

United Nations Environment Programme

, 取合阿环袋规划署 PROGRAMME DES NATIONS UNIES POUR L'ENVIRONNEMENT 。 PROGRAMA DE LAS NACIONES UNIDAS PARA EL MEDIO AMBIENTE ПРОГРАММА ОРГАНИЗАЦИИ ОБЪЕДИНЕННЫХ НАЦИЙ ПО ОКРУЖАЮЩЕЙ СРЕДЕ

UNITED NATIONS ENVIRONMENT PROGRAMME PROJECT DOCUMENT

Section 1: Project identification

- 1.1 Title of subprogramme: Harmful Substances and Hazardous Waste
- 1.2 Title of project: Management of Mercury and Mercury-Containing Waste
- **1.3 Project number*:** (to be allocated by BFMS)
- 1.4 Geographical scope: Asia Cambodia, Pakistan, Philippines; Africa Burkina Faso
- 1.5 Implementation (internal, or cooperating agency or supporting organization)
- **1.6** Duration of the project : (Total number of months) 17 months

Commencing: 1 August 2008

Completion: 31 December 2009

1.7 Cost of project: (Expressed in US \$)

	US\$	%
Cost to the Environment Fund		·
Cost to Trust Fund		
Cost to Earmarked Contribution	462 963	02%
Cost to the Cooperating Agency/Supporting Organization	102,905	3270
Programme Support Cost (8%)	37.037	804
In-kind Contribution (including UNEP contribution) 20% staff time (30,000 USD); communication services	57,057	070
Total Cost of the Project	500,000	100%

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1.8 Potential donor: Norway

For UNEP Sylvie I emmet, Director Division of Technology, Industry, Economics (DTIE)

Date:

1.8 Project summary

This project, dealing with the management of mercury and mercury-containing waste, will contribute to the UNEP priority area on *harmful substances and hazardous waste* under its *Medium Term Strategy* with the ultimate goal of minimizing the impact of harmful substances and hazardous waste to the environment and human beings. Specifically, the project supports the UNEP medium term strategy objective by reducing releases of mercury into the environment and reducing the exposure of workers and communities to mercury and mercury-containing waste.

The objectives of the project are (1) to increase the technical capacity of selected countries and other stakeholders in assessing, managing and reducing the risks to human health and the environment posed by mercury and mercury-containing waste, and in doing so, (2) to test the applicability of the Draft Technical Guidelines on the Environmentally Sound Management (ESM) of Mercury Waste.

Countries have expressed their interest to UNEP for further strengthening of their chemicals' and hazardous waste management systems. All countries are located in UN developing country regions, namely Asia-Pacific and Africa - and have developed an inventory of their mercury use and environmental releases using the "UNEP Toolkit for Identification and Quantification of Mercury Releases." Thus, this project builds on the results of the mercury inventory project. The chosen countries have participated in or are currently part of ongoing UNEP programmes and projects. This project will be complemented by a "sister" project presently developed by the Secretariat of the Basel Convention involving four countries from the Latin American region (GRULAC).

Each country project is comprised of the following components:

Component 1. Review of quantitative and qualitative data from the national inventory of mercury sources: A review of the national mercury inventory will identify the major mercury sources in the country and reveal any gaps in the data.

Component 2. Prioritization of mercury sources and the corresponding sectors: A national meeting of stakeholders will be convened for the purposes of presenting the national inventory data, providing a general orientation on the Draft Technical Guidelines (TG) on ESM of Mercury Waste, prioritizing sources and sectors to promote ESM of mercury waste, and obtaining input on a national waste management plan. A manual will be developed and initial training at the country level will be provided.

Component 3. Development of a national mercury waste management plan: A national plan for the management of mercury waste will be developed and endorsed at a national workshop (back-to-back with Component 2). The plan will identify, among other things, legislative and regulatory needs, risk reduction measures, and potential funding sources to implement, sustain, and expand ESM of mercury waste.

Component 4. ESM application in selected sources and sectors: Task Teams will be formed for selected sources/sectors to develop sector-specific action plans for implementing ESM. Each sector will prepare its specific report on the activities undertaken.

Component 5. Sampling and mercury analysis of environmental and human samples: Local laboratories will be assessed as to their capacity for field sampling and mercury analysis. National and local government staff will be trained in designing the study and collecting adequate samples. Official samples will be analyzed at the Japan National Institute for Minamata Disease. Where adequately equipped and experienced laboratories from participating countries exist, countries may undertake additional analyses.

