REQUEST FOR MSP APPROVAL (1-STEP PROCEDURE)

TYPE OF TRUST FUND:GEF Trust Fund

PART I: PROJECT IDENTIFICATION

Project Title:	Reduce exposure of mercury to human health and the environment by promoting sound chemical management in Mongolia		
Country(ies):	Mongolia	GEF Project ID:[1]	5323
GEF Agency(ies):	UNIDO (select) (select)	GEF Agency Project ID:	120097
Other Executing Partner(s):	Ministry of Nature and Green Development	Submission Date:	
GEF Focal Area (s):	Persistent Organic Pollutants	Project Duration (Months)	24
Name of parent program (if applicable):		Agency Fee ($):	57,000

A. FOCAL AREA STRATEGY FRAMEWORK[2]:

Focal Area Objectives	Trust Fund	Indicative Grant Amount ($)	Indicative Co-financing ($)
CHEM-3	GEFTF	600,000	1,569,000
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
	(select)		
Total Project Cost		600,000	1,569,000

B. PROJECT FRAMEWORK

Project Objectives: Reduce exposure of mercury to human health and the envrionment in Mongolia						
Project Component	**Grant Type**	**Expected Outcomes**	**Expected Outputs**	**Trust Fund**	**Indicative Grant Amount ($)**	**Indicative Cofinancing ($)**
1. Regulatory framework	TA	1.1 Regulatory framework and national guidelines established for environmentally sound management of mercury containing waste	1.1.1 Draft national guidelines and supporting regulatory frameworks developed and adopted for the environmentally sound management of mercury containing waste	GEFTF	50,000	166,364
2. Pilot demonstration	TA	2.1. Capacity developed for the implementation of remediation and stabilization techniques in mercury hot-spot areas through demonstration activities at the pilot scale	2.1.1 Pilot demonstration of sound mercury remediation technique at the Boroo river site	GEFTF	425,455	1,000,000

[1] Project ID number will be assigned by GEFSEC.

[2] Refer to the reference attached on the Focal Area Results Framework when filling up the table in item A.

3. Awareness raising	TA	3.1 Information disseminated and awareness raised through campaigns on mercury health and environment risk reduction	3.1.1 Publication/training material developed and workshop/campaign conducted	GEFTF	50,000	240,000
4. Monitoring and evalutation	TA	4.1 Project achieves objective on time through effective monitoring and evaluation	4.1.1 Indicators designed and project impact evaluated	GEFTF	20,000	20,000
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
Subtotal					545,455	1,426,364
Project Management Cost[3]				(select)	54,545	142,636
Total Project Cost					600,000	1,569,000

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, ($)

Sources of Cofinancing	Name of Cofinancier	Type of Cofinancing	Amount ($)
National Government	Ministry of Nature and Green Development	In-kind	1,200,000
National Government	Ministry of Health	In-kind	239,000
Private Sector	Mireco	In-kind	80,000
GEF Agency	UNIDO	Grant	50,000
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
Total Cofinancing			1,569,000

D. GEF/LDCF/SCCF/NPIF RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY[1]

GEF Agency	Type of Trust Fund	Focal Area	Country Name/Global	Grant Amount (a)	Agency Fee (b)[2]	Total c=a+b
UNIDO	GEFTF	Persistent Organic Pollutants	Mongolia	600,000	57,000	657,000
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0

[3] PMC should be charged proportionately to focal areas based on focal area project grant amount in Table D below.

(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
Total Grant Resources				600,000	57,000	657,000

[1] In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table

[2] Please indicate fees related to this project.

E. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	Grant Amount ($)	Cofinancing ($)	Project Total ($)
International Consultants	150,000	300,000	450,000
National/Local Consultants	100,000	350,000	450,000

F. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? No

(If non-grant instruments are used, provide an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/NPIF Trust Fund).

PART II: PROJECT JUSTIFICATION

A. PROJECT OVERVIEW

A.1. Project Description.

