there is economic advantage associated with environmental practices.
- Creating a greater presence in the field allowed for better implementation.
- Solutions happen with a continued, not short-term, presence.
- Flexibility in implementation and connectivity to other projects are essential.
- Mercury replacement will take time; in the interim promoting better operations will achieve substantially reduced releases.

US EPA Small-scale Gold Processing Project. USEPA and the Argonne National Laboratory (ANL) developed and disseminated low cost, easily constructible Gold Shop Mercury Capture System (MCS) for gold processing shops. The MCS was first piloted and tested in the Amazonian gold producing region of Brazil. Pilots were also conducted in several areas of Peru, in both Amazonian and Andean regions. Field tests in Puerto Maldonado and Laberinto, located in the Amazon, and in Madre de Dios, a major ASGM gold producing region of Peru, showed that mercury emissions from

participating gold shops were reduced about 80%. Similar results were shown at high altitude in Puno, in the Peruvian Andes. The technology was disseminated through a series of workshops and demonstrations around the country, hosted by the Ministry of Energy and Mines of the Government of Peru. Informational materials in Spanish were developed by Peruvian partners and are available. A total of 24 systems were installed in Brazil and Peru as a result of this pilot. The construction manual and informational brochure for the MCS have been translated into Portuguese, Spanish and French. A final report, a construction manual, outreach pamphlets and videos are available at: http://www.epa.gov/international/toxics/asgm.html

Training of Trainers on alternatives of mercury and Best Available Techniques (BATs) and Best Environmental Practices (BEPs) in Artisanal and Small Scale Mining in Tanzania (Phase III). AGENDA for Environment and Responsible Development (AGENDA) of Tanzania implemented this project from February 2010 to June 2010. The objective of the project was to ensure that important information on available alternatives of mercury as well as Best Available Techniques (BATs) and Best Environmental Practices (BEPs) is shared and passed on to artisanal and small scale miners through their regional associations as well as zonal mining officers (representatives of the Ministry of Energy and Minerals) and hence feed into government policy planning system for effective and efficient mercury phase out on mining activities in Tanzania. The project built upon the outcome of the scoping first phase that based on analyzing the extent of use and impacts of mercury pollution from artisanal gold mining activities in Tanzania. Furthermore, the project also liaised with the World Bank funded project 'Tanzania Sustainable Management of Mineral Resources Project' which has one component (Component A) aimed at helping artisanal and small scale miners, including gold miners. Part of this work will entail helping the miners improve environmental practices, including improving mercury management.

Senegal Improved Artisanal Mining Technology and Training Project. Senegal partnered with the United States EPA, UNIDO, the Blacksmith Institute, and local NGOs to reduce the use, emissions, and health effects of widespread mercury use in the gold mining region of eastern Senegal, near Tambacounda. Beginning with a baseline assessment of mercury use by field miners, partners developed and implemented a plan to train community-based NGOs and health workers on appropriate technologies for mercury capture and reuse, and safe mercury management techniques. The work resulted in the construction and purchase by miners of 985 retorts, adapted by the local communities for their use. Over 3000 people in mining communities in Senegal have been trained on mercury risks and best practices through the project.

Mongolia Mining Project. Mongolian NGO Sans Frontiers Progress (SFP) and PACT partnered with the United States government on an awareness and education and training campaign about mercury use, harm reduction strategies, and alternative technologies including a non-mercury sluice in the South Gobi mining region. A data collection component assisted in assessing the national mercury picture. Key results include broad dissemination of public awareness materials, development and dissemination of guidance on mercury free extraction methods, and completion of a baseline data survey.

Communities and Artisanal & Small Scale Mining (CASM) conference workshop on use of mercury in artisanal and small scale mining. At the annual CASM meeting held in Mozambique in 2009, several of the ASGM Partnership members organized a workshop on reducing the use of mercury in small scale mining. Participants represented a cross-section of miners and mining associations, government officials, and academics. In addition to the workshop, the Artisanal Gold Council also presented a half-day hands-on demonstration of mercury capture and gold refining for small scale gold miners. They also invited local miners to come to the conference venue and demonstrate their mining techniques.

Priority Action 3: Exploring and promoting innovative market-based alternatives

No Dirty Gold Comparison of Responsible ASM Initiatives. EARTHWORKS conducted a comparison of standards of several leading initiatives working on responsible Artisanal and Small-scale Mining of gold. This publicly-available report, "The Quest for Responsible Small-scale Gold

Mining," included a comparison of initiatives' standards on mercury use in small-scale gold mining. This report is available on www.nodirtygold.org

Meeting on Addressing the Social and Financial Challenges of Artisanal and Small Scale Gold Mining. In September 2010, the Partnership hosted an afternoon meeting on social and financial issues associated with ASGM in Geneva, Switzerland. The meeting was intended for members of the international community, private sector and other stakeholders located in Geneva, to encourage them to become more engaged in the ASGM issue. The meeting examined, among other issues, the role of the markets and other economic incentives in creating change in the ASGM sector. The meeting report can be found here (click under the second bullet): http://www.unep.org/hazardoussubstances/Mercury/PrioritiesforAction/Meetings/tabid/4490/language/en-US/Default.aspx

VII. OPPORTUNITIES

In the context of the 5th GEF replenishment, funds have been earmarked to address the issue of mercury. Early discussions by Partnership leads with the GEF secretariat indicated that a few Medium Size Projects could be developed for Artisanal and Small-Scale Gold Mining. The partnership is now identifying project concepts. The projects should address the priorities of the partnership business plan as well as provide input to the intergovernmental negotiations. It should be noted that because GEF projects require an important co-financing component, Partners who are able to identify resources to complement the GEF proposed activities are more likely to be successful. To date, with the financial support of the GEF, the FFEM, SAICM, the US State Department and the USEPA, UNIDO, the Blacksmith Institute, ARM, AGC and UNEP have developed complementary projects to address the issue of mercury in ASGM in Francophone West Africa.

VIII. RESOURCE MOBILIZATION

The Partnership is a way of identifying and facilitating the mobilization of funding in a manner that is systematic, focused and harmonized. While the Partnership itself does not have resources to independently fund Partner projects, individual partners, having decided to work to advance the Partnership's objectives and business plan, may fund specific activities. The Partnership's objectives and business plan help provide clarity for potential donors and finance institutions who would like to share/pool their existing resources to work toward common goals. The Partnership also provides networking opportunities for practitioners in the field who would like to identify partners for collaboration on existing and future activities. The Partnership encourages donors to support activities of the Partners and provide a tool to leverage funds. Working with UNEP, the Partnership helps facilitate communication to ensure that individual activities or projects are connected to the larger, overall strategic goals of the Partnership, and to ensure that experience can be shared and lessons learned from Partners' activities in the sector.

Funding for Partnership Activities:

The Partnership does not serve as an independent funding mechanism for projects. Rather, through the voluntary collaboration and information sharing of the Partners, the Partnership can help Partners develop specific initiatives, work with non-partners, or pursue projects consistent with Partnership objectives. It is hoped that the Partnership will serve as a mechanism to consolidate and leverage funding for large, strategic projects, with Partners working together to pursue such projects from donors. Partners are encouraged to discuss project ideas during Partnership discussions, include project ideas in updates to the Partnership business plan, and apply for funding to relevant funders and regional organizations (seeking to collaborate regionally).

As one potential source of funding for activities, developing countries and countries with economies in transition can submit requests for funding to UNEP under the UNEP Mercury Small Grants Program (see www.chem.unep.ch/mercury/Overview-&-priorities.htm).

UNEP also stands ready to assist countries to develop proposals addressing mercury issues under the SAICM Quick Start Programme (see www.chem.unep.ch/saicm/qsp.htm).

Currently the Partnership Leads contribute their time on a voluntary basis, and are assisted by the UNEP Secretariat in the administration of the Partnership.

Administration [2] and Management Support		**Value**	**Source of Support**
Partnership Lead[3]	Facilitation and support of the partnership.	¼ person year	UNIDO (self supported) and NRDC (self-supported)
Organization Point of Contact	• Preparing Business Plan. • Preparing for meetings. • Logging meeting notes, tracking action items. • Collaborating with partners to strategically link to overall partnership goals and objectives. • Developing activity proposals in collaboration with partners.	¼ person year	UNIDO (self supported) and NRDC (self-supported)
UNEP Secretariat Support	• Managing the website. • Taking in funding from multiple sources to fund projects. • Developing activity proposals in collaboration with partners. • Assisting the lead in following up activities by partners. • Other tasks as requested.	¼ person year	In-kind support from UNEP
Other	Communication materials		In-kind support from Partners.

IX. BUSINESS PLANNING PROCESS

Reviewing and updating of the business plan is an ongoing process that responds to the needs of the Partnership over time. Ideas and thoughts for improving the plan are welcome on means to identify and establish priorities; how best to take stock of efforts; determine whether the direction of the Partnership needs to be reconsidered; and measure the productivity of the Partnership.

Updating the business plan is an open virtual process, where the current version of the plan is circulated electronically to all members for contributions; direct information about Partners' activities and results is particularly encouraged. The plan is also reviewed annually at the Partnership Advisory Group meeting.

[2] Administrative support doesn't cover the cost of administering individual projects.

[3] For the ASGM Partnership, the lead is UNIDO. The partner lead and the point of contact may be merged, pending the case

The initial business plan for the ASGM Partnership was produced in 2008. This updated plan reflects refined objectives, as recommended at the 2010 Partnership Advisory Group meeting, and reflects recent activities of the Partners that align with Partnership objectives.

All partners have an equal voice in participation. When possible, financial support should be provided to partners from developing countries to attend Partnership meetings (such as the Global Forum) and call in to teleconferences when these are held.

X. LINKAGES

Development of Emission Inventories.

UNEP continues to undertake field testing and implementation of the 'Toolkit for Identification and Quantification of Mercury Releases' and will begin new work in the Africa region in summer 2011. Information about supplies and trade can help support estimates of the amount of mercury used in ASGM. UNEP will report on this activity to the ASGM Partnership.

Mercury Fate and Transport Partnership.

The ASGM Partnership has a strong interest in improving emissions monitoring, data collection and reporting of mercury use in ASGM; including contributing to published data dissemination to support modelling efforts assessing extent of problem, and against which to demonstrate progress. The ASGM Partnership should link closely with the Fate and Transport Partnership.

Mercury in Waste Partnership.

The ASGM Partnership has a strong interest in reducing the amount of mercury present in tailings and other mining wastes. As appropriate, the Partnership will continue to interact with the Waste Partnership on this issue. Further, projects carried out in the field by our partners are likely to identify ongoing and historical contamination. Information about the nature and extent of contamination, where available, should be collected and communicated to those working on the waste partnership and contaminated sites.

Mercury Supply.

Currently, mercury is easily available with abundant supply from withdrawal from chlor-alkali plants, release of stockpiles, and production as by-product. In this circumstance, market forces are working against the development and adoption of alternatives to mercury use. Greater limitation on trade is likely to increase the price of mercury, resulting in increased financial viability of alternatives, an incentive for research into alternatives, and pressure on mercury users to ensure that it is used in the most efficient and effective manner, with minimal environmental releases. In comparison to an increased mercury price, the cost of technology to minimise or prevent releases to allow re-use also becomes more financially attractive. However, trade restriction program should be coupled with efforts on formalization and capacity building and technology transfers. The Partnership will liaise with the Mercury Supply partnership area as necessary to support reducing supply and safe sequestration of mercury.

Cost of Inaction Report

Balifokus is developing a QSP Proposal together with UNEP Cost of Inaction Mainstreaming team on Sound Chemical Management. The proposed study will be an assessment on the Cost of Inaction on Mercury in Artisanal and Small-Scale Gold Mining in Indonesia, will look at the socio-economic impacts of mercury in ASGM focusing on four sectors (agriculture, fisheries, forestry and public health) tested in four key ASGM sites in Indonesia. The study is part of the four case studies developed by UNEP within the framework of the Cost of Inaction.

World Bank Mining Sector Loan Projects

The World Bank has made mining sector loans to several African countries that include components on ASM. The Partnership will continue to track these activities and to interact with them where possible to ensure that mercury use and ASGM is addressed.

Sound Management of Mercury in ASGM Sector in Asia

US Department of State recently awarded a grant to Ban Toxics! and BaliFokus for a regional roject on the development of national approaches on environmentally sound management of mercury in the Southeast Asia, focusing on Philippines and Indonesia, with special attention to ASGM sector and Health Care Sector. The results of this study will have significant implications for management of mercury in the ASGM sector.

XI. PARTNER CONTACT INFORMATION

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Annex 1

Priority Action 1: Support governments in setting national objectives/ targets

a) The Partnership is assisting UNEP in planning and organizing the second Global Forum to reduce mercury use and emissions in ASGM. As of now, the forum is going to be held on the 3-5 of September 2013 in Lima, Peru.
b) The Philippines recently received funding from the Global Environment Facility (GEF). This GEF project focuses on strengthening local and national capacity to effectively reduce mercury use, emissions and exposure in ASGM communities in the Philippines through demonstration and replication of mercury reduction and elimination projects. Local and national stakeholders will receive health, techniques, and technology trainings, and promote policy reforms based on the lessons learned.
c) Through UNIDO, SAICM, has provided funding to Mali and Cote d'Ivoire to establish an inventory of the extent of the sector in the countries as well as finalizing their National Action Plan. The Artisanal Gold Council (AGC) has commenced work in the Ivory Coast by carrying out two-day training sessions with government officials, academics, civil society, and ASGM representatives. A key component of this training was the elaboration of ASGM inventory methodologies.
d) Through a U.S. State Department grant, the Environmental Law Institute is working in Nigeria with various stakeholders to assess the ASGM sector and develop legal and policy recommendations to assist the Nigerian government to address mercury and lead poisoning issues associated with ASGM.

Priority Action 2: Eliminate worst practices and promote alternatives

a) A GEF project, developed in Ecuador and Peru, aims to demonstrate and replicate mercury emission reduction methods and non-mercury gold extraction for the artisanal and small-scale gold mining sector located in the Puyango-Tumbes river basin region. The project is implemented by UNIDO with strong involvement of other partners, including INIGEMM, the national counterpart in Ecuador; ALA, the local water authority in Tumbes, Peru; and the University of British Colombia.

b) Ban Toxics, together with the Danish NGO, Dialogos, the Department of International Health, Immunology and Microbiology (ISIM) of the University of Copenhagen (Faculty of Health Sciences), International Committee of Environmental, Occupational and Public Health (Danish Society of Environmental and Occupational Medicine), Geological Survey of Denmark and Greenland, and the Benguet Federation of Small-Scale Gold Miners, Inc. have embarked on a multi-year, multi-pronged project to introduce mercury-free techniques utilizing miner-to-miner and rural health worker trainings. The project focuses on indigenous expertise and excellent progress has been made in convincing and motivating miners to move away from mercury, particularly in indigenous communities. At least 1,100 miners have been trained in the project area. Currently the project is beginning to monitor the amount of mercury reduction induced by the project and create local structures that will sustain the achievements long after the project's end.

c) The US State Department has an ongoing demonstration project in Francophone West Africa to develop and implement an intervention model that self-replicates, to reduce and eventually eliminate mercury use in small scale gold mining operations, while improving health, environment and wealth of ASGM communities. Self-replication requires incentives and education. Measures of success for the intervention model will include: improvement of economic opportunities for miners and their communities, increased knowledge of health safety, and environment, and a measured reduction in mercury use. In Francophone West Africa, AGC has been able to: develop detailed inventories of 36 different ASGM sites in Burkina Faso; strengthen the Burkina Faso ASGM national estimates and supply chain mapping as a result of the collection of additional information; comprehensive ASGM inventory training of our Burkina Faso representative; select the Burkina Faso mercury-free processing plants and develop the technical and feasibility of logistical requirements for ordering, importing, assembling, and maintaining them.

d) The US State Department is funding a project on reducing mercury use and release in Andean Artisanal and Small Scale Gold Mining. This project includes: (1) evaluating mercury levels in the air in Piura mining operations, (2) educating and training miners in Suyo, Servilleta, Morocho and San Sebastian on techniques to reduce mercury use and exposure, (3) promoting the establishment of the International Training Center of Artisanal Miners (ITCAM) in Portovelo, Piura, and (4) educating and training miners in Bolivia on techniques to reduce their mercury use and release. Continuing its work in the Andes, the U.S. State Department is preparing to fund the Biodiversity Research Institute to further promote the International Training Center of Artisanal Miners and to develop on-line educational tools for miner training.

e) Since 2011, now extended to 2014, the U.S. State Department has funded a sub-regional mercury storage project in the Philippines and Indonesia. This project brought stakeholders together to develop a national approach to the environmentally sound management of mercury, with focus on the storage of mercury from the ASGM sector. The project will also include nationwide mercury monitoring in ASGM hotspots, development of technical and non-technical methodologies to identify mercury use, and understanding gender roles in small-scale mining and contribution of women to mercury-free transition in the sector.

f) UNEP, with funding from US EPA and in collaboration with its project partner (Blacksmith Institute) has completed implementing a training and technology transfer project on reducing mercury use in ASGM in Indonesia. The project primarily focused on technical interventions to significantly reduce mercury emission from ASGM. Since the inception of the project, ninety retorts, ten sluices (to ore processors) and fifty water-box condenser systems have been distributed, helping in reducing mercury use in specific regions of the country. The project also worked on promoting health awareness, training

of miners and outreach through media. During project implementation, a National multi-stakeholder workshop was held to promote the development of a national strategic plan. A second national workshop was held in the last quarter of 2012. As a result of the national action planning workshops, the Government of Indonesia is moving ahead with producing their first national action plan for addressing mercury use in ASGM. US EPA has already offered to provide guidance to the Government of Indonesia as they undertake this effort.

g) PLAGBOL (Bolivia) together with Blacksmith Institute, the Danish NGO, Dialogos, Geological Survey of Denmark and Greenland, the Danish NGO ICOEPH and the Federation of Small-Scale Miners, in La Paz Bolivia, have embarked on a one year (April 2013 to April 2014) pilot project to introduce mercury-free techniques utilizing miner-to-miner trainings, training of health care workers and awareness raising in mining societies in Bolivia. The project is financed by Empleomin (a EU funded entity in Bolivia) and the Danish Embassy. The project is bringing miners from the Philippines to reach out to Bolivians miners to train them on the adoption of mercury-free techniques. The project is focusing on indigenous expertise that improve upon gravitational methods (e.g. use of sluice box and panning) and the use of direct smelting at the refining stage of the process, as demonstrated in the Philippines project mentioned above. The project has started a mapping of problematic mercury polluted areas and later this year trials with the mercury free method is taking place alongside the trainings and awareness raising. If the pilot proves to be successful then funds for a second phase for several years will be pursued.
h) The U.S. Department of State is funding a project in Nicaragua implemented by the Artisanal Gold Council to develop and implement a technical and governance model to reduce and, where feasible, eliminate mercury use in Nicragua's ASGM sector without diminishing economic opportunity; build capacity and raise awareness on mercury reduced/free technologies, and health and safety; and implement activities to build institutional capacities in ASGM policy development.
i) The U.S. Agency for International Development (USAID) is working to support the efforts of Colombia´s national, regional and local authorities and local miners' organizations in promoting economic and social development in the gold mining regions of Northern and North-eastern Antioquia, through the formalization of small illegal/informal mining operations. This includes strengthening the capacity of informal miners' organizations in Northern Antioquia to assist members in adopting environmentally sound technologies, accessing legal services and markets that reward best practices (including certification if feasible), and enhancing their ability to negotiate agreements and contracts with formal mining operations on fair and equitable terms; and improving the environmental and economic performance of small-scale mining operations through the generation and transfer of environmental best practices and technologies to lower costs, increase recovery efficiency, and mitigate negative environmental impacts (including pilot initiatives to develop and disseminate alternatives to decrease the amount of mercury per unit of gold produced, as well as the restoration of degraded areas).

Priority Area 3: Exploring innovative market-based approaches

j) A Global Environment Facility (GEF) project is underway for Francophone West Africa (Burkina Faso, Mali and Senegal). By transferring technologies that eliminate mercury emissions from the sector and introducing the Fairtrade/Fairmined standard at selected sites in the three countries. This project has collected data; initiated discussions on formulating a National Action Plan; distributed, and where feasible, demonstrated the Technical Guidance document in the field. A mercury-free processing plant is planned for a pilot community in Senegal by the end of 2013.

B. Coal Combustion Partnership Area,

10 October 2011

This Business Plan describes the activities of the *Reduction of Mercury Releases from Coal Combustion* partnership area of the United Nations Environmental Programme (UNEP) Global Mercury Partnership. It serves as a planning and communication vehicle both for Partners and others.

The purpose of the business plan is to provide a framework for developing and implementing projects. The business plan is to serve as a resource for providing a common, cohesive structure for implementing the UNEP Global Mercury Partnership.

The partnership is open for government and stakeholder participation. In UNEP Governing Council Decision 24/3 part IV paragraph 27, UNEP is tasked with working in consultation with Governments and stakeholders to strengthen the UNEP Global Mercury Partnerships. New activities and partners are encouraged within the UNEP Global Mercury Partnership.

I. SUMMARY OF THE ISSUE

- Mercury is found in trace quantities in coal. Mercury concentrations in coal vary significantly with geographical and crustal influences with significant differences being measured even between coals from the same coal-field. It is estimated that upwards of 60 % 4 of mercury emitted from anthropogenic sources to the atmosphere comes from coal combustion.
- The major pathway for mercury releases from coal combustion is via emissions to the atmosphere. To a lesser extent some mercury may be released in wastes/residues or water (in the case of coal washing, for example) and soil, and can be problematic if not properly controlled.
- Rapid development in many parts of the world has led to an unprecedented rate of construction of large coal-fired units. Consequently, they are increasingly considered the dominant source of global mercury emissions.
- Coal fired power emissions are a multi-pollutant challenge. In most instances, decisions related to coal fired utilities have been driven by energy security, resource availability, emissions of a variety of air pollutants (such as NOx, SO2, PM, CO2), and other considerations. Mercury emission reductions from coal combustion has occurred primarily as a result of priority efforts to address conventional air pollution impact for this sector or otherwise improve the efficiency of energy production. For example, flue gas cleaning technologies for particulates can reduce mercury emissions as a co-benefit of controlling other pollutants (often in the range of about 50-90%). More recently,

[4] This is an estimate for the year 2000. Reference : E. G. Pacyna *et al*. 2006. . Efforts are currently underway to update these estimates.

mercury-specific control technologies are being applied, including injection of activated carbon and beneficiation of coal.

- Coal is used as a fuel in a variety of settings beyond large scale power plants. The nature of these settings may pose different challenges with respect to available response measures and proposed partnership activities:
  - Cement Production: The combustion of coal in cement production (and related release of mercury to the atmosphere) is believed to be a significant source of mercury releases to the environment from some raw materials. In addition, the use of fly ash in cement and gypsum in wallboard manufacture could potentially lead to the later release of some mercury into the environment.
  - Home Uses: In some regions of the world, coal is used for home heating and cooking where the coal is burned in simple, sometimes unvented, household stoves, directly exposing people to emissions of mercury, and/or other toxic pollutants.
  - Small scale boilers: Many small scale industrial facilities use coal fired boilers. The problems and needs associated with small scale industrial facilities may require special consideration under the partnership.

II. OBJECTIVE OF THE PARTNERSHIP AREA

The objective of this partnership area is continued minimization and elimination of mercury releases from coal combustion where possible.

The partnership area aims to supplement existing programs in key, strategically selected ways that ensure that reductions are globally significant as part of a multi-pollutant reduction approach. The partnership area aims to support such efforts while providing additional information on cost effective approaches for enhancing reductions of mercury emissions, particularly for developing nations and countries with economies in transition.

NOTE: Setting numerical targets to achieve under the partnership area has been discussed and may be revisited. Updated inventory information should enable the partnership to make a more advanced assessment of a baseline scenario and project a goal.

III. PRIORITY ACTIONS

1. Encourage use of best available technology and best environmental practices to reduce or eliminate mercury releases into the environment:

   i) Prepare guidance document to guide countries. In doing so, review available information on best available techniques (BATs) / Best Environmental Practices (BEPs) for new and existing sources. Amend and supplement this information, as appropriate, with consideration of how it applies to various country situations.

   ii) Provide information and technical assistance on methods to optimize pollution control systems to improve mercury control as a co-benefit. This would also include Hg removal as a co-benefit during the improvement of coal combustion efficiency in power stations (supercritical conditions, oxy-combustion, fluidized bed combustion, etc

   iii) Identify mercury specific technologies and facilitate exchange of information on emerging technologies, for existing and new facilities.

2. Assist countries (including providing training) in evaluating the environmental impacts of coal combustion and evaluating the opportunities to achieve multi-pollutant emission reductions with associated benefits for reduction in both conventional air pollution (such as SO2, NOx, and PM) and mercury emissions, and to assist countries in assessing their situation, interests and needs. Assistance in evaluating the environmental, economic and societal (mainly human health) benefits from reduction of mercury emissions.

3. Support the development and/or improvement of mercury emission inventories to evaluate both mercury emissions and the effectiveness of emission reduction approaches.

4. Increase the awareness of mercury as a pollutant of concern through increased outreach efforts and collaboration with complementary programmes (such as at UNFCC level), including consideration of alternative energy sources and energy efficiency.

IV. PARTNERSHIP EFFORTS AND TIMELINES

"Reducing Mercury Emissions from Coal combustion in the energy sector"

- This is a project funded by the European Commission (1 million Euro) which started in 2009. The project has been extended in time to 2013. In-kind assistance has been provided by the US Environmental Protection Agency (US EPA) with respect to the use and promotion of the mercury measurement tool-kit during mercury measurement campaigns in South Africa and Russia and by the US Geological Survey (US GS) with respect to characterization of samples from Russia and South Africa. Specifically the project aims to::

    1. Develop guidance material on how to minimize mercury releases by optimizing multi-pollutant control techniques, including improved energy efficiency to reduce mercury-emissions;
    2. Collect information to improve accuracy of future emissions inventories for the sector, including technical information on power plants and control technologies used, analysis of mercury concentrations in coals used by power plants and measurements of mercury in stack flue gases;
    3. Implement pilot studies to demonstrate the efficiency of multi-pollutant co-benefit techniques and by building local/national capacity on these issues, also with the aim of transferring information and lessons learnt to facilities and governments in other countries.

- The actions are focused on China, India, Russia and South Africa, but the results will be of interest to all countries with coal combustion power plants (duplicated below)

- As part of the project above, the partnership is developing Guidance for mercury emissions from coal combustion, building on existing information known as the Process Optimisation Guidance - POG. This work was completed by end of 2010. It is available at the following web-link:

    - http://hqweb.unep.org/hazardoussubstances/Mercury/PrioritiesforAction/CoalcombustionProcessOptimizationGuidanceDocument/tabid/4873/language/en-US/Default.aspx

  As a further development of this work, and with additional funding from Environment Canada, the information in the POG document is being combined with statistical data

from coal-fired plants to produce the iPOG – an interactive modelling tool which will allow users to input plant-specific data and ascertain which mercury control options may be most appropriate for their specific situation. The tool is also flexible enough for non-experts to use it to provide an overview of the effectiveness of different control options and co-benefit effects for reducing mercury at full-scale coal-fired facilities. The iPOG is due for completion before INC3 in October 2011 and will be provided free of charge in data-stick form or will be available as a free download from the coal partnership web page.

- The Coal combustion partnership has received additional funding from the US Department of State to execute further activities in India and Indonesia. This new study will focus on both mercury and black carbon emissions and control within the region. .

Contact: Gunnar Futsaeter, UNEP Chemicals Branch, DTIE, gunnar.futsaeter@unep.org

V. OPPORTUNITIES

Opportunities for enhancing information/knowledge that donors could consider funding:

- For Emissions Inventories: specialist assistance could be provided to allow the production of up to date emission inventories in target regions. This would include, where necessary, help with mercury measurement in both coals and stack gas emissions. Guidance could also be given on how to include current and impending emission legislation and control technology application in future emission estimates.

- Further complementary and specific projects including bilateral projects. These could include the application of any of the approaches outlined in the POG. Members of the coal partnership could be made available at national workshops in target countries to work with local authorities, utilities, researchers and interested parties to facilitate the exchange of knowledge and information on mercury control options, from coal switching and cleaning to more complex plant modifications.

VI. EVALUATION

The partnership areas will report biennially to UNEP in accordance with the UNEP reporting format[5]. Reporting will include monitoring performance (tracking partnership activities and partner contributions) as well as assessing effectiveness (measuring the impact of partnership activities on target beneficiaries).

Amongst other means, results will be characterized in terms of:

- Availability of guidance tools to assist countries in achieving emission reductions.
- Emission reductions achieved.

VII. RESOURCE MOBILIZATION

Partnerships and the associated business plans are a way of mobilizing funding in a systematic, focused and harmonized way. The Partnerships' objectives and business plans should provide clarity for potential donors and finance institutions. The business plans should encourage and facilitate donors to support activities and provide a tool to leverage funds.

The partnership has been able to generate significant and targeted actions with the funding from the European Commission from 2009-2011. The grant has been extended in time to 2012.

Funding for Partnership Activities:
Partners can develop specific initiatives, work with non-partners, or pursue projects consistent with partnership objectives.

It is hoped that the Partnership will serve as a mechanism to consolidate and leverage funding for large, strategic projects.

An important opportunity to leverage resources lies in the significant partnership efforts currently underway to address conventional pollution (eg, SOx, NOx, CO2) from this sector. These efforts alone, or built upon with relatively little additional resources, can lead to increased awareness of mercury as a pollutant of concern and significant reductions in mercury emissions.

Partners are encouraged to contribute not only financially but also to offer in-kind assistance. The financial plan should be updated regularly to reflect experience and reassess funding requirements to achieve the objective of the partnership under II.

Developing countries and countries with economies in transition can also submit requests for funding to UNEP under the UNEP Mercury Small Grants Programme.

VIII. BUSINESS PLANNING PROCESS

The process in developing and reviewing business plans will be outlined in this section. Partnerships will take stock of efforts and test direction and productivity in moving forward and will adjust planning accordingly.

Table 1: Administration and Management Support		Source of Support
Partnership Lead	▪ Facilitation and support of the partnership.	IEA Clean Coal Centre
UNEP Secretariat Support	• Administrative and secretariat support. • Disseminate information to the Partners on relevant issues. • Assist the lead in following up activities by partners. • Other tasks as requested.	In-kind support from UNEP
Face to face meetings	Estimated one per year. All attempts will be made to host face to face meetings of the partnerships in the most cost effective way (e.g. back-to-back with other related meetings and have the ability to call in).	UNEP will support some limited travel of developing countries/NGOs in face to face meetings, rest is in-kind support from partners for their own travel.
Teleconferences	Estimated 2 per year	In-kind support from USA

IX. LINKAGES

Asia Pacific Partnership (Australia, Canada, China, India, Japan, Republic of Korea, United States). Under the Asia-Pacific Partnership (APP) on Clean Development and Climate, partner countries have agreed to cooperate on development and transfer of technology to address both greenhouse gas emissions and air pollution. A major focus of the APP is the coal fired power sector with the objective of improving both its energy efficiency and environmental performance. Progress made under the APP will reduce greenhouse gas emissions and emission of conventional air pollutants and, as a significant co-benefit, also reduce mercury emissions. Multiple projects are underway directed at SOx emission control, improved efficiency and demand reduction; these have significant mercury reduction co-benefits. Several projects are underway and planned including for the cement sector - efficiency improvements in existing facilities, use of alternate (non-coal) based fuels such as biofuels and waste materials. For more information see : http://www.asiapacificpartnership.org/english/default.aspx

Development of Emission Inventories – UNEP with support from the Government of Denmark recently updated the 'Toolkit for Identification and Quantification of Mercury Releases' based on initial experiences in using the toolkit. The toolkit is a key information gathering tool available to countries in assessing their national situation.
Contact person: Gunnar Futsaeter, UNEP Chemicals Branch, DTIE.

Mercury Fate and Transport Partnership – The partnership has a strong interest in improving emissions monitoring, data collection and reporting of mercury emissions; including contributing to published data dissemination to support modeling efforts assessing extent of problem, and against which to demonstrate progress. The coal partnership will link closely with the fate and transport partnership.

X. PARTNERS

Please see section vii of this document for the current list of partners that have submitted letters of support to the UNEP Global Mercury Partnership. There are a number of participating partners that have not officially submitted support letters. For the list of participating partners, please go to the current business plans posted at the following web address: www.chem.unep.ch/mercury/partnerships/new_partnership.htm

XI. ONGOING, COMPLETED AND PROSPECTIVE PROJECTS

- IEA Clean Coal Centre published a report entitled 'Economics of Mercury Control'. The full document is available from Lesley Sloss (partnership area lead). A summary of the report is available at: www.chem.unep.ch/mercury/Sector-Specific-Information/Coal_combustion.htm
- The partnership is developing Guidance for mercury emissions from coal combustion, building on existing information known as the Process optimisation guidance document - POG. This work was completed by end of 2010. It is available at the following web-link: http://hqweb.unep.org/hazardoussubstances/Mercury/PrioritiesforAction/Coalcombustion/ProcessOptimizationGuidanceDocument/tabid/4873/language/en-US/Default.aspx
- The iPOG is an interactive modelling tool which will allow users to input plant-specific data and ascertain which mercury control options may be most appropriate for their specific situation. The iPOG is due for completion before INC3 in October 2011 and will be provided free of charge in datastick form or will be available as a free download from the coal partnership web page.
- A new inventory for mercury emissions from coal combustion in China has been produced by MEP in conjunction with Tsinghua University under the auspices of the coal partnership. The report is available at the following web-link:

  http://www.unep.org/hazardoussubstances/Portals/9/Mercury/Documents/coal/FINAL%20Chinese_Coal%20Report%20-%2011%20March%202011.pdf
- A new inventory for mercury emissions from coal combustion in Russia is being finalised. The first ever measurements of mercury at full-scale plants in Russia were obtained with in-kind assistance from the US EPA. The new Russian inventory will soon be available in draft form.
- A new inventory for mercury emissions from coal combustion in South Africa is also being finalised. Again, the first ever measurements at full-scale plants in the country were obtained with in-kind assistance from the US EPA. The South African inventory will soon be available in draft form.
- Two parallel projects have been initiated at two separate coal-fired units in Russia to demonstrated mercury reduction. The first, led by the USEPA in collaboration with UNEP,

Sweden and various Russian Institutes, is demonstrating the effectiveness of sorbent technologies whilst the other, led directly by UNEP, is trialling oxidation methods to enhance the performance of the existing scrubber system. The results should be available by early 2012.