Component 6. Final national reports and final project report; evaluation: At the national level, each country will prepare a draft national report on activities undertaken and present it to a national stakeholder meeting for endorsement by all sectors involved. The report will also include a written evaluation of the prioritization criteria and process, the national mercury waste management plan, and the applicability and usefulness of the Draft TG. A final workshop will bring together all participating countries to exchange their results based on their national reports, experiences in the project to draft the final project report. The final report will include harmonized recommendations to improve the Draft Technical Guidelines on ESM of Mercury Waste for submission to SBC.

This project document was developed by UNEP Chemicals Branch of DTIE in consultation with the Secretariat of the Basel Convention (SBC). The International Environment Technology Center (IETC) of UNEP DTIE and the UNEP Regional Offices through the respective Regional DTIE Officers were consulted during the drafting phase of this project.

To promote sustainability and country ownership, potential participating countries (Burkina Faso, Cambodia, Pakistan, and the Philippines) were engaged early in the process and consulted on the country-specific situational analysis (*i.e.*, problem, objective, and stakeholder analyses) as shown in Annex 1.

Section 2: Project background

2.1 Background

Mercury is toxic in all its forms, exhibiting adverse health and environmental effects depending on the chemical species, dose received, and period of exposure. It is a potent neurotoxin and may result in nervous system disorders, reproductive and developmental problems, kidney damage, and other health effects. Once released into the environment, mercury becomes part of a biogeochemical cycle contaminating soil, air, groundwater and surface water where it accumulates and moves up the food chain. In many countries, the average level of mercury in the atmosphere has increased several folds since the initial measurements, which is largely due to human activities. Therefore, to protect human health and the environment, mercury waste and waste containing mercury must be managed in an environmentally sound manner.

Finding environmentally sound solutions for the management and storage of waste consisting of or containing mercury and mercury compounds is a key priority outlined by the UNEP Governing Council 24/3. It called for increased efforts to address the global challenges to reducing risks from mercury release. With the foreseen decrease in demand of mercury-containing products and processes, and the increased waste from decommissioned chloralkali plants, the long-term storage of mercury (in its elemental form) and waste containing/contaminated with mercury must be urgently addressed.

In response to country requests and in line with the Basel Conference of Parties decision during its eighth session to include mercury waste as one of its strategic focus areas for the next biennium, the Draft Technical Guidelines (TG) on the Environmentally Sound Management (ESM) of Mercury Waste was developed as a collaborative effort between UNEP Chemicals and SBC. The said Draft TG, now in its third draft, will be presented for its consideration to the ninth session of the Conference of Parties of the Basel Convention in June 2008. The proposed country projects, which will be managed by UNEP Chemicals, will serve to test the applicability of the Draft Technical Guidelines, thereby contributing to its improvement. SBC is implementing a similar capacity-building project in Latin American countries.

Consistent with UNEP DTIE's approach of supporting national, subregional, regional and global projects and processes to build national capacities to manage chemicals and chemical waste in a manner that minimizes significant risks to human health and the environment, these country projects will enhance capacities of countries on the ESM of mercury waste. UNEP DTIE through Chemicals

Branch has the advantage of established collaborative arrangements with relevant IGOs for sound management of chemicals and is a recognized expert in technical assessment, analysis and normative development.

IETC has a proven record of accomplishment in integrated waste management and the promotion of environmentally sound technologies. UNEP Chemicals will coordinate and regularly inform IETC on project implementation, IETC being the lead in the "Hazardous Waste Component" of the UNEP thematic priority.

UNEP regional offices, with the advantage of having a presence in participating regions have demonstrated the capacity to deliver project results. UNEP Chemicals will coordinate and regularly inform the UNEP regional offices through the Regional DTIE Officers on the progress of project implementation.

UNEP is a recognized leader in environmental protection and the facilitator of inclusive multistakeholder consultation and planning. Project results will be used as a guide to achieving success in other countries. The coordination of efforts with those relating to other aspects of sound management of chemicals will assist in the mainstreaming of such environmental issues into the general development agenda, and efforts are being made to increase such inclusion of these issues through involvement of a range of relevant government departments.