1. Background: Mercury in the environment

Mercury (Hg) is one of the most harmful environmental pollutants used today in industrial processes. As it possesses unique chemical and physical characteristics, mercury has been widely used in a range of industrial and chemical engineering applications such as silver and gold amalgamation, plating technologies and chlor-alkali processes. Mercury containing compounds are also present in dental amalgams, laboratory and medical devices, and energy efficient light bulbs. Mercury exists in three chemical forms (elemental, methyl mercury with additional inorganic and organic species), each with specific effects on human health capable of causing malfunction of the central nervous system with severe physiological responses. Despite its wide use, mercury presents a number of environmental and public health risks as methyl mercury is capable of crossing the brain and placental barriers with devastating effects on cognitive function and fetal development in humans. Mercury poisoning is most commonly associated with elevated levels of methyl mercury in freshwater and marine fish, made famous after the tragic number of mercury related deaths observed in the fishing village of Minamata in Japan in the late 1950s.

Due to its toxicity, persistence, long range mobility, and tendency to bioaccumulate in wildlife, recent attention has been focused on mercury as a global pollutant. In response to growing international concerns about the long term ecological and health effects of mercury in the global environment, the United Nations Environment Programme (UNEP) formalized the Global Mercury Partnership in 2008. Within this partnership, UNIDO is leading the artisanal and small scale gold mining (ASGM) sector and actively participating in several other sectors, to safeguard human health and the global environment from the release of mercury and its compounds by minimizing and, where possible, eliminating anthropogenic mercury releases to air, water and land through tactical intervention and collaboration with governments.

Despite growing awareness of the risks associated with mercury, atmospheric, terrestrial and water based processes that transfer and transform mercury in the environment remain complex and extend far beyond the point of origin. While most industrialized countries have reduced mercury use in recent decades, developing nations have seen a steep increase, largely due to the burning of coal and small-scale gold mining.

Global emissions reduction strategies have been proposed, with an international legally binding instrument recently finalized by an intergovernmental negotiating committee (INC). While an international agreement establishes significant policy to reduce the use of mercury, continued support from multilateral organizations will be needed to facilitate technology transfer, establish guidelines for mercury management, build capacity to reduce environmental and human health risks in hot-spot areas and remove barriers to the adoption of sound mercury management. Technical capacity for the collection, transport and storage of mercury is often limited in developing countries and specific regulatory frameworks, guidelines or financial resources are lacking. Furthermore public awareness on the risks related to mercury is generally low. As such, projects to reduce the impacts of mercury on human health and the environment must promote environmentally sound management of mercury through multi-layered and innovative approches to support a more sustainable model of industrial growth.

2. Baseline: Mercury in Mongolia

The use of mercury in Mongolia spans the last century with a long and controversial history. First recorded use of mercury in gold production has been linked with a German-Russian-Mongolian joint venture named Mongolor that began using mercury in 1913 for hard rock gold amalgamation. Mongolor operated in the Boroo river basin, today known as Mandal *soum* (administrative unit for village), a territory in Selenge province, 150 km north of the capital Ulaanbaatar. A crack in the amalgamating tank in 1956 released a large amount of mercury and formed a significant anthropogenic mercury deposit in the Boroo river basin. In 1993, a geological assessment of gold and mercury reserves in the remaining foundations of Mongolor buildings located at the Boroo site was undertaken by the Ministry of Energy, Geology and Mining. The assessment was funded by the privately held company Tyre-Sh Co. Ltd, with the intention of mining the anthropogenic mercury and gold deposits, but reportedly no mining was carried out and the results of this inquiry were not officially published until 2000.

In November of 2000, a paper entitled "Environmental hazard in Lake Baikal watershed posed by mercury placer in Mongolia" presented previously unpublished data from the 1993 assessment as well as fieldwork carried out adjacent to the Boroo river site (Tumenbayar et al., 2000). The activities undertaken in 2000 indicated that the 198.5 kg of mercury found by the 1993 assessment accounted only for a small area of the contaminated site. Based on the 2000 field observations, the authors suggested that upon the extent of mercury panning and mining in the area by informal miners that up to **10 tons of mercury** were present in the Boroo area.