- A coal-cleaning project has been proposed for mercury reduction demonstration in South Africa and this will hopefully commence before the end of 2011.
- India has now signed an agreement to work with the UNEP Coal Partnership and so it is hoped that work will commence late 2011 early 2012 on inventory work and activities demonstrating mercury reduction technologies.

Older but related projects:

- China, Canada, Japan, the United States and UNEP held a workshop in Beijing in November 2005 on measurement and control of mercury from coal-fired power plants. The workshop increased awareness of the magnitude of mercury emissions from this sector, examined limited data currently available on the level of mercury exposure in China, and provided information on control approaches (funded through Mercury Trust Fund[6], and also bilaterally funded through Canada, Japan, USA).
- China Follow-on Projects: The Governments of Canada and China, and Tsinghua University have prepared a study to compare the current China Mercury Emission Inventory with the UNEP mercury emissions toolkit, examine the status of coal washing technology and mercury removal in China, and examine coal combustion-related mercury emissions from small scale use in residential, commercial, and industrial sectors. The report is available at: www.chem.unep.ch/mercury/useful-links.htm
- In 2007, Canada provided training to two trainees from China on measurement of mercury from fossil fuel combustion (including sampling and analysis of coal and coal residues, stack sampling methods and protocols and quality assurance and quality control requirements). The training included a one-month component in Canada and a ten-day follow up in China.
- China held a workshop in Hangzhou, China on November 10 - 14, 2008. The workshop focussed on cost effective controls that provide an integrated approach to the control of NOx, SOx, PM, Hg, and CO2. The first two days, sponsored by US EPA and China's Ministry of Environmental Protection (MEP), was open to all and provided up-to-date information on the effectiveness of various control technologies in addition to information about current regulations and policies for the US, China, and on UNEP's Mercury Programme. The second part of the workshop consisted of US vendor presentations, sponsored by US DOE and China's Ministry of Science and Technology (MOST), and was closed to all except US and Chinese citizens.
- The Russian Federation and the United States have worked together to develop low-cost technology for improved air pollution control at a power plant in Russia - it will optimize operations of a wet PM scrubber and look at the possibility of transferring to other facilities in Russia. Also, the Russian Federation, Ukraine, and the United States have partnered on a project to transfer a low-cost technology to improve the performance of ESPs at coal-fired plants and other industrial facilities in Russia and Ukraine.

[6] Mercury Trust Fund: approximate total funding for coal combustion work to date is $ 6,000 US.

- South Africa's Council for Scientific and Industrial Research (CSIR) is working with the University of Connecticut, USA to determine the fate and transport of mercury from coal combustion and its impact on water resources in the country. This activity also included using the UNEP mercury emissions toolkit to develop a South African Mercury Emissions Inventory.
- In 2007, South Africa's CSIR and Norway's Norwegian Institute for Air Research (NILU) initiated activity on assessing the current and future emissions of mercury from anthropogenic sources in South Africa.
- The United States and India worked together to provide information and other assistance to India to increase effectiveness of pollution controls on coal-fired power plants. Activities in India have included workshops outlining pollutant specific and multipollutant control technology alternatives, mercury monitoring technology, as well as specific training on an EPA developed software tool to help optimize electrostatic precipitator PM capture, with co-benefit mercury emissions reductions. In addition, an ESP at a power plant in India has been modified to improve its collection efficiency. The project was performed in cooperation with Asia Pacific Partnership Plan.

C. Mercury Supply and Storage Partnership Area

December 2012

This document describes the business plan for the 'Mercury supply and storage partnership area' within the United Nations Environment Programme (UNEP) Global Mercury Partnership. This business plan is an updated version of the UNEP proposed business plan previously drafted in consultation with stakeholders during the first meeting of the mercury Ad hoc Open-ended Working Group and the Meeting of Partners that took place from 1-3 April 2008, and publicly through the UNEP mercury web-page.

The purpose of the business plan is to provide a framework for developing and implementing mercury storage/disposal and supply related activities and projects. The business plan is to serve as a resource for providing a common, cohesive structure for activities related to the environmentally sound long term storage or disposal of surplus quantities of mercury, and to future supply related activities.

The business plan recognizes that mercury supply, trade, environmentally sound short and long term storage or disposal are priority areas for the Mercury Intergovernmental Negotiating Committee (INC) deliberations to prepare a legally binding instrument on mercury. Accordingly, the business plan concurrently targets activities for 1) reducing mercury supply, and 2) the environmentally sound storage or disposal of surplus mercury. This plan may also help to inform the INC process, and supports potential mechanisms in the instrument to reduce the global supply and trade of mercury.

At the November 5-6, 2011 UNEP Global Mercury Partnership Advisory Group meeting, the governments of Uruguay and Spain were identified as co-leads for this proposed partnership area. The partnership is open for governments and stakeholders participation. We welcome financial assistance to help and facilitate activities of the partnership.

I. SUMMARY OF THE ISSUE

- In order to effectively reduce the quantities of mercury circulating in the atmosphere and biosphere, it is widely agreed that there is a need to reduce the supply of, and demand for, mercury worldwide.
- Reduction of the global mercury supply is an important way of encouraging equivalent or greater reductions in mercury demand, particularly for uses where regulatory strategies for reducing demand may have limited effectiveness, such as artisanal and small-scale gold mining.
- As part of a larger regulatory strategy to reduce the amount of mercury available to the biosphere, a number of countries or regions have taken steps domestically or regionally to reduce the mercury supply:
    - The European Union agreed on a ban on mercury exports and on a storage obligation for surplus mercury from major sources beginning in 15 March 2011. In December 2011, the EU amended EU Directive 1999/31/EC on the landfill of waste, as regards specific criteria for the temporary storage of metallic mercury considered as waste.The United States Government stores 100% of its federal

mercury stocks (about 5600 tons) in order to keep it from the marketplace. The U.S. Congress enacted legislation prohibiting the export of non-federal mercury beginning in 2013, and by the same date, the US Department of Energy will provide storage capacity for this non-federal mercury.

- Sweden, Norway and Denmark have banned the export of elemental mercury, among other restrictions on mercury.
- Assessment reports of excess mercury supply in Asia Pacific, in Latin America and the Caribbean, in Eastern Europe and Central Asia are available; these assessment reports describe the projected quantities and sources of excess mercury supply in the respective regions (2010-2050) and the required mercury storage capacities.[7]

- Mercury is an element that cannot be destroyed nor converted into another substance. Domestic and global policies designed to decrease the production, use, import, and export of mercury must be accompanied by access to viable, environmentally sound and secure short and long term permanent storage or disposal for mercury stockpiles.

Sources of Mercury Supply

- Primary Mercury: Mercury generated from mining operations where mercury production is the main objective. Over the last several decades, primary mercury mining for export was conducted by a small number of nations (Spain, Slovenia, Kyrgyzstan and Algeria), and by China, which to date, has mostly provided for its own domestic market. The only large-scale mines that are currently active are in Kyrgyzstan and China, with only Kyrgyzstan reportedly involved in commercial sales outside of its border. Primary mercury mining is the least preferred source of mercury because it adds new and unnecessary quantities to the global mercury reservoir and the activity itself releases significant quantities of mercury into the environment.
- By-product Mercury: Mercury generated as a by-product of certain non-mercury mining and smelting activities. The extent of by-product generation at a given facility depends upon the mercury concentration in the ore and the nature of pollution control activities at the facilities; otherwise, it would be emitted to the atmosphere. Additional pollution control requirements could reduce the quantity of by-product mercury generated globally.
- Secondary Mercury: Mercury is generated from the recycling or reprocessing of wastes (i.e., remediation of mine tailings) and products, particularly in the developed world. This is a growing source of mercury in response to environmental regulation designed to prevent mercury releases during waste management.
- Chlor-alkali Mercury: Large quantities of mercury can become available when mercury cell chlor-alkali plants close or convert to non-mercury processes (i.e., membrane technology). Storing mercury from closing or converting chlor-alkali facilities can be a very cost effective way to reduce the global mercury supply because large quantities are already aggregated at one location.

[7] The reports are available at http://www.chem.unep.ch/mercury/storage/main_page.htm.

II. OBJECTIVE OF THE PARTNERSHIP AREA

The overall goal of the UNEP Global Mercury Partnership is to protect human health and the global environment from the release of mercury and its compounds by minimizing and, where feasible, ultimately eliminating global, anthropogenic mercury releases to air, water and land.

The supply and storage partnership area will contribute to the following objective, consistent with the priorities set out in paragraph 19 of GC 24/3: Minimization and where feasible, elimination of mercury supply considering a hierarchy of sources, and the retirement of mercury from the market to environmentally sound management.

Specifically, the supply and storage partnership area will aim to reduce the global supply of mercury by 50% by 2013, when compared to the supply available in 2005 as documented in the most recent UNEP trade report. According to the trade report (UNEP/GC/24/INF/17/Appendix 1 – November 2006), the global mercury supply in 2005 was 3,000-3,800 MT. Using the mid-range value of 3,400 MT, and recognizing the EU and USA export bans are already projected to reduce the annual global mercury supply by about 1,100 MT, this partnership will seek to reduce the global mercury supply by an additional 600 MT by 2013 (See Proposed Priority Actions immediately below).

III. PRIORITY ACTIONS OF THE PARTNERSHIP AREA

Proposed priority actions are intended to achieve the 50% global supply reduction goal, and contribute to a better understanding of storage needs. The Partnership will seek to achieve a 600 MT annual global mercury supply reduction by 2013, and obtain additional information on storage needs, through the following actions:

- Working with partners, governments and other interested parties to reduce or eliminate the production and export of mercury from large scale primary mining;
- Working with the relevant industry sectors, governments, and other interested parties to determine how much mercury will become available from decommission of mercury chlor-alkali plants; and the quantity of by-product mercury generated from non-ferrous metal processing, gold mining and oil/gas production;
- Working with relevant industry sectors, governments and other interested parties to establish a nation by nation global mercury inventory.
- Developing industry sector plans for the storage of mercury from chlor-alkali plants, non-ferrous metal processing, and oil/gas production;
- Gathering additional data on the extent to which the existing waste infrastructure could be used for elements of the surplus mercury storage needs for the near term at least.
- Assessing and facilitating availability of options and technologies for storage or final disposal of excess mercury supply from other sources; and
- Facilitating the implementation of export ban legislation in additional countries or regions.

IV. PARTNER EFFORTS AND TIMELINES

The Kyrgyz Republic Mercury Mining Phase Out Project.

The Government of the Kyrgyz Republic operates the last remaining primary mercury mine known to export mercury. The mine is located in Khaidarkan in the Ferghana Valley. After more than 70 years of primary mercury mining and the lack of technical and environmental measures, a number of mercury-contaminated spots have resulted, which are now the sources of mercury emissions to the global and local environment. Officially reported emissions into the atmospheric air from the Khaidarkan mine amount to 2,700 kilograms of mercury a year.

In the coming decade (2011-2020), the Khaidarkan mine could produce more than 1,500,000 kilograms of mercury that will eventually enter the global ecosystem. The continued introduction of "new" mercury from the Khaidarkan mine – which adds to the already significant international supply of mercury currently being traded – further highlights the need for international action to support alternatives to mercury mining in Kyrgyzstan.

Action to assist the Kyrgyz Republic to close the Khaidarkan mine has been recognized as a priority by the international community. The Kyrgyz Republic Mercury Mining Phase Out Project Partnership led by UNEP has provided a vehicle for the coordination of efforts between the Kyrgyz Government, international partners and relevant national and local players to move forward in phasing out of the state-owned mercury mining sector and replacing it with sustainable and socially responsible alternative economic activities. So far, the Governments of Switzerland, Norway and the United States have respectively played active roles in this partnership and made some initial financial contributions. However, the region of the country where the mine is situated faces long-term economic and environmental challenges that make the possible closure of the mine a challenging issue.

The major political change in the Kyrgyz Republic in April 2010 and the socio-economic fragility of the southern Kyrgyz Republic that experienced inter-ethnic violence in 2010 has been a major driver for the Kyrgyz Government's very cautious approach towards phasing out of its national mercury industry and mercury mine closure without offering alternative income source and opportunity. Currently, a feasibility study is underway, which, if funded, would involve collaboration with the Kyrgyz government on a) economic alternatives to allow 'soft' closure of the mine and b) priority remediation action.

Altogether, the goal for the combined efforts of the international donors and the state authorities shall be to render mercury mining redundant in the future. Once international funding is secured, it would enable conditions which could pave the way for:

1. gradual socially responsible phasing out of primary mercury production,
2. determining the technical feasibility of transition to alternative mining activities,
3. attracting additional investment,
4. facilitating environmental and health risk reduction measures, and
5. improving understanding of the mercury-related hazards both among the local community and policy makers in the national authorities of Kyrgyzstan.

The ongoing small grants program promoting local economic development and diversification and reducing community dependence on mercury mining enterprise will naturally complement this initiative.

Mercury Storage Projects

UNEP Mercury storage projects, supported by the government of Norway, were implemented in the Asian region, and in the Latin America/Caribbean region. Kick-off meetings sponsored by UNEP and the Zero Mercury Working Group (ZMWG) were held in March (Bangkok, Thailand) and April 2009 (Montevideo, Uruguay) respectively, where reports estimating the quantities of excess mercury expected in these regions through 2050 were reviewed and evaluated.

As a follow-up, Project Executive committees (Exe-com) were established for these two Regions and were tasked to catalyze regional action. Exe-com members for Asia Pacific are India (Chair), Indonesia, Nepal, Papua New Guinea, Philippines, and Ban Toxics/Zero Mercury Working Group. For the Latin American and Caribbean (LAC) region, Exe-com members are Argentina, Brazil (chair), Chile , Panama, Mexico , Barbados, Dominican Republic, and NGOs, including ACPO- ZMWG, ISDE, Abichlor.

Furthermore, two options analysis studies for the environmentally sound management of surplus mercury respectively were carried out in the regions. Six meetings were held in the respective regions to further discuss the content and progress of these studies. LAC regional consultation took place in Panama in April 2010, LAC Exe-com meetings were held in Sao Paolo, Brazil in December 2009 and in Santiago, Chile in October 2010. An Asia Pacific regional consultation was held back to back with the mercury OEWG that took place in Bangkok in October 2009. UNEP has been providing follow-up support to mercury storage activities in these regions.

The revised options analysis for the Asia-Pacific (A-P) Region was supported by the US Department of State and was completed in November 2010. A review of the report followed and the draft revised report was discussed at a meeting held in Germany in December 2010. This was further discussed at the A-P Exe-com meeting that took place in Surabaya, Indonesia in July 2011. The study has gone through extensive consultation and is now finalized and available at: http://www.unep.org/hazardoussubstances/Portals/9/Mercury/Documents/supplystorage/Analysis%20of%20options%20for%20the%20environmentally%20sound_EDITED%20CLEAN_May2011.pdf.

The options analysis for the LAC region was also extensively discussed and consulted with the partners. It was finalized in October 2010 and it is now available at: http://www.unep.org/hazardoussubstances/Portals/9/Mercury/Documents/supplystorage/Final_Draft_LAC%20Hg%20Options_Chile.pdf.

The Eastern Europe and Central Asia (EECA) area was also identified as potentially needing an options analysis for storage. A preparatory study on the flows of mercury in the region was completed by April 2010 and is available at: http://www.unep.org/hazardoussubstances/Portals/9/Mercury/Documents/supplystorage/EECA%20Excess%20Mercury_Final%20Draft_Apr2010.pdf

"Framework document" to assist decision making on mercury sequestration.

In 2009, while at the Mercury OEWG 2, it became clear that some governments (mainly countries/regions that have large quantities of excess mercury supply) may need assistance on making decisions with respect to managing excess quantities of mercury. In order to further support sequestration of excess mercury globally, the partnership, with UNEP support, initiated the development of a "Framework document" which would present technical options and guide decision making on mercury sequestration needs. Although still under development, the Framework document will seek to address:

- Legal and regulatory measures that foster (and not deter) environmentally sound management and sequestration,
- Informational assistance on options to develop sequestration capacity in certain regions, including considering a "decision tree" of activities, and
- Private sector sharing in financial responsibility.

As part of the Framework document, the need to provide clarity on relevant terms used relevant to storage, was identified, since the partnership goal is to sequester surplus quantities of mercury – regardless of whether it is characterized as commodity or waste mercury.

Since clarifying such terms would also prove useful to the INC process, UNEP supported the development of this document: *" The Introduction to the Draft Glossary of Terms related to Mercury Storage and Disposal"* (7th draft) is available on UNEP's website.

Important terms with relevance to storage of elemental mercury and to storage and disposal of waste consisting of elemental mercury and waste containing or contaminated with mercury have been identified. These are presented in the format of a "Question and Answer" (Q & A) to provide a basic overview.

The document presents general descriptions of important terms, refers to relevant definitions from chemical and waste conventions, notably the Basel Convention, where available and applicable, provides background information on complex terms and issues and groups synonymous terms.

This document is for information only. Descriptions and definitions presented for various terms are not intended to pre-empt any discussions or decisions to be undertaken at upcoming mercury Intergovernmental Negotiating Committee sessions. Nevertheless, the document may serve as a basis for starting discussions.

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Regional and National Initiatives

The United States Department of State has launched two projects in Indonesia and Philippines in 2011, with NGOs in the Southeast Asian Region, BaliFokus and Ban Toxics, to develop a national strategic plan for the two countries on mercury storage. The project aims to engage various sectors on developing mercury storage at a national and sub-national level. The project also seeks to generate data on the local costs, requirements, and other social criteria for the successful establishment of mercury storage in the two countries. The areas of focus for the storage project will be the small-scale gold mining sector, healthcare facilities, and the oil and gas industry.

In April 2012, Argentina and Uruguay successfully concluded their respective national mercury storage and disposal projects supported by UNEP with funding from Norway ODA. Project activities included assessment of relevant national legislation/regulatory framework and inventory of hazardous waste treatment facilities that will serve as temporary mercury storage facilities. On the basis of these inventories, as well as inventories of mercury use and releases, basic management options were investigated. National coordinating mechanisms to safely store and treat mercury waste were created and/or strengthened. The project resulted in national action plans aimed at the environmentally sound storage and disposal of mercury in both countries. Information about these projects is available at http://www.unep.org/hazardoussubstances/Mercury/PrioritiesforAction/SupplyandStorage/Activities/LACMercuryStorageProject/MercuryStorage2CountriesProject/tabid/79070/Default.aspx.

In May 2012, the Government of Spain (the Ministry of Agriculture, Food and Environmental Affairs and the National Technological Centre for Mercury Decontamination), along with the Governments of Brazil and Uruguay, organized a workshop on mercury management in the Latin America and the Caribean (LAC) Region. The workshop was planned within the framework of activities proposed for the Supply and Storage Partnership Area of the Global Mercury Partnership (UNEP). Participants attending the workshop were representatives from governments, UNEP, NGOs, research and technological centres of chemical conventions, as well as representatives of key industrial sectors for mercury, such as the gold mining industry and the chlor-alkali sector. The workshop addressed the situation and challenges in managing mercury in the LAC Region, analyzing possible environmentally sound solutions. Information about this workshop is available at:

http://www.unep.org/hazardoussubstances/Mercury/PrioritiesforAction/SupplyandStorage/Activities/WorkshoponMercuryManagement/tabid/104297/Default.aspx

The Regional Activity Centre for Cleaner Production (CP/RAC) in Barcelona (Spain) works under the Mediterranean Action Plan (MAP, UNEP) for the protection and development of the Mediterranean Sea and is also Regional Centre for the Stockholm Convention. In December 2012, the CP/RAC in collaboration with MEDPOL, the Spanish Ministry of Agriculture, Food and Environmental Affairs and the National Technological Centre for Mercury Decontamination (CTNDM), organized a workshop on Mercury Management and decontamination in Almadén (Spain) in the framework of the recently approved Regional Plan on Mercury for the Mediterranean countries. Participants attending the workshop were representatives from governments, UNEP, NGOs, research centres and industry. The workshop

addressed the situation, challenges and possible solutions in managing mercury in the Mediterranean region. Information about this workshop is available at:

http://www.cprac.org/en/news-archive/general/workshop-on-mercury-management-and-decontamination-in-almaden-spain

V. STRATEGIES/OPPORTUNITIES

- Support additional bilateral projects to transition away from primary mercury mining to industries or activities that are more environmentally sound and economically sustainable.
- Encourage the environmentally safe storage/disposal of mercury from major sources, such as but not limited to, decommissioned plants in the chlor-alkali industry and from byproduct mercury generated by the large scale mining industry.
- Encourage linkages with the chlor-alkali partnership and request their assistance in gathering data on estimated quantities of surplus mercury worldwide projected to be available in the near future.
- Review existing documents such as the Basel guidelines on managing mercury wastes.
- Encourage development and implementation of national policies which restrict trade in mercury and sequester rather than export mercury in countries with significant mercury exports.
- Support to options analysis/ feasibility studies and follow-up work on mercury sequestration in Asia Pacific and Latin America/Caribbean regions, and initiation of mercury storage projects in other regions such as the EECA

VI. PERFORMANCE MEASUREMENT AND REPORTING

The partnership areas would report biennially to UNEP in accordance with the UNEP reporting format[8]. Reporting will include monitoring performance (tracking partnership activities and partner contributions) as well as assessing effectiveness (measuring supply reductions achieved to the extent possible).

VII. RESOURCE MOBILIZATION

Partners are encouraged to contribute financially and also to offer in-kind assistance.
Partners can develop specific initiatives, work with non-partners, or pursue projects consistent with partnership objectives. It is hoped that the UNEP Global Mercury Partnership will serve as a mechanism to consolidate and leverage funding for large, strategic projects.
Partners are encouraged to apply for funding to relevant funders and regional organizations.
Developing countries and countries with economies in transition can submit requests for funding to UNEP. UNEP and other partner implementing agencies stand ready to assist countries to develop proposals addressing mercury issues under the UNEP Mercury Small Grants Program (*see* www.chem.unep.ch/mercury/Overview-&-priorities.htm) and the SAICM Quick Start Programme (*see* www.chem.unep.ch/saicm/qsp.htm).

[8] UNEP will develop a systematic reporting format and timeline for the partnership areas to follow.

VIII. BUSINESS PLANNING PROCESS

Revision of the business plan takes place through electronic consultation among partners. The content of the business plan will be reviewed and revised in order to reflect the developments in the INC process to the possible extent. It will also be periodically reviewed and updated to reflect progress in implementation and changing circumstances related to the supply and storage partnership. It should be used as a tool for identifying technical issues and facilitate smaller work sessions.

Administration and Management Support		Source of support
Partnership Lead	• Facilitation and support of the Partnership • Preparing Business Plans • Preparing for meetings • Logging meeting notes, tracking action items • Collaborating with partners to strategically link to overall partnership goals and objectives	Government of Spain Government of Uruguay
UNEP Secretariat support	• Managing the clearinghouse/website • Taking in funding from multiple sources to fund projects • Developing activity proposals in collaboration with partners • Assisting the lead in following up activities by partners • Other tasks as requested	In-kind support from UNEP
Teleconferences and meetings	At least one per year and as needed	Governments of Spain and Uruguay

IX. PARTNERS

This is a list of partners that have signed up on the UNEP website:

Governments

- Germany
- Spain
- Switzerland
- United States of America
- Uruguay

Intergovernmental Organizations

- United Nations Development Program
- United Nations Institute for Training and Research
- Basel Convention

Non Governmental Organizations

- Centre pour l'Environment et le Dévelopment RDC
- Grupo Parques Nacionales Panamá / Alianza Contaminación Cero
- International POP's Elimination Network (IPEN)
- Kyrgyz Mining Association
- World Chlorine Council
- ZOI Network
- Zero Mercury Working Group
- Environmental Visual Artist

Other interested parties are welcomed to join the partnership and self identify to UNEP, see: http://www.unep.org/hazardoussubstances/Portals/9/Mercury/Documents/PartneshipsAreas/PartneshipsLetters/Registration%20Form.pdf.

Partners Contact information:

	Country	Organization/Gvt Office	Last Name	First name	Title	Email and telephone
Governments	Spain	Ministerio de Agricultura, Alimentación y Medio Ambiente Centro Tecnológico Nac. de Descontaminación de Mercurio (CTNDM)	García Ramos	Ana Manuel	Jefe de Área de Coordinación Institucional Director-Coordinador	aggonzalez@magrama.es +34 91 453 53 63 mramos@ctndm.es +34 629 27 28 69
	Uruguay	Dirección Nacional de Medio Ambiente	Torres	Judith	Responsable del Departamento de Sustancias Peligrosas	jmtorres1426@gmail.com judith.torres@dinama.gub.uy +598 2917 07 10 int 4107
	Switzerland	Federal Office for the Environment FOEN	Eigenmann	Gabi	Senior scientific advisor	Gabi.eigenmann@bafu.admin.ch +41 31 322 93 03
	United States	USEPA, Office of International and Tribal Affairs • •	Fulton Davis	Scott C. Kenneth	Principle Deputy Assistant Administrator	202 564 6600 • • davis.kennethj@epa.gov Davis.KennethJ@epamail.epa.gov • 202.564.6462
	Germany		Hempen	Susanne		susanne.hempen@bmu.bund.de

Intergovernmental Organizations	UNDP	United Nations Development Programme				
	UNITAR	United Nations Institute for Training and Research				
	International	Secretariat of the Basel Convention	Kern	Matthias	Senior Programme Officer	Matthias.kern@unep.org 41 22 917 8767
Non-Governmental Organizations	République Démocratique du Congo	Centre pour l'environnement et le développement, CED	Dhetchuvi Matchu	Jean-Baptiste,	Coordinateur	Jbdhetchuvi22@yahoo.com 243 99 406 3627
	Republic of Panama	Parques Nacionales de Panama Group	Conte	Jorge G	Director	jconte0024@yahoo.com 507 221 3181
	International	International POPs Elimination Network, IPEN	Petrlik	Jindrich	Co-Chair IPEN Heavy Metals Working Group	jindrich.petrlik@arnika.org heavymetals@ipen.org 420 22 278 1471
	Kyrgyz Republic	Kyrgyz Mining Association	Bogdetsky	Valentin	Board Member	bogdez@mail.ru ikarybek@hotmail.com 996 31 230 0478
	International	World Chlorine Council, WCC	Seys	Arsen	Managing Director	ase.consulting@skynet.be 32 4 75 484 684
	International	Zero Mercury Working Group	Lymberidi-Settimo Bender	Elena Michael	ZMWG International Coordinators	Elena.lymberidi@eeb.org 32 2 289 1301 Mercurypolicy@aol.com 1 802 223 9000
	Switzerland	ZOI Network	Simonett	Otto	Director	Otto.simonett@zoinet.org 41 22 917 8342
	Republic of Panama	Environmental Visual Artist	Batista Rivera	María Gabriela		mbatista_rivera@hotmail.com 507 399 0401 507 690 9410
	Australia	Hg Recoveries Pty. Ltd	Helps	Andrew G.	Managing Director	agroeco@bigpond.com 61 35 622 0040
	International	International Dental Manufacturers				

X. LINKAGES

Mercury in wastes partnership area, particularly storage aspects. Coordination with projects on the environmentally sound of management of mercury waste (UNEP Chemicals-SBC projects in Burkina Faso, Cambodia, Chile, Pakistan, Philippines and the USEPA-SBC projects in Argentina, Costa Rica, and Uruguay (joint project with Products partnership area). Follow up on the initiatives of the Waste partnership on relevant documents (e.g. Good practices)

Chlor alkali partnership area. Activities aimed at phasing out mercury cell chlor-alkali facilities should be coordinated with this partnership regarding the fate of the mercury at the closing or converting facilities. Concretely, storage, disposal options and technologies could be provided to chlor-alkali facilities that plan to convert to non mercury technology.

Products partnership area (in addition to Products-Wastes projects with the SBC).
Coordination with hospitals and schools projects geared to reduce the use of mercury containing equipment and products, as well as to explore possibilities for proper storage and disposal. In addition, the Products partnership is seeking to expand its work to develop mercury products and emissions inventories.

D. Mercury Air Transport and Fate Research Partnership Area -UNEP F&T

(NOTE: This is the business plan version of September 2014 with editorial revisions and updates proposed by all F&T partners)

This Business Plan describes the activities of the United Nations Environment Programme (UNEP) Global Partnership for Air Transport and Fate Research (F&T) during the period 2013-2015 and serves as a communication vehicle both for Partners and others. It updates the F&T business plan, developed in initial version at its January 2007 Gatineau, Quebec meeting and later posted on the Partnership web site.

The purpose of the business plan is to provide a framework for developing and implementing projects. The business plan is to serve as a resource for providing a common, cohesive structure for implementing the UNEP Global Mercury Partnership.

The partnership is open for government and stakeholder participation. In UNEP Governing Council Decision 24/3 part IV paragraph 27, UNEP is tasked with working in consultation with Governments and stakeholders to strengthen partnerships under the UNEP Global Mercury Partnership as part of the global effort to deal with mercury.

Governing Council 25/5 specified the UNEP Global Mercury Partnership as one of the main mechanisms for the delivery of immediate actions on mercury during the negotiation of the global mercury convention.

New activities and partners are encouraged within the UNEP Global Mercury Partnership.

Chair of the partnership area:

Prof. Nicola Pirrone
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I. SUMMARY OF THE ISSUES

An improved understanding of mercury emission sources, fate and transport is important in:

(a) setting priorities at the national, regional and global levels,

(b) developing and implementing policies and strategies, and

(c) establishing baselines to monitor and assess progress on mercury reductions.

Integrated global assessments, based on valid data and information from regional and national levels, are essential for global understanding and for predicting trends. However, there is a lack of global monitoring coverage and coordination in research efforts.

With competing resources and priorities at the national, regional and global levels, cooperation and coordination among the partners, countries and stakeholders in the field of atmospheric and ecosystem mercury research and monitoring, aiming to achieve the objectives below would help bring about a greater understanding of mercury uses and releases, and achievement of cost-effective reductions in mercury contamination.

II. OBJECTIVES OF THE PARTNERSHIP

F&T aims to increase global understanding of international mercury emissions sources, fate and transport by:

- Accelerating the development of sound scientific information to address uncertainties and data gaps in global mercury cycling and its patterns (e.g., air concentrations and deposition rates, source-receptor relationships, hemispheric-global air transport/transformation emission sources, transboundary movement through hydrological and atmospheric pathways, air/water exchange, aquatic mercury cycle and exposure in biota, particularly fish);
- Enhancing the development of scientific information on aquatic transport and fate of methylmercury to biota as well as human exposure, recently included amongst the objectives of the Partnership's research activities
- Enhancing compilation and sharing of such information among scientists, between scientists and policymakers and with various global stakeholders and other interested parties;
- Providing technical assistance and training, where possible, to support the development of critical information;
- Enhancing the development of a globally-coordinated mercury observation system to monitor the concentrations of mercury species into the air and water ecosystems in cooperation with the GEO Task HE-09-02d *"Global Observation Network for Mercury"* as part of GEOSS 2012-2015 work plan.
- Enhancing the exchange of information and cooperation with the Task Force on Hemispheric Transport of Air Pollutants (TF HTAP) of the UNECE-LRTAP Convention as well as with relevant International Organizations and Programmes.
- Monitoring, assessing, and reporting information that can be used as the basis for assessing the environmental and public health benefits and effectiveness of global mercury reductions pursuant to the Minamata Convention on Mercury and other relevant mercury reductions strategies

The F&T will continue to act as an integrator of scientific information among the partnerships and will also continue to support the overarching goals of the UNEP Mercury Programme, including contributing to, coordination and liaison with various organizations and programs. Such programs include the United Nations Economic Commission for Europe, Arctic Monitoring and Assessment Programme, UNEP Regional Seas, Task Force on Hemispheric Transport on Air Pollutants of the UNECE-LRTAP convention, and the International Union for Conservation of Nature (IUCN). The F&T will also give its scientific support to the UNEP Mercury Programme as well as to national and international organizations for the promotion, ratification and implementation of the Minamata Convention on Mercury.

III. LONG TERM PRIORITY ACTIONS

The following table identifies long term priority actions and then links them with various current partnership efforts (further described in Paragraph IV) and timelines.

Long-Term Priority Actions	Current Partnership Efforts and Timelines	Future Strategic Initiatives to be considered to fill the gaps
• Coordination in conducting research projects related to partnership objectives and scope on national/regional/global scales on cross-cutting issues of the mercury cycle.	• The leader of the F&T in cooperation with partners and other research and university institutions in the world is coordinating a 5-yr project "Global Mercury Observation System (GMOS)", funded by the European Union's Seventh Programme for research, technological development and demonstration, which is aimed to build a global observing system of mercury contamination. GMOS started in November 2010 and will end in 2015. GMOS has established a strong cooperation with on-going regional programs in US, Canada, Japan and China as well as with international programs i.e., UNEP, UNECE-TF HTAP, GEO/GEOSS. The GMOS recent mid-term results are described in Appendix A.	• GMOS will support major international programs and conventions aiming to evaluate the effectiveness of control measures that will be adopted in the future to reduce the impact of mercury pollution related to anthropogenic activities on human health and ecosystems (more details at: www.gmos.eu). Specifically GMOS has contributed to the preparation of the UNEP report (see above) for consideration by Governing Council/Global Ministerial Environment Forum at its twenty-seventh session" in 2013. The F&T contributions are described in Appendix B.
• Develop global, coordinated network of measurements for assessing levels of mercury and its species in the atmosphere and water – improving the comparability among measurements and observations	• Conduct atmospheric monitoring and make summary data available (Canada, South Africa, United States) • Share sampling and monitoring methodologies and provide training on the operation and maintenance of mercury speciation instrumentation and mercury wet deposition sampling equipment (U.S. and Canada). • Measure mercury in precipitation and make summary data available (Canada, South Africa, United States) • Expand mercury measurements to include speciation (RGM, Hg(p)) (Canada, South Africa, United States) • Develop common protocols for the measurement and estimation of Hg dry deposition (Canada and United States), • USEPA will share speciated measurements of mercury together with other pollutants, taken during 2002-2009, at the U.S. National Oceanic and Atmospheric Administration's high altitude station at Mauna Loa, Hawaii.	• Encourage joint initiatives to promote training on mercury measurements in ambient air and flue gases. (Italy, Slovenia). • Support international programs and initiatives (IGBP-IGAC, UNEP, AMAP). (Italy) aiming to understand the dynamic of pollutants such as Hg between ecosystems and to elaborate policy options. • Continue to support UNECE-LRTAP convention for shaping future international mechanisms aimed to reduce the mercury emissions to the atmosphere and its impact on ecosystems and human health (Italy, U.S.).