The Government of Norway, which is the potential donor to the project, has expressed support of UNEP's thematic priority areas, including "minimizing the environmental and health impact of harmful substances and hazardous waste." Under the "UNEP- Norway Cooperative Agreement," emphasis is placed on improving environmental conditions in least developed and other low-income countries.

The Partnership on Mercury Waste Management, currently led by the Japan Ministry of Environment, has identified this project as one of its activities aimed at providing technical [and financial] assistance on the ESM of mercury waste to developing countries. The Japan National Institute for Minamata Disease will support the project by providing complementary mercury analysis of human and environmental samples collected from the participating countries.

The project will contribute to the UNDAF priorities of the participating countries:

Burkina Faso:	UNDAF outcome: environmental security and protection UNDAF outcome: good governance
Cambodia:	UNDAF outcome: good governance towards poverty alleviation UNDAF outcome capacity: building and human resource development
Pakistan:	UNDAF Outcome: improved environmental management for sustainable development; support to the implementation of the national environment action plan UNDAF outcome: institutional strengthening for improved participatory governance
Philippines:	UNDAF outcome: good governance towards poverty reduction UNDAF outcome: protection of environmental quality and sustainability

2.2 Legislative authority and contribution to subprogrammes

The reduction of anthropogenic mercury release has been high on the agenda of the UNEP Governing Council (GC) since its 21st session in 2001. With the 2003 Global Mercury Assessment Report as basis, the UNEP GC has continuously called on Governments to address the risk posed by mercury pollution. The latest UNEP GC 24/3 in February 2007 called for increased efforts to address the global challenges to reduce risks from mercury release and has identified finding environmentally sound solutions for the storage and management of waste containing mercury and mercury compounds as a key priority.

UNEP GC 24/3 also requested UNEP, working in consultation with Governments and other stakeholders, to strengthen the UNEP Global Mercury Partnership. One element of strengthening the programme is expanding the number and scope of sectors to include new, growing or related sectors such as waste combustion/waste management. One of the activities outlined by Japan as the lead in the mercury waste management partnership is support to capacity-building projects such as this project, thereby contributing to the partnership on mercury waste management.

This project contributes to the objective of the Subprogramme 4 Technology, Industry and economics, which states "To promote and facilitate the implementation of appropriate environmentally sound technological, industrial and trade policies and strategies by Governments, the business community and industry partners" and more specifically to the Expected Accomplishment (c) "Enhanced capacity of countries and the international community towards achieving the 2020 goal of the Johannesburg Plan of Implementation to use and produce chemicals in ways that lead to the minimization of significant adverse effects on human health".

This project is also in line with UNEP's Medium Term Strategy, especially focusing on priority 5 with the objective to minimize of impact of harmful substances and hazardous waste on the environment and human health. It will provide technical advice to states and other stakeholders in managing harmful chemicals and hazardous waste in a more environmentally sound manner including the promotion of better technologies and best practices. The project could aid in the development of coherent international policies as well.

Section 3: Proposal

3.1 Project description

This project aims to achieve improved management and safe disposal of mercury waste, including waste minimization and the replacement of mercury-containing products and processes where mercury-free alternatives exist. In the process, gaps in the Draft Technical Guidelines on the Environmentally Sound Management of Mercury Waste will be identified. Testing the applicability of the Draft TG will be the contribution of UNEP Chemicals Branch to SBC in the finalization of the guidelines. The project will also provide technical assistance and capacity-building activities to participating countries.

Based on concerns about the national effects of mercury use and releases, a number of countries have previously expressed an interest in conducting a mercury inventory. Countries have been supported in conducting such an inventory during 2007 and 2008. As the management of waste containing mercury was found to be an issue in a number of these countries, and there was an identified need to develop harmonized guidelines for the management of mercury containing waste (as indicated above), countries were invited to participate in this project with the aim of contributing to the development of the guidelines, as well as assisting these countries in managing their waste. Participating countries have conducted their mercury inventory using the "UNEP Toolkit for Identification and Quantification of Mercury Releases." In addition, some of these countries have undertaken projects related to the ESM of waste. These countries are also participating in other UNEP programmes and projects. Annex 2 provides highlights of the mercury inventory of the participating countries.

The planning, monitoring and evaluation of the project will be done by UNEP Chemicals. UNEP Chemicals will oversee project progress through monitoring and evaluation of project activities and progress reports.