Further surveys at the Boroo site to assess the level of mercury contamination were carried out in 2003 with support from the Japanese International Cooperation Agency (JICA). Following a detailed assessment in the Boroo river basin area it was revealed that the production's ruins were most exposed to the pollution with mercury concentrations reaching 117 mg/kg or more than 50 times the regulatory limit (2 mg/kg for soil). The highly contaminated or hot spot area was estimated to cover 0.9 km^2, with mercury penetrating at least to a depth of 3 meters. In 45% of the water samples taken from the Boroo river the mercury content also exceeded the permissible level, with the highest concentration measured where the amalgamating tank accident occurred. Contaminated water was detected 10 km downstream from the accident site. In the sediment samples, mercury content was found to be an alarming 10-25,000 times higher than the permissible level. In addition, certain soil samples taken from the agricultural land near the Boroo river, showed mercury concentrations that were double the permissible level. This can potentially be attributed to mercury build up from irrigation with contaminated water from the nearby river. This research concluded that since the accident 50 years ago, the mercury contamination has been spreading over 40 km in the river and 2-3 tons of mercury are estimated to persist in the broader vicinity of the Boroo site.

In 2006, another project entitled "Research of Pollution from Gold Ore Extraction in Selenge River Basin" was implemented by the Ministry of Environment of the Czech Republic to further investigate mercury contamination in soil and sediment along the Boroo river, the Boroo river being a tributary of the Selenge river. It is worth mentioning that the Selenge river provides nearly 80% of the inflow for Lake Baikal. This follow up assessment confirmed that the contamination was higher at the tank spill site, with free metal mercury reaching concentrations of 1.8 – 69.5 g/m^3. Samples of vegetables grown along the Boroo basin and fish from the river showed excessive amount of mercury as well, posing direct health threats to local residents. As such, mercury contamination is a serious concern for rural pastoralists and farmers in the region that depend upon agriculture.

A baseline assessment published in 2006 by the International Labor Organization (ILO) indicated that the use of mercury was restricted largely to hard rock sites in Selenge and Tuv provinces. Mercury was reported to be used in the amalgamation process to separate the gold from the ore, posing multiple health risks arising from skin exposure to metallic mercury, inhalation of mercury vapor, and severe

environmental contamination. At hard rock sites in Bornuur, near Mandal *soum*, it was found that 60 % of children working at artisanal and small scale mining camps were directly involved in amalgamation with mercury, woman and children often taking a lead role in the roasting process. An overwhelming percentage of those surveyed were unaware of safety and health measures and standards that are required for mining activities and oblivious to the risks associated with mercury. The two primary sources of mercury used in hard rock operations came from illegal import and mercury collected from the Boroo river basin by the illegal miners.

During the years 2008-2009, the Government of Mongolia implemented a decontamination campaign on mercury and cyanide polluted sites at the national level. In the framework of this activity, the former Mongolor site was targeted as one of the mercury contamination hot spots with excessive levels of mercury. From this site, 105 kg of mercury were collected and stored inadequately in the chemicals storage room of the Institute of Chemistry and Chemical Technology in Ulaanbaatar. In addition, 19,868 tons of contaminated soil and sediment were collected and landfilled, and approximately 10,000 m^2 were neutralized by adding polysulfide sodium before some reclamation work was done at the site. This campaign was successful in that it managed to stop the illegal artisanal miners (called *ninja* miners in Mongolia) from extracting the mercury collected from the river, likely stopping its illegal trade and potentially transboundary movement. However, in spite of these efforts the Boroo river still remains contaminated with scattered mercury hot spots. Furthermore, the cumulative impacts of illegal mining and mercury amalgamation in the Boroo area remain uncertain as the latest assessment was undertaken in 2006, two years prior to the government's zero mercury policy in 2008.

After nearly 60 years, the legacy of the Boroo mercury accident remains one of the worst environmental accidents in Mongolian history and poses significant levels of risk to the environment and the public health of communities throughout the Selenge watershed. More specifically, the Boroo river flows through the main agricultural region of the country and drains into the Kharaa river where the most fertile agricultural land exists. Today, large quantities of wheat and vegetables are produced in the area and many farmers continue to use potentially contaminated water to meet irrigation requirements. Small agricultural systems in this area supply the agricultural products not only for the local residents but also for larger urban centers such as Ulaanbaatar and Darkhan, extending the potential health risks from contaminated crops far beyond the origin of the Boroo site.