	• More recent USEPA-funded speciated mercury measurement data (2010 to present) from Mauna Loa are available through the National Atmospheric Deposition Program (NADP) and NOAA Air Resources Laboratory.	
• Develop global, coordinated network for research on source-receptor relationships effort that would allow for the creation of modeling framework for understanding global fate of mercury	• Research projects on mercury transport, cycling and deposition of mercury to the Polar environment and across Canada (Canada). • Development of methodologies for the identification of mercury sensitive areas in the marine environment (Slovenia) •	• To support the GESAMP initiative on mercury in the marine environment in the framework of initiatives carried out in F&T. • Coordinate and develop a database which will generate spatial layers depicting existence of Hg data in biota – particularly coastal and open ocean fish - by region and identify biological mercury hotspots for future linkage with atmospheric cycling data and data on watershed sources of mercury.
• Develop a global, commonly accepted modeling framework for source-receptor relationships assessment at global and regional scales	• Canada has developed the global/regional atmospheric heavy metals model (GRAHM) for the distribution of atmospheric mercury • GRAHM used to estimate intercontinental transport of mercury to various regions (Canada) • South Africa is developing a MERIECO model (Bayesian Network) to determine the linkages between Hg from source to receptor. • Share worldwide meteorological data through the READY web-based system (U.S.). • Share various transport and air dispersion models (U.S.) • BRI (US) is developing a global biotic Hg database with an emphasis on marine organisms that can be used to identify biological Hg hotspots that may be of particular concern for human and ecological health. • USEPA will share a multi-media modeling methodology now being developed by Harvard University under contract to EPA, that relates global emission inventories to changes in methylmercury fish concentrations in various marine regions of the world, and, thus,	• Coordinate with the UNEP Live platform that can serve as a partner clearinghouse of Hg related information.

	provides a framework for estimating individual country exposures associated with those sectors	
• Develop global emissions and releases inventories, e.g., by filling current gaps in geographic and source coverage which includes information on regions not yet accounted for and on sources not yet accounted for in currently used databases, e.g. biomass burning, artisanal gold mining, coal-bed fires and natural sources. F&T will give particular emphasis to the development of global emission inventories that will consider separately source by source in all industrial sectors	• Maintain and make available national mercury emissions information (Canada, United States) (ongoing; annual reports) • Develop and implement a program to quantify bi-directional mercury flux from oceans, lakes, soils and vegetation (Canada, U.S.). • South Africa is currently completing a Hg inventory for the country. • South Africa and Norway are working together on developing Hg scenarios for the country. • Share worldwide coal inventory (http://energy.er.usgs.gov/coalquality/wocq/collaborators.html) (U.S.).	• Combine emissions and watershed releases data to provide a global map of all mercury sources
• Build capacity, including through the provision of training programs, related to partnership objectives and scope monitoring, modeling and other tools in countries where necessary	• South Africa held a Hg analytical training programme in conjunction with international Hg experts • Training in mercury analysis and speciation in environmental matrices (Slovenia) • Training in analytical methodology, analysis, QA & QC (DLCS Scotland) • BRI (US) is organizing multiple training sessions for biologists from Central and South American countries to measure Hg levels in biota (aquatic and terrestrial biota). • Providing multiple training and demonstration workshops for agency scientists in the Asia-Pacific region on mercury wet deposition sampling operations and methods for gaseous and particulate atmospheric mercury sampling (USA).	• Establish a global paired sampling program with local NGOs to link and understand fish with associated human hair Hg concentrations
• Build on existing international	• Canada participated in two model intercomparison studies (led by	• Italy with WHO will take part and contribute to the

activities work already underway internationally, e.g., GEOSS, Arctic Council, UNECE-HTAP, WMO, AMAP	EMEP and EPA) and contributed to UNECE-HTAP interim and final assessment reports on the evidence for intercontinental transport. • Through the CEC Canada and US are assisting Mexico to seek funding to continue and expand programs for mercury monitoring.Through the AMNet network, the US and Canada collaboratively make atmospheric speciation measurements.	UNEP/GEF Global project on the '*Development of a Plan for Global Monitoring of Human Exposure to and Environmental Concentrations of Mercury'* lead by UNEP aiming at harmonizing approaches for monitoring mercury in humans and the environment, and at strengthening the capacity for mercury analysis in humans and the environment to accurately determine their concentrations globally.
• Assessment and fate of mercury in marine, freshwater, and terrestrial ecosystems from various sources including atmospheric	• C-MERC convened a team of scientists and stakeholders to work together over a two-year period to gather and analyze data. 11 peer-reviewed papers were published papers which will elucidate key processes related to the inputs, cycling and uptake of mercury in marine ecosystems and human exposure and health effects. The synthesis report, "Sources to Seafood was published in December 2012. http://www.dartmouth.edu/~toxmetal/C-MERC/index.html • BRI (US) coordinates with several academic and governmental institutions across North America to maintain the TERRA mercury network http://www.briloon.org/science-and-conservation/programs/TERRA.php. They are expanding this network into Central and South America. • BRI, USEPA and the National Atmospheric Deposition Program and collaborators (US) continue to develop and expand MercNet – a comprehensive and integrated National Multi-media Mercury Monitoring Network. Online mercury metadata inventory is live and online at http://www.briloon.org/about/staff/MercNetTheNationalMercuryMonitoringProgram.php. • GESAMP through the DLCS will produce a synthesis of known literature to date including	• Canada is completing the Canadian Mercury Science Assessment Report that has coordinated all Canadian Activities that could be used as a benchmark for other countries to follow. • Build on the European Metrology Research Fund (EMRP) to develop primary mercury standards for calibration of instruments and therefore establish metrologically valid traceability chain. • Build a global database for marine ecosystem biota, both coastal and open ocean, to establish a baseline from which effectiveness evaluation of mercury controls can be done. Identify common trophic groups and species that could be useful for determining spatial and temporal variability of mercury bioaccumulation.

	compilation of known models and EQS values used worldwide • Development of protocols for mercury analysis and speciation in water (Slovenia) • Developing metrology support in mercury analysis and contribute to worldwide comparability of the results (Slovenia) • Develop global protocols for monitoring water, sediment & biota. • Canada is scientifically contributing to advancement through several research programs including the Clean Air Regulatory Agenda Mercury Science Program, the METAALICUS project, ArcticNet, Northern Contaminants Program and the JOSM program.	
• Contribution of contaminated sites to the global mercury cycle	• An assessment of the contribution of contaminated sites to the global mercury budget (Slovenia) • Position papers for characterization and identification of contaminated sites; modelling approaches, remediation and health surveillance will be compiled (Slovenia, Japan)	

IV. CURRENT PARTNERSHIP EFFORTS AND TIMELINES

Each country and organization's contribution are provided in Appendix B of this document. The following is a summary of contributions:

- In the framework of GMOS activities SOPs for atmospheric and oceanic measurements will be prepared and made available to a broader community of scientists and policy makers.
- A revision of atmospheric emissions from major anthropogenic and natural sources has been recently published within GMOS in cooperation with other GMOS partners including NILU (WP Leader on emissions within GMOS) and partners of F&T.
- Maps of spatial and temporal distribution patterns of mercury species will be prepared with state-of-the-art atmospheric mercury modeling systems.
- Expansion of F&T scope to include oceanic transport, methylation, bioaccumulation and exposure, as decided in its 11/25/09 teleconference.

  This expanded role of the partnership to integrate the science linking global emissions and exposure will benefit UNEP and the individual partners;
- Relevant outcomes will be made available on the F&T web portal for scientists, policy makers and stakeholders.

During the period January 2013 - July 2014 the Partnership team members have met many times. In **2013** the F&T has taken part to the following meetings, workshops and committees:

- Fifth INC - Intergovernmental Negotiating Committee to prepare a global legally binding instrument on Mercury and relative exhibition space, held in Geneva (Switzerland), on January 13th – 18th, organized by UNEP.
- From 10th to 13rd June, F&T has organized a Workshop in Rome on the "Revision of GMOS Standard Operating Procedures, QA/QC Procedure and ad-hoc Software and Data Policy" developed in the framework of the global GMOS network. It is a centralized system based on a unique and separate QA/QC methodology able to assure and control the quality of mercury datasets coming from the GMOS network
  and aimed to process raw data by integrating information coming from station e-logbooks (i.e. centralized electronic logbooks) and from automated Quality Assurance (QA) scripts (used as flagging criteria) related to specific procedures for the measurement of atmospheric mercury data;
- On July-August 2013 the F&T has met during the Fifth PAG - Partnership Advisory Group meeting, organized by UNEP, and at the 11th ICMGP (International Conference on Mercury as a Global Pollutant) held in Edinburgh, Scotland (UK), from July 28th – August 2nd 2013. A special session titled 'Development of a Global Mercury Observation System toward the preparation of the global mercury treaty (GMOS)' coordinated by the CNR - Institute of Atmospheric Pollution Research and the Biodiversity Research Institute was held at the 11th ICMGP 2013. The Special session focused on the development of a Global Mercury Observation System (GMOS) aimed to provide spatial and temporal variations of mercury concentrations in ambient air and precipitation, as well as in the marine and terrestrial ecosystems, toward the preparation of the global mercury treaty (http://www.mercury2013.com/conference-topic-overview/).
- From 16 to 18 September 2013 F&T has joined the AMAP WG Meeting in Torshavn, Faroe Islands (Denmark);
- In October 2013 the F&T has taken part to the Conference of Plenipotentiaries on the "Minamata Convention on Mercury" which was held in Minamata and Kumamoto, Japan, from October, 9th to 11th and was preceded by an open-ended intergovernmental preparatory meeting from October, 7th to 8th 2013. During the Preparatory meeting, the Italian Ministry for the Environment Land and Sea (IMELS) and the Italian National Research Council — Institute of Atmospheric Pollution Research (CNR-IIA), have organized a side-event, on the "Italian National Reference Centre for Mercury and its potential role within the Minamata Convention". The side event has presented the Italian Reference Centre for Mercury (CNRM), established at the end of 2012 to tackle the problem of mercury pollution, and promoted it as International Centre to support national and international organisations in the implementation of the Minamata Convention.

In **2014** the F&T has taken part to the following meetings, workshops and committees:

- From 25th to 28th February 2014 has participated to the Workshop on Pollution of Open Ocean which was held at International Atomic Energy Agency (IAEA) Environment Laboratories in Monaco under the aegis of the Joint Group of Experts on the Scientific Aspects of Marine Protection (GESAMP);
- In April 2014 (14-15th April), The GMOS Mercury Modelling Task Force has taken place at the CNR-IIA, in Rome. The meeting was attended by colleagues from the US, Canada, Russia and Germany, with a number of colleagues worldwide connected via videoconferencing;
- In July 2014, from 9th to 10th F&T has organized a workshop in Rome on the GMOS Data Quality Management System (G-DQM) in the framework of the global GMOS network;
- On July 28-30, F&T has taken part to the 3rd International Conference on Earth Science & Climate Change, San Francisco, USA, 2014.

- In October 2014 F&T will take part to the sixth PAG - Partnership Advisory Group meeting to be held between the 30th of October and the 1st of November 2014 in Bangkok, Thailand, back to back with INC6, which will be held from November 3-7, 2014.

During the period 2013-2014, the Partnership has had several teleconferences and many contacts with other F&T partners in order to assure an efficient exchange of information and, in the same period, has taken part in many meetings and workshops.

V. FUTURE STRATEGIC INITIATIVES TO BE CONSIDERED TO FILL THE GAPS

Areas identified within the F&T Partnership for further investigation include:

- Harmonization of mercury emission and releases inventories;
- Development of a global observing system to monitor and model mercury contamination at regional and global scale. This could be done using GMOS as a framework, considering that GMOS is currently the only international initiative aiming to build a global observing system for mercury, to support the implementation of future legally binding instrument aiming to reduce the impact of mercury emissions on human health and ecosystems that are under preparation (INC process) in the framework of the UNEP Mercury Program and last GC meeting's decisions.
- Close coordination with the Group on Earth Observations (GEO), the organization working to built GEOSS (the Global Earth Observation System of Systems), to include mercury in GEOSS work plans;
- Further involvement of the F&T partners in several International Conferences such as 2014 AGU Fall Meeting to be held on December 2014 in San Francisco;
- Further coordination and liaison with various organizations and programs (such as United Nations Economic Commission for Europe, Arctic Monitoring and Assessment Programme, UNEP Regional Seas Program);
- Further development of a global biotic Hg database that will provide a baseline of mercury levels from which to evaluate Mercury Treaty effectiveness. Place particularly emphasis on marine coastal and open ocean fish and other food items which are important to monitor for human health purposes. Link Hg data with harvest data from the FAO;
- To explore opportunities to integrate current or proposed Hg monitoring programs for biota in the western hemisphere that can be used for global monitoring purposes and linked with measurements of air deposition and watershed releases;
- To expand the scope of F&T to include dispersed sources of mercury to the global mercury budget, such as re-emission of mercury from contaminated sites (including emissions to the atmosphere and water cycle);
- To expand the scope of F&T by including ecosystems that are sensitive to the mercury load (i.e.; biological mercury hotspots). Indicators and metrics still to be developed;
- To liaise with supporting activities already provided through regional meteorological institutions. This link will enhance and strengthen the quality of measurement results and secure worldwide comparability (stronger collaboration with the WMO is suggested) and may assure a sustainability of efforts and coordination globally;
- To develop global protocols for monitoring of waters, sediments & biota in terrestrial, freshwater, and marine ecosystems that will assist in model development
- To join new European Projects, such as the Research Project "ENV51 Metra: Traceability for mercury measurements" (SRT-v11) to support the requirements of national and international legislation (e.g. the UNEP Minamata Convention on Mercury), which aims at controlling mercury emissions and releases, selected and approved by the European

Metrology Research Programme (EMRP) Call 2013 – Energy and Environment. The EMRP is funded by the EMRP participating countries within EURAMET and the European Union. The project coordinated by the JRP-Laboratoire national de métrologie et d'essais (LNE), France will start on the 1st of October 2014 and be of 3 years duration.

- To join new Global Projects, such as the UNEP/GEF Global project on the '*Development of a Plan for Global Monitoring of Human Exposure to and Environmental Concentrations of Mercury',* led by UNEP DTIE Chemicals Branch, aiming at harmonizing approaches for monitoring mercury in humans and the environment, and at strengthening the capacity for mercury analysis in humans and the environment to accurately determine their concentrations globally. The project, approved and funded by the GEF will be of a 2 year duration.
- Hold F&T partnership meeting(s) and/or teleconferences subsequent to INC-6, as appropriate, to discuss path forward on how F&T partnership can assist with implementation of the Minamata Convention requirements.

VI. EVALUATION

The partnership areas will report biennially to UNEP in accordance with the UNEP reporting format[9]. Reporting will include monitoring performance (tracking partnership activities and partner contributions) as well as assessing effectiveness (measuring the impact of partnership activities on target beneficiaries). Partners will also provide periodic reports to UNEP upon completion of priority activities.

VII. RESOURCE MOBILIZATION

Partnerships and the associated business plans are a way of mobilizing funding in a systematic, focused and harmonized way. The Partnerships' objectives and business plans should provide clarity for potential donors and finance institutions. The business plans should encourage and facilitate donors to support activities and provide a tool to leverage funds.

Funding for Partnership Activities:

Partners can develop specific initiatives, work with non-partners, or pursue projects consistent with partnership objectives.

It is hoped that the Partnership will serve as a mechanism to consolidate and leverage funding for large, strategic projects. If partners wish to leverage funding for particular projects, details should be outlined within this section.

Partners are encouraged to contribute not only financially but also to offer in-kind assistance. Developing countries and countries with economies in transition can also submit requests for funding to UNEP under the UNEP Mercury Small Grants Programme. UNEP could consult with the partnership area for expert advice when such proposals are developed.

The partnership area has proposed possible ways to engage international donor agencies and make them aware of Partnership activities and needs, such as:

- Informing other countries of opportunities to pursue possible financial support from different agencies, such as the Asian Development Bank, World Bank, other regional funding institutions, and that it is desirable that these agencies be involved in the beginning of the process, and
- Considering ways to market the significance of mercury studies to major funding organizations so that the study of mercury pollution is included in their selection criteria

as an issue with significant socio-economic implications, such as linking the change of mercury methylation and availability with changes in climate patterns.

VIII. BUSINESS PLANNING PROCESS

The business plan will be reviewed regularly and adjusted accordingly by the partners. Ideas are welcome on how best to take stock of efforts, determine whether the direction of the Partnership for the various projects need to be re-considered, and measure the productivity of the efforts under the Partnership.

IX. LINKAGES WITH OTHER PARTNERSHIPS AND WITH OTHER ENTITIES

The F&T Partnership serves to integrate and enhance the work of the other Partnerships and other programs by providing information within the scope of its objectives.
Possible linkages with other air-emission-related and marine partnership areas and further planning on various joint projects will be explored and improved in the next years.

X. UNEP F&T WEBSITE

The F&T has established and updated a website at:
http://www.iia.cnr.it/index.php?option=com_content&view=article&id=479&Itemid=40&lang=it
, to serve as a bulletin board for sharing information within the Partnership and provide up to date information to policy makers and stakeholders.

The UNEP website on which information is available on all Partnerships is:
http://www.unep.org/chemicalsandwaste/Mercury/tabid/434/Default.aspx

XI. PARTNERS

Please see Appendix D of this document for the current list of partners that have submitted letters of support to the UNEP Global Mercury Partnership. There are a number of participating partners that have not officially submitted support letters.

Other partners are welcome to join the partnership at anytime.

Appendix A - Mid-term Results of the Global Mercury Observation System Project (GMOS- www.gmos.eu)

The Global Mercury Observation System (GMOS) is a five year project (2010-2015) involving more than twenty institutions from Europe, North and South America, Asia and Africa take part in the project. This project, lead by the Italian National Research Council - Institute of Atmospheric Pollution Research (CNR-IIA), has received funding from the European Union's Seventh Programme for research, technological development and demonstration under grant agreement No. 265113.

The primary goal of the Global Mercury Observation System project (www.gmos.eu) is the establishment of a worldwide observation system by integrating ground-based monitoring sites, ad-hoc oceanographic cruise campaigns and lower stratospheric and tropospheric studies, which can provide concentration data for mercury and its compounds in air and precipitation, as well as in marine ecosystems.

At the hub of the GMOS project is the Spatial Data Infrastructure (SDI). The SDI performs multiple roles, it is directly connected to ground based monitoring sites to collect (and store) real time mercury measurement data, it also gathers information on measurement instrument performance to enhance the data QA/QC, and is
configured to provide alerts and reminders to site operators in cases of both urgent and routine instrument maintenance. The SDI also serves as a repository for mercury emission databases, historical mercury measurement data, and also stores modelling output from the regional and global modelling initiatives within the GMOS project.

Major GMOS mid-term results:

- Establish of the global monitoring system for mercury with 28 land based monitoring sites (see GMOS website – www.gmos.eu);
- Completion of oceanographic and aircraft measurement campaigns;
- Planning and implementation of a centralized repository archive and established advanced web services;
- Establishment of a database of historical, current and future scenario mercury emissions.

Ongoing activities within the project:

- Continuing collection of atmospheric mercury species concentrations;
- Continuing collection of precipitation samples for mercury analyses;
- Improvement, validation and intercomparison of regional and global scale atmospheric mercury models (the latter with external partners within the GMOS Mercury Modelling Task Force (MMTF);
- Model application to evaluate source-receptor relationships, temporal trends and future emission scenarios;
- Preparation of a white paper, still in progress, aiming to provide a framework for using GMOS as a model for global monitoring of mercury under Minamata Convention on mercury, that will be supplied to all partners by the end of 2014.

GMOS cooperates closely with major international programs including the UNEP Global Mercury Partnership, the Task Force on Hemispheric Transport of Air Pollutants (TF HTAP) of the LRTAP Convention, the GEO Task HE-02-C1 "Tracking Pollutants" and the Arctic Monitoring and Assessment Programme (AMAP).

GMOS also supports the Italian National Reference Centre for Mercury (CNRM-www.cnrmerc.org).

Appendix B - Global Mercury Assessment 2013 "Sources, Emissions, Releases and Environmental Transport" (overall summary report) and AMAP/UNEP 2013 Technical Background Report for the Global Mercury Assessment.

The UNEP Governing Council meeting in 2009 requested "in consultation with Governments" to update the 2008 report entitled "Global Atmospheric Mercury Assessment: Sources, Emissions and Transport" for consideration by the Governing Council-Global Ministerial Environment Forum at its twenty-seventh session" in 2013 (GC Decision 25/5 III, paragraph 36).

Following the request of UNEP Chemicals, the "Global Mercury Assessment 2013: Sources, Emissions, Releases and Environmental Transport" and the relative Technical Background Report have been developed in collaboration with many experts working for UNEP, the Arctic Monitoring and Assessment Programme (AMAP), for many countries, Groups (such as the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection -GESAMP), Institutions (such as the Institute Jožef Stefan -Slovenia), including some experts working within the UNEP Global Mercury Partnership (i.e. the UNEP Partnership area on Mercury Control from Coal Combustion the UNEP Mercury Air Transport and Fate Research Partnership Area and the UNEP Partnership on Reducing Mercury in Artisanal and Small-scale Gold Mining) and others.

The F&T team contributed to develop the UNEP overall summary report including being responsible for the development of specific sections in the Technical Background Report. Specifically, F&T has contributed to Chapter 2 "*Global Emissions of Mercury to the Atmosphere*" and has leaded the preparation of Chapter 3 "*Atmospheric Pathways, Transport and Fate*". The report has been prepared as voluntary work of highly and well recognized scientists affiliated to F&T that have already contributed to previous efforts of F&T in supporting the UNEP process.

Chapter 3 is structured in the following eight parts:

- Part-1: Introduction
- Part 2: Atmospheric chemistry
- Part 3: Monitoring networks and programmes around the world
- Part 4: Atmospheric mercury measurements and trends worldwide
- Part 5: High altitude mercury measurements
- Part 6: Global mercury modelling
- Part 7: Regional mercury modelling
- Part 8: Conclusions

This chapter provides a concise and up to date overview of key information related to major transport and fate pathways of mercury species in the global atmosphere. Chapter 3 also provides an overview of atmospheric measurements including Monitoring Networks and Programs around the world with relative trends and up to date information on Regional and Global Scale Mercury Modelling.

For detailed info and for report download:

UNEP website:

http://www.unep.org/hazardoussubstances/Mercury/Informationmaterials/ReportsandPublications/tabid/3593/Default.aspx

Appendix C - Contributions from Partners

C1 - Contribution from Italy

Italy is leading the UNEP F&T in cooperation with Canada, Japan, Slovenia, South Africa, China, USA and UNEP. The work plan of the Partnership along with a description of the progress made, the specific contributions of the partners and products of the Partnership are reported in detail on the Partnership's web site. Italy will continue to maintain and update the web site.

The Italian contribution to the Partnership is related to different aspects of atmospheric mercury emissions, transport and transformations on regional and global scales. Activities are carried out in the Mediterranean region, in China and in Polar regions as well as in leading GMOS. The specific projects and programs leaded by Italy in 2009-2011 and planned for the following two years are briefly reported below.

GMOS: *Global Mercury Observation System*, funded by EC as part of EC FP7 – Italy leads GMOS which involves 24 partners from all over the world and cooperate with on-going programs in USA, Canada, China, Japan. GMOS is aimed to merge ground-based networks, oceanographic programs and tropospheric programs. More is available at www.gmos.eu

UNECE-HTAP Task Force, WG on Hg: Italy is Leading the Working Group on Mercury. The major goals of this WG was to perform a modeling intercomparison for assessing the effectiveness of emission reduction measures and an assessment of the relative contribution of natural vs. anthropogenic sources on hemispheric and global scales. Results have been published in the TF HTAP Report, Part B: Mercury, published in 2010 and submitted to the Steering Body of EMEP/UNECE-LRTAP (http://www.htap.org)

Polar research program: As part of the Italian Polar Research Programme (PNRA) Italy is performing (2012-2014) an intensive campaigns in Ny-Alesund on the Svalbard Islands at the Italian research site and at DOME-C in Antarctica (Italian-French bi-lateral program). The aim of this project is to investigate on mercury depletion mechanisms that affect the transfer of mercury from the atmosphere to surface snow in both polar areas.

Research Project "ENV51 Metra: Traceability for mercury measurements" (SRT-v11): Italy will support, trough this project, the requirements of national and international legislation (e.g. the UNEP Minamata Convention on Mercury), which aims at controlling mercury emissions and releases. This project, which will establish the required metrological infrastructure for mercury measurements in all environmental media, needed by current and future national and international legislation aimed at controlling mercury emissions and releases, was selected and approved by the European Metrology Research Programme (EMRP) Call 2013 – Energy and Environment. The EMRP is funded by the EMRP participating countries within EURAMET and the European Union. The project coordinated by the JRP-Laboratoire national de métrologie et d'essais (LNE), France will start on the 1st of October 2014 and be of 3 years duration.

UNEP/GEF Global project on the 'Development of a Plan for Global Monitoring of Human Exposure to and Environmental Concentrations of Mercury': Italy will contribute, with WHO, to the project aiming at harmonizing approaches for monitoring mercury in humans and the environment, and at strengthening the capacity for mercury analysis in humans and the environment to accurately determine their concentrations globally. The project, approved and funded by the GEF, will be lead by the UNEP DTIE Chemicals Branch and will be of a 2 year duration.

C2 - Contribution from Canada

Canada maintains a domestic mercury emission database under the National Pollutant Release Inventory (NPRI) program.

Canada has been measuring total gaseous mercury (TGM) and atmospheric mercury speciation since 1997 and 2001, respectively, across the country. Trend analyses on both the TGM and speciation data have been published and will be included in the Canadian Mercury Science Assessment. The data are publicly available in Environment Canada's NAtChem database and can be made available to the global scientific community. Standard operating procedures and quality control protocols and a full software system have been developed by Canada for atmospheric mercury measurements. These protocols and system are used throughout the monitoring sites in Canada and can be made available. Canada continues to provide guidance and assistance on training and building capacity on atmospheric mercury measurement processes both domestically and internationally.

The level of mercury in precipitation is determined at sites across Canada as part of the Mercury Deposition Network (MDN). The data are publicly available on the MDN website. Canada maintains two "external" sites within the US AMNet dry deposition network. Canada conducts significant mercury processes research aimed at understanding environmental pathways by which mercury is cycled in the environment.

Canada works internationally through agreements such as the NAFTA CEC North American Regional Action Plan (NARAP) on mercury, New England Governors/Eastern Canadian Premiers (NEG/ECP) action plan on mercury, Great Lakes Binational Toxics Strategy and the Arctic Council Action Plan on Mercury and contributes to the Arctic Monitoring and Assessment Program and the United Nations Environment Program.

Canada is compiling its first national picture on mercury research entitled the Canadian Mercury Science Assessment to be produced 2014-2015. The Assessment will be the first comprehensive national description of mercury in the Canadian environment. The assessment is intended to inform decision-making by policy-makers and research managers and establish a baseline against which future changes in mercury levels in the environment can be attributed to changes in mercury emissions and climate. This assessment highlights the continuing significant contribution that Canada makes to scientific research and monitoring of mercury both nationally and internationally.

Canada authored the Canadian Arctic Contaminants Assessment Report III in 2013. This report summarizes all the research and monitoring that Canada has undertaken in the Arctic. This is the 3rd report on the Canadian Arctic contaminants research and the first to exclusively report on mercury Canada continues to investigate the transport, cycling and deposition of mercury to the polar environment. Canada has the longest record of atmospheric mercury measurements in the Arctic. The Northern Contaminant Program, as part of Aboriginal Affairs and Northern Development Canada, has been monitoring mercury in both biotic and abiotic media across Canadas north for over 20 years. Canada significantly contributes to AMAPs database through this program.

Canada has developed the global/regional atmospheric heavy metals model (GRAHM) for the distribution of atmospheric mercury. This model provides source-receptor relationships to estimate the intercontinental transport of mercury to various regions. Canada has integrated a suite of computer models for atmospheric, terrestrial, aquatic, and bioaccumulation processes into a single framework and used it to simulate the effect of different emission reduction scenarios on fish mercury levels in Canadian lakes.

Through the Commission for Environmental Co-operation, Canada provided instrumentation and training to measure GEM concentrations at various sites in Mexico, aided the implementation of

2 MDN sites in Mexico and is assisting Mexico to seek funding to continue and expand these programs (with USA).

Canada continues to contribute to the International Conference on Mercury as a Global Pollutant conference series through the Scientific Steering Committee and serving directly as a guide to the chairs of each conference through the conference procedures and processes to ensure that the high quality of this series is maintained.

Canada is a partner in the Western Mercury Synthesis report. This report will be a collection of peer reviewed papers synthesizing all the mercury research that occurs in western Canada, USA and Mexico. It is anticipated that this product will be available as a special issue in a journal by 2015 or 2016. Canada was a partner in the Coastal and Marine Mercury Ecosystem Research Collaborative (CMERC).

Cohesive mercury monitoring in air, deposition, snow, water and wildlife continues as part of the Joint Oil Sands Monitoring program for Canadas oilsands region. This plan was developed by the Canadian Minister of the Environment in collaboration with the province of Alberta.

Canada is an external partner and a member of the scientific advisory board for the Global Mercury Observation System (GMOS) that is being developed to monitor the effectiveness of implementation of regulations for the global reduction of mercury emissions.

C3 - Contribution from Japan

Monitoring Project for Ambient Atmospheric Mercury and Other Heavy Metals in Remote Background Areas – Japan started a monitoring program that will provide background air monitoring data of mercury and other heavy metals to contribute to the understanding of their atmospheric long-range transport. For this purpose, the Ministry of the Environment started a pilot project at the Cape Hedo Atmosphere and Aerosol Monitoring Station in Okinawa, in February 2007.

The objectives of the pilot project are to:

- Monitor current levels of toxic trace elements, including mercury, in air, particles, and precipitation;
- Obtain useful information on the long-range transportation of trace elements in Asia-Pacific region;
- Develop monitoring methodologies and measurement items;
- Contribute to the international efforts in ambient atmospheric monitoring.

Measurement items, sampling and analysis:

Mercury speciation in atmosphere such as gaseous elemental mercury (Hg(0)), divalent reactive gaseous mercury (RGM), and total particulate mercury (TPM) are continuously measured with Tekran mercury speciation system:

- Airborne particles are collected on a polytetrafluoroethylene filter using a low-volume sampler. Toxic trace elements including Pb, Cd, Cu, Zn, As, Cr, V, Ni, ,etc., in particles are analyzed with the inductively-coupled plasma mass spectrometer (ICP/MS) once a week.

- Precipitation samples are collected using an automatic wet-only sampler, and toxic trace elements are measured once a month. Toxic trace elements and their analytical methods are the same as those of particulates.

Modeling fate of mercury species in multimedia environment:

Long-range transport of mercury species has been simulated by a number of atmospheric transport and chemistry modeling frameworks. Although atmospheric transport and resultant

deposition are believed to be the major source of entry into surface environment, inter-media processes between air and surface media including water, soil and others may not necessarily be described in existing modeling frameworks sufficiently. National Institute for Environmental Studies has developed a multimedia-modeling framework to assess the inter-media transport of mercury species through media-boundaries based on the multimedia-modeling framework for organic chemicals, which mainly focuses on the inter-media transport of media boundaries explicitly. By combining existing chemical/transport atmospheric modeling experiences to the inter-media transport simulation, more comprehensive fate modeling including both air and terrestrial/aquatic environment would be possible for more integrated assessment purposes.

The objective of the pilot project is to:

- develop inter-media transport scheme and process descriptions for mercury species by expanding the multimedia modeling frameworks from the monitoring outputs.

***Methods*:**

Multimedia fate model G-CIEMS is used as the basis of the study, which is now under POP model inter-comparison study by MSC-E/EMEP. Hg(0), RGM (Hg2+), Particulate and MeHg are the first set of target chemicals for the study.

Results of the existing and current new monitoring information (e.g. Shizuoka site) are to be used to the monitoring and modeling analysis efforts.

After box-model study of multimedia processes, integration to the atmospheric chemistry and transport scheme will be explored for the final goal of the project.

C4 - Contribution from Slovenia

Slovenia has compiled a report for the contribution of contaminated sites to the global mercury cycle. A workshop was organized in October 2010 to address this issue from a global perspective. Synthesis papers have been prepared and distributed at the negotiating meetings.

In May 2011 Slovenia in collaboration with COST, GMOS and GEOTRACES has organized a workshop on mercury analysis and speciation in seawater. This workshop addressed the issue of comparability of data for mercury analysis and speciation in marine waters, develop common protocols, set the rational for speciation and determination of flux measurements.

In 2011 a new EMRP project started (in collaboration with EU partners) on setting the metrology support for mercury measurements in the environment.

C5 - Contribution from South Africa

A South African Mercury Assessment Programme (SAMA) was established during 2006 to serve as the principal programme through which mercury research in South Africa is co-coordinated. Its are: to co-ordinate and facilitate high-quality research relating to Hg pollution in South Africa; to develop and execute a co-coordinated plan to achieve this, based on partnerships; and to provide opportunities for collaboration and training for young scientists.

More information can be obtained at: www.waternet.co.za/sama.