Country-level project implementation will be managed by a national project coordinator (NPC) who shall report directly to the country/government focal person and to UNEP Chemicals. An

international consultant will assist UNEP and the national coordinators in technical issues and report directly to UNEP Chemicals.

The primary beneficiaries are the communities (workers and residents) working or living near waste dumpsites/disposal areas and other major sources of mercury releases. National and local government personnel will benefit from the training on the ESM of mercury waste as well as on the collection of human and environmental samples. These training activities will enhance the country's capacity to assess, manage and reduce the risks associated with mercury exposure. Countries will benefit overall by protecting human health and environment from the hazards of mercury waste.

Each country project is comprised of multiple components as described below.

Component 1. Review of quantitative and qualitative data from the national inventory of mercury sources: At the initial phase, a review of the national mercury inventory based on the Draft Mercury Toolkit will identify the major mercury sources in the country. Existing relevant country data on mercury use will be reviewed as well. Examples for obtaining supplementary data are in the industrial, commercial, institutional and residential sectors associated with specific source subcategories; the geographic distribution of sources and sectors; health and environmental impacts; the demographics of affected populations; laboratory capacities and experience; relevant laws. Information previously submitted to UNEP under the global mercury assessment will be taken into account. In addition to identifying major sources and compiling supplementary data, this activity may identify data gaps and provide recommendations on the use of the Draft Toolkit.

Component 2. Prioritization of mercury sources and the corresponding sectors: This entails identifying and bringing together national stakeholders in a national consultation forum / meeting, which aims (a) to present the data from the inventory and other resources; (b) to provide a general orientation on the Draft Technical Guidelines; (c) to agree on criteria to prioritize sources and sectors; (d) to prioritize and select sources and sectors for the purpose of promoting the ESM of mercury waste; and (e) to obtain input to a national waste management plan.

For prioritization, stakeholders will be asked to assess and weigh the relative importance of each source sub-category according to criteria including but not limited to the following: the estimated release quantities from source sub-categories; comparative health risks; technical, financial and organizational capacity to implement the ESM of mercury waste; willingness of the sector to implement ESM or the barriers to implementation; possibility of institutionalizing a legal framework for specific sectors; relative cost-effectiveness of specific ESM practices; the priorities in the national poverty reduction strategies/national development plan or its equivalent; and opportunities for outreach, awareness-raising and training for each sector. The prioritization criteria and process will be assessed and documented by the stakeholders to serve as a guide for other countries. A manual will be developed to assist in the training and implementation of the sectoral activities.

Component 3. Development of a national mercury waste management plan: A national mercury waste management plan will be developed from the prioritization exercise and from stakeholder inputs. The plan will cover mercury waste prevention and minimization, collection, storage, treatment, and disposal. It will also identify legislative and regulatory needs, risk reduction measures, and potential funding sources to be able to implement, sustain, and expand ESM of mercury waste. Moreover, the plan will be consistent with the country's national poverty reduction strategies, development plans, or their equivalent. The national mercury waste management plan will be endorsed by the stakeholders at a national workshop (see Component 6).

Component 4. ESM application in selected sources and sectors: The results of the prioritization will be used to select several sources and sectors for technical assistance and capacity building on ESM. The sources/sectors will be chosen in consultation with the Governments, taking into consideration: the prioritization results, the need to test different aspects of the technical guidelines

among the project countries, replicability of the ESM practices to other countries and regions, and budget constraints. For the selected sources/sectors, working groups will be created and will include local Government and sectoral stakeholders. Sectoral workshops/training on the TG will be organized where task teams will develop sector-specific action plans for the implementation of ESM. Depending on availability of resources, activities such as awareness-raising, dissemination of information regarding ESM could be incorporated. Possible sectors include industries/manufacturers, health care facilities, schools, or households.

Component 5. Sampling and mercury analysis of environmental and human samples: The national project coordinator will assess the national capacity at governmental and scientific institutions and laboratories for field sampling of environmental and human matrices (*e.g.*, hair) and mercury analysis. A national inventory on mercury analytical capacity and a needs assessment will be prepared. Some sampling and analysis may be required in the selected sources/sectors to

complement/confirm the work in Component 4. Depending upon the capacity needs of the country, training on sample collection and analytical methods may be provided. Official samples will be sent to the Japan National Institute for Minamata Disease for chemical analysis. The UNEP/WHO "Guidance for Estimating Exposure to Mercury to Identify Populations at Risks" as well as the Japan NIMD "Guidelines for Mercury Analysis" will be used as a reference. At the national level, there will be an evaluation of existing infrastructure and human resources/experiences in mercury analysis following a harmonized inspection and evaluation protocol. National laboratories in participating countries will be able undertake their own mercury analysis if financial resources and sufficient experience is available.