Key Regulatory, Institutional and Social Challenges for Environmentally Sound Mercury Management

While the Ministry of Nature and Green Development (MNDG) has developed an action plan on mercury with detailed objectives, responsibilities, timelines, and cost estimates, the following specific challenges and problems impede implementation measures for reducing usage and releases of mercury in Mongolia:

1. No specific regulatory provisions or laws are in place to control the use of mercury containing products/equipment hence it is difficult to monitor the import, export, use, and transboundary movement of mercury;
2. No specific regulations, procedures and management system for the collection, processing, containment, disposal, or monitoring of mercury containing waste have been developed, and as such, mercury containing waste is stored in inappropriate condition or discarded with household wastes;
3. Workers who handle mercury containing equipment and devices have low awareness about the health risks associated with mercury and no formal operational guidelines, workplace safety or training programs exsist.
4. Awareness and capacity to locate mercury emitting sources, calculate emissions and coordination between public authorities, the industrial sector, non-governmental organizations,

and academic institutions is low.

5. Mongolia does not currently have a national mercury emissions' monitoring or reporting system, which may impede active participation in the international legally binding instrument on mercury and in obtaining compliance.

6. While the Mongolian government has taken action to reduce environmental contamination and mitigate health risks from the Boroo mercury disaster, the current level of risk remains unclear. Despite strong interest, awareness of environmentally sound remediation and mercury stabilization techniques is low and requires technical assistance for proper execution.

7. The greatest current challenge that Mongolia faces in terms of sound chemical management is the lack of a hazardous waste treatment facility and management system to support its function, not only for mercury containing waste but also for all hazardous wastes and toxic substances in the country.

While the Mongolian government has demonstrated political will to strengthen existing commitments to sound chemical management through remediation of mercury hot-spot areas and intends to build institutional capacities for mercury management, this remains a daunting task as no legally binding instruments, management systems, or containment facilities currently exist. In its mercury risk management plan, the MNGD aims at removing institutional limitations and overcoming barriers to manage mercury in a safe and efficient manner. However, practical guidelines for the management and control of mercury containing waste are not clearly delineated in existing laws and regulations on hazardous and chemical management. Therefore, the overarching goal of the project is to assist the Mongolian government in reducing the impacts of mercury on human health and the environment through regulatory, institutional and social reform and strategic demonstration intervention in historical mercury hot-spots.

More generally, the Mongolian Government plans to construct a facility for the treatment of hazardous wastes. Funds for this facility was set aside in the Governement 2013 budget and is planned for the next years' budget. However, mercury was not included in the preliminary design of the installation.

3. **Project overview: Expected outcomes and outputs**

Despite existing political will, the government of Mongolia has neither the full resources nor the capacity to effectively address the country's problem on mercury containing waste resulting from remediation of historical contamination hot-spots. In the case of the Boroo site, the soil, sediment, water (surface and groundwater) and vegetation containing mercury are considered as mercury containing waste. In particular, more information is needed on (i) the extent and severity of contamination in the project target areas and (ii) the best available techniques/best environmental practices for mercury remediation and mercury containing waste management. Previous assessments of the Boroo site must be validated prior to intervention to ensure the appropriate steps and methods are applied for removing and/or stabilizing excess mercury in the environment, managing collected waste in a sound manner, reducing human health risks, and maximizing economic efficiency of remediation activities. Successful techniques and technologies in other regions of the world, need to be assessed to determine what approaches are the most relevant for mercury remediation and if found to be appropriate for Mongolia, scaled up and replicated throughout the country. Concerning mercury containing waste, both the national and local governments need to be able to address this issue in a coherent and strategic manner, with action plans, guidelines and procedures clearly defining how mercury containing waste need to be managed.