To date, partners of the SAMA Programme focused on different aspects of mercury research. As mercury acts differently in different systems, emphasis was placed on all systems (water, air, terrestrial environment, and human health).

The projects undertaken by the partners are as follows:

CSIR: A few pilot studies, funded by the CSIR and National Research Foundation, were undertaken. The studies form part of a larger project that focuses on:

- A mercury inventory for South Africa, and developing scenarios on its emissions;
- A national survey of mercury pollution and impacts in South Africa to determine the sources, fate and transport of Hg in South Africa, in air and water resources;
- Mapping information obtained in national survey, using large-scale multidisciplinary mapping;
- Evaluating the impacts of artisanal gold mining on human health and environmental health; and
- Developing and/or identifying appropriate mitigation processes or actions for ameliorating the Hg pollution that has been identified.

A mercury inventory on coal combustion (its sources and emissions to the environment) was established during 2006, and information will be published in the peer reviewed literature during 2008. In order to complete the inventory and to provide updated information to UNEP, this study has been extended during 2007 to include other mercury sources (household appliances, landfill sites, cement factories, waste incinerators, etc).

A pilot study on the fate and transport of mercury in selected South African rivers in the Western Cape (Liesbeek, Black, Eerste/Kuils, Silvermine), and Gauteng and Mpumalanga (Steenskoolspruit, Vaal River) was undertaken. Total mercury and methylmercury analyses were made of all air, water, sediment and biota samples collected, in collaboration with the University of Connecticut, USA. Detailed Hg studies were undertaken in collaboration with University of Connecticut, USA, and as part of MERSA, Norway, during 2007. A historical analysis of mercury in sediment of selected water resources was undertaken during 2006, and continued during last years.

A pilot study on mercury emissions from artisanal gold mining in South Africa was undertaken during 2007. The study focused on the Limpopo/Mpumalanga Provinces, where artisanal gold mining is believed to take place.

Department of Water Affairs and Forestry: Funded by the Department, total mercury in water resources has been measured since 1975, as part of South Africa's National Monitoring Programme. Monitoring of water resources will continue.

SASOL: Funded internally by SASOL, research has focused on understanding mercury released from coal during the Fischer-Tropsch process; and also focuses on the safe disposal of the elemental mercury that is recovered. Research will continue.

University of Stellenbosch: This group focuses on analytical method development for mercury speciation, with new methods for detecting elemental and inorganic mercury at low levels, being successfully developed. The method has been tested at the Cape Point Global Atmospheric Watch station, as a pilot study. The group is currently developing this method for other mercury species. Capacity is also being developed on a new technique to study the impact of humic acids on mercury and methylmercury bioavailability.

ESKOM: Funded internally by ESKOM, studies focus on the different mercury species emitted during coal combustion processes in electricity generation, since it is likely that species other than oxidized and particulate mercury is released during coal combustion.

The SAMA Programme envisages that in ten years from now, a completed baseline study will provide South Africa with a comprehensive view of mercury measurements in the country. Baseline data will be updated continuously and disseminated throughout a proposed mercury monitoring network.

C6 - Contribution from USA

U.S. Partners (to date):

U.S. Environmental Protection Agency (USEPA) (Facilitator), U.S. National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Energy (DOE), U.S. Geological Survey (USGS), Electric Power Research Institute (EPRI), Biodiversity Research Institute Center for Mercury Studies (BRI), Dartmouth College Superfund Research Program and the National Atmospheric Deposition Program (NADP).

USEPA will share speciated measurements of atmospheric mercury (elemental mercury, Hg); reactive gaseous mercury, RGM; and particulate mercury, HGP) together with particulate matter and other criteria pollutants for years 2002- 2009 , taken at the U.S. National Oceanic and Atmospheric Administration's high altitude station at Mauna Loa, Hawaii. (More recent EPA data are available through the National Atmospheric Deposition Program and the NOAA Air Resources Lab).

To this end, a notice of availability has been posted on the UNEP web site (www.unep.org) as well as the Transport and Fate Research Partnership website (http://www.iia.cnr.it/index.php?option=com_content&view=article&id=479&Itemid=40&lang=it) which directs interested parties to prepare a short letter of interest in these data and willingness to collaborate with EPA and the Partnership. Potential uses of these data include: (1) develop better understanding of the transformation and fate of globally cycled mercury, including trans-Pacific transport, thru modeling; (2) further atmospheric process research by elucidating high altitude processes impacting mercury transformation and fate; (3) link with other data from other global baseline mercury measurement stations; (4) help accumulate a long-term record of mercury species; and (5) support model development and evaluation.

USEPA will share a modeling methodology, now being developed by Harvard University under contract to USEPA, that relates global emission inventories to changes in fish concentrations in various marine regions of the world. The methodology links emissions to exposure by integrating a global transport model, an ocean model and a fish model. The methodology is being developed in the context of the Pacific Ocean sector but can be modified for use in other sectors and is expected to be published in 2015.

USEPA will participate in additional monitoring, source receptor modeling and training activities as circumstances and resources permit, participate in various meetings among Global Partnership partners that would be facilitated by Italy (the lead country) and contribute to various reports under the Partnership. At Italy's request, USEPA will arrange teleconferences among Global Partners.

USEPA, NOAA, the National Atmospheric Deposition Program and partners in East and Southeast Asia are cooperating to form an Asia-Pacific mercury monitoring pilot network. USEPA, NOAA, and NADP are providing training to strengthen capacity of participating countries to monitor ambient and wet-deposition mercury, coordinate protocols and SOPs across sites and programs, and assure high quality measurements for such efforts. Three pilot monitoring stations in Thailand, Vietnam, and Indonesia will begin operations in 2014.

NOAA will 1/share its monitoring data, through a web link to be placed on the Partnership website, for three new long-term mercury monitoring stations within the U.S. that will measure ambient concentrations of mercury species as well as other pollutants, e.g., SOx and PM, as well as mercury deposition 2/ continue to provide worldwide meteorological data through the READY web-based information system and various models for computing atmospheric trajectories and dispersion, including HYSPLIT and 3/ participate in additional monitoring, modeling and training activities, including technical advice to other countries on developing a mercury monitoring strategy.

USDOE's National Energy Technology Laboratory (NETL) will 1/ share atmospheric monitoring data it has collected within the U.S. and information about sampling and monitoring methodologies. 2/ continue its mercury work in China, developing and, after consultation with Chinese collaborators, sharing project information as deemed appropriate. As part of the latter project, NETL will maintain its ongoing partnership with the Chinese Ministry of Science and Technology (MOST) and Zhejiang University, which includes developing mercury emission factors for estimating emissions from coal-fired plants. To this end, speciated measurements have been taken at a sample of Chinese plants having different technologies. The dialogue with the Italian-led Suzhou project will be continued.

The USGS will share its World Coal Quality Inventory (Tewalt et al., 2010; http://pubs.usgs.gov/of/2010/1196/) a database of 1.580 samples of mercury (and other) contaminant concentrations from more than 57 country collaborators as well as data for more than 7,400 samples of US coal. USGS data were used to develop DOE's mercury emissions inventory for China (Streets et al., 2005). In addition, the USGS will make available a new study of mercury in South African feed coals used for power generation, prepared under the UNEP Mercury in Coal Partnership area and published jointly by UNEP and the USGS.

EPRI will expand its atmospheric mercury measurement program to better understand transboundary transport through continued support of high altitude ground-based monitoring (Mt Bachelor, Oregon) and aircraft soundings, including an investigation of in-cloud processing of mercury in marine and continental environments. EPRI will continue its mercury global and regional modeling, using the "one atmosphere" models as well as studies on mechanisms. EPRI will also continue work on background mercury fluxes, including work at various impacted and natural sites and undertaking aircraft measurements to elucidate natural sources of emissions, e.g., volcanoes and wildfires. Finally, EPRI will continue its support for the Mercury Deposition Network (MDN) data analysis, data quality, data interpretation and data measurement programs and will investigate further initiation of a background site in California. Results will be shared with the Partnership by posting reports at www.epri.com.

BRI will contribute its North American Hg database and use it as a platform for compiling a global Hg database using existing and available published and unpublished datasets (www.briloon.org). These data will identify both global biological Hg hotspots and data gaps. BRI conducts ecological Hg assessments across the western hemisphere to determine exposure and effects of Hg on biota. When sources can be identified emissions and effluents can thereafter be managed and conceivably economized in cases where there is governmental oversight using existing regulations. BRI contributes to multiple networks within the western hemisphere, including oversight with regional North American workshops and long-term monitoring programs such as the TERRA Network. BRI is contributing to the formation of the national mercury monitoring network (MercNet), which is proposed to be the comprehensive and standardized program for monitoring spatial gradients and temporal trends of Hg in the United States, is a potential tool for policy makers to monitor the success of national Hg emission reductions. Such a monitoring template may be useful globally.

C-MERC (Coastal and Marine Mercury Ecosystem Research Collaborative, http://www.dartmouth.edu/~toxmetal/C-MERC/index.html) sponsored by the Dartmouth Superfund Research Program brought together experts in marine mercury research and policy stakeholders to collaborate on a series of scientific papers on fate, cycling and uptake of mercury in ocean systems and human exposure to mercury world-wide and to identify the science needed to inform policy. Over 70 authors contributed to eleven peer-reviewed papers: nine published in a special issue of the journal Environmental Research which provide a synthesis of the science on pathways of mercury from sources to the seafood in specific marine ecosystems; two additional papers on the health effects of methylmercury were published in Environmental Health Perspectives. Sources to Seafood: Mercury Pollution in the Marine Environment, a companion report synthesizing the C-MERC papers for policy maker was published in December 2012. Over 300 copies of the report were distributed at the 5th session of the United Nations International Negotiating Committee on a global, legally binding agreement on mercury in Geneva Switzerland in January 2013. The report was also made available at the ICMGP 2013 meeting in Scotland. The C-MERC papers and report continue to be available at the Dartmouth Superfund Research Program website.

C7 - Contribution from UNEP

Development of Emission Inventories

UNEP with support from the Government of Denmark recently updated the 'Toolkit for Identification and Quantification of Mercury Releases' based on initial experiences in using the toolkit. The toolkit is a key information gathering tool available to countries in assessing their national situation.
Contact person: Gunnar Futsaeter, UNEP Chemicals.

UNEP Emissions Reports

UNEP has collaborated with the partnership on the development of the UNEP Emissions Report required under Governing Council Decision 24/3 IV, paragraph 24. A final report was delivered to all countries prior to the 25th session of Governing Council. The F&T partnership produced a mercury assessment report *[Pirrone, N. and Mason, R. (2009) Mercury Fate and Transport in the Global Atmosphere: Emissions, Measurements and Models. Springer, USA. pp.637 - A report of the UNEP-Global Partnership on Atmospheric Mercury Transport and Fate Research, Geneva]* that has feed into the UNEP emissions report as a major contribution. In addition, the partnership, through its chair has participated in a 'Coordination Group' responsible for overseeing the process of developing and delivering the 2013 UNEP report, and for the coordination and harmonization as far as possible of the activities under the F&T partnership, AMAP and UN ECE HTAP (see Appendix A).

Contact Person:

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Appendix D - List of Partners

Other partners are welcome to join the partnership at anytime.

Members:		
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E. Mercury-Containing Products Partnership Area

June 28, 2013

I. SUMMARY OF THE ISSUE

Large amounts of mercury are used globally in the manufacture and use of numerous products and manufacturing processes at such a level that it represents almost one-third of global demand. Yet, for most products, there are effective alternatives available.

The most widely known exception is in mercury-containing energy efficient lamps where mercury-free alternatives are still limited or quite expensive. Eliminating mercury in products is important because reducing the use of mercury ultimately reduces releases of mercury to the air, land or water and reduces the potential for direct human exposure. Addressing mercury use in products will reduce the global demand for mercury and help to ultimately break the cycle of mercury being transferred from one environmental medium to another.

The table below illustrates that for 2005, mercury in products (e.g., lighting, measuring and control devices, dental amalgam, batteries, electrical and electronic devices, and pharmaceuticals and vaccines), and manufacturing comprised more than one-third of global demand for mercury. The 2015 "status quo" scenario is the projected demand for mercury use in products and processes, assuming that only a few measures will be introduced in the next ten years. This is considered the baseline on which the products partnership has based its 2015 "focused reduction scenario" medium term objectives.

Table 1: Global Mercury Consumption and Projection by Sector (2005-2015)[10]

Global mercury demand (metric tonnes)[11]	2,005	"Status Quo" scenario 2015
Small-scale/artisanal gold mining	650-1,000	No change
Vinyl chloride monomer (VCM) production	715-825	1,250
Chlor-alkali production	450-550	315-385
Batteries	260-450	130-178
Dental use	300-400	270-360
Measuring and control devices	300-350	165-193
Lighting	120-150	108-135
Electrical and electronic devices	170-210	102-126
Other (paints, laboratory, pharmaceutical, cultural/traditional uses, etc.)	200-420	170-357
Total	3,165-4,355	2,160-3,984

Sources: Euro Chlor (*available at* http://www.eurochlor.org/); Maxson, "Mercury Flows and Safe Storage of Surplus Mercury" (August 2006); Maxson, Personal comments (December 2007);

[10] This chart will be updated periodically to reflect relevant new data and studies on mercury demand.

[11] Note: "Demand" as presented above may also be termed "gross consumption," and is here defined as total annual throughput of mercury for each of these sectors. It should be noted, however, that in each of these sectors some mercury recycling takes place, involving the recovery of mercury from products or wastes. Therefore, "net consumption" of mercury in some of these sectors (especially VCM and chlor-alkali) may be significantly lower than "gross consumption."

UNEP, "Summary of Supply, Trade and Demand Information on Mercury" (November 2006); "AMAP-UNEP Global Atmospheric Mercury Assessment" (2008); European Commission, "Options for reducing mercury use in products and applications, and the fate of mercury already circulating in society (2008); and UNEP, "Report on current supply of and demand for mercury, including projections considering the phase-out of primary mercury mining" (2008).

The purpose of this business plan is to provide a framework and goals for developing and implementing projects aimed at the eventual elimination of mercury use in products. The business plan is to serve as a resource for providing a common, cohesive structure for implementing the United Nations Environment Program's (UNEP's) Global Partnership for Mercury's Mercury-Containing Products Partnership Area (Products Partnership). The business plan outlines quantitative goals for achieving mercury reductions in product categories, and provides information for existing and new partners as they manage and track their projects.

II. OBJECTIVE OF THE PARTNERSHIP AREA

The **overall goal** of the UNEP Global Mercury Partnership is to protect human health and the global environment from the release of mercury and its compounds by minimizing and, where feasible, ultimately eliminating global, anthropogenic mercury releases to air, water, and land.

A. In order to contribute to the overall goal of the UNEP Global Mercury Partnership, the **goal** of the Mercury-Containing Products Partnership Area is to phase out and eventually eliminate mercury in products and to eliminate releases during manufacturing and other industrial processes via environmentally sound production, transportation, storage, and disposal procedures.

B. Medium Term (5 to 10 years) Objectives[12]

The following objectives represent projected reductions in mercury based on the "Focused Hg Reduction Scenario" in UNEP's November 2006 "Summary of Supply, Trade, and Demand Information on Mercury," and July 2008 "Report on Current Supply of and Demand for Mercury, including Projections Considering the Phase-out of Primary Mercury Mining."

1. In 2005, demand of mercury in batteries was roughly 260-450 tonnes. Based on a status quo scenario, demand is estimated to be around 130-178 tonnes in 2015. To track the effectiveness of the partnership, our objective is to go beyond the status quo scenario and reduce the demand for mercury in batteries (e.g., phasing out the production of mercury-containing button cell batteries), to less than 65 tonnes or a 75 percent reduction from status quo by 2015.

Basis: *Batteries – A substantial amount of the mercury now used in this sector is for button cell battery production. Thus, the pace of the transition to mercury free button cells will determine the extent of mercury demand reduction for this sector.*[13] *With U.S. manufacturers already committed*

[12] Objectives are based on a "focused mercury reduction" strategy in which the key countries and companies involved identify mercury demand reduction as a clear priority, and adopt the more obvious measures necessary to move significantly toward that objective. Reference is being made to the UNEP November 2006 trade report "Summary of Supply, Trade and Demand Information on Mercury," as basis for the "focused reduction scenarios."

[13] As mentioned in the UNEP trade report, there remain unanswered questions with regard to batteries that are entered in the Comtrade database as "mercuric oxide batteries." The database shows world imports of more than 3,000 tonnes of these batteries for 2005, which average 65 g mercury per battery in weight. Apparently, therefore, a large number of these batteries are not button cells. Even if we assume many of these batteries may have been traded several times during the year, they comprise a potential pool of several hundred tonnes of mercury. This will not prevent us from setting a reduction target for mercury in

to producing only mercury free button cells, the major question is when manufacturers in other parts of the globe will follow suit. Given the highly competitive nature of battery manufacturing, the likely regulatory pressures that will be placed on this sector, and the active consideration of new standards for batteries in China, one might predict that the major battery manufacturers will make this transition by 2015, thus reducing annual mercury consumption for this sector to less than 50 tonnes.

2. In 2005, demand of mercury in measuring and control devices was roughly 300-350 tonnes.[14] Based on a status quo scenario, demand in 2015 is estimated to be around 165-193 tonnes. To track the effectiveness of the partnership, our objective is to go beyond the status quo scenario and reduce the demand for mercury in measuring and control devices to less than 120 tonnes or a 60 percent reduction from status quo by 2015.

2.a. To track the effectiveness of the partnership, our objective is to go beyond the status quo scenario and, by 2017, to phase out the demand for mercury-containing fever thermometers and sphygmomanometers by at least 70 percent and to shift the production of all mercury-containing fever thermometers and sphygmomanometers to accurate, affordable, and safer non-mercury alternatives.

Basis: *Measuring and control devices – The European Union (EU) and some states in the United States have prohibited the sale of certain mercury measuring and control devices. The most successful example of reductions in measuring devices is in the health care sector, where many experts are projecting a reduction in mercury use in this sector of 60-70 percent or more during the next ten years.*

3. In 2005, demand of mercury in electrical and electronic devices was roughly 150-350 tonnes. Based on a status quo scenario, demand in 2015 is estimated to be around 110 tonnes. To track the effectiveness of the partnership, our objective is to go beyond the status quo scenario and reduce the demand for mercury in electrical and electronic devices to less than 50 tonnes or a 55 percent reduction from status quo by 2015.

Basis: *Electrical and electronic equipment – If one assumes that the European Union Rule on Hazardous Substances (RoHS) Directive is influencing the global market, as key producers develop similar legislation over the next several years, an even greater reduction in worldwide mercury use in this sector is conceivable. However, such a reduction would depend strongly on the extent to which China eventually implements RoHS legislation.[15] The RoHS Directive is also starting to influence state action in the United States, where it is expected to continue to have a rippling effect.*

4. In 2005, demand of mercury in lighting and lamps was roughly 120-150 tonnes. Based on a status quo scenario, demand in 2015 is estimated to be around 108-135 tonnes. To track the effectiveness of the partnership, our objective is to go beyond the status quo scenario and reduce the demand for mercury in lighting and lamps to less than 96 tonnes or a 20 percent reduction from status quo in 2015.

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button cells, but we should not assume that we know the extent of mercury in batteries until we know more about international trade in what are coded as "mercuric oxide batteries."

[14] CRC/NRDC research suggests a figure at the top end of this range, which would likely raise the 2015 "status quo" projection.

[15] China enacted RoHS-type legislation that became effective on March 1, 2007. However, the scope of the Chinese RoHS was developed entirely independent of the EU RoHS. Further, although there is substantial overlap between the European and Chinese RoHS, many product types that are not within the scope of EU RoHS are within the scope of Chinese RoHS (*see* http://www.chinarohs.com/faq.html).

Basis: *Lighting – With other countries expected to adopt legislation similar to RoHS, the mercury limits imposed by the EU could spread much more widely. In the event that a wide range of energy-efficient light emitting diode (LED) or similar energy-efficient mercury-free lamps come onto the market rapidly at prices that consumers find acceptable, one could conceive of a more than 20 percent reduction in mercury use in this sector by 2015. However, there are presently no particular signs of a rapid influx of LED or other energy-efficient mercury-free lamps.*

5. In 2005, demand from dental uses was roughly 300-400 tonnes. Based on a status quo scenario, demand in 2015 is estimated to be around 270-360 tonnes. To track the effectiveness of the partnership, our objective is to go beyond the status quo scenario and reduce the demand for mercury in dental amalgam to less than 255 tonnes, or a 15 percent reduction from status quo in 2015.
Basis: *Dental uses – Even in the event of an increased number of people worldwide seeking dental care, it is possible to consider a range of incentives that may encourage a global reduction in dental mercury use during the next ten years. However, there are presently no significant trends or international initiatives reported that point in that direction. Even lacking such concerted efforts, however, it is certain that the cost of alternative dental fillings will continue to decrease, and the aesthetic advantages of non-mercury fillings will become better recognized. Further, it is recognized that certain countries are focusing on proper disposal of dental amalgam waste rather than quantitative reduction goals.*

6. In 2005, demand of mercury in other uses such as paints, laboratory, pharmaceutical, cultural/traditional uses was roughly 200-420 tonnes. Based on a status quo scenario, demand in 2015 is estimated to be around 170-357 tonnes. To track the effectiveness of the partnership, our objective is to go beyond the status quo scenario and reduce the demand for mercury in other uses to less than 150 tonnes or a 25 percent reduction from status quo in 2015.
Basis: *This sector is too diverse to predict significant reductions over 10 years. However, one might assume that the more attention is devoted to mercury awareness and reduction in other sectors, including the development and promulgation of legislation applicable to "all uses" (or similar), the more reduction of mercury in these "other uses" might also be expected.*

7. To encourage and support countries to promulgate laws, standards, and regulations that would prohibit or restrict importation of mercury-containing products.

III. PRIORITY ACTIONS

- Reduce global mercury demand related to use in products and production processes.
- Encourage and implement use of best available technique (BAT) and best environmental practices (BEP) to reduce or eliminate mercury consumption and releases into the environment.
- Promote substitution and support conversion to mercury-free products and production processes.
- Develop suitable alternatives to mercury-containing products where none currently are available and promote non-mercury technologies where feasible.
- Encourage and implement environmentally sound management of mercury waste, by following a lifecycle management approach.
- Increase knowledge on mercury inventories, human and environmental exposure to mercury, mercury environmental monitoring, and socio-economic impacts of mercury.
- Improve global awareness on mercury exposure, use, production, trade, disposal, and

release through exchange and dissemination of information.

- Provide technical support to developing countries in making mercury-free products available at reasonable costs.

The Mercury-Containing Products Partnership Area will achieve its goal and objectives through structured reduction in global use and demand for mercury-containing products. It will promote substitution where feasible and promote development of alternatives where none currently are available. It also will seek to identify, reduce, and eliminate global mercury releases to air, water, or land that are associated with the manufacture and use of mercury containing products. The Products Partnership is designed to provide economic and educational benefits to partners and the general public by promoting commercially competitive and environmentally sound solutions for reducing the use of mercury-added products. It will identify where mercury is used in products and manufacturing sectors and implement effective strategies for promoting the use of feasible alternatives to mercury-added products, and tracking reductions in mercury use.
In addition, the Products Partnership seeks to identify, reduce, and eliminate multimedia global mercury releases associated with mercury-containing industrial processes and the environmentally sound collection, recycling, or disposal of mercury-added products and wastes. While such topics also will be addressed by other Partnership Areas, including the Mercury Waste Management Partnership Area, it is important to apply a lifecycle and cross-cutting approach to the effects of mercury in the production, use, and disposal of mercury-added products.

IV. PARTNER EFFORTS AND TIMELINES

The following is a list of projects that are underway or have been completed by the Products Partnership. Partnership objective(s) and priority action(s) are addressed through each project identified below.[16] Also identified is the stage of each specific project and a contact person from whom to get further information.

V. ONGOING PROJECTS

East Africa (Kenya, Tanzania, and Uganda) Dental Amalgam Phase Down Project:

Demonstrates dental amalgam phase down in these countries. Activities include awareness-raising on dental restorative materials, Africa dental amalgam trade study, on-site demonstration on the environmentally sound management of dental amalgam waste.

- Partners: Ministries of Health and Environment in Kenya, Tanzania, Uganda, World Dental Federation, International Association of Dental Manufacturers, GroundWorks Friends of the Earth South Africa, WHO Oral Health Unit, UNEP Chemicals
- Start Date: July 2012
- Costs to date: $105,000 USD (Norway ODA 2012)
- Phase or Stage of Project: Inception workshop to take place first week of November 2012

Contact person:

Desiree Narvaez, UNEP,
Email: desiree.narvaez@unep.org,
and
Poul Erik Petersen, WHO,
Email: petersenpe@who.int

[16] Partners are encouraged to implement activities that will strategically meet the targeted objectives.

- **Priority Actions: 1, 2, 3, 5, 7**
- **Objective: 5 – Dental amalgam**

Latin America Hospitals Project:

Multi-year initiative to expand existing and launch new health care mercury inventory, reduction, waste management, and training pilots.

- Partners: Brazil, Costa Rica, Ecuador, Mexico, United States, HCWH, University of Massachusetts at Lowell
- Estimated Date of Completion: April 2013
- Costs: $840,000 USD (United States)

Contact person:

Ellie McCann, U.S. EPA,
Email: mccann.ellie@epa.gov

- **Priority Actions: 1, 2, 3, 5, 7**
- **Objective: 2 – Measuring and control devices**

Phasing Down Dental Amalgam: Country Case Studies:

Will describe several case study examples where countries have "phased down" the use of dental amalgam, including the prevalent trends, variations and commonalities.

- Partners: Tides Center, Mercury Policy Project, WHO Oral Health Unit, UNEP Chemicals
- Start Date: July 2012
- Costs to date: $20,000 USD (United States)
- Phase or Stage of Project: The project is expected to be completed by December 2012

Contact person:

Michael Bender, Zero Mercury Working Group,
Email: mercurypolicy@aol.com;
and
Desiree Narvaez, UNEP,
Email: desiree.narvaez@unep.org

- **Priority Actions: 1, 3, 7**
- **Objective: 5 – Dental amalgam**

VI. COMPLETED PROJECTS

Americas Workshop to Reduce Mercury in Products:

The North American Commission for Environmental Cooperation hosted a workshop in February 2006 in Mexico to promote the reduction of mercury use in products. The workshop informed and engaged governmental environment and health officials, non-governmental organizations, and product manufacturers in the Americas to build capacity through exchange of information on successful mercury reduction programs in various product sectors and identification of participating country needs, priorities, including next steps for reducing mercury use in products in the Americas. Meeting report available at http://www.chem.unep.ch/Mercury/partnerships/CEC-Hg%20Prod%20Mtg%20Sum.pdf,

as well as NACEC and UNEP offices

- Partners: Mexico, United States, NACEC, UNEP
- Date of Completion: February 2006
- Costs: N/A

Contact person:

Luke Trip, NACEC
Email: ltrip@cec.org

- **Priority Action: 7**
- **Objective: All**

Basel Mercury Waste Capacity Building from Products Partnerships:

Development of a cooperative agreement that will help build capacity and best management practices for addressing mercury waste collected from health care products and other sectors addressing mercury in products.

- Partners: Argentina, Costa Rica, Uruguay, United States, Basel Convention Secretariat
- Date of Completion: July 2012
- Costs: $2,000,000 USD; year-one budget: $250,000 USD (United States)

Contact person:

Sue Slotnick, U.S. EPA,

Email: slotnick.sue@epa.gov

- **Priority Actions: 2, 5**
- **Objective: All**

China Hospitals Project:

Demonstration programs at two Beijing hospitals to significantly reduced mercury containing products and waste.

- Partners: China (Beijing), United States, Health Care Without Harm (HCWH)
- Date of Completion: August 2007
- Costs: $50,000 USD (United States); RMB 500,000 (Tiantan Hospital)

Contact person:

Shen Yingwa, SEPA,

Email: shenyw@crc-sepa.org.cn;

And

Chen Wen, U.S. EPA,

Email: wen.chen@epa.gov

- **Priority Actions: 1, 2, 3, 7**
- **Objective: 2 – Measuring and control devices**

Buenos Aires Hospital Project:

Supported Healthcare Without Harm's efforts to assist the Buenos Aires City Government to deliver mercury-free training for all city-run hospitals and to complete mercury elimination for two hospitals and fourteen neo-national units. Training of health workers and the procurement of mercury alternative medical devices was performed. UNEP provided technical support in the conduct of the project.

- Partners: Buenos Aires, United States, HCWH, UNEP
- Date of Completion: December 2007
- Costs: $95,000 USD (UNEP Mercury Trust Fund)

Contact person:

Josh Karliner, HCHW,

Email:josh@hcwh.org

- **Priority Actions: 1, 2, 7**
- **Objective: 2 – Measuring and control devices**

Burkina Faso Assessment:

Conducted an initial mercury life cycle assessment for products as a first step in Burkina Faso's efforts to characterize and reduce mercury use. A products and use inventory was developed, as well as a mercury action plan.

- Partners: Burkina Faso, United States, UNEP
- Date of Completion: January 2008
- Costs: $33,750 USD at the country level and additional support of an international consultant (UNEP Mercury Trust Fund)

Contact person:

M. Desiré Ouedraogo,

Email: desireouedraogo@yahoo.fr

- **Priority Action: 6**
- **Objective: 1 – Batteries**

Cameroon Education and Awareness for Cosmetics:

The Centre de Recherche et d'Education pour le Développement (CREPD), under the small grant funded by the Swedish Society for Nature Conservation (SSNC), carried out activities on the identification of mercury contained in cosmetics followed by education and awareness campaign.

- Partners: Cameroon, CREPD, Swedish Society for Nature Conservation
- Date of Completion: N/A
- Costs: N/A

Contact person:

Tetsopgang Samuel, Ph.D., CREPD,

Email: tetsopganag@yahoo.com

- **Priority Actions: 1, 3, 7, 8**
- **Objective: 6 – Other uses (cosmetics)**

***Chile Hospitals Assessment Project*:**

Developed and implemented hospitals assessment and reduction/elimination of mercury-containing products in Chile.

- Partners: Chile, HCWH, United States
- Date of Completion: March 2009
- Costs: $60,831 USD (United States)

Contact person:

Thomas Groeneveld, U.S. EPA,

Email: groeneveld.thomas@epa.gov

- **Priority Actions: 1, 2, 3, 5, 7**
- **Objective: 2 – Measuring and control devices**

Chile Inventory Development and Risk Management Planning:

Supported the United Nations Institute for Training and Research (UNITAR), which partnered with Chile and UNEP on a project that includes awareness raising, development of national mercury inventory in Chile, including product based releases and the drafting of a Chilean mercury risk management plan.

- Partners: Chile, United States, UNEP, UNITAR
- Date of Completion: October 2008
- Costs: $30,000 USD (UNEP Mercury Trust Fund)

Contact person:

Vera Barrantes, UNITAR,

Email: vera.barrantes@unitar.org

- **Priority Actions: 6, 7**
- **Objective: All**

Collection, Replacement, and Recycling of Mercury-Containing Thermometers and Safe Storage of Mercury in Altai Krai:

This Russian Federation-U.S. bilateral model demonstration project developed model procedures to control of use and environmentally-responsible disposal of mercury-containing thermometers in the Altai Krai region of Southern Siberia. The project included the collection of mercury-containing thermometers from children's hospitals, kindergartens, orphanages, psychiatric hospitals, veterans' hospitals, and retirement homes. Collected thermometers were safely destroyed at the Terek recycling facility and replaced with environmentally-safe non-mercury thermometers. Mercury extracted from destroyed thermometers was sent for safe long-term storage at the Tomsk "Polygon" facility in a neighboring region to ensure that it does not reach the commodity mercury market.

- Partners: Russian Federation, United States
- Date of Completion: September 2009
- Costs: $50,000 USD ($30,000 USD – United States; $20,000 USD – Regional Administration of Altai Krai)

Contact person:

Ella Barnes, U.S. EPA,

Email: barnes.eleonora@epa.gov

- **Priority Actions: 2, 3, 5, 8**
- **Objective: 2 – Measuring and control devices**

Costa Rica Hospitals Assessment Project:

Demonstrated the risk to staff, patients, and the environment associated with the use of mercury in hospitals. Demonstrations included identification, inventory, and proper handling of spills and waste. The overall goal was to eventually eliminate the use of mercury in hospitals. This pilot project was limited to National Children's Hospital. In 2009, it was extended to the Hospital of San Ramon.

- Partners: Costa Rica, United States
- Date of Completion: March 2009
- Costs: $75,318 USD (United States)

Contact person:

Thomas Groeneveld, U.S. EPA,
Email: groeneveld.thomas@epa.gov

- **Priority Actions: 1, 2, 3, 5, 7**
- **Objective: 2 – Measuring and control devices**

Economics of Conversion to Mercury Free Products in the US and the EU:

Resulted in case studies of two firms involved in the transitioning from mercury-added to mercury-free products (medical devices and batteries). The report is available at: *http://www.unep.org/hazardoussubstances/Portals/9/Mercury/UNEP%20Economics%20of%20Conversion%20to%20Mercury-free%20Report%20Final%20102611_finaldraft_wAPP.pdf)*

- Partners: University of Massachusetts at Lowell, Rayovac, UNEP Chemicals
- Date of completion: October 2011
- Costs: $40,000 USD (United States)

Contact person:

Desiree Narvaez, UNEP,
desiree.narvaez@unep.org

- **Priority Actions: 1, 3, 4**
- **Objective: 1- Batteries; Objective: 2 – Measuring and control devices**

Economics of Conversion to Mercury Free Products in China:

Resulted in the study "Hypothetical Transition Scenarios Analysis and Socio-economic Cost Estimation in China".

- Partners: China Ministry of Environmental Protection Center for Chemical Registration, UNEP Chemicals
- Date of completion: March 2012
- Costs: $40,000 USD (United States)

Contact person:

Desiree Narvaez, UNEP

Email: desiree.narvaez@unep.org

- **Priority Actions: 1, 3, 4**
- **Objective: 2 – Measuring and control devices**

Ecuador Inventory Development and Risk Management Planning:

Supported UNITAR in assisting Ecuador to develop an inventory of releases, including consideration of releases from mercury products. Based on this information, a mercury risk management plan was developed.