Component 6. Final national reports and final project report; evaluation: Each country will present a draft national report on activities undertaken to a national stakeholder meeting for endorsement. All participate in this workshop to endorse the national report. Supplementary information obtained through survey questionnaires of other interested parties may be added. The report will also include a written evaluation of the prioritization criteria and process, the national mercury waste management plan, and the applicability and usefulness of the Draft Technical Guidelines. A final workshop will bring together all participating countries to exchange their experiences in the project and draft the final project report. This final report will include the main findings from the national reports including lessons learned and recommendations for future activities. The workshop will also agree on recommendations to improve the Draft Technical Guidelines on ESM of mercury waste for submission to SBC. The results and lessons learned from the country projects will be provided as input to the overall partnership of mercury waste management/waste combustion and will be presented in a final report for international dissemination.

Expected outputs of the project are:

- 1. Enhancement of Draft Technical Guidelines on the ESM of Mercury Waste
- 2. Prioritization of sector/source-specific mercury waste
- 3. Development of national and source/sector-specific mercury waste management plans
- 4. Implementation of training and capacity-building programs involving specific sources or sectors on environmentally sound management of mercury wastes
- 5. Awareness-raising of policymakers, regulators and stakeholders on the importance of proper management of mercury wastes; and possible promulgation of local or source/sector-specific regulations
- 6. Mapping of existing capacity for sampling of relevant matrices and mercury analysis at national level.

Input/activities to achieve the desired output include:

1. Review of mercury inventory results and other relevant information on mercury use

- 2. Stakeholders' meeting and orientation on the Draft Technical Guidelines on ESM of Mercury Waste; workshop on the criteria, prioritization, and drafting of a national mercury waste management plan
- 3. Sector-specific training workshops and awareness-raising activities on the TG application
- 4. Collection of relevant human and environmental samples chemical analysis of samples by the Japan Institute for Minamata Disease; assessment of laboratory capacities and undertaking of mercury analysis at national level where applicable;
- 5. Documentation of best practices and dissemination of results to other countries for possible replication

3.2. Project impact on poverty alleviation and gender equality

There is a direct relationship between poverty and environmental pollution. Exposures to toxics due to the improper and unsustainable management of mercury and other hazardous wastes exert a heavy toll on human and environmental health. For individuals and families, these health impacts result in lost wages due to illness, the death of current or potential wage earners, or financial hardship brought about by the crippling costs of medical expenses and long-term care for the chronically ill or for children with severe developmental problems. For society as a whole, the health effects of exposures to mercury waste lead to an increase in public health costs, loss in productivity, and a legacy of health and environmental problems passed down to future generations. Mercury contamination could result in the degradation of environmental resources (*e.g.*, water bodies) and the attendant disruption of economic activities such as fishing. Thus, the improper management of mercury waste perpetuates a vicious cycle of resource degradation that contributes to poverty and the erosion of livelihoods.

Furthermore, poverty generally determines the level of environmental risks to which people are exposed. The poor often live or work near open dumpsites, have no access to clean water, have few or no resources to deal with the risks or resulting health effects, and generally bear a disproportionate burden of environmental pollution. Thus, efforts to prevent or reduce environmental pollution and disease in humans could lead to poverty alleviation. In addition, capacity-building activities such as awareness-raising, training on the TG on Mercury Waste, and human and environmental sampling could contribute to national development objectives.

Minimizing the hazards of waste will reduce the mercury exposure of vulnerable populations especially women and children who are commonly the waste pickers in disposal areas and dumpsites in developing countries. Environmental quality strongly influences a child's physical and mental development, and is a key factor in determining whether a child survives the first years of life. Children are at greater risk from environmental hazards because they receive a higher dose per body weight compared to adults, and because of their immature organs, higher metabolic rate, hand-to-mouth behavior, etc. Mercury passes through the placenta and blood-brain barriers and has been

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