Specifically, the project will strengthen national and local capacity to effectively manage and reduce mercury emissions by:

1. *Establishing a regulatory framework and national guidelines for environmentally sound management of mercury containing waste:* Regulatory instruments for environmentally sound management of mercury will be developed and fully integrated into national and local decision-making processes. This will be complemented by the development of (i) a management system to enhance the legal compliance, enable auditing and improve reporting in accordance with legal and regulatory requirements as defined by the Government of Mongolia and (ii) practical guidelines for the reduction of mercury containing waste generation and environmentally sound management (collection, transportation, treatment, storage and disposal) of mercury contaminated waste. Based on this newly developed regulatory framework, mercury from mercury containing waste will be recovered and stabilize in the future. The inclusion of a final storage space for stabilized mercury in the design of a national hazardous waste facility to be constructed within the next few years by the government of Mongolia will be studied.

2. *Developing capacity for the implementation of remediation and stabilization techniques in mercury hot-spot areas through demonstration activities at the pilot scale:* Under this output, the past investigations and remediation activities undertaken at the Boroo river site will be validated and additional or remaining mercury hot-spots will be characterized. Based on this validation assessment, appropriate remediation techniques will be tested and one of these techniques will be selected for pilot scale demonstration. During the demonstration and within the project's budget, as much mercury as possible will be recovered. If economically justifiable by the quantity of mercury recovered, a pilot demonstration of mercury stabilization will then be implemented. If only a limited quantity of mercury can be recovered, the mercury will be exported for stabilization before being re-imported for final storage. Potential transboundary movements of mercury will be done according to the relevant Conventions.

3. *Disseminating information and raising awareness through campaigns on mercury health and environment risk reduction:* Activities under this output will combine national and local awareness raising through comprehensive health education programmes in close collaboration with the Ministry of Health as well as the dissemination of (i) information on the regulatory tools developed and (ii) lessons learned from the pilot demonstrations for potential replication.

The logical intervention is summarized in annex A and the timeline of the outputs in annex B.

Considering past mismanagement of mercury in Mongolia and a strong political will to reduce the impacts of mercury on human health and the environment, this project will establish a legal basis and develop mechanisms to reduce environmental contamination through sound chemical management. This regulatory framework will also prevent potential accidents similar to the Mongolor spill from happening in the future. Implementation of the abovementioned project components and activities directly support the GEF 5 chemicals strategy to initiate work on mercury and mitigate environmental and human health risks through sound chemical management in developing countries such as Mongolia.

4. Incremental cost reasoning

The request of financial support from GEF's Chemicals focal area is justified by (i) the relatively large quantity and complex distribution of mercury still contaminating the Boroo river basin, (ii) the severity and global reach of the environmental and health impacts of mercury, and (iii) the number of people potentially affected as well as the sensitivity of the final receiving water bodies (Lake Baikal).

Activities proposed in this project will enable the development of local and national capacity and strengthen international commitments to effectively manage and reduce mercury use, emissions and exposure in Mongolia while delivering local and global benefits through the adoption of sound management practices.

Financial support of the project from the GEF would enable the establishment of a solid legal basis for a regulatory program on mercury, and identifying specific technical, procedural, and information requirements for the proper handling of mercury containing waste. This innovative project may also be considered as a model that other countries may find attractive to replicate in order to remediate mercury contaminated sites, manage mercury containing waste and reduce risks to human and ecosystem health through sound mercury management.

5. Global environmental benefits

As mercury is a recognized as a global pollutant subject to the recently finalized legally binding agreement, it is a critical time for Mongolia to take proactive measures and set a strong precedent for environmental management and regulatory compliance. National mercury emissions may rise in response to the growing mining sector. Because mercury is a chemical element, once it is released, it will remain in the environment indefinitely, affecting organisms far away from the emission point. By ensuring the elimination of mercury in the project site through remediation technology and waste management systems, the project will contribute to the global reduction of mercury load in the environment. Specifically, the Boroo river is a tributary of the Selenge river that provides nearly 80% of the inflow for Lake Baikal that drains ultimately into the Arctic Sea drainage basin. Mercury remediation in Mongolia can thus provide synergistic environmental benefits for the Russian Federation. Enabling interventions upstream in Mongolia will not only reduce local risks to ecosystem and human health but also deliver global benefits to reduce the potential release of mercury into international waters. Moreover, the dissemination of the results of this project might contribute to the replication of good practices and cross cutting initiative to promote the sound management of hazardous chemicals with local, regional and global benefits.