- Partners: Ecuador, United States, UNITAR
- Date of Completion: October 2008
- Costs: $30,000 USD (UNEP Mercury Trust Fund)

Contact person:

Vera Barrantes, UNITAR,
Email: vera.barrantes@unitar.org

- **Priority Actions: 6, 7**
- **Objective: All**

Honduras Hospitals Assessment Project:

Developed and implemented hospitals assessment and reduction/elimination of mercury-containing products in Honduras.

- Partners: Honduras, HCWH, United States
- Date of Completion: March 2009
- Costs: $50,000 USD (United States)

Contact person:

Thomas Groeneveld, U.S. EPA,
Email: groeneveld.thomas@epa.gov

- **Priority Actions: 1, 2, 3, 5, 7**
- **Objective: 2 – Measuring and control devices**

Mexico Healthcare Project:

Built on a healthcare facility pilot project initiated in 2007 in Mexican hospitals to establish a template for mercury reduction initiatives in other healthcare facilities.

- Partners: Mexico, United States, HCWH, North American Commission for Environmental Cooperation (NACEC)
- Date of Completion: December 2009
- Costs: $125,000 USD ($105,000 USD – NACEC; $20,000 USD HCWH)

Contact person:

Luke Trip, Program Manager, NACEC,
Email: ltrip@cec.org;
and
Alfonso Flores Ramirez, CENICA-INE-SEMARNAT,
Email: alfonso.flores@semarnat.gob.mx

- **Priority Actions: 1, 2, 3, 7**
- **Objective: 2 – Measuring and control devices**

Mexico Mercury Market Study and Products Inventory Update:

Conducted an assessment of elemental mercury trade and uses in products, manufacturing and processing, primary and secondary mercury production, imports and exports. Developed a mercury-containing products and alternatives inventory and updated existing product databases. The inventory compiled information on specific mercury-containing products (including description, mercury content, costs, manufacturer information and available alternatives for some production sectors) that is gathered from the Market Report work. The study recognized the contradiction between regulating part per million concentrations of mercury releases to the environment while continuing to allow trade in commodity grade mercury for product use, a situation prevailing in many countries

- Partners: Mexico, United States, NACEC
- Date of Completion: December 2008
- Costs: $30,000 USD (United States and NACEC)

Contact peson:

Luke Trip, NACEC,
Email: ltrip@cec.org

- **Priority Action: 6**
- **Objective: All**

Mexico Mercury Product Waste Management Initiative:

As a follow-on to the Market Study and Healthcare project, this project investigated and tested options for managing mercury products removed from service. The initial emphasis for 2009 was to work with hospitals participating in the Healthcare project that replaced mercury-containing equipment and collected broken thermometers. Subsequent stages considered additional healthcare facilities, as well as wastes from other sectors.

- Partners: Mexico, United States, HCWH, North American Commission for Environmental Cooperation (NACEC), Association of Lighting and Mercury Recyclers, other stakeholders.
- Date of Completion: N/A
- Costs: $20,000 USD (United States and NACEC)

Contact person:

Luke Trip, NACEC,
Email: ltrip@cec.org;
and
Jorge Jimenez Perez , SEMARNAT,
Email: jorge.perez@semarnat.gob.mx

- **Priority Actions: 2, 5, 7**
- **Objective: 2 – Measuring and control devices (1st phase), All**

Mongolia Inventory Development and Risk Management Planning:

Supported the United Nations Institute for Training and Research in negotiating an agreement with the Mongolian Government to develop a provincial mercury risk management plan, based on

information related to mercury in products and mercury emission from the provincial emission inventory.

- Partners: Mongolia, United States, UNITAR
- Date of Completion: March 2012
- Costs: $59,000 USD

Contact person:

Vera Barrantes, UNITAR,
Email: vera.barrantes@unitar.org

- **Priority Actions: 6, 7**
- **Objective: All**

Nepal and Tanzania:

Supported the World Health Organization in efforts to demonstrate that mercury-free devices are safe, cost-effective, accurate, and efficient alternative medical devices are available in order to support their introduction in health care settings in pilot countries as well as provide guidance and assessments for projects in the future.

- Partners: Nepal, Tanzania, United States, WHO
- Date of Completion: Nepal (January 2011), Tanzania (Summer 2011)
- Costs: $60,000 USD

Contact person:

Christina Wadlington, U.S. EPA,
Email: wadlington.christina@epa.gov

- **Priority Action: 1, 2, 3, 5, 7**
- **Objective: 2 – Measuring and control devices**

Panama Mercury Inventory and Risk Management Planning:

Supported UNITAR in assisting Panama to develop an inventory of releases including consideration of releases from mercury products. Based on this information, a mercury risk management plan was developed.

- Partners: Panama, United States, UNEP, UNITAR
- Date of Completion: October 2008
- Costs: $30,000 USD (UNEP Mercury Trust Fund)

Contact person:

Vera Barrantes, UNITAR,
Email: vera.barrantes@unitar.org

- **Priority Actions: 6, 7**
- **Objective: All**

Recycling Mercury-Containing Lamps at Russian Military Bases in the Arctic:

This bilateral (Russian Federation-U.S.) model demonstration project was implemented under the Arctic Military Environmental Cooperation (AMEC) Program to develop a localized facility for the collection, storage, and treatment of mercury-containing fluorescent lamps at Navy Yard 10, Polyarninsky, in the Murmansk region of the Russian Federation. The facility accommodated

other mercury-containing equipment from the Russian Navy. Lamps and other equipment were collected from military bases and adjacent civilian communities. After recycling, residual mercury was placed into long-term storage at the Polyarninsky facility to ensure that it would not reach the commodity mercury market.

- Partners: Russian Federation, United States
- Date of Completion: December 2009
- Costs: $239,000 USD

Contact person:

Ella Barnes, U.S. EPA,
Email: barnes.eleonora@epa.gov.

- **Priority Actions: 2, 3, 5**
- **Objective: 3 – Electrical and electronic equipment and 4 – Lighting**

Regional Workshops on Elimination of Mercury in Health Care:

Organized four regional workshops in South East Asia, Latin America, Southern Africa and South Asia to promote alternatives to mercury in the health care sector in developing countries.

- Partners: HCWH, UNEP, World Health Organization (WHO), local/regional health care professionals associations (sponsorship/participation in each workshop from national ministries of health and environment)
- Date of Completion: December 2008
- Costs: $300,000 USD ($130,000 USD – UNEP; additional funds from HCWH and WHO)

Contact person:

Josh Karliner, HCWH,
Email: josh@hcwh.org

- **Priority Actions: 3, 8**
- **Objective: TBD**

South Africa Inventory Development and Risk Management Planning:

Supported the United Nations Institute for Training and Research in negotiating an agreement with the Western Cape Provincial Government to develop a provincial mercury risk management plan, based on information related to mercury in products and mercury emission from the provincial emission inventory.

- Partners: South Africa, United States, UNITAR
- Date of Completion: March 2012
- Costs: $160,000 USD

Contact person:

Vera Barrantes, UNITAR,
Email: vera.barrantes@unitar.org

- **Priority Actions: 6, 7**
- **Objective: All**

Southeast Asia Workshop on Mercury Use in Products:

Similar to the NACEC-Americas workshop, UNEP hosted a products workshop to inform and engage countries in Southeast Asia on capacity building, information exchange, and best practices. The workshop resulted in concrete action plans to reduce mercury in products among twenty-four Asia Pacific countries as well as seven NGOs who participated.

- Partners: Thailand, United States, UNEP
- Date of Completion: May 2007; meeting report available at http://www.chem.unep.ch/mercury/Sector-Specific-Information/Docs/Hg_workshopBangkok_HgRedAsiaPac1719May2007-11.pdf
- Costs: $100,000 USD (UNEP Mercury Trust Fund)

Contact person:

Desiree Narvaez, UNEP,
Email: desiree.narvaez@unep.org

- **Priority Action: 7**
- **Objective: All**

Strengthening Regional and National Capacities in Central America:

Multi-part initiative with a mercury component to develop mercury emissions and products inventory in the Dominican Republic and Nicaragua, and expand health care assessment, reduction, and substitution efforts in Costa Rica and Honduras.

- Partners: Costa Rica, Dominican Republic, Honduras, Nicaragua, United States, Comision Centroamericano de Ambiente y Desarrollo (CCAD), UNITAR
- Date of Completion: December 2010
- Costs: $113,625 USD ($103,625 USD – United States; $10,000 USD – CCAD)

Contact person:

Thomas Groeneveld, U.S. EPA,
Email: groeneveld.thomas@epa.gov

- **Priority Action: 1, 3, 4, 6, 7, 8**
- **Objective: All**

V. OPPORTUNITIES

Projects (including bilateral projects) targeted towards meeting business plan objectives are encouraged, and could include the following topic areas: (1) developing sector-related product substitution strategies – Priority Action 3; (2) researching alternatives to mercury use for energy efficient lighting – Priority Actions 2, 3, 4; (3) pursuing international standards for accurate, mercury-free, high-quality medical devices and other health care products, including certain vaccinations – Priority Actions 2, 3, 4; (4) developing, implementing, and replicating model policies at municipal, state/provincial, and national levels to eliminate mercury use in products and assure its safe storage and disposal (including procurement policies) – Priority Actions 1, 2, 5, 7; (5) maintain and make available listings of project reports and other relevant guidelines, codes of practice – Priority Actions 6, 7; and (6) develop technical and capacity building projects including implementation of projects identified by countries in country action plans, and results of mercury inventories – Priority Actions: 2, 6.

UNEP also has presented the following ideas for the consideration of the Products Partnership:

- Broader representation on the partnership, both in terms of number and scope of partners, including increased collaboration with other key international organizations such as the World Health Organization; build upon industry engagement such as the World Business Council for Sustainable Development, and encourage additional governments and stakeholders to partner.
- Consideration of sub-categories within the products sector may help focus the business planning process (e.g., consumer product and health care sectors).
- Review existing BAT/BEP guidance for new and existing sources. Amend and supplement as appropriate to provide mercury guidance and expand outreach to developing countries in sharing and implementing such guidance.
- Promote bilateral and multilateral aid and investment to foster the industrial transition to global production of affordable, high quality non-mercury products.
- Explore possibilities for economic and financial incentives as well as loans for technology conversion/change over.
- Pursue international standards for mercury content in compact fluorescent lamps.
- Identify major manufacturers of mercury-containing products, set standards for mercury content, and share BAT/BEP on the reduction of mercury content.
- Encourage governments with positive or successful experience on mercury substitution and technology changeover to share experiences such as legislative/regulatory measures, financial incentives, capacity-building, and awareness-raising.
- Strengthen and increase the scope of global efforts to address and reduce the use of mercury dental amalgam.

VII. PERFORMANCE MEASUREMENT AND REPORTING

The Partnership Areas will report biennially to UNEP in accordance with the UNEP reporting format.[17] Reporting will include tracking partnership activities and partner contributions as well as assessing effectiveness, and measuring the impact of partnership activities on the achievement of the overall goal. In this section, the Partnership Areas shall:

- Outline the indicators of progress in meeting the partnership area objective(s).
- Describe how the partnership area will undertake performance measurement and reporting.

VII. RESOURCE MOBILIZATION

Partnership Areas and the associated business plans are a way of mobilizing funding in a systematic, focused and harmonized way. Partnership Areas' objectives and business plans should provide clarity for potential donors and finance institutions. The business plans should encourage and facilitate donors to support activities and provide a tool to leverage funds. Working with UNEP, the Products Partnership lead would help to facilitate communication and provide administrative and management support (*see* Table 2: Administrative and Management Support, below) to ensure that individual activities or projects are supported and connected to the larger, overall strategic goals of the Products Partnership.

[17] UNEP will develop a systematic reporting format and timeline for the partnership areas to follow.

Funding for Partnership Activities:

Partners can develop specific initiatives, work with non-partners, or pursue projects consistent with partnership objectives. It is hoped that the Products Partnership will serve as a mechanism to consolidate and leverage funding for large, strategic projects. If partners wish to leverage funding for particular projects, details should be outlined within this section.

Partners are encouraged to contribute not only financially but also to offer in-kind assistance. For example, the UNITAR-UNEP-EPA partnership project on "Pilot Projects on Strengthening Capacities for Mercury Inventory Development and Risk Management Decision-Making" considered staff time from Governments (Chile, Ecuador, and Panama), as their counterpart and contribution. In addition, the QSC's State Resource Network provides technical experience and expertise amongst state environmental officials throughout the United States. Other examples include engagement of an industry that has expressed interest to act as a resource in a workshop on mercury recycling in lamps and batteries, or a manufacturer's active promotion of CFLs with reduced mercury content.

Partners are encouraged to apply for funding to relevant funders and regional organizations (seeking to collaborate regionally). Developing countries and countries with economies in transition can also submit requests for funding to UNEP under the UNEP Mercury Small Grants Program (*see* www.chem.unep.ch/mercury/Overview-&-priorities.htm). UNEP and UNITAR stand ready to assist countries to develop proposals addressing mercury issues under the SAICM Quick Start Programme (*see* www.chem.unep.ch/saicm/qsp.htm).

Table 2: Administrative[18] and Management Support (will vary across the Partnerships)		**Value**	**Source of Support**
Partnership Lead[19]	▪ Facilitation and support of the partnership.	¼ person year	In-kind support from USA.
Organization Point of Contact	• Preparing Business Plan. • Preparing for meetings. • Logging meeting notes, tracking action items. • Collaborating with partners to strategically link to overall partnership goals and objectives.		In-kind support from USA.
UNEP Secretariat Support	• Managing the clearinghouse/website. • Taking in funding from multiple sources to fund projects. • Developing activity proposals in collaboration with partners. • Assisting the lead in following up activities by partners. • Other tasks as requested.	¼ person year	In-kind support from UNEP. Efficiencies of UNEP time will be gained when pulling some of these tasks out into the overarching activity of the partnership.
Face-to-face meetings	Estimated one per year.	Teleconference lines	In-kind support from USA.

[18] Administrative support does not cover the cost of administering individual projects.

[19] For the Products Partnership, the lead is the United States, with a potential co-lead identified in the near future.

	All attempts will be made to host face to face meetings of the partnerships in the most cost effective way (e.g. back-to-back with other related meetings and have the ability to call in).	Travel support	UNEP will support some limited travel of developing countries/NGOs in face to face meetings, rest is in-kind support from partners for their own travel.
Teleconferences	Estimated one per year, which may take the place of face-to-face meeting.	Teleconference lines	In-kind support from USA.
Other	Supplies, communication materials.		In-kind support from Partners.

VIII. BUSINESS PLANNING PROCESS

As outlined in Table 2: Administrative and Management Support, the Products Partnership lead would serve to provide a cohesive structure or framework for ensuring that individual projects are able to be linked to the larger goals outlined in Section II of the business plan. As such, there should be a more structured process for individual projects to communicate on a regular basis, to obtain technical and outreach support, and to ultimately record, learn from and build upon successes and outcomes.

In creating regular communication and support current projects and facilitating support for existing and new projects, the Business Plan should be updated on a quarterly basis, working with all of the projects via teleconference. The Products Partnership may wish to hold periodic face-to-face meetings either separately or in conjunction with other international mercury meetings. In addition, the Business Plan should be used as a tool for identifying technical issues and facilitating smaller work sessions for brainstorming ways to address issues as they arise. An example of this is organizing a working session on how to leverage funds for a project or how to establish more formal linkages with other international organizations.

In addition to having regular calls and working session topics, the business plan will be used to track the mercury reductions identified in Section II. UNEP will be working with the Partner leads to examine ways projects can systematically report their progress in way that can be linked to the Partnership Objectives.

The Mercury-Containing Products Partnership Area will also be examining ways to formally invite and encourage new projects into the Products Partnership, such as through a written, formal statement, or through another mechanism whereupon new projects are efficiently recognized in a clear, deliberate fashion.

IX. LINKAGES

As a starting point, suggested linkages within the Mercury-Containing Products Partnership Area currently include issues concerning the proper procurement, storage, and oversight of mercury waste (e.g., pursuant to the Basel Convention), innovative strategies pertaining to assessing and monitoring issues of mercury supply and storage, and possible collaboration with the North American Commission for Environmental Cooperation, Artic Council Action Plan, United Nations Cleaner Production Centers and the World Health Organization (e.g., development of mercury-related health care policies).

X. PARTNERS

All stakeholders are welcome to participate in the Mercury-Containing Products Partnership Area.[20] A partner is any entity which expresses the willingness to contribute time, resources, or expertise to implement the objectives of the partnerships to achieve the goals of the UNEP Global Mercury Partnership. Participation in the partnerships is voluntary, with new partners welcomed on an equal basis.

Governments

Burkina Faso
Cote d'Ivoire
Iraq
Liberia
Madagascar
Malawi
Mali
Mexico
Nigeria
Philippines
Syrian Arab Republic
United States of America

Intergovernmental Organizations

Basel Convention
United Nations Environment Program (UNEP)
United Nations Industrial Development Organization (UNIDO)\
United Nations Institute for Training and Research (UNITAR)
World Health Organization (WHO)

Nongovernmental Organizations

Artisanal Gold Council
Asociación Argentina de Médicos por el Medio Ambiente (AAMMA)
Associazione Malattie de Intossicazione Cronica e/o Ambientale (AMICA)
Balifokus
Ban Toxics
Centre de Recherche et d'Education pour le Développement (CREPD)
Consumers for Dental Choice
Day Hospital Institute for Development & Rehabilitation (DHIDR – Egypt)
Education for All Africa (EDUCAF)
European Lamp Companies Federation (ELC)
Grupo Parques Nacionales Panama/Alianza Contaminacion Cero
Health Care Without Harm (HCWH)
Informer, Sensibiliser, Eduquer sur les Polluants Organiques Persistants en Cote d´Ivoire (ISE-POPS-CI)
International Academy of Biological Dentistry and Medicine (IABDM)

[20] Participation to the Partnership is defined in the Operational Guidelines of the Overarching Framework for the UNEP Global Mercury partnership

International Academy of Oral Medicine and Toxicology Europe
International POP's Elimination Network (IPEN)
International Society of Doctors for the Environment (ISDE)
Mercurio de Amalgamas Dentales y Otras Situaciones (MERCURIADOS)
New World Hope Organization
Pro-Biodiversity Conservationists in Uganda (PROBICUO)
Safe Minds
Society of Environmental Toxicology and Chemistry (SETAC)
Uganda Network on Toxic Free Malaria Control (UNETMAC)
World Alliance for Mercury-Free Dentistry
World Dental Federation (FDI)
World Medical Association (WMA)
Zero Mercury Working Group

Others

ARCADIS US, Inc.
Cardno ENTRIX
CETAC Technologies
Hg Recovery Pty. Ltd.
Institute for Combustion Science and Environmental Technology, Western Kentucky University
International Association for Dental Research
International Dental Manufacturers (IDM)
OIKON - Institute for Applied Ecology
Peerless Green Initiatives
Rayovac
V.L. Natarajan

For more information, please contact:

Thomas Groeneveld at groeneveld.thomas@epa.gov,
or
Desiree Narvaez at desiree.narvaez@unep.org.

Please visit http://www.unep.org/themes/chemicals/ for additional information on the Global Mercury Partnerships.

F. **Mercury Waste Management Partnership Area**

July 2013

UNEP Global Mercury Partnership[21]
Draft Revised Business Plan of the
Mercury Waste Management Partnership Area
- July 2014 -

This Business Plan describes the activities of the Mercury Waste Management partnership area of the United Nations Environmental Programme (UNEP) Global Mercury Partnership. It serves as a planning and communication vehicle both for Partners and others.

The purpose of the business plan is to provide a framework for developing and implementing projects. The business plan is to serve as a resource for providing a common, cohesive structure for implementing the UNEP Global Mercury Partnership on Waste Management.

Through UNEP Governing Council Decision 24/3, UNEP is requested, working in consultation with Governments and other stakeholders, to strengthen the UNEP Global Mercury Partnership. The Government of Japan initiated this partnership area in early 2008 as a means of strengthening the UNEP Global Mercury Partnership on Waste Management.

The partnership is open for government and stakeholder participation. In UNEP Governing Council Decision 24/3 part IV paragraph 27, UNEP is tasked with working in consultation with Governments and stakeholders to strengthen the UNEP Global Mercury Partnerships. New activities and partners are encouraged within the UNEP Global Mercury Partnership.

I. SUMMARY OF THE ISSUE

Mercury waste[22] is not readily identifiable since waste consisting of elemental mercury, containing or contaminated with mercury enters the waste stream along with other municipal, medical, agricultural and industrial waste. Therefore, mercury concentrations in most waste streams are directly related to the level of mercury in the products or materials.

This partnership aims to support the objectives of Overall Goal of Partnership; minimize and, where feasible, eliminate mercury releases to air, water, and land from waste containing mercury and mercury compounds by following a lifecycle management approach.

Lifecycle management (LCM) is a framework to analyse and manage the sustainability performance of goods and services (UNEP/SETAC 2009). When it is applied to waste management, in the narrow sense, lifecycle of waste management covers waste separation at source, collection, transportation, treatment and disposal, and in the broad sense, lifecycle of waste management covers material procurement, production, product use, and waste collection, transportation, treatment and disposal.

[21] The UNEP Global Mercury Partnership is a *voluntary initiative* where government, non-government, public and private entities have agreed to work together to achieve the goal of the Partnership. For more information on the UNEP Global Mercury Partnership, please see Overarching Framework UNEP Global Mercury Partnership" available from http://www.unep.org/hazardoussubstances/LinkClick.aspx?fileticket=rsuIRqojHyc%3D&tabid=269&language=en-US

[22] Throughout this document "mercury waste" refers to waste consisting of elemental mercury and waste containing or contaminated with mercury

Efforts to reduce generation of mercury wastes will be realized through cooperation with the Mercury-containing Products Partnership Area and the promotion of environmentally sound storage will be realized through cooperation with the Supply/Storage Partnership Area.

The partnership area puts priorities in the following actions:

- Identify and disseminate environmentally sound collection, transportation, treatment and disposal techniques/practices for different kinds of mercury wastes to reduce mercury releases from waste by following a lifecycle management approach;
- Assess environmental impacts of current waste management practices and processes, including providing support to countries to assess their national situation (e.g. development of national mercury waste inventories and priority setting) and needs; and
- Promote public awareness of the hazards regarding mercury wastes and their management and support community engagement in the activities of the Waste Management Partnership.

II. OBJECTIVE OF THE PARTNERSHIP AREA

The overall goal of the UNEP Global Mercury Partnership is to protect human health and the global environment from the release of mercury and its compounds by minimizing and, where feasible, ultimately eliminating global, anthropogenic mercury releases to air, water and land.

The objective of this waste partnership is to minimize and, where feasible, eliminate mercury releases to air, water, and land from mercury waste by following a lifecycle management approach.

Part of the overall approach to achieve the objective above is to strengthen the capacity of all countries and stakeholders while focusing on the needs of developing countries and countries with economies in transition to effectively deal with mercury waste.

In order to achieve the objective, environmentally sound management of mercury wastes is needed in all aspects of the waste collection, transportation, treatment and disposal practices as well as in the reduction of atmospheric emissions of mercury from incineration and other industrial processes.

Public awareness raising, community engagement and training for workers exposed to mercury need to be included to reduce mercury exposures and releases. Implementation of effective mercury waste treatment methods will be included as well.

III. PRIORITY ACTIONS

The partnership area has the following priority actions:

- Identify and disseminate environmentally sound collection, transportation, treatment and disposal techniques/practices for different kinds of mercury wastes to reduce mercury releases from waste by following a lifecycle management approach, including:
    - Identify and characterize mercury contained in waste streams by taking into account contamination level and waste volumes.
    - Facilitate activities contributing to the finalization of "Draft Basel Convention Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury". Ensure coordination between Secretariat of the Basel Convention and its respective subsidiary bodies.

- Prepare and promote utilization of “Good Practices for Management of Mercury Releases from Waste”
- Implement national projects on environmentally sound management (ESM) of mercury waste that can be used as case studies/demonstration projects.
- Ensure cooperation with the other relevant areas of the partnership such as products and supply/storage

- Assess environmental impacts of current waste management practices and processes, including providing support to countries to assess their national situation (e.g. development of national mercury waste inventories and priority setting) and needs.
- Promote public awareness of the hazards regarding mercury wastes and their management and support community engagement in the activities of the Waste Management Partnership.

IV. PARTNER EFFORT AND TIMELINE

As shown in Figure 1, there are activities under the Waste Management Partnership Area at two levels. First, there are activities being implemented by the Waste Management Partnership Area as a whole, involving all Partners, which include the following:

a. Drafting of “Good Practices for Management of Mercury Releases from Waste”
b. Utilization of Resource Person List on mercury waste management
c. Utilization of mailing list among Partners and other interested parties

Second, there are projects on mercury waste management implemented by each Partner. In order to review and encourage all of these activities, the Partnership Area Meetings are organized periodically.

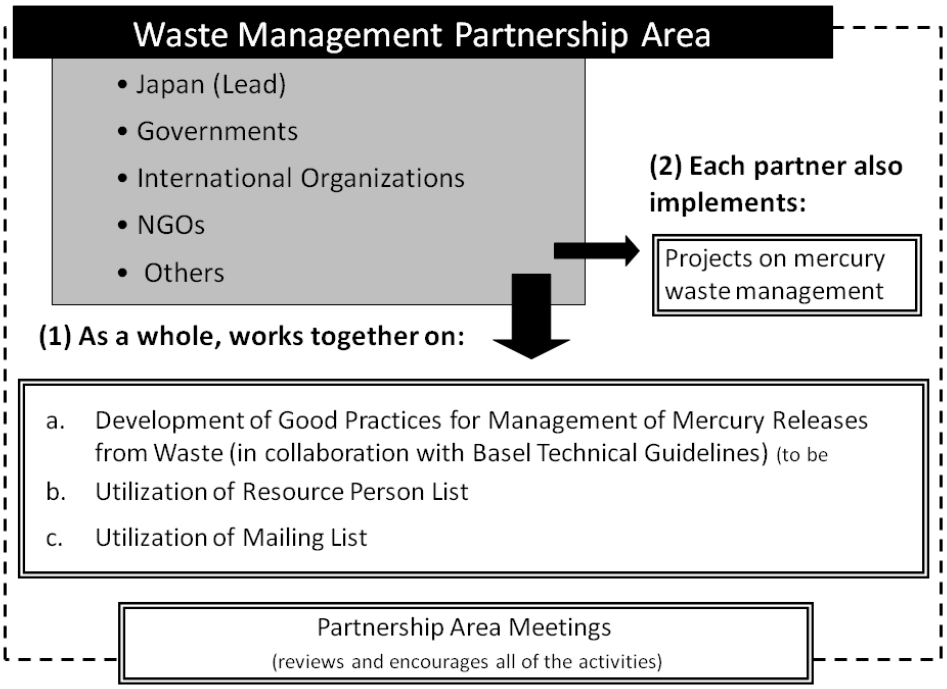

Figure 1. Activities of the Waste Management Partnership

Note: Activities regarding development of the Good Practices for Management of Mercury Releases from Waste are currently suspended. Details will be determined upon the development of the Basel Technical Guidelines and upon consultations with the relevant groups.

The partners are conducting various projects with regard to mercury waste management. Here, the projects have been classified by the type of wastes they deal with, as shown in the box below.[23]

Types of wastes addressed by the projects[24]:

1. Multiple Types of Mercury Wastes
2. Waste Products Containing Mercury (e.g. batteries, fluorescent lamps)
3. Healthcare Wastes (e.g. thermometers)
4. Mine Tailings [25]
5. Sites Contaminated with Mercury Wastes

[23] Among the projects that deal with the same types of wastes, the projects that are already completed are listed first, followed by those that are on-going and under planning. Among the projects that deal with the same type of wastes and are at the same phase of implementation (i.e. completed, on-going or under planning), the projects that are implemented at the multilateral level are listed first, followed by those that are implemented at the bilateral, then the national, and then the local level.

[24] These types of wastes have been categorized based on the content of partner efforts submitted by Partners.

[25] Tailings are residue of raw material or waste separated out during the processing of crops or mineral ores (Reference: US EPA (1997) Terms of Environment: Glossary, Abbreviations and Acronyms. http://www.epa.gov/OCEPAterms/)

For each project, (1) the priority action addressed by the project and (2) the stage of waste management addressed by the project are indicated. This information has been provided by the project contact persons. The list of priority actions and stages of waste management that the projects address are shown in the box below[26].

(1) Priority action addressed by the project

a.1. Identification and characterization of mercury in waste streams

a.2. Contribution to the finalization of Draft Basel Convention Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury"

a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects

b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories)

c. Promotion of awareness and education regarding mercury waste

(2) The stage of waste management addressed by the project

a. Development of policy framework

b. Reduction of mercury wastes (e.g. substitution of mercury-containing products)

c. Collection/separation of mercury wastes

d. Temporary or short-term storage pending disposal of collected mercury-containing products or wastes

e. Recovery of mercury from mercury-containing products and byproducts

f. Removal of mercury in flue gas and wastewater from waste management activities

g. Stabilization and solidification of mercury wastes

h. Final disposal of mercury wastes[27]

i. Other

[26] This categorization has been conducted in response to the suggestions made in the Partnership Advisory Group Meeting held in March to April 2009 and in the Second Waste Management Partnership Area Meeting held in Tokyo, March 2010.

[27] Final disposal of mercury waste may include options such as permanent storage of waste elemental mercury recovered from mercury waste or disposal of stabilized mercury waste in specially engineered landfill sites. Its definition may be discussed in the process of the intergovernmental negotiating committee to prepare a global legally binding instrument on mercury (INC).

A. Activities Implemented by the Waste Management Partnership Area as a whole

Followings are on-going activities that are being implemented under the initiative of the Lead and the Ministry of the Environment, Japan and through consultation with the Partners.

Type of waste	Multiple Types of Mercury Wastes
Phase of project	☐ Completed ☒ On-going ☐ Under planning
Level of intervention	☒ Multilateral ☐ Bilateral ☐ National ☐ Local
Name of Project	**Development of a document titled "Good Practices for Management of Mercury Releases from Waste" (formerly called "Draft BAT/BEP Guidance on Reduction of Mercury Releases from Waste Management")[28]**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ a.2. Contribution to the finalization of "Draft Basel Convention Updated Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury and Wastes Containing or Contaminated with Mercury" ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ b. Assessment of environmental impact of waste ,management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ b. Reduction of mercury wastes (e.g. substitution of mercury-containing products) ☒ c. Collection/separation of mercury wastes ☒ d. Temporary or short-term storage of collected mercury-containing products ☒ e. Recovery of mercury from mercury-containing products and byproducts ☒ f. Removal of mercury in flue gas and wastewater from waste management activities ☒ g. Stabilization and solidification of mercury wastes ☒ h. Final disposal of mercury wastes ☒ i. Other (please specify: remediation of contaminated sites)
Implementing agency, partners	UNEP Global Mercury Partnership, Japan (Ministry of the Environment) and other partners
Aim of the project	To provide information that supports the implementation of good practices contributing to the reduction of mercury releases from waste by following a lifecycle management approach. The document will be composed mainly of practical cases that are provided by Partners and that realise the principles of "Draft Basel Convention Updated Technical Guidelines for the Environmentally Sound

[28] After consultation with the UNEP Chemicals and the Secretariat of the Basel Convention, the title of this document has been changed due to considerations to the Intergovernmental Negotiating Committee (INC) to prepare a globally legally binding instrument on mercury (started from June 2010). Given that the BAT/BEP can be discussed at the INC under its own context, the expression "BAT/BEP" should be deleted from the title of this document to avoid confusion between the INC process and the UNEP Global Partnership.

	Management of Waste Consisting of Elemental Mercury and Wastes containing or Contaminated with Mercury[29]" (to be determined).
Activities	The Lead will compile information about good practices to manage mercury releases from waste based on information and comments provided by Partners and relevant parties, taking into account consistency with "the Basel Convention Updated Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury" (to be determined).
Achievements up to the present	The preliminary draft had been developed and was discussed at the Mercury Waste Management Partnership Area meeting in March 2010 (at that time called BAT/BEP Guidance). The first draft was presented as non-paper at INC 2 in January 2011. The document is expected to be updated as appropriate, based upon further inputs from Partners and for being more useful to the readers.
Budget	Funded by the Government of Japan
Project starting/ completion date	Started in June 2008; The first version was provided to INC 2 in January 2011. Completion date: to be determined
Contact information	Ministry of the Environment, Japan: Tel +81-3-5521-8260
Last updated on	07/2014

Other Activities

Utilization of Resource Person List on Mercury Waste Management

A Resource Person List on Mercury Waste Management has been prepared with the objectives to (1) provide a list of resource persons that the partners could contact when they wish to obtain advice from the technical standpoint in formulating or implementing projects to reduce mercury releases from waste management and (2) to provide a list of resource persons who could provide advice on the activities of the Waste Management Partnership Area such as organizing face-to-face meetings or drafting/revising "Good Practices for Management of Mercury Releases from Waste".

25 nominations have been received for the first version of the list; all of which have been approved by the Partners to be Resource Person. The completed list has been shared among the Partners through Waste Management Area's mailing list and its summarized version has been made public through the UNEP Chemicals website. The first version of the list was revised in March 2012, and the second version is available. The list is currently under revision as of July 2013.

Utilization of Mailing List among Partners and Other Interested Parties

A mailing list is created under the Waste Management Partnership Area with the objectives to facilitate communication between the Partners and the Lead and also among the Partners and

[29] "Draft Basel Convention Updated Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury" and this document will work in a mutually complementary manner, avoiding overlaps in roles; the former will focus on "the principles of environmentally sound management of mercury waste" whereas the latter will provide information about "practical cases" that would assist readers to implement an important part of the "Draft Basel Convention Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury".

potential Partners. Those currently participating in the mailing list include representatives of the Partner organizations of the Waste Management Partnership Area, participants of the Waste Management Partnership Area Meetings and others interested in joining the mailing list and are nominated by someone of the above.

The mailing list is currently used principally for disseminating information from the Lead to the Partners and relevant parties regarding activities under the Waste Management Partnership such as those regarding "Good Practices for Management of Mercury Releases from Waste", the Resource Person List or the Business Plan. In the future, it is anticipated that the mailing list would be further utilized by the Partners and other relevant parties for purposes such as request for information regarding mercury waste management activities, reporting of activities, notification of events, etc.

B. Projects Implemented by Each Partner

1. Projects Implemented by Each Partner at a Glance (On-going & Under planning)

(Detailed project information is followed by this table)

Type of waste addressed	Name of project	Phase of project	Level of inter-vention	Implementing agencies	pp.
a. Multiple Types of Mercury Wastes	Implementation of Basel Convention Technical Guidelines on Certain Wastes (other than "Draft Basel Convention Updated Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury")	On-going	National	- Parties of the Basel Convention	11
	"Basel Convention Updated Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury"	On-going	Multi-lateral	- COP of the Basel Convention - With support from Japan serving as lead country and from the Secretariat of the Basel Convention (SBC)	12
	Sub-regional Capacity Building and Technical Assistance Project on Mercury Waste in Health and Other Sectors in Latin America and the Caribbean (LAC) Region	On-going	Multi-lateral1	- Secretariat of the Basel Convention (SBC) - Basel Convention Coordinating Centre (BCCC) in Uruguay - Governments of Argentina, Uruguay and	12

Type of waste addressed	Name of project	Phase of project	Level of inter-vention	Implementing agencies	pp.
				Costa Rica	
	Mercury Storage and Waste Project	On-going	Multi-lateral	- UNEP/Division of Technology, Industry and Economics (DTIE) Chemicals Branch in coordination with the Secretariat of the Basel Convention.	13
	Environmental Sound Management of Mercury Containing Wastes	Under Planning	National	- National bodies of Syria	14
	Mercury Management Toolkit (including development of mercury emission inventories)	On-going	Local	- Global Environment Facility - Society of Environmental Toxicology and Chemistry - UNEP-DTIE	15
b. Waste Products Contain-ing Mercury	Mercury Dental Amalgam Collection and Recovery in Massachusetts, USA	On-going	Local	- Commonwealth of Massachusetts	16
	Zero Mercury Mission, Get on with Batteries & Get on with CFLs and fluorescent lighting & HID Lamps: a Mercury containing products Collection Programs (in Panama)	On-going	National	- Zero Pollution Alliance, Panama - Ecologic, S.A., Panama - UNEP Regional Office - Hormigon Express - Gabriela Batista	16
	Fluorescent lamp compaction plant & final disposition of mercury containing waste (dilution and solidification) controlled area	On-going	National	- Alianza Contaminación Cero, Panama - Ecologic, S.A., Panama	17
	Quantification and Characterization of Hospital Wastes and Set up of the ESM Systems for Hospital Wastes in Cameroon	On-going	National	- Research and Education Center for Development (CREPD) - Ministry of Public Health of Cameroon	18
	Awareness-raising and Educational project on collecting Mercury-added	On-going	National	- Association of Lighting and Mercury Recyclers, USA	19

Type of waste addressed	Name of project	Phase of project	Level of inter-vention	Implementing agencies	pp.
	Lamps				
	ULAB and Fluorescent lamp Collection Center (SENEGAL)	Under Planning	Local	- CFC (UN Agency) - GEF for Senegalese Agency for Rural Electrification	20
c. Health-care wastes	UNDP GEF Healthcare Waste Project (in Argentina, India, Latvia, Lebanon, Philippines, Senegal and Vietnam)	On-going	Multi-lateral	- Funding Agency: Global Environment Facility - Implementing Agency: United Nations Development Program - Principle Cooperating Agencies: World Health Organization and Health Care Without Harm	21
	Environmentally Sound Implementation of Healthcare Waste Management Plan in Nigeria	On-going	National	- Government of Nigeria	22
d. Mine tailings	Currently, there are no project implemented (as of July 2014)				-
e. Sites Contaminated with Mercury Wastes	Peerless Green Initiative: Kodaikanal Mercury Thermometer Plant Pollution Assessment and Integrated Waste Management	On-going	Local	- Peerless Green Initiatives - EVIDENCE, India (NGO) - SDDIT, India (NGO) - Department of Forestry, India - Government of India, Eco-Tribunal - Anna University, Chennai (proposed) - National Atomic Laboratory, Hyderabad (proposed)	23
	Mercury Contamination of a Water-catchment at an at-risk Eco-sensitive Rainforest Inhabited by Disenfranchised Tribals Caused by Pollution from Mercury Thermometer Factory in Kodaikanal, Tamil Nadu, India	Under Planning	Local	- Peerless Green Initiatives - EVIDENCE, India (NGO) - SDDIT, India (NGO) - Department of Forestry, India - Government of India, Eco-Tribunal	24

Type of waste addressed	Name of project	Phase of project	Level of inter-vention	Implementing agencies	pp.
				- Anna University, Chennai (proposed) - National Atomic Laboratory, Hyderabad (proposed)	
	Reduce exposure of mercury to human health and the environment by promoting sound chemical management in Mongolia	On-going	National Local	- UNIDO - Ministry of Nature and Green Development of Mongolia - Mine Reclamation Corporation (Mireco), Ministry of Health	25
	Preparatory project to facilitate the implementation of the legally binding instrument on mercury (Minamata Convention) in Argentina to protect health and the environment	Under Planning	National Local	- UNIDO - Associación Argentina de Médicos por el Medio Ambiente - Argentinean Society of Doctors for the Environment (AAMMA)	26
	Upper Goulburn River Feral mercury recovery project	On-going	National	- H.G.Recoveries Pty.Ltd., Australia	27
	ICI/Orica Botany NSW mercury cell Chlor-Alkali plant emissions quantification and impacts potential for local Botany area Residents	On-going	Local	- Hg Recoveries Pty Ltd., Australia	28
	Costerfield Antimony/Gold Mine, Victorian Australia	On-going	National	- Hg Recoveries Pty Ltd., Australia	28
	Open Cut Gold Mine, Heathcote, Victorian Australia	On-going	National	- Hg Recoveries Pty Ltd., Australia	29
	Underground Gold Mine, Bendigo, Victorian Australia	On-going	National	- Hg Recoveries Pty Ltd., Australia	29
	Walhalla Goldfields, Victorian Australia – gaseous mercury emissions	On-going	National	- Hg Recoveries Pty Ltd., Australia	30
	Woodvale Evaporation Ponds, Bendigo, Victorian Australia	On-going	National	- Hg Recoveries Pty Ltd., Australia	31
	Botany New South Wales Australia – Gaseous Mercury Emissions offsite from a closed ChlorAlkali plant	On-going	National	- Hg Recoveries Pty Ltd., Australia	31
	Botany New South Wales Australia – Gaseous Mercury Emissions from a Storm water drain ocean outfall	On-going	National	- Hg Recoveries Pty Ltd., Australia	32
	Willoughby New South	On-	National	- Hg Recoveries Pty Ltd.,	33

Type of waste addressed	Name of project	Phase of project	Level of inter-vention	Implementing agencies	pp.
	Wales Australia – Gaseous Mercury Emissions from a Storm water drain ocean outfall	going		Australia	

1.1 Detailed Information on Partner Projects by Types of Wastes Addressed

a. Multiple Types of Mercury Wastes

Target waste	Multiple Types of Mercury Wastes (Household wastes, incineration and landfilling of wastes)
Phase of project	☐ Completed ☒On-going ☐Under planning Technical guidelines above have been adopted by the Conference of the Parties (COP)
Level of intervention	☐Multilateral ☐Bilateral ☒National ☐Local
Name of Project	***Implementation of Basel Convention Technical Guidelines on Certain Wastes (other than "Draft Basel Convention Updated Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury")***
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ a.2. Contribution to the finalization of the Draft Basel Convention Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ b. Reduction of mercury wastes (e.g. substitution of mercury-containing products) ☒ c. Collection/separation of mercury wastes ☒ d. Temporary or short-term storage of collected mercury-containing products ☒ e. Recovery of mercury from mercury-containing products and byproducts ☒ f. Removal of mercury in flue gas and wastewater from waste management activities ☒ g. Stabilization and solidification of mercury wastes ☒ h. Final disposal of mercury wastes
Implementing agency, partners	Parties of the Basel Convention
Aim of project	To promote environmentally-sound management of waste
Achievements up to present	Basel Convention Technical Guidelines of relevance have been developed and adopted by the Parties to the Basel Convention, namely: environmentally sound management of

	household waste; technical guidelines on the incineration on land; and technical guidelines on specially engineered landfills (already developed and adopted)
Project starting/ completion date	- Technical Guidelines on Wastes Collected from Households adopted in COP 2, 1994 - Technical guidelines on the incineration on land adopted in COP 3, 1995 - Technical guidelines on specially engineered landfills adopted in COP 3, 1995
Contact information	- Person in charge: Ibrahim Shafii, Secretariat of the Basel Convention (SBC) - E-mail address: ibrahim.shafii@unep.org
URL	http://www.basel.int/TheConvention/Publications/TechnicalGuidelines/tabid/2362/Default.aspx
Last updated on	10/06/2014

Target waste	Multiple Types of Mercury Wastes
Phase of project	☐ Completed ☒ On-going ☐ Under planning
Level of intervention	☒ Multilateral ☐ Bilateral ☐ National ☐ Local
Name of Project	**"Basel Convention Updated Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury"**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ a.2. Contribution to the finalization of Draft Basel Convention Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ b. Reduction of mercury wastes (e.g. substitution of mercury-containing products) ☒ c. Collection/separation of mercury wastes ☒ d. Temporary or short-term storage of collected mercury-containing products ☒ e. Recovery of mercury from mercury-containing products and byproducts ☒ f. Removal of mercury in flue gas and wastewater from waste management activities ☒ g. Stabilization and solidification of mercury wastes ☒ h. Final disposal of mercury wastes
Implementing agency, partners	BRS Secretariat, with support from Japan serving as lead country
Aim of project	Development of Basel Convention "Updated Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury" until COP 12 (May 2015)
Achievements up to present	The first version of the Guidelines was adopted at COP10 (October 2011) available at: http://www.basel.int/TheConvention/Publications/TechnicalGuidelines/tabid/2362/Default.aspx

Project starting/ completion date	Development of the updated Technical Guidelines started in September 2013, and the 1st draft was prepared in December 2013. As of June 2014, Japan is in the process of preparing the next draft for consideration by the Basel Convention OEWG9 in September 2014.
Contact information	- Person in charge: Ibrahim Shafii, Basel, Rotterdam and Stockholm Convention Secretariat - E-mail address: ibrahim.shafii@unep.org or ibrahim.shafii@brsmeas.org
URL	The guidelines adopted at COP10 are available on the Basel Convention website at: http://www.basel.int/TheConvention/Publications/TechnicalGuidelines/tabid/2362/Default.aspx
Last updated on	10/06/2014

Target waste	Multiple Types of Mercury Wastes
Phase of project	☐ Completed ☒ On-going ☐ Under planning
Level of intervention	☒ Multilateral ☐ Bilateral ☐ National ☐ Local
Name of Project	**Sub-regional Capacity Building and Technical Assistance Project on Mercury Waste in Health and Other Sectors in Latin America and the Caribbean (LAC) Region** （Now in the phase of "Dissemination of training materials developed in the framework of the project and sharing of case studies through online training"）
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.2. Contribution to the finalization of "Draft Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury" ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ b. Reduction of mercury wastes (e.g. substitution of mercury-containing products) ☒ c. Collection/separation of mercury wastes ☒ d. Temporary or short-term storage of collected mercury-containing products ☒ h. Final disposal of mercury wastes
Implementing agency, partners	Secretariat of the Basel Convention (SBC), Basel Convention Coordinating Centre (BCCC) in Uruguay, Governments of Argentina, Uruguay and Costa Rica
Aim of project	To develop inventories of Mercury wastes in the health sector and other sectors, to promote environmentally-sound management of mercury wastes according to the Basel Convention Technical Guidelines. To build a temporary storage facility in one participating country.
Activities	- Development of three national inventories in the health sector and/or other sectors - Development of three ESM plans for Mercury wastes management in the health sector and/or in other sectors - Awareness raising
Achievements up to present	- Completed three national inventories in the health sector and the industrial sector in Argentina, Uruguay and Costa Rica;

	- Developed of three ESM plans for Mercury wastes management in the health sector and the industrial sectors in the three participating countries; - Completed guidance on low cost solutions for mercury waste management in the Chlor-alkali sector in Argentina; - Completed Guidance on mercury waste management in hospitals in Uruguay; - Currently raising awareness and sharing training methodologies and experience through online training. -
Budget	Funding from United States, additional co-funding received from Norway and Spain
Project starting/ completion date	Starting date: 11/2009 Costa Rica Project completed in 06/2013
Contact information	- Person in charge: Francesca Cenni, Secretariat of the Basel Convention (SBC) - E-mail address: francesca.cenni@unep.org
Last updated on	10/06/2014

Target waste	Multiple Types of Mercury Wastes
Phase of project	☐ Completed ☒On-going ☐Under planning Currently conducting the desk study
Level of intervention	☒ Multilateral ☐Bilateral ☐National ☐Local
Name of Project	**Mercury Storage and Waste Project**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ a.2. Contribution to the finalization of Draft Basel Convention Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework
Implementing agency, partners	UNEP/ Division of Technology, Industry and Economics (DTIE) Chemicals Branch in coordination with the Secretariat of the Basel Convention.
Aim of project	• To fill-in the gaps between the storage- and waste-related activities supported through the UNEP Global Mercury Partnership and other outputs of the Partnership in order to address the management of wastes consisting of, containing or contaminated with mercury in a coherent manner. • To assess horizontally or as part of overall hazardous waste management planning the outcomes and experiences of storage- and waste-related activities supported through the UNEP Global Mercury Partnership in participating countries.
Activities	1. Desk study to compile existing information of results, gaps, experiences, guidelines, etc. from projects/activities underway or completed; 2. Global consultation meeting to assess the materials, identify priority areas/issues and propose practical output; design of the pilots in three developing countries. Possibly to be held back-to-back with the Global Mercury Partnership Advisory Group meeting in September 2010;

	3. Pilot study addressing model or typical situations in three developing countries facing mercury waste problems; preparation of a user-friendly and integrative guidance document (three different scenarios)
Achievements up to present	Planning of workshop to join mercury waste partnership achievements with mercury storage partnership achievements
Budget	600,000 Norwegian Kronen (approx. USD 100,000)
Project starting date and completion date	Starting date: April 2010 Completion date: December 2010
Contact information	Dr. Heidelore Fiedler, UNEP Chemicals Tel.: +41 (22) 9178187; e-mail: heidelore.fiedler@unep.org further contacts for storage Desiree Narvaez, UNEP Chemicals, e-mail desiree.narvaez@unep.org; at SBC Ibrahim Shafii, e-mail ibrahim.shafii@unep.org
Last updated on	22/07/2010

Type of waste	Multiple Types of Mercury Wastes
Phase of project	☐ Completed ☐ On-going ☒ Under planning
Level of intervention	☐ Multilateral ☐ Bilateral ☒ National ☐ Local
Name of Project	**Environmental Sound Management of Mercury Containing Wastes**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ b. Reduction of mercury wastes (e.g. substitution of mercury-containing products) ☒ c. Collection/separation of mercury wastes ☒ d. Temporary or short-term storage of collected mercury-containing products ☒ e. Recovery of mercury from mercury-containing products and byproducts ☒ f. Removal of mercury in flue gas and wastewater from waste management activities ☒ g. Stabilization and solidification of mercury wastes ☒ h. Final disposal of mercury wastes
Implementing agency, partners	National bodies of Syria
Aim of project	Minimizing the releases and impacts of hazardous mercury waste to the environment and human beings.
Activities	(1) Developing the inventory of mercury and its compounds containing wastes through expansion of inventory process to combine the public, private and common sectors. - Preparing forms for gathering data on the type and quantity of mercury wastes which are obtained out of the various bodies' activities and the manner of dealing with such wastes (separation, gathering, transport, treatment, storage and disposal).

	- Gathering and analyzing information. - Identifying work priorities and national needs. (2) Developing separating system (3) Capacity Building (4) Raising awareness on health and environmental risks of mercury and its compounds and Encouraging to use alternatives (5) Laboratories developing
Achievements up to present	The national inventory of mercury releases 2008-2009 Asian Pilot Project+ the national action plan has been executed
Budget	200,000 USD
Project starting date and completion date	Starting date: January 2011 Completion date: June 2012
Contact information	- Person in charge: Engineer Eyad Ibrahim - Syrian Contact Person of Mercury Programme - Ministry of State for Environmental Affairs- Syrian Arab Republic - E-mail address: eyad-ib@hotmail.com, Eyadl2002@yahoo.com
Last updated on	17/08/2014 by Syrian Arab Republic

Target waste	Multiple Types of Mercury Wastes
Phase of project	☐ Completed ☒ On-going ☐ Under planning
Level of intervention	☒ Multilateral ☐ Bilateral ☐ National ☒ Local
Name of Project	**Mercury Management Toolkit**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ b. Reduction of mercury-containing wastes (e.g. substitution of mercury-containing products)
Implementing agency, partners	Global Environment Facility, Society of Environmental Toxicology and Chemistry, UNEP-DTIE
Aim of project	Develop mercury management tool that will assist governments in mercury management prioritization assessment
Activities	Define components that will contribute to the prioritization scheme; determine resources needed to support the use of the tool; determine the fate and effect factor; use of initial environmental release media data from country-level inventories for implementation priorities
Achievements up to present	- Initial meeting set up at ICMGP in Edinburgh
Project starting/ completion date	Start year 2013

Contact information	Dr. Svetoslava Todorova, Svetoslava.todorova@cardno.com
Last updated on	11/July/2013

b. Waste Products Containing Mercury

Type of waste	Waste Products Containing Mercury (Dental amalgam)
Phase of project	☐ Completed ☒On-going ☐Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☐National ☒Local
Name of Project	**Mercury Dental Amalgam Collection and Recovery in Massachusetts, USA**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ b. Reduction of mercury wastes (e.g. substitution of mercury-containing products) ☒ c. Collection/separation of mercury wastes ☒ f. Removal of mercury in flue gas and wastewater from waste management activities
Implementing agency, partners	Commonwealth of Massachusetts
Aim of project	Reduce mercury inputs to waste water and pollution attributable to wastewater and biosolids treatment and disposal.
Activities	Regulation requiring installation of amalgam separators was adopted in 2006. In Phase I, from 2004- 2006, incentives were provided for early compliance while regulations were being developed and adopted, and in Phase II, it became mandatory for dental practices to install amalgam separators for each dental chair where waste amalgam is generated
Achievements up to present	- More than 70% of dentists certified under the voluntary compliance program - Regulations mandating the use of amalgam separators adopted on schedule in 2006 - Compliance of audits indicate more than 95% of covered practices installed separators
Project starting/ completion date	Initiative started in 2004. The regulation requiring installation of amalgam separators was adopted in 2006
Contact information	C. Mark Smith, Ph.D., M.S., Massachusetts Department of Environmental Protection 1 Winter Street, Boston, MA 02108 c.mark.smtih@state.ma.us
URL	http://www.mass.gov/eea/agencies/massdep/toxics/programs/dental-amalgam-mercury-recycling-program.html
Last updated on	22/07/2014

Target waste	Waste Products Containing Mercury (Fluorescent lightings)
Phase of project	☐ Completed ☒On-going ☐ Under planning

Level of intervention	☐ Multilateral ☐Bilateral ☒ National ☐Local
Name of Project	**Zero Mercury Mission** **Get on with Batteries & Get on with CFL´s and fluorescent lighting & HID Lamps: a Mercury containing products Collection Programs (in Panama)**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a. 3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ c. Collection/separation of mercury-containing wastes ☒ d. Temporary or short-term storage of collected mercury-containing products ☒ g. Stabilization and solidification of mercury-containing wastes ☒ h. Final disposal of mercury-containing wastes
Implementing agency, partners	Zero Pollution Alliance, UNEP Regional Office, Ecologic, S.A. ,Hormigon Express & Gabriela Batista
Aim of project	Promote, inform, install collection systems for used CFL´s and Fluorescent light tubes & Dry Batteries & regulate their collection and final disposal.
Activities	Public awareness, workshops, private and public collection points, interim and final storage of waste containing mercury.
Achievements up to present	36 Allies (Banco General, Morgan & Morgan, Hospital Paitilla, Hospital y Clínica San Fernando, S.A. Suez Energy Central America, General Electric, Ace Hardware International, HP, Recicla Panamá, FAS Panamá, Ferias Yo Reciclo, Hines/P&G, Constructora Odebrecht, COPA, Bimbo de Panamá, CBRE, Sindicatos de Industriales de Panamá, Corporación Industrial, S.A. Electra Noreste, S.A. (ENSA), ICA/FCC/CUSA,) 43,850fluorescent, mercury vapor lamps and CFL´s collected YTD (breakdown ratio listed below) • 63.50% Flourescent lamps (4 feets) • 15,03%CFL`s • 6.07% U Shaped flourescent lamps • 12.29%Flourescent lamps (2 feets) • 2.78% Other types of mercury containing lamps 155 Used Ballast 650 Kgs of carton boxes recycled 16.50 Kg of mercury retained 5.0 Tons of waste containing mercury diverted Equivalent to 550 tons of CO2 equivalent reduced 22.25 Tons of dry batteries encapsulated
Budget	US$ 90,000.00 (25% Zero Pollution Alliance 75% Public & Private funds)
Project starting/ completion date	Sept. 2012 Jul. 2015
Collaboration with other partnership areas, activities under international conventions	Mercury-containing Products Partnership Area, waste management area and supply & storage area.
Contact information	Mr. Jorge G Conte B, Director/Founder, Alianza Contaminacion Cero jconte23@yahoo.com, jconte@ecologic.com.pa

URL	www.mercuriocero.blogspot.com
Last updated on	08/08/2014

Target waste	Fluorescent Lamps & other Lamps containing Mercury
Phase of project	☐ Completed ☐ On-going ☒ Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☒ National ☐Local
Name of Project	**Fluorescent Lamp compaction Plant & final disposition of mercury containing waste (dilution and solidification) controlled area.**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒X a. Development of policy framework ☒ b. Reduction of mercury-containing wastes (e.g. substitution of mercury-containing products) ☒ c. Collection/separation of mercury-containing wastes ☒ d. Temporary or short-term storage of collected mercury-containing products ☒ e. Recovery of mercury from mercury-containing products and byproducts ☒ g. Stabilization and solidification of mercury-containing wastes ☒ h. Final disposal of mercury-containing wastes
Implementing agency, partners	Mercury containing waste management area, Storage & final disposition area, Alianza Contaminacion Cero, Ecologic, S.A.
Aim of project	Construction of the first fluorescent lamps compaction plant & final disposition of mercury containing waste controlled area. 1.5 million lamps processed by 2020 125 Tons of mercury contaminated waste diverted 18,600 Tons of equivalent CO2
Activities	Collection, transportation, compaction of fluorescent lamps and other mercury containing lamps, temporary storage and mercury containing waste dilution and solidification controlled area.
Achievements up to present	Land acquisition (4,200 sq. meters) & topography studies US$ 50.000 Investment (Ecologic, S.A, & Alianza Contaminación Cero) Experience in dilution & solidification of 3.5 tons of mercury contaminated waste
Budget	US$ 250.000 (2014-2016)
Project starting/ completion date	January 2014 / December 2020
Collaboration with other partnership areas, activities under	Final Storage & Disposition Area, Mercury containing waste management Area, en.lighten Program, National Energy Secretary, National environmental Authority, Basel Convention.

international conventions	
Contact information	Jorge G Conte B, jconte@ecologic.com.pa (507) 391-9181
URL	www.mercuriocero.blogspot.com
Last updated on	24/07/2014

Target waste	Hospital wastes in Cameroon
Phase of project	☐ Completed ☒ On-going ☐ Under planning
Level of intervention	☐ Multilateral ☐ Bilateral ☒ National ☐ Local
Name of Project	**Quantification and Characterization of Hospital Wastes and Set up of the ESM Systems for Hospital Wastes in Cameroon**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ b. Reduction of mercury wastes (e.g. substitution of mercury-containing products) ☒ c. Collection/separation of mercury wastes ☒ d. Temporary or short-term storage of collected mercury-containing products ☒ h. Final disposal of mercury wastes
Implementing agency, partners	Research and Education Center for Development, Ministry of Public Health of Cameroon
Aim of project	Inventory and quantification of hospital wastes, characterization of present disposal practices of hospital waste in Cameroon and Set up a guidelines for the ESM of hospital wastes in Cameroon
Activities	Data collection on the types of Health Centers and Number of beds, …, Ground disposal practices and materials, Assessment of ESM practices
Achievements up to present	• The Ministry of Public Health granted a letter of collaboration with CREPD in the domain of Hospital Waste Management in Cameroon • Collection of some data and Networking with external organizations • Inventory of the hospital types and estimate of the number of beds • Evaluation of mercury release to the environment from medical thermometers in a pilot study in Yaoundé, Cameroon
Budget	On-going
Collaboration with other partnership areas, activities under international conventions	Ministry of Public Health of Cameroon, Ministry of Environment, Protection of Nature and Sustainable Development of Cameroon Interventions under the Stockholm Convention on POPs and under Mercury Partnership
Contact information	Gilbert KUEPOUO, Ph.D., Coordinator CREPD, P.O. Box 2970 Yaoundé, Cameroon, E-mail: crepdcentre@yahoo.com, kuepouo@yahoo.com
Last updated on	11/08/2014

Target waste	Mercury-added Lamps
Phase of project	☐ Completed ☒On-going (assistance and resources available) ☐Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☒National ☐Local
Name of Project	**(Awareness-raising and Educational project on collecting Mercury-added Lamps)**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ c. Collection/separation of mercury-containing wastes ☒ d. Temporary or short-term storage of collected mercury-containing products ☒ e. Recovery of mercury from mercury-containing products and byproducts ☒ i. Other (please specify: infrastructure for recycling)
Implementing agency, partners	Association of Lighting and Mercury Recyclers, in concert with the US Environmental Protection Agency. In the US the ALMR working and coordinating partners for this project included: National Electrical Manufacturers Association Solid Waste Association of North America Northeast Waste Management Officials Association State of Hawaii, Department of Health Pacific Northwest Pollution Prevention Resource Center St. Regis Mohawk Tribe California Department of Toxic Substances Control Center for Ecological Technology University of South Carolina Vermont Department of Environmental Conservation Tennessee Department of Environment and Conservation
Aim of project	The purpose of the project was to create and produce resource information, and implement an outreach and educational program along with infrastructure for collecting and recycling spent mercury lighting. The targets of the project included each of the 50 States and US Territories, Native American Groups, NGOs, local government agencies and the commercial/business sectors for mercury lamp recycling.
Activities	- Produced educational materials, resource information and a plan for national outreach and implementation. Conducted outreach to over 100 national target organizations, who, in turn, presented to their memberships to influence lamp disposal decision making. Information was made available on CD, printed documents, presentations at national meetings, and via several websites such as www.almr.org, www.lamprecycle.org, and via the EPA mercury and lamp recycling web pages. - Conducted extensive regulatory policy analysis with comparisons and produced data base of links to all state government agencies and private resource information. Ongoing project of the ALMR - Targeted messages for lamp users, building owners, energy companies, environmental organizations, contractors, waste handlers etc. about the regulations and responsibilities surrounding proper end-of-life lamp management. - Prepared Power Point summaries and training modules for use by all.
Achievements up	- Coordination of the content among NGOs, the EPA, the 50+ state and tribal

to present	agencies, the lighting industry, the waste disposal industry, and hundreds of local government entities throughout the U.S. - Completed extensive Guidance manual for Solid Waste industry, printed copies distributed and web access provided. - Conducted over 100 outreach meetings and workshops throughout the U.S., including distribution of project resources to all participants. Extensive media coverage, press releases and articles published in national press. Produced radio Public Service Announcement distributed to 350 stations. - Ongoing management of a "Community Assistance program"- serving as technical resource to cities, counties and local organizations and generators seeking assistance with infrastructure, recycling data, access to recyclers, information on how to set up collection. We process referrals from all sources.
Budget	$815,000.00
Project starting/ completion date	Starting date: 2002 Completion date: 2007, with continuation of 'Community Assistance Program' continued through the present time.
Contact information	Paul Abernathy, Executive Director
URL	www.almr.org www.lamprecycle.org
Last updated on	12/07/2012

Target waste	Waste products containing Mercury
Phase of project	☐ Completed ☐On-going ☒Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☐National ☒Local
Name of Project	**ULAB and Fluorescent lamp collection Center (SENEGAL)**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.2. Contribution to the finalization of the Draft Basel Convention Guidelines on the ESM of Mercury Waste ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ c. Collection/separation of mercury-containing wastes ☒ d. Temporary or short-term storage of collected mercury-containing products
Implementing agency, partners	CFC (UN agency), GEF for Senegalese Agency for Rural Electrification
Aim of project	Promote, inform, install collection systems for used Fluorescent light tubes and regulate their collection and final disposal.
Activities	Public Awareness
Budget	Not yet
Contact information	fatoundiaye@hotmail.com
Last updated on	19/07/2013

c. Healthcare wastes

Target waste	Healthcare wastes
Phase of project	☐ Completed ☒ On-going ☐ Under planning Implementation of project activities in each country
Level of intervention	☒ Multilateral ☐ Bilateral ☐ National ☐ Local
Name of Project	**UNDP GEF Healthcare Waste Project (in Argentina, India, Latvia, Lebanon, Philippines, Senegal and Vietnam)**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ a.2. Contribution to the finalization of Draft Basel Convention Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ b. Reduction of mercury wastes (e.g. substitution of mercury-containing products) ☒ c. Collection/separation of mercury wastes ☒ d. Temporary or short-term storage of collected mercury-containing products
Implementing agency, partners	Funding Agency: Global Environment Facility Implementing Agency: United Nations Development Program Principle Cooperating Agencies: World Health Organization and Health Care Without Harm
Aim of project	Our global project is demonstrating and promoting the use of best practices and techniques for healthcare waste management in seven countries (Argentina, India, Latvia, Lebanon, Philippines, Senegal and Vietnam). The goal is to protect public health and the global environment from the impacts of dioxin and mercury releases.
Activities	The project focuses primarily on activities such as promoting the use of non-burn waste treatment technologies, improved waste segregation practices and the use of appropriate alternatives to mercury-containing devices. These activities are reflected in the following eight project objectives, which are detailed further in the project's logical framework matrix (PDF): 1. Establish model facilities and programs to exemplify best practices in healthcare waste management. 2. Deploy and evaluate commercially available, non-incineration healthcare waste treatment technologies appropriate to the needs of each country. 3. Develop, test, manufacture and deploy affordable, small-scale non-incineration technologies for use in sub-Saharan Africa. 4. Introduce and evaluate the use of mercury-free devices in model facilities. 5. Establish or enhance training programs to build capacity for the implementation of best practices and technologies both within and beyond the model facilities and programs. 6. Review and update relevant policies. 7. Disseminate project results and materials to stakeholders and hold conferences or workshops to encourage replication.

	8. Make project results on demonstrated best techniques and practices available for dissemination and scaling-up regionally and globally.
Achievements up to present	Please refer to our February 2010 project update at the following link: http://gefmedwaste.org/downloads/Project%20Update%20February%202010.pdf
Budget	Total Project Budget: $23,296,949 USD Total Mercury Component Budget: $999,500 USD (including co-financing)
Project starting date and completion date	03/2008-06/ 2012
Contact information	- Person in charge : Dr. Jorge Emmanuel, Chief Technical Advisor, UNDP GEF Healthcare Waste Project - E-mail address: jorge.emmanuel@undpaffiliates.org
Last updated on	09/06/2010

Target waste	Healthcare wastes
Phase of project	☐ Completed ☒ On-going ☐ Under planning
Level of intervention	☐ Multilateral ☐ Bilateral ☒ National ☐ Local
Name of Project	**Environmentally Sound Implementation of Healthcare Waste Management Plan in Nigeria**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ c. Collection/separation of mercury wastes ☒ d. Temporary or short-term storage of collected mercury-containing products
Implementing agency, partners	Government of Nigeria
Aim of project	Provide an approach to the management of healthcare waste that is safe for healthcare facilities, waste handlers, the public and the environment as well as being cost effective and practical.
Activities	Development and implementation of Action Plan, Guidelines, and Policy/Bill for healthcare waste
Achievements up to present	Completion of inventory and Action Plan, Guidelines, and Policy/Bill for healthcare waste management including healthcare wastes containing mercury.
Project starting/ completion date	Project started 2002 with inventory. Implementation will start as soon as FEC approves the establishment of NSC. Currently, Awaiting FEC approval to establish NSC. Implementation has not started.
Contact information	- Dr. O. O. Dada (droodada@yahoo.co.uk) - Dr. Aisha Usman Mahmood (aishaddly@yahoo.com) - Mr. John Adefemi Adegbite (johnadefemiadegbite@yahoo.com) - Dr. Livinus Nnamdi Nwamkwo (nnamdi2livi@yahoo.com)
Last updated on	25/06/2010

d. Mine tailings

Currently, there are no project implemented (as of July 2014).

e. Sites Contaminated with Mercury Wastes

Type of waste	Sites contaminated with mercury
Phase of project	☐ Completed ☒On-going ☐Under planning Currently at the initial phase of investigation and assessment implemented and on-going.
Level of intervention	☐ Multilateral ☐Bilateral ☐National ☒Local
Name of Project	**Peerless Green Initiative: Kodaikanal Mercury Thermometer Plant Pollution Assessment and Integrated Waste Management**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ c. Collection/separation of mercury wastes ☒ e. Recovery of mercury from mercury-containing products and byproducts ☒ f. Removal of mercury in flue gas and wastewater from waste management activities ☒ i. Other (please specify: Remediation of site contaminated with waste containing mercury)
Implementing agency, partners	Peerless Green Initiatives, Chennai, India; Judicial Branch, Eco-Tribunal Supreme Court, Government of India UNEP Mercury Program Partners (to be decided) UNITAR UNIDO Anna University, Chennai (proposed) National Atomic Laboratory, Hyderabad (proposed) Private stakeholders and NGO's
Aim of project	Assure proper remediation of the areas affected by the release of mercury into the environment by a former mercury thermometer manufacturing plant located in the ecologically sensitive residential location of Kodaikanal, India
Activities	Risk analysis and environmental impact assessment of the proposed technical environmental remediation measures (on-site); Detailed planning and engineering design of affected areas (off-site); Public awareness and health risk prevention; Remediation training, public and private sector capacity building and exchange of good practices; Establishment of an environmental monitoring system; Project coordination.
Achievements up to present	Comparative analysis and environmental impact of the proposed technical environmental remediation measures and the risk of contamination during the proposed waste management plan has been achieved. Investigation of the scope of

	affected areas has been hypothesized. Preliminary plan for the sampling and testing of affected areas is underway, the balance of planning and engineering design of affected areas to be drafted contingent on testing results and analysis. Formation of strategic alliances and capacity building is on-going. Public awareness campaign has resulted in ground-support and appreciation of human and environmental risks. Plan of coordination has been drafted and business plan is drafted, subject of revision based on findings of sample studies. Pro-action by stakeholders through Government of India Judiciary is ongoing with intent to compel good practices and expanded scope of impact assessment. analysis
Budget	$85,000USD (First Phase)
Project starting /completion date	Starting date: October 2009
Contact information	- Person in charge: Frank Costanzo, Peerless Green Initiatives - E-mail address: frank@peerlessgreen.net
Last updated on	18/08/2014

Type of waste	Sites contaminated with mercury wastes
Phase of project	☐ Completed ☐ On-going ☒ Under planning
Level of intervention	☐ Multilateral ☐ Bilateral ☐ National ☒ Local
Name of Project	**Mercury Contamination of a Water-catchment at an at-risk Eco-sensitive Rainforest Inhabited by Disenfranchised Tribals Caused by Pollution from Mercury Thermometer Factory in Kodaikanal, Tamil Nadu, India**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ c. Collection/separation of mercury wastes ☒ e. Recovery of mercury from mercury-containing products and byproducts ☒ f. Removal of mercury in flue gas and wastewater from waste management activities ☒ i. Other (please specify: Remediation of site contaminated with waste containing mercury)
Implementing agency, partners	Peerless Green Initiatives EVIDENCE, India (NGO) SDDIT, India (NGO) Department of Forestry, India Government of India, Eco-Tribunal Anna University, Chennai (proposed) National Atomic Laboratory, Hyderabad (proposed)
Aim of project	This project is in tandem with PGI's related project to assess the contamination of public and private lands outside the perimeter of a mercury thermometer plant at the Eastern spur of the Western Ghats, Kodaikanal, Tamil Nadu, and India. Both projects are designed to offer a platform for a model integrated plan for the waste management

	of at least 400kg of mercury deposited in the soil during the 18 year operation of the subject factory until its closing in 2001. The site has been 'static' insofar as no remediation plan has been implemented and accordingly offers researchers an opportunity to study the migration of mercury from an area that last tested eight years ago. It is also a project that can highlight the mission of the Programme in that the polluted area is flanked on one side by residential properties and a State protected endangered rain forest that is number 18 on Conservation International's 'hot spot' list. As such, this particular prong of the overall Kodaikanal scheme involves the empirical sampling and analysis of water and sediment in the catchment area of the factory. 80% of ground water run-off from the factory site is channeled from the factory property where it drops precipitously over 1000 meters into a catchment that travels 30 kilometers to a water reservoir used for agro-irrigation and drinking water. Along this 30km journey, down the mountain-valley (the Lower Palanis) passing numerous tribal settlements who use the water in its untreated form for washing, cooking, drinking, livestock and agriculture. Thus far the tribals and natural capital advocates have been disenfranchised from the proposed action plan mainly due to only random and selective off-site testing of soil sediment and water by a private environmental engineering company hired by the polluter and managed by a former employee of the polluter. Lastly, the program allows for the opportunity to 'update' the proposed action plan to come into line with the 2007 Basel Convention as the guidelines for waste management did not exist at the time the plan was authored in 2006.
Activities	To avoid redundancy, the general activity requirements are detailed in PGI's previously filed Information Report. Distinct to this program is a need for an integrated approach for the testing and waste streams of mercury in the water catchment as well as potentials for re-contamination through waste management process. Retrospective long term study of affects of mercury on tribals is an area in need of development and international humanitarian cooperation.
Achievements up to present	Petition to Eco-Tribunal of Supreme Court under polluter-pays principle is underway and provide framework for Government and UNEP intervention, analysis and capacity building. The entire data-set of existing testing, evaluation, proposed plan for waste management, reports of Pollution Control Board and other monitoring agencies have been fully reviewed and are being uploaded into digital format for the ease of international advisers and partnership review. A plan of action has been detailed including scope of project, necessary inputs and potentials for meaningful program success. Public awareness and capacity building has resulted in a firm foundation of understanding of necessary
Budget	$75,000USD
Project starting/ completion date	Starting date: July 2010
Contact information	Person in charge: Frank Costanzo, Peerless Green Initiatives E-mail address: frank@peerlessgreen.net
Last updated on	18/18/2014

Target waste	Sites contaminated with mercury
Phase of project	☐ Completed ☒ On-going ☐ Under planning
Level of intervention	☐ Multilateral ☐ Bilateral ☒ National ☒ Local
Name of Project	**Reduce exposure of mercury to human health and the environment by promoting sound chemical management in Mongolia**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects

	☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ c. Collection/separation of mercury-containing wastes ☒ g. Stabilization and solidification of mercury-containing wastes ☒ h. Final disposal of mercury-containing wastes
Implementing agency, partners	UNIDO and Ministry of Nature and Green Development of Mongolia, Mine Reclamation Corporation (Mireco), Ministry of Health
Aim of project	The project will strengthen national and local capacity to effectively manage and reduce mercury emissions
Activities	1. Establish a regulatory framework and national guidelines for environmentally sound management of mercury containing waste 2. Developing capacity for the implementation of remediation and stabilization techniques in mercury hot-spot areas through demonstration activities at the pilot scale 3. Disseminating information and raising awareness through campaigns on mercury health and environment risk reduction
Achievements up to present	Project was approved by the GEF in June 2013
Budget	USD$600,000 (GEF) and USD$1,569,000 co-financing from Ministry of Nature and Green Development, Ministry of Health, Mireco and UNIDO
Project starting/ completion date	June 2013 – June 2015
Contact information	Mr. Jérôme Stucki, UNIDO, j.stucki@unido.org
Last updated on	16/08/2014

Target waste	Sites contaminated with mercury
Phase of project	☐ Completed ☒On-going ☐Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☒National ☒Local
Name of Project	**Preparatory project to facilitate the implementation of the legally binding instrument on mercury (Minamata Convention) in Argentina to protect health and the environment**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ i. Other (please specify: the project will make an assessment of the mercury waste management and disposal options currently available in the country, and based on the assessment develop a follow up proposal for a pilot, demonstrative project on the interim storage and final disposal of mercury containing waste.)
Implementing agency, partners	UNIDO and the Asociación Argentina de Médicos por el Medio Ambiente, AAMMA (Argentinean Society of Doctors for the Environment).
Aim of project	The project will strengthen national and local capacity to effectively manage mercury and mercury containing waste.
Activities	1. Assess the current regulatory framework on mercury and propose any necessary changes to facilitate compliance with the forthcoming Minamata Convention

	2. Assess the BAT/BEP options available in the country, as well as the various mercury waste streams to propose possible solutions in cooperation with the Government, private sector and civil society. 3. Disseminate information and raise awareness through an online Clearing House on mercury and the Minamata Convention.
Achievements up to present	n/a
Budget	USD$350,000 (GEF) and USD$530,000 co-financing from AAMMA, the Basel Convention Regional Centre for South America, the National Institute of Industrial Technology (INTI) of Argentina and UNIDO
Project starting/ completion date	Jan 2014 – December 2015
Contact information	Ms. Carolina Gonzalez, UNIDO, c.gonzalez-castro@unido.org
Last updated on	08/08/2014

Target waste	Historical gold mining area
Phase of project	☐ Completed ☒On-going ☐Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☒National ☐Local
Name of Project	**Upper Goulburn River Feral mercury recovery project**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ c. Collection/separation of mercury-containing wastes ☒ d. Temporary or short-term storage of collected mercury-containing products ☒ e. Recovery of mercury from mercury-containing products and byproducts ☒ h. Final disposal of mercury-containing wastes ☒ i. Other (please specify: On site retorting of sediments to recover mercury)
Implementing agency, partners	H.G Recoveries Pty Ltd – Upper Goulburn River Feral mercury recovery project
Aim of project	Location of and removal of about 4900 tons of Mercury from a historical gold mining area in a major drinking water catchment.
Activities	Location of feral mercury and treatment of sediments to recovery mercury
Achievements up to present	Construction of a historical mercury pollution data base based on historical records from over 150 years of gold mining operations. Extensive stream sediment sampling coupled with sampling of remaining crusher fines piles. Development of a bankable business case to demonstrates the "no cost case" to remove this toxic metal and rehabilitate the River Catchment to pre-habitation baseline. The project has demonstrated very clearly that pre-1920's gold mining operations were only recovering about 50% of the gold in ore – were not recovering any of the other metals such as platinum, vanadium, tungsten cobalt, arsenic, lead, chromium or nutrients such as phosphorous & potassium. Extensive ongoing legal threats by the Victorian Government to prevent the project progressing due to a political agenda that maintains "mercury is only a natural mineral

	and therefore does not represent a risk to the community, water or fish safety". Project will proceed when the inevitable change of government occurs in the State of Victoria.
Budget	$A 400+ million – project is capable of being self-funding
Project starting/ completion date	10/2010 - Start date, finish date now late 2022
Collaboration with other partnership areas, activities under international conventions	Abandoned Mines Group, University of Queensland, Australia
Contact information	Andrew Helps +61 3 56 22 00 40; email agroeco@bigpond.com
Last updated on	11/08/2014

Target waste	Mercury Contamination from a Major Mercury Cell Chlor-Alkali Plant
Phase of project	☐ Completed ☒On-going ☐Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☐National ☒Local
Name of Project	**ICI/Orica Botany NSW mercury cell Chlor-Alkali plant emissions quantification and impacts potential for local Botany area Residents**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ c. Collection/separation of mercury-containing wastes ☒ h. Final disposal of mercury-containing wastes ☒ i. Other (please specify:)
Implementing agency, partners	Hg Recoveries Pty Ltd – project is called the ICI/Orica Botany NSW mercury cell Chlor-Alkali plant emissions quantification and impacts potential for local Botany area Residents.
Aim of project	To back-cast plant mercury emissions from commencement of production in 1941 to provide justification for a Halo testing program to quantify potential mercury impacts to offsite areas, e.g., domestic residences and parklands.
Activities	Historical production data search, assessment of emissions from similar plants in the UK, production of emissions spreadsheet and power point presentation on this issue for the Botany residents.
Achievements up to present	This plant was decommissioned in 2002 but is still emitting approximately 11 tons of gaseous mercury per year (Orica data) due to lack of proper site rehabilitation. Project has achieved greater 'residents awareness' of the risks from liquid waste, spillages and atmospheric deposition of mercury emanating from this plant and identification of significant mercury pollution of Botany Bay and possibly nearby RAMSAR Wetlands. Large range of other chemicals now being found in offsite soil surveys including PCB's, HCB, BaP, Chlorine, pesticides, herbicides and fungicides etc.
Budget	$A 210,000
Project starting/	April 2012 - ongoing

completion date	
Collaboration with other partnership areas, activities under international conventions	IPEN International POP's Elimination Network. Australian National Toxics Network INC Additionally, this location has over 10,000 tons of HCB stored on site.
Contact information	Andrew Helps +61 3 56 22 00 40; Email agroeco@bigpond.com
Last updated on	11/08/2014

Target waste	Elemental Mercury
Phase of project	☐ Completed ☒On-going ☐Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☒National ☐Local
Name of Project	**Costerfield Antimony/Gold Mine, Victorian Australia**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework
Implementing agency, partners	Hg Recoveries Pty Ltd – 350 Collins Street Melbourne Victoria 3000 Australia
Aim of project	Building a data base of mercury pollution from historical gold mining Operations in Australia
Activities	Identification of elemental and gaseous mercury at a historical gold mining/antimony mine site.
Achievements up to present	Confirmation of residual elemental mercury and gaseous mercury 70 years after mercury was last used as an amalgamation tool at the mine site.
Budget	$A 40,000
Project starting/ completion date	November 2013 – December 2014
Contact information	Andrew Helps agroeco@bigpond.com
Last updated on	11/08/2014

Target waste	Elemental Mercury
Phase of project	☐ Completed ☒On-going ☐Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☒National ☐Local
Name of Project	**Open Cut Gold Mine, Heathcote, Victorian Australia**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ b. Assessment of environmental impact of waste management practices

	(including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) <u>The stage of waste management addressed by the project</u> ☒ a. Development of policy framework
Implementing agency, partners	Hg Recoveries Pty Ltd – 350 Collins Street Melbourne Victoria 3000 Australia
Aim of project	Building a data base of mercury pollution from historical gold mining Operations in Australia
Activities	Identification of gaseous mercury at a historical open cut gold mining mine site.
Achievements up to present	Confirmation of elemental mercury offgassing 50 years after mercury was last used as an amalgamation tool at the mine site.
Budget	$A 10,000
Project starting/ completion date	November 2013 – January 2014
Contact information	Andrew Helps agroeco@bigpond.com
Last updated on	11/08/2014

Target waste	Elemental Mercury
Phase of project	☐ Completed ☒On-going ☐Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☒National ☐Local
Name of Project	**Underground Gold Mine, Bendigo, Victorian Australia**
Contribution to Partnership Area objectives	(1) <u>Priority action addressed by the project</u> ☒ a.1. Identification and characterization of mercury in waste streams ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) <u>The stage of waste management addressed by the project</u> ☒ a. Development of policy framework
Implementing agency, partners	Hg Recoveries Pty Ltd – 350 Collins Street Melbourne Victoria 3000 Australia
Aim of project	Building a data base of mercury pollution from historical gold mining Operations in Australia
Activities	Identification of gaseous mercury at a large scale recently closed underground gold mining mine site.
Achievements up to present	Confirmation of elemental mercury offgassing 50 years after mercury was last used as an amalgamation tool at the mine site.
Budget	$A 20,000
Project starting/ completion date	November 2013 – January 2014
Contact information	Andrew Helps agroeco@bigpond.com

Last updated on	11/08/2014

Target waste	Elemental Mercury
Phase of project	☐ Completed ☒On-going ☐Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☒National ☐Local
Name of Project	**Walhalla Goldfields, Victorian Australia – gaseous mercury emissions**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework
Implementing agency, partners	Hg Recoveries Pty Ltd – 350 Collins Street Melbourne Victoria 3000 Australia
Aim of project	Building a data base of mercury pollution from historical gold mining Operations in Australia
Activities	Measuring gaseous mercury flows up and down the only drainage line from this large scale multi mine site
Achievements up to present	Confirmation of elemental mercury offgassing 85 years after mercury was last used as an amalgamation tool at this major mine complex site.
Budget	$A 40,000
Project starting/ completion date	November 2013 – March 2014
Contact information	Andrew Helps agroeco@bigpond.com
Last updated on	11/08/2014

Target waste	Elemental Mercury
Phase of project	☐ Completed ☒On-going ☐Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☒National ☐Local
Name of Project	**Woodvale Evaporation Ponds, Bendigo, Victorian Australia**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ h. Final disposal of mercury-containing wastes

	☒ i. Other: Data base construction – historical gold mines
Implementing agency, partners	Hg Recoveries Pty Ltd – 350 Collins Street Melbourne Victoria 3000 Australia
Aim of project	Building a data base of mercury pollution from historical gold mining Operations in Australia
Activities	Identification of gaseous mercury emissions at a large scale recently closed evaporation dam complex.
Achievements up to present	Confirmation of elemental mercury offgassing from a 160Ha complex designed to evaporate highly contaminated groundwater.
Budget	$A 10,000
Project starting/ completion date	November 2013 – January 2016
Contact information	Andrew Helps agroeco@bigpond.com
Last updated on	11/08/2014

Target waste	Elemental Mercury
Phase of project	☐ Completed ☒On-going ☐Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☒National ☐Local
Name of Project	**Botany New South Wales Australia - Gaseous Mercury Emissions offsite from a closed ChlorAlkali plant**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ h. Final disposal of mercury-containing wastes ☒ i. Other: Data base construction – historical ChlorAlkali plant operations
Implementing agency, partners	Hg Recoveries Pty Ltd – 350 Collins Street Melbourne Victoria 3000 Australia
Aim of project	Building a data base of gaseous mercury pollution from historical ChlorAlkali plant operations in Australia
Activities	Identification of gaseous mercury emissions at a large scale ChlorAlkali plant site closed in 2002
Achievements up to present	Confirmation of mercury offgassing and travelling beyond the site boundary .
Budget	$A 10,000
Project starting/ completion date	November 2013 – January 2016
Contact information	Andrew Helps agroeco@bigpond.com

Last updated on	11/08/2014

Target waste	Elemental Mercury
Phase of project	☐ Completed ☒On-going ☐Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☒National ☐Local
Name of Project	**Botany New South Wales Australia - Gaseous Mercury Emissions from a Storm water drain ocean outfall**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ h. Final disposal of mercury-containing wastes ☒ i. Other: Data base construction – historical ChlorAlkali plant operations
Implementing agency, partners	Hg Recoveries Pty Ltd – 350 Collins Street Melbourne Victoria 3000 Australia
Aim of project	Building a data base of gaseous mercury pollution from historical ChlorAlkali plant operations in Australia
Activities	Identification of gaseous mercury emissions from a storm water ocean outfall downslope from a ChlorAlkali plant site closed in 2002.
Achievements up to present	Confirmation of mercury offgassing in the storm water system and travelling many kilometers beyond the site boundary to the ocean outfall.
Budget	$A 10,000
Project starting/ completion date	November 2013 – January 2016
Contact information	Andrew Helps agroeco@bigpond.com
Last updated on	11/08/2014

Target waste	Elemental Mercury
Phase of project	☐ Completed ☒On-going ☐Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☒National ☐Local
Name of Project	**Willoughby New South Wales Australia - Gaseous Mercury Emissions from a Storm water drain ocean outfall**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste

	(2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ h. Final disposal of mercury-containing wastes ☒ i. Other: Data base construction – historical ChlorAlkali plant operations
Implementing agency, partners	Hg Recoveries Pty Ltd – 350 Collins Street Melbourne Victoria 3000 Australia
Aim of project	Building a data base of gaseous mercury pollution from historical ChlorAlkali plant operations in Australia
Activities	Identification of gaseous mercury emissions from a storm water ocean outfall 18 kilometers from a ChlorAlkali plant site closed in 2002.
Achievements up to present	Confirmation of mercury offgassing in the storm water system 18 kilometers from its probable source.
Budget	$A 10,000
Project starting/ completion date	November 2013 – January 2016
Contact information	Andrew Helps agroeco@bigpond.com
Last updated on	11/08/2014

2. Projects Implemented by Each Partner at a Glance (Completed Projects) (Detailed project information is followed by this table)

Type of waste addressed	Name of project	Phase of project	Level of inter-vention	Implementing agencies	pp.
a. Multiple Types of Mercury Wastes	Mercury Waste Management Project	Completed	Multi-lateral	- UNEP Chemicals - Governments of Burkina Faso, Cambodia, Pakistan, Philippines, and Chile - Financial support from Government of Norway	35
	JICA Training Course "Hazardous Waste Management and Appropriate Disposal for Asia"	Completed	Multi-lateral	- Japan International Cooperation Agency, Japan Environmental Sanitation Center	36
b. Waste Products Contain-ing Mercury	Quantification and characterization of discarded batteries in Yaoundé, from the perspective of health, safety and environmental protection	Completed	Local	- Research and Education Center for Development (CREPD), Cameroon	36
	Mercury Dental Amalgam Collection and Recycling in Victoria, Australia	Completed	Local	- World Dental Federation - International Dental Manufacturers	37

Type of waste addressed	Name of project	Phase of project	Level of inter-vention	Implementing agencies	pp.
	Get on with the Batteries: a Battery Collection Program (in Panama)	Completed	National	- Alianza Contaminación Cero - Ecologic S.A., Panama - Gabriela Batista Visual Artist - UNEP/ Regional office for Latin America and the Caribbean (PNUMA/ROLAC)	38
c. Health-care wastes	Revision of the Guideline "Safe Management of Wastes from Health Care Activities"	Completed	Multi-lateral	- World Health Organization Department of Health Security and Environment	39
d. Mine tailings	Technical/Chemical and Economic Assessment of Mercury-containing and Hg-contaminated Tailings from the Mining Sector in Developing Countries	Completed	Multi-lateral	- UNEP Chemicals - Governments of Chile and Ghana - Gesellschaft für Anlagen- und Reaktorsicherheit (GRS) as subcontractor	39
	The Model Study in the Philippines for the Establishment of the Mercurial Environmental Pollution Improvement Program	Completed	Multi-lateral Local	- Department of Science and Technology, Philippines - Benguet Federation of small-scale miners - Department of Geology, University of the Philippines - Geological Survey of Denmark and Greenland - Japan Atomic Energy Agency	40
e. Sites Contaminated with Mercury Wastes	Liddell's Calcined Sands stockpile site Bendigo, Victoria, Australia	Completed	Local	- Hg Recoveries Pty Ltd., Australia	41
	Mercury response and remediation at the Architect of the Capitol, Washington DC	Completed	Local	- Cardno ENTRIX, USA	41
	Response and remediation of mercury release at gas storage facility	Completed	Local	- Cardno ENTRIX, USA	42

2.1 Detailed Information on Partner Projects by Types of Wastes Addressed (Completed Projects)

a. Multiple Types of Mercury Wastes

Target waste	Multiple Types of Mercury Wastes
Phase of project	☒ Completed ☐ On-going ☐ Under planning Final workshop scheduled in Aberdeen, 21-23 June 2010 Final report under preparation
Level of intervention	☒ Multilateral ☐ Bilateral ☐ National ☐ Local
Name of Project	**Mercury Waste Management Project**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ a.2. Contribution to the finalization of "Draft Basel Convention Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury" ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ c. Collection/separation of mercury wastes
Implementing agency, partners	- UNEP Chemicals - Governments of Burkina Faso, Cambodia, Pakistan, Philippines, and Chile - Financial support from Government of Norway
Aim of project	- To increase the technical capacity to manage mercury waste in an environmentally sound manner; - Contribution to the further development of the Draft Basel Technical Guidelines
Activities	1. Review of the national mercury inventories; 2. Prioritization of mercury sources and the corresponding sectors; 3. Development of a national mercury waste management plan; 4. ESM application in selected sources and sectors; 5. Sampling and mercury analysis of environmental and human samples; 6. Final national reports and final project report; lessons learned; evaluation of project.
Achievements up to present	Final global workshop held June 2010 <Burkina Faso> · Project manager and team assigned · National workshop held in Ouagadougou, 9-11 November 2009 · National samples analyzed · Final workshop 2010 <Cambodia> · Inception workshop in June/July 2009 · Identification of sectors and sources of mercury release · Development of draft waste management plan · National samples analyzed · Final workshop, June 2010 <Pakistan> · National inception workshop held (30 July 2009) and final workshop planned (late May 2010) · Identification of priority areas

	· National samples analyzed · Final workshop 2010 <Chile> · Coordination committee established · National workshop held (Nov 2009) · mercury analysis by CENMA · 4 national coordination meetings · Development of draft waste management plan · Information workshop for Andacello mine, remediation plan, 19 March 2010 · National samples analyzed for mercury <Philippines> · 1st National Workshop held (Feb 16, 2010) · Identification of priority areas · Final workshop 2010
Budget	USD 499,000, funded by Government of Norway
Project starting/ completion date	Project starting date: 08/2008 Project completion date: 06/2010
Contact information	Dr. Heidelore Fiedler, UNEP Chemicals Tel.: +41 (22) 9178187; e-mail: heidelore.fiedler@unep.org
URL	http://www.unep.org/hazardoussubstances/Mercury/InterimActivities/Partnerships/WasteManagement/WasteManagementProject/tabid/3538/language/en-US/Default.aspx
Last updated on	07/07 /2010

Target waste	Multiple Types of Mercury Wastes
Phase of project	☒ Completed ☐On-going ☐Under planning
Name of Project	**JICA Training Course "Hazardous Waste Management and Appropriate Disposal for Asia"**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams (2) The stage of waste management addressed by the project ☒ a. Development of policy framework
Implementing agency, partners	Japan International Cooperation Agency, Japan Environmental Sanitation Center
Aim of project	To assist officials of national and local governments in Asian countries enhancing capacities for planning hazardous waste management policies suitable to their conditions through providing them with basic knowledge and Japan's experiences in hazardous waste management
Achievements up to present	During 2007 to 2012, 42 technical officials from following countries have attended the training course; Cambodia (3), Indonesia (1), Laos (3), Malaysia (12), Mongolia (1), the Philippines (7), Thailand (5), Vietnam (3), China (7)
Activities	Conducting of training courses on hazardous waste management and appropriate disposals
Project starting/ completion date	Project started in 2007, completed in 2012
Phase or stage of project	This training course has been provided once every year since 2007 to 2012
Contact information	- Japan Environmental Sanitation Center +81-44-288-4937
Last updated on	07/08/2014

b. Waste Products Containing Mercury

Target waste	Discarded portable batteries
Phase of project	☒ Completed ☐On-going ☐Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☐National ☒Local
Name of Project	**Quantification and Characterization of Discarded Batteries in Yaoundé, from the Perspective of Health, Safety and Environmental Protection**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ c. Collection/separation of mercury wastes ☒ h. Final disposal of mercury wastes
Implementing agency, partners	Research and Education Center for Development (CREPD)
Aim of project	This study provided for the scale and characterization of the problem of discarded batteries to be evaluated and provided insights useful for proposing actions that might be taken to reduce the problem of mismanagement of battery wastes in a developing country such as Cameroon
Activities	Analyze of discarded portable batteries by output method: sampling, sorting, description of labeling (battery types, countries of origin, trademarks, chemicals systems and labeled chemical compositions and cautionary notes), data interpretation and discussions
Achievements up to present	Proposition of mechanism for the sound management of discarded batteries in a developing countries such as Cameroon
Budget	CFA Franc 2.000.000
Project starting/ completion date	June 2006/April 2008
Contact information	CREPD, P.O. Box 2970 Yaoundé, Cameroon, E-mail: crepdcentre@yahoo.com
Last updated on	July 2013

Target waste	Waste Products Containing Mercury (Dental Amalgam)
Phase of project	☒ Completed ☐On-going ☐Under planning
Level of intervention	☐ Multilateral ☐Bilateral ☐National ☒Local
Name of Project	**Mercury Dental Amalgam Collection and Recycling, Victoria, Australia**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ c. Collection/separation of mercury-containing wastes

	☒ d. Temporary or short-term storage of collected mercury-containing products ☒ e. Recovery of mercury from mercury-containing products and byproducts ☒ i. Other (please specify: Recycling of mercury)
Implementing agency, partners	National members of FDI and IDM - Australian Dental Association (Victorian Branch) and Australian Dental Industry Association respectively. Also Environment Protection Agency Victoria, Melbourne Water Industry and CMA Eco-Cycle
Aim of project	To encourage purchase and installation of ISO 11143 compliant amalgam separators in private sector dental practices and the continued collection and recycling of the waste.
Activities	A part time project manager liaised with all stakeholders and held education sessions for the dentists. All installations claiming the 20% of costs were inspected by the project manager. A sliding scale of rebates operated over the 3 years of the project. Years 1 &2 the rebate was AU$1000 of purchase price of the amalgam separator or 20% of installation costs – whichever was greater reducing to AU$500 or 10% of costs in Year 3. A condition of the rebate was a signed amalgam waste collection agreement with a waste collector. A waste bundling agreement was put in place so the waste collector also collected fluorescent light fittings, x-ray films and developer, waste amalgam capsules and needle sharps. The waste collector sells replacement amalgam separator containers ranging from AU$140 to AU$340 depending on brand and capacity of the cup. The ADA Victoria Branch continues to remind members to have their waste collected through their magazines and website. Some dentists such as oral surgeons, periodontists, and orthodontists were excluded from the program as they neither place nor remove dental amalgam.
Achievements up to present	82% of approximately 1000 eligible dental practices in Victoria have installed ISO 11143 compliant amalgam separators under this voluntary system. Of the remainder some already had ISO 11143 compliant amalgam separators prior to the project commencing. Government funded clinics including hospitals were successfully lobbied by the partners to install amalgam separators. 356 kilograms of mercury have been recycled from the amalgam waste since program commenced, representing approximately 0.5kg per practice. This distilled mercury is on sold to a local Melbourne amalgam capsule manufacturer.
Budget	AU$1.2 million
Project starting/ completion date	June 2008 September 2011
Contact information	FDI – Dr Julian Fisher jfisher@fdiworldental.org IDM – Mrs Pam Clark pam@cattani.com.au
URL	www.dentistsforcleanerwater.com.au
Last updated on	20/05/2012

Type of waste	Waste Products Containing Mercury (Batteries)
Phase of project	☒ Completed ☐ On-going ☐ Under planning
Level of intervention	☐ Multilateral ☐ Bilateral ☒ National ☐ Local

Name of Project	**Get on with the Batteries: a Battery Collection Program (in Panama)**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ b. Reduction of mercury wastes (e.g. substitution of mercury-containing products) ☒ c. Collection/separation of mercury wastes ☒ d. Temporary or short-term storage of collected mercury-containing products ☒ e. Recovery of mercury from mercury-containing products and byproducts ☒ g. Stabilization and solidification of mercury wastes ☒ h. Final disposal of mercury wastes ☒ i. Other (please specify: Cero Mercury Hospital & Clinics facilities in Panama)
Implementing agency, partners	Alianza Contaminación Cero, Ecologic, S.A. Gabriela Batista Visual Artist, UNEP/ Regional office for Latin America and the Caribbean (PNUMA/ROLAC)
Aim of project	Promote alternatives to dry batteries use and collect & dispose properly used dry batteries from homes, schools, universities and businesses
Activities	Battery users in schools, houses, and small businesses keep the used batteries in plastic bottles and to periodically bring them to specific collection points for interim storage and final disposition. Promote local, national and regional legislation for an integral management of mercury containing products.
Achievements up to present	22,252.68 kg of used dry batteries 1.550 MM people informed 4,550 kids and professionals participated in workshops 250 concrete blocks containing used dry batteries produced Approx. 7.5 Kgs of mercury neutralized
Budget	US$ 75,000
Project starting/ completion date	July 2009 to June 2015
Contact information	Mr. Jorge G Conte B, Director/Founder, Alianza Contaminacion Cero jconte23@yahoo.com, jconte@ecologic.com.pa
Last updated on	08/08/2014

c. Healthcare wastes

Target waste	Healthcare wastes
Phase of project	☒ Completed ☐ On-going ☐ Under planning Close to final
Level of intervention	☒ Multilateral ☐ Bilateral ☐ National ☐ Local
Name of Project	**Revision of the Guideline "Safe Management of Wastes from Health Care Activities"**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ b. Reduction of mercury wastes (e.g. substitution of mercury-containing

	products) ☒ c. Collection/separation of mercury wastes
Implementing agency, partners	World Health Organization Department of Health Security and Environment
Activities	This guidance document describes the elements on the ESM of waste from health care facilities, including wastes containing mercury.
Achievements up to present	Revised second edition has been distributed: http://apps.who.int/iris/bitstream/10665/85349/1/9789241548564_eng.pdf
Contact information	Susan Wilburn, World Health Organization (wilburnS@who.int)
Last updated on	12/08/2013

d. Mine tailings

Target waste	Mine tailings
Phase of project	☒ Completed ☐On-going ☐Under planning Final deliveries available shortly
Level of intervention	☒ Multilateral ☐Bilateral ☐National ☐Local
Name of Project	**Technical/chemical and Economic Assessment of Mercury-containing and Hg-contaminated Tailings from the Mining Sector in Developing Countries**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ i. Other (please specify: Identification of mercury contaminated sites; economic feasibility study)
Implementing agency, partners	UNEP Chemicals, Governments of Chile and Ghana GRS as subcontractor
Aim of project	The project aims for a feasibility study on the options that the mercury or the precious metal content in tailings – as a sellable product – will pay for the environmentally sound remediation of such sites.
Activities	National activities carried out at national level; reports almost finalized.
Achievements up to present	Study on technical-economical feasibility authored by GRS (report accepted; publication in preparation)
Budget	Grant: USD 200,000
Project starting/ completion date	Starting date: 1/12/2008 Termination date: 31/12/2009
Contact information	Dr. Heidelore Fiedler, UNEP Chemicals Tel.: +41 (22) 9178187; e-mail: heidelore.fiedler@unep.org
URL	http://www.unep.org/hazardoussubstances/Mercury/InterimActivities/Partnerships/Addendum/tabid/3536/language/en-US/Default.aspx
Last updated on	07/07/2010

Type of waste	Mine tailings

Phase of project	☒ Completed ☐ On-going ☐ Under planning
Level of intervention	☒ Multilateral ☐ Bilateral ☐ National ☒ Local
Name of Project	**The Model Study in the Philippines for the Establishment of the Mercurial Environmental Pollution Improvement Program**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in tailings ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ e. Recovery of mercury from mercury-containing products and byproducts ☒ i. Other: Removal of mercury from mine tailings
Implementing agency, partners	Department of Science and Technology, Philippines Benguet Federation of small-scale miners Department of Geology, University of the Philippines Geological Survey of Denmark and Greenland Japan Atomic Energy Agency
Aim of project	Extract mercury from tailings produced by small-scale /artisanal gold miners
Activities	Building and testing pilot mercury extraction plant
Achievements up to present	Determining suitable testing sites for the pilot plant and carry out preliminary sampling and analysis of the tailings for mercury and gold
Budget	75,000 $US
Project starting date and completion date	January 1st, 2010 March 31th, 2012
Contact information	- Peter W. U. Appel. Geological Survey of Denmark and Greenland - E-mail address: pa@geus.dk
Last updated on	10/05/2012

e. Sites Contaminated with Mercury Wastes

Target waste	Re-Processing Mercury Contaminated Calcined Ores
Phase of project	☒ Completed ☐ On-going ☐ Under planning
Level of intervention	☐ Multilateral ☐ Bilateral ☐ National ☒ Local
Name of Project	**Liddell's Calcined Sands stockpile site Bendigo, Victoria, Australia**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ a.3. Implementation of national projects on ESM of mercury waste as case studies/demonstration projects ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste

	(2) The stage of waste management addressed by the project ☒ a. Development of policy framework ☒ c. Collection/separation of mercury-containing wastes ☒ e. Recovery of mercury from mercury-containing products and byproducts ☒ h. Final disposal of mercury-containing wastes ☒ i. Other (please specify:)
Implementing agency, partners	Hg Recoveries Pty Ltd, Warragul, Victoria, Australia.
Aim of project	To provide impacted residents with an option other than the government mandated above ground burial by soil/clay only of extremely toxic calcined crusher fines (containing high levels of arsenic, mercury. lead plus others)
Activities	Develop a "no cost option to government" to remove and rehabilitate these materials from the site to a pre-habitation baseline.
Achievements up to present	Extensive sampling and testing of the materials, compilation of an inventory of metals in the sands and development of a business plan to remove the calcined sands from the site at no cost to the State Government. Business plan indicated a 'no cost option to the State' by removing these toxic materials and re-processing to recover commercially valuable entrained metals. State Government adopted 'scientifically flawed expert advice' that above ground covering of these 'calcined fines' was the best option, for an estimated cost of $A10+ million, despite on-going failure of two previous similarly 'buried' contaminated sites which continue to the present day leaching both elemental and compounds of mercury and arsenic into the surrounding environment.
Budget	$A120,000
Project starting/ completion date	September 2012 January 2013
Collaboration with other partnership areas, activities under international conventions	Centre for mined Land Rehabilitation - University of Queensland (UQ) www.cmlr.uq.edu.au Mercury Supply and Storage Convention on Biological Diversity
Contact information	Andrew Helps +61 3 56 22 00 40; email agroeco@bigpond.com
Last updated on	07/2013

Target waste	Elemental mercury, mercury impacted debris and water
Phase of project	☒ Completed ☐ On-going ☐ Under planning
Level of intervention	☐ Multilateral ☐ Bilateral ☐ National ☒ Local
Name of Project	**Mercury response and remediation at the Architect of the Capitol, Washington DC**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ b. Reduction of mercury-containing wastes (e.g. substitution of mercury-containing products) ☒ c. Collection/separation of mercury-containing wastes

	☒ d. Temporary or short-term storage of collected mercury-containing products ☒ e. Recovery of mercury from mercury-containing products and byproducts ☒ h. Final disposal of mercury-containing wastes
Implementing agency, partners	Cardno ENTRIX
Aim of project	Render facility safe for continued occupancy by workers
Activities	Release response, identification of mercury and identify extent of contamination; removal of elemental mercury; recovery of mercury from drains and piping; air testing to verify removal met OSHA TLV requirements; characterization and disposal/recycling of debris, water, and elemental mercury.
Achievements up to present	Area is safe for continued occupancy.
Budget	$150,000
Project starting/ completion date	May 2009 to August 2009
Collaboration with other partnership areas, activities under international conventions	Washington DC environmental managers; utility environmental coordinators;
Contact information	Mr. Michael Kinder, mike.kinder@cardno.com
Last updated on	10 July 2013

Target waste	Elemental mercury, mercury impacted debris
Phase of project	☒ Completed ☐ On-going ☐ Under planning
Level of intervention	☐ Multilateral ☐ Bilateral ☐ National ☒ Local
Name of Project	**Response and remediation of mercury release at gas storage facility**
Contribution to Partnership Area objectives	(1) Priority action addressed by the project ☒ a.1. Identification and characterization of mercury in waste streams ☒ b. Assessment of environmental impact of waste management practices (including development of mercury emission inventories) ☒ c. Promotion of awareness and education regarding mercury waste (2) The stage of waste management addressed by the project ☒ b. Reduction of mercury-containing wastes (e.g. substitution of mercury-containing products) ☒ c. Collection/separation of mercury-containing wastes ☒ d. Temporary or short-term storage of collected mercury-containing products ☒ e. Recovery of mercury from mercury-containing products and byproducts ☒ g. Stabilization and solidification of mercury-containing wastes ☒ h. Final disposal of mercury-containing wastes
Implementing agency, partners	Cardno ENTRIX
Aim of project	Render facility safe for continued occupancy by workers
Activities	Release response, identification of mercury and identify extent of contamination; removal of elemental mercury; recovery of mercury from drains and piping; air testing to verify removal met OSHA TLV requirements; characterization and disposal/recycling of debris, water, and elemental mercury.
Achievements up to present	Area is safe for continued occupancy.
Budget	$50,000

Project starting/ completion date	February 2012 to March 2012
Collaboration with other partnership areas, activities under international conventions	Virginia Department of Environmental Quality, utility environmental coordinators
Contact information	Mr. Michael Kinder, mike.kinder@cardno.com
Last updated on	10 July 2013

3. CROSS-REFERENCE: Relevant activities under other partnership areas

The following activities are conducted under different partnership areas. For more details on these projects, please see the Business Plans of the corresponding partnership area[30].

Mercury-Containing Products

The objective of this partnership area, led by the U.S. Environmental Protection Agency, is to phase out and eventually eliminate mercury in products and to eliminate releases during manufacturing and other industrial processes via environmentally sound production, transportation, storage, and disposal processes.

The cooperation between the Waste Management Partnership and the Mercury-Containing Products Partnership is especially important in order to encourage and implement environmentally sound management of mercury waste by following a lifecycle management approach.

Some of the key activities of the Mercury-Containing Products include the following.

- On-going health-care projects aimed at reducing the use of mercury-containing measuring and control devices, including projects in Argentina, Brazil, Chile, Costa Rica, Ecuador, Honduras, Mexico, Nepal and Tanzania;
- Five year project (to 2012) with the Secretariat of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal to build capacity and promote best management practices for addressing mercury waste collected from health care products and in other sectors addressing mercury in products. Projects are focused in Argentina, Costa Rica and
- On-going mercury inventory and risk management planning activities sponsored by the United States of America and implemented through the United Nations Institute for Training and Research in Chile, Ecuador, Panama and South Africa.
- Project on production of an educational video for hospital personnel on mercury waste management in English and Spanish implemented by Health Care Without Harm (HCWH) under the WHO-HCWH Global Initiative for Mercury-Free Health Care (the production is scheduled to be completed in September 2011)

Artisanal and Small-scale Gold Mining

This Partnership, jointly led by United Nations Industrial Development Organization (UNIDO) and the Natural Resources Defense Council (NRDC), aims for continued reduction and

[30] "UNEP(DTIE)/Hg/PAG.2/3 - Partnership area business plans" is available from http://www.unep.org/hazardoussubstances/Portals/9/Mercury/Documents/PAG-meetings/DRAFT%20HG%20PAG%202-3%20Business%20plans.pdf

elimination of mercury uses and releases in artisanal and small-scale gold mining (ASGM). Some of its recent activities include facilitating formulation of AGSM strategic plans, providing input on Standard Zero (promotion of responsible mercury and cyanide use), development of technical guidance and legalization/formalization guidance documents.

The ASGM Partnership has a strong interest in reducing the amount of mercury present in tailings. Close links will be established with the Mercury in Waste Partnership.

Mercury Supply and Storage

This partnership, led by the Zero Mercury Working Group, has a short anticipated life or only until 2013. The partnership focuses on Kyrgyz Republic Primary Mercury Mining project, regional projects to provide storage options of metallic mercury and technical support to INC.

The Mercury Supply and Storage Partnership Area will cooperate with the Mercury Waste Partnership Area particularly regarding storage aspects. Coordination with projects on the environmentally sound of management of mercury waste (UNEP Chemicals-SBC projects in Burkina Faso, Cambodia, Chile, Pakistan, Philippines and the USEPA-SBC projects in Argentina, Costa Rica, and Uruguay (joint project with Products partnership area) is expected. (For details, please see the Business plan of the Artisanal and Small Scale Gold Mining (ASGM) Partnership Area).

V.OPPORTUNITIES

Possible actions in response to the priority actions include the followings:

- **Priority action a):**
    - Identify environmentally sound collection, transportation, disposal and treatment techniques for mercury waste following a lifecycle management approach.
    - Develop a training manual for countries to apply "Draft Basel Convention Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury", including sector specific guidance.
    - Formulate and implement projects utilizing "Good Practices for Management of Mercury Releases from Waste".
    - Review available information on existing BAT/BEP for mercury waste management. In doing so, cooperate with other partnership areas, chemical conventions, Strategic Approach to International Chemicals Management (SAICM) and the INCs.
    - Target pilot projects on mercury waste management in cooperation with other partnerships, institutions, organizations (*e.g.* Secretariat of the Basel Convention) and public interest and health NGOs. Such projects may include waste separation, segregation, collection transportation, recovery or disposal technologies and may address air emissions, landfill design and operation including evaporation and seepage water, and use of appropriate stabilization/solidification technologies.
- **Priority action b):** Assess environmental impacts of current waste management practices and processes, including providing support to countries to assess their national situation, interests and needs.
    - Enhance information/knowledge, including improving release inventories (including the Mercury Toolkit, European Monitoring and Evaluation Programme (EMEP)

Guidebook and national/regional Pollutant Release and Transfer Registers) with an emphasis on mercury waste streams.

- Assess the importance of mercury waste in the national mercury inventories and make suggestions for the improvement of the UNEP Mercury Toolkit.
- Promote safe handling procedures for collection, transportation and management for the segregated mercury wastes and waste handling devices.

- **Priority action c):**
  - Promote awareness and education on mercury waste: in cooperation with civil society and NGOs, develop and disseminate educational materials including practical and simple advice on steps to deal with current mercury waste issues of concern (*e.g.*, what to do with discarded mercury fever thermometers, sound temporary storage and safeguarding solutions).

VI. EVALUATION

The partnership areas will report biennially to UNEP in accordance with the UNEP reporting format, which includes the report on progress in terms of the Partnership Area Progress Indicators.

Progress indicators

The Waste Management Partnership Area has developed its own progress indicators, which correspond to its priority actions. The indicators have been categorized as (1) output indicators and (2) process indicators, as shown in the table below.

Objective/Action	Indicator of Progress	Type of Indicator
Overall Objective: Minimize and, where feasible, eliminate unintentional mercury releases to air, water and land from mercury waste by following a lifecycle management approach.	Estimated amount of mercury diverted from waste stream by the implementation of the projects under the Partnership (including estimates of impacts of pilot projects implemented in a country)	Output Indicator
	Estimated amount of mercury releases from waste that are reduced from implementation of the projects under the Partnership	
	Number of Partners	Process Indicator
Priority Action a: Identify and disseminate environmentally sound collection, treatment, transportation and disposal techniques/practices to reduce mercury releases from waste by following a lifecycle approach	Available information on identification and characterization of mercury contained in waste streams	
	Completion of "Good Practices for Management of Mercury Releases from Waste" that supplements "Draft Basel Convention Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury"	
	Number of good practice cases added in "Good Practices for Management of Mercury Releases from Waste"	

Objective/Action	Indicator of Progress	Type of Indicator
	Number of projects formulated utilizing "Good Practices for Management of Mercury Releases from Waste"	
	Number of national projects on ESM of mercury waste implemented	
	Amount of financial resources for projects aimed for reducing releases of mercury from waste management	
Priority Action b: Assess environmental impacts of current waste management practices and processes, including providing support to countries to assess their national situation (e.g. development of national mercury waste inventories and priority setting) and needs	Number of countries that prepared national inventory of mercury waste, if possible, mercury release estimation from waste treatment and waste dumping	
	Number of countries with national policy frameworks/action plans with regard to mercury waste management [4]	
Priority Action c: Promote public awareness of the hazards regarding mercury waste and support community engagement in the activities of the Waste Management Partnership.	Number of projects to promote awareness and education regarding mercury waste	

VII. RESOURCE MOBILIZATION

Partners are encouraged to contribute financially and also to offer in-kind assistance.

Partners can develop specific initiatives, work with non-partners, or pursue projects consistent with the partnership objectives. It is hoped that the UNEP Global Mercury Partnership will serve as a mechanism to consolidate and leverage funding for large, strategic projects.

Partners are encouraged to apply for funding to relevant funders and regional organizations. Developing countries and countries with economies in transition can submit requests for funding to UNEP under the UNEP Mercury Small Grants Program (*see* www.chem.unep.ch/mercury/Overview-&-priorities.htm). UNEP and other partner implementing agencies stand ready to assist countries to develop proposals addressing mercury issues under the SAICM Quick Start Programme (*see* www.chem.unep.ch/saicm/qsp.htm).

In this perspective, Waste Management Partnership has prepared 'Wish List', which is a list of project proposals planned by each partner as of 25 April 2014. Projects were prioritized through scoring procedure by partners, evaluating five criterion such as; relevance, outcome, cost effectiveness, replicability, implementation mechanism.

VIII. BUSINESS PLANNING PROCESS

Business planning will take place annually for the partnership area. Business planning will be undertaken in close collaboration with the partners and the relevant Partnership Areas such as the Mercury-Containing Products Partnership Area and the Mercury Supply and Storage Partnership Area. The content of this Business Plan will be reviewed and revised in order to reflect the developments in the INC process to the extent possible.

The process in developing and reviewing business plans will be outlined in this section. Partnerships will take stock of efforts and test direction and productivity in moving forward and will adjust planning accordingly.

In accordance with Section 4 of the Overarching Framework for the UNEP Global Mercury Partnership, the business plan will be periodically reviewed and updated to reflect progress in implementation and changing circumstances. The arrangements for Administrative and Management Support are set out in Table below.

Administration and Management Support (will vary across the Partnerships)		**Source of Support**
Partnership Lead	• Facilitation and support of the partnership.	Japan (Prof. Dr. TANAKA)
Organization Point of Contact	• Preparing Business Plan. • Preparing for meetings. • Logging meeting notes, tracking action items. • Collaborating with partners to strategically link to overall partnership goals and objectives.	Japan, Ministry of the Environment
UNEP Secretariat Support	• Managing the clearinghouse/website. • Taking in funding from multiple sources to fund projects. • Developing activity proposals in collaboration with partners. • Assisting the lead in following up activities by partners. • Other tasks as requested.	UNEP Chemicals
Face to face meetings	Estimated once per year. All attempts will be made to host face to face meetings of the partnerships in the most cost effective way (e.g. back-to-back with other related meetings and have the ability to call in).	Japan, Ministry of the Environment hosts the meeting when the budget is available UNEP will support some limited travel of developing countries/NGOs in face to face meetings, rest is in-kind support from partners for their own travel.
Teleconferences	In case of necessity	Japan, Ministry of the Environment

IX. LINKAGES

The Waste Management Partnership Area will closely work with other Partnership Areas such as the following. In particular, close cooperation with the Mercury-Containing Products is expected, as that area is the upstream of the waste management issues.

- Mercury-Containing Products
- Artisanal and small scale gold mining
- Reductions from the Chlor-Alkali Sector
- Reduction of Mercury Release from Coal Combustion
- Supply and Storage

Possible collaboration areas with some of the Partnerships Areas include the followings:

<Mercury-Containing Products>

- Coordinate activities (e.g. input to and utilization of "Draft Basel Convention Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury" and "Good Practices for Management of Mercury Releases from Waste")
- Identify and design joint projects to meet objectives of the two Partnerships
- Enhance communication (e.g. attending meetings)

<Supply and Storage>

- Input to and usage of "Draft Basel Convention Technical Guidelines for the Environmentally Sound Management of Waste Consisting of Elemental Mercury and Wastes Containing or Contaminated with Mercury" and "Good Practices for Management of Mercury Releases from Waste"
- Identification of gaps of two Partnerships

X. PARTNERS

As of 23 June 2014, there are 69 Partners in the Waste Management Partnership Area, consisting of 17 Governments, 4 International organizations, 28 NGOs, and 20 others[31].

Current partners of the Waste Management Partnership Area (as of 23 June 2014)

Government(17):

- Burkina Faso
- Cambodia
- Cote d'Ivoire
- Georgia
- Germany

[31] Here, the Government of Japan, as Lead of the Waste Management Partnership Area, and UNEP, which provides administrative support for the UNEP Global Mercury Partnership, are also counted as "Partners".

- Japan
- Liberia
- Malawi
- Mali
- Mexico
- Norway
- Nigeria
- Philippines
- Senegal
- Syrian Arab Republic
- Tanzania
- United States of America

International Organizations (4):

- Secretariat of the Basel Convention
- UNEP
- UNIDO
- UNITAR

NGO (28):

- AAMMA (Asociación Argentina de Médicos por el Medio Ambiente)
- Artisanal Gold Council
- Balifokus
- Ban Toxics
- Blacksmith Institute
- Center for Public Health and Environmental Development
- CREPD (Centre de Recherche et d'Education pour le Dèloppement)
- EDUCAF(Education for All in Africa)
- Environmental Health Council
- Environment Health and Disaster Management Initiative
- Alianza Contaminación Cero
- International Academy of Oral Medicine and Toxicology-Europe
- IFDEA (International Federation of Dental Educators and Association)
- International POPs Elimination Network (IPEN)
- International Society of Doctors for the Environment (ISDE)
- ISE-POPS-CI (Informer, Sensibiliser, Eduquer sur les Polluants Organiques Persistants en Cote d'Ivoire)
- IUGS-GEM (International Commission on Geosciences for Environmental Management (GEM), a comission of the International Union of Geosciences (IUGS))
- New World Hope Organization (NHWO)
- Pollution Control Association of Liberia
- Pro-Biodiversity Conservationists in Uganda (PROBICOU)
- Safe Minds

- SETAC(Society of Environmental Toxicology and Chemistry)
- Sustainable Development Policy Institute (SDPI)
- Uganda Network on Toxic Free Malaria Control (UNETMAC)
- World Dental Federation(FDI)
- World Medical Association(WMA)Zero Mercury Working Group
- Zoï Environment Association

Others (20):

- ARCADIS-US, Inc.
- Association of Lighting and Mercury Recyclers(ALMR)
- Cardno ENTRIX
- CETAC
- Department of Toxicology Faculty of Chemical Science and Pharmacy (University of San Carlos of Guatemala)
- Encinal Resources
- Econ Industries GmbHg
- Environmental Visual Artist Gabriela Batista
- Geological Survey of Denmark and Greenland
- GEOMIN
- Hg. Recoveries Pty. Ltd.
- Institute for Combustion Science and Environmental Technology (ICSET)
- International Association for Dental Research (IADR)
- International Dental Manufacturers (IDM)
- Nomura Kohsan Co. Ltd
- OIKON-Institute for Applied Ecology
- Peerless Green Initiatives
- Umwelt Technik Metalrecycling UTM
- Young Naturalist Network
- Yonsei University

G. Business Plan of the Mercury cell chlor alkali production partnership area

August 2011

This Business Plan describes the activities of the Mercury Reduction of mercury emissions and use from the Chlor Alkali sector partnership area of the United Nations Environmental Programme (UNEP) Global Mercury Partnership. It serves as a planning and communication vehicle both for Partners and others.
The purpose of the business plan is to provide a framework for developing and implementing projects. The business plan is to serve as a resource for providing a common, cohesive structure for implementing the UNEP Global Mercury Partnership.
The partnership is open for government and stakeholder participation. In the UNEP Governing Council Decision 24/3 part IV paragraph 27, UNEP is tasked with working in consultation with Governments and stakeholders to strengthen the UNEP Global Mercury Partnerships, to include new activities and partners.

I. SUMMARY

The mercury-cell process is one of three manufacturing processes used by the chlor-alkali sector to produce chlorine and caustic soda. This technology currently represents approximately 20% of global chlor-alkali production. Mercury cell chlor-alkali production (MCCAP) remains a significant user of mercury (at about 18% of global mercury consumption[32]) and is a significant source of mercury releases to the environment. Mercury cell facilities which close or convert to non-mercury cell technologies also have significant amounts of surplus mercury which require environmentally-sound long-term management. In general, the number of MCCAP facilities is on the decline, consistent with the end of the economic life of these facilities.

The greatest concentration of mercury cell chlor-alkali production remains in Europe. The European chlor-alkali industry intends to phase out all mercury cell chlor-alkali units by 2020, consistent with the life cycle of such facilities.

There is an active government-supported voluntary agreement with industry to close all the mercury cell facilities in India by 2012.

In some cases, the membrane process is less expensive to operate, for example in terms of energy consumption. However, this varies greatly by location and facility. Potential cost-savings need to be critically assessed based on local factors to include electricity costs, energy sources, capital costs, market demand. Nevertheless, in most cases the final decision remains an industry decision.

II. OBJECTIVE OF THE PARTNERSHIP AREA

Consistent with the overall goal of the UNEP Global Mercury Partnership, the objective of this partnership area is to significantly minimize and where feasible eliminate global mercury releases to air, water, and land that may occur from chlor-alkali production facilities. The sub-objectives of this partnership area are to:

[32] Maxson, PA., 2006, "Mercury Flows and Safe Storage of Surplus Mercury".

- Prevent the construction of new mercury-cell chlor-alkali production facilities
- Reduce mercury emissions and use from existing mercury-cell facilities
- Encourage conversion to non-mercury processes
- Reduce or eliminate mercury releases from waste generated by chlor-alkali production facilities including waste from conversion to non-mercury processes
- Promote environmentally-sound options for storage of surplus mercury to limit downstream releases from surplus mercury generated by the conversion, phase-out, or closure of mercury-cell chlor-alkali facilities.

Target:

The chlor-alkali partnership area promotes a reduction in mercury demand to 250 tonnes by 2015 (a reduction of 29% from the current projections)**.** In 2005, demand of mercury in the chlor alkali sector was roughly 450-550 tonnes. Projected demand for mercury demand from chlor alkali production in 2015 is 350 tonnes. This target represents a 50% reduction in mercury demand by 2015 based on a 2005 baseline of 500 tonnes**.** The Partnership aims to achieve this target through the above-stated objectives.

The partnership area will meet its objectives by promoting environmentally sound management of mercury in the MCCA Production sector, including when facilities are converted, closed or otherwise phased out by providing economic, technical, and educational benefits to chlor-alkali production facility partners; and by promoting commercially competitive and environmentally responsible solutions for minimizing the mercury emissions and use in chlor-alkali production.

III. PRIORITY ACTIONS

- Encourage and implement use of Best Available Techniques (BAT) / Best Environmental Practices (BEP) in existing mercury-cell facilities.
- Improve awareness and information exchange on non-mercury technologies in chlor-alkali production.
- Share information on, and encourage, appropriate procedures and methods to convert to non-mercury processes using environmentally sound methods, and best practices, including proper waste management, to minimize releases of mercury during the conversion process.
- Work with partner governments to establish effective regulatory and/or voluntary approaches to minimize and where feasible eliminate mercury use and releases from the chlor-alkali sector and to prevent new mercury cell facility construction or expansion, including consideration of national action plans for conversion.
- Develop and share information/best practices for managing surplus mercury generated by conversion, phase-out, and closure of mercury-cell chlor-alkali production facilities.
- Develop and share information on best practices for management of mercury-containing waste generated by chlor-alkali production facilities or generated by conversion, phase-out, and closure of mercury cell chlor-alkali production facilities

IV. PARTNERSHIP EFFORTS AND TIMELINES

Mercury Cell Chlor Alkali Facility - Emissions and Use Reporting

(i) The World Chlorine Council reports annually to UNEP on mercury emissions and consumption in the chlor-alkali industry on a country/regional basis for the following countries/regions: Europe (EU + Norway + Switzerland), India, Russia, South America, USA and Canada. This data covers to the best of World Chlorine Council knowledge about 85% of the world chlorine production capacity based on mercury.
Data posted at:
http://www.unep.org/hazardoussubstances/Mercury/PrioritiesforAction/ChloralkaliSector/Reports/tabid/4495/language/en-US/Default.aspx
Partners: World Chlorine Council (WCC) and member industries and organizations
Contact: Dolf van Wijk, WCC, dvw@cefic.be

(ii) The partnership initiated the development of a global inventory of mercury cell chlor alkali facilities in 2010 with assistance from the World Chlorine Council. This inventory is provides information on chlorine capacity, locations, and and any plans for conversion or closure for mercury-cell facilities around the world. It was requested by the Intergovernmental Negotiating Committee for a Legally-Binding Instrument on Mercury. The inventory will be updated in 2011 with new information on closures and conversion.
Contact: Partnership area lead US EPA. Marianne.bailey@epa.gov

Paper on the Economics of Conversion

The partnership is in the process of preparing a paper on the economics of converting mercury-cell chlor-alkali facilities to non-mercury production technology. The paper will present the costs and savings of performing conversions and outline the various factors which can influence the economic viability of a conversion. This paper will help stakeholders better understand the financial drivers influencing the decision to convert a mercury-cell facility.
Contact: Partnership area lead US EPA. Marianne.bailey@epa.gov

Activities in Russia

The Russia chlor-alkali project ended in November 2010 with a wrap-up conference in Russia in to discuss the overall results of the project. The main results were as follows:

(i) Reduction of Mercury Release and Consumption in Russia: Completed mercury audits at all three chlor-alklali facilities in Russia. Based on these audits, conducted a technical workshop in Volgograd, Russia, with the participation of international experts and experts from all three Russian chlor-alkali facilities to share experiences and best practices. Completed Cleaner Production Training and conducted two technical exchange visits of Russian experts to chlor-alkali facilities in Europe. As a result of these technical visits, each facility developed an "Action Plan" to reduce mercury consumption and releases. Currently all three Russian chlor-alkali facilities continue developing and implementing mercury reduction projects, as identified in their "Action Plans". This project has achieved 2.5 tons per year of reductions of mercury releases to date.
Partners: Canada, Norway, the United States, RusChlor, EuroChlor, Volgograd "Caustic" Facility, the Volgograd Regional Environmental Authority (Rostechnadzor), UNEP Chemicals,

Arctic Council and World Chlorine Council (WCC).
Contact: Eleonora Barnes, USEPA, barnes.eleonora@epa.gov, 202-564-6473

(ii) Management of Mercury-containing Wastes in Chlorine and BX-monomer Production in Russia: RusChlor is developing a project on management of mercury-containing wastes in production of chlorine and production of BX-monomer. The work will include consolidation of the Russian regulatory documents regarding classification of mercury-containing wastes, methodology and its analysis, storage and other issues; monitoring of conditions of management of mercury-containing waste; sound management of mercury surplus accumulated as a result of conversion to membrane technology; consolidation of international experience of management of mercury-containing waste; and development of corrective measures in management of mercury-containing wastes and conditions of storage if such measures are required.
Contact: Eleonora Barnes, USEPA, barnes.eleonora@epa.gov, 202-564-6473

Mexico Mercury Stewardship Workshop and Follow-up:

Conducted an international mercury stewardship workshop in Veracruz, Mexico to share methods and guidelines for calculating mercury releases and consumption, share best practices for reducing releases, and encourage adoption of best management practices to facilitate reductions in consumption. Following the workshop, WCC provided the Mexican facilities with a technology mentor for six months to help identify process improvements. The facilities are now considering how to implement best practices at their facilities. Additionally, several Mexican industry representatives traveled to Brazil to tour a state-of-the-art mercury cell facility and to discuss possible future improvements in Mexican facilities.
Partners: Mexico, United States, UNEP, ANIQ, Chlorine Institute, Clorosur, EuroChlor, Mexichem, and WCC

India Voluntary Program

A comprehensive plan for control of mercury emissions from chlor-alkali sector was developed through a Government-Industry partnership - Corporate Responsibility on Environmental Protection (CREP). The Government of India constituted a Task Force for chlor-alkali sector which is overseeing the implementation program under CREP. The Task Force is taking periodical review, including site visits for on-the-spot assessments to ensure compliance of the Action Plan. This includes conversion of mercury-cell plants to membrane cell process by 2012. As of 2007, mercury-cell chloralkali capacity was reduced to 12% of total capacity. Activities have also included cleaner production measures. The program has resulted in reduction of mercury use from 110.50 g/t in 2001-02 to 36.37 g/t in the year 2006-07 and reduction of mercury emissions from 28.15 g/t in 2001-02 to 1.12 g/t in the year 2006-07.
Contact: G.K. Pandey, Ministry of Environment and Forests, India, pandey@menf.delhi.nic.in

Storage Projects: UNEP has initiated mercury storage projects with partners in South America and Asia to assist in preparing the region for retirement of large quantities of mercury (including from chlor alkali facilities).
A detailed work-plan and timetable for the project is available on the UNEP mercury web-site.
Contact: Desiree Narvaez , UNEP Chemicals, +41 22 917 88 65, dnarvaez@chemicals.unep.ch

V. OPPORTUNITIES

In addition to current and already-planned activities, the following ideas represent opportunities for developing a more robust set of Partnership approaches:

- Mexico is encouraging a private company (IQUISA-CYDSA) to pursue their interest to get funds to switch to membrane cells at their two plants in Mexico, and has encouraged the company to attend the international mercury meetings in the recent years to meet contacts and organizations useful to their purpose. They have also provided UNEP and the United States of America with a summary of what their needs are, seeking orientation on the options for them to consider. Partners will seek to meet with relevant financing organizations to explore possibilities for and obstacles to financing of conversions;
- Consider additional strategies to address technical, economic, or regulatory impediments to achieving mercury reductions goals.

VI. EVALUATION

The Partnership will report biennially to UNEP in accordance with the UNEP reporting format. Reporting will include tracking partnership activities and partner contributions as well as assessing effectiveness, and measuring the impact of partnership activities on the achievement of the overall goal.

The partnership's progress will be evaluated on the following, using 2002 as a baseline:

- *Per cent reduction in mercury use per metric ton of chlorine production.*
- *Per cent reduction in mercury emissions and use per metric ton of chlorine production.*
- *Per cent reduction in mercury use by the chlor-alkali industry.*
- *Per cent reduction in mercury mercury emissions and use from the chlor-alkali industry.*
- *[Progress towards a projected reduction of XX% in mercury use by 2015]*
- *Number of chlor-alkali units with mercury cell technology decommissioned.*

VII. RESOURCE MOBILIZATION

The UNEP Global Mercury Partnership and the associated partnership area business plans are a way of mobilizing resources in a systematic, focused and harmonized way. The partnership objectives and business plans should provide clarity for potential donors and finance institutions.

The partners are encouraged to contribute financially and also to offer in-kind assistance.

Partners can develop specific initiatives, work with non-partners, or pursue projects consistent with Partnership objectives. It is hoped that the UNEP Global Mercury Partnership will serve as a mechanism to consolidate and leverage funding for large, strategic projects.

Partners are encouraged to apply for funding to relevant funders and regional organizations. Developing countries and countries with economies in transition can submit requests for funding to UNEP under the UNEP Mercury Small Grants Program (see www.chem.unep.ch/mercury/Overview-&-priorities.htm). UNEP and other partner implementing agencies stand ready to assist countries to develop proposals addressing mercury issues under the SAICM Quick Start Programme (see www.chem.unep.ch/saicm/qsp.htm).

Partners can outline possible fiscal or other incentives systems for conversion from mercury cell to membrane or other non-mercury technology, as one possible means to increase or accelerate the extent and rates of conversion, to include: dedicated funding sources (such as the system employed to reduce Ozone Depleting Substances under the Montreal Protocol), soft loans, accelerated depreciation accounting, or possible carbon credits from improved energy efficiency. Such analysis would benefit from better information on the range of conversion options and their costs, reduction in energy consumption possible, mercury release reductions, and other associated costs and benefits of conversion. Note: Issues such as the prevailing energy costs within a particular locality can be an important determinant in the cost analysis for conversion.

VIII. BUSINESS PLANNING PROCESS

The business plan will be reviewed regularly and adjusted accordingly by the partners. Consideration will be given to the direction of the partnership area, the projects being undertaken, and measures for evaluating the productivity of the efforts. Annual partnership area meetings, in person or by teleconference, will be arranged and hosted by the partnership area lead in cooperation with partners and stakeholders in order to evaluate productivity and conduct joint planning.

Table 2: Administration and Management Support (will vary across the Partnerships)		**Source of Support**
Partnership Lead[33]	▪ Facilitation and support of the partnership. ▪ Preparing Business Plan. ▪ Preparing for meetings. ▪ Logging meeting notes, tracking action items. ▪ Collaborating with partners to strategically link to overall partnership goals and objectives.	U.S. Environmental Protection Agency (Martin Dieu)
UNEP Secretariat Support	• Managing the clearinghouse/website. • Taking in funding from multiple sources to fund projects. • Developing activity proposals in collaboration with partners. • Assisting the lead in following up activities by partners. • Other tasks as requested.	In-kind support from UNEP
Teleconferences and Meetings	At least one per year and as needed.	U.S. Environmental Protection Agency

IX. LINKAGES

Given the cross-cutting work that will, by definition, occur under the UNEP Global Mercury Partnership, this section is intended to list the key related activities. These activities should include cross-cutting activities that are both internal and external to the UNEP Global Mercury Partnership efforts:

- Mercury supply and mercury storage
- Mercury waste partnership area and Secretariat of Basel Convention mercury waste guidelines development
- UN Cleaner Production Centers
- Vinyl Chloride Monomer production
- Energy Efficiency

Mercury containing wastes in the chlor-alkali sector are potentially a significant source of mercury releases to the environment if not properly handled.

Due to the large quantities of surplus mercury that will be generated as chlor-alkali units are decommissioned between now and 2020, the European Commission has proposed legislation to ban mercury exports and require long-term storage of surplus mercury. Incentives for long-term storage of mercury following phase out of such large-scale uses may be necessary to prevent sale of mercury into the market.

X. PARTNERS

Please see section vii of this document for the current list of partners that have submitted letters of support to the UNEP Global Mercury Partnership. There are a number of participating partners that have not officially submitted support letters. For the list of participating partners, please see the following web address:

http://www.chem.unep.ch/mercury/Sector-Specific-Information/Current_partners.htm