Finally, it should be noted, that quantitative mercury reduction are difficult to estimate at this point in time. Based on previous assessments, the quantity of mercury still present near the Boroo site could range from 100 kg to 10 tons. The purpose of the field activities on the Boroo site are to (i) determine the current quantity of mercury present at the site and (ii) demonstrate the viability of the selected remediation technique. A fraction of the mercury will be recovered during the pilot demonstration, the recovery of the totality of the mercury being beyond the scope of this project and exceeding most probably the financial volume of this project.

6. Innovativeness, sustainability and potential for scaling up

Despite the significant role mining has played in Mongolia, limited knowledge and capacities currently exist for the reclamation of degraded or contaminated ecological systems. In terms of mercury, previous actions taken to remediate known hot spots by Mongolian authorities have included excavation, limited extraction and landfilling of mercury containing contaminated soil and sediments. This approach does not however offer a sustainable long-term solution for the management of mercury and mercury containing waste as numerous risks are associated with future soil and groundwater contamination if the landfill liner (usually a single layer plastic barrier) is breached.

In Mongolia there is growing awareness of sophisticated technical solutions for the reduction of ecological and human health risks through treatment of contaminated soils, sediments, surface and groundwater but little technical expertise specifically for mercury. Based on the validation assessment to be conducted on the Boroo site, various innovative remediation techniques adapted to the specificities of the contaminated soil and sediment as well as the extreme continental climate will be tested. The most appropriate technology will then be implemented at pilot scale. Since the implementation of this technology will be preceded by a testing phase, it is expected that the selected method will be very efficient and will be used to remediate the whole Boroo river site and potentially in similar Mongolian sites beyond the completion of this project.

Pilot demonstration of environmentally sound remediation techniques at the Boroo site will offer manifold benefits to the environment, local residents and offer opportunities for capacity development through technical trainings, providing long-term benefits for current and future generations.

Provided that enough mercury is extracted during the remediation process, innovative mercury stabilization techniques will be demonstrated in Mongolia. If economically not justifiable, the stabilization of the recovered mercury will be done abroad and the stabilized mercury will be re-imported for final storage in Mongolia. This will prevent mercury mobility and ensure a long term mercury reduction in the environment. The associated health risks will also be lessened.

The development of national guidelines and supporting regulatory frameworks will assist in environmentally sound collection, transportation, treatment, storage, and disposal of mercury containing waste. These regulatory tools will also provide the policy framework to sustain the efforts made during the project and ensure the long term environmentally sound management of mercury in Mongolia.

A.2. Stakeholders: **Key partners for this project include:**

UNIDO will be responsible for overall project implementation, monitoring and reporting. UNIDO will provide a key coordinating role between ongoing initiatives with UNEP and other mercury projects in the region and globally. UNIDO is currently involved in other mercury and POP management initiatives in the region, and hence enabling cooperation and communication between skilled partner agencies.

The **Ministry of Nature and Green Development (MNGD)** will act as the main executing agency. Within the Ministry, the National Chemicals Management Council will be the main operational unit. The MNGD and UNIDO will jointly be responsible for overall project implementation, coordination of stakeholders and management of projects. MNGD will also coordinate the provision of technical expertise, guidance and is as, main government counterpart, a critical institutional partner for this project.

Mine Reclamation Corporation (**Mireco)** is a governmental agency of the Republic of Korea that will validate the previous investigations carried out at the former Mongolor plant along the Boroo River. Related field activities will include a verification assessment of the level of mercury contamination through systematic surface water, groundwater, sediment and soil sampling and provide a detailed summary of technical recommendations through in-kind contribution of technical and human resources. Mireco was specifically selected by MNGD to act as a partner to provide technical expertise for reclamation at the Boroo site. Considering that the quantity of mercury at the site remains uncertain, an investigation to characterize the mercury contamination will be conducted through systematic environmental sampling. Mireco will act as an important partner as its technical staff will determine the extent, distribution and severity of mercury contamination as well as characterize the local subsoil in terms of contaminant mobility potential in order to select appropriate remediation methods.

The Ministry of Health (MoH) will provide technical expertise and guidance regarding the project in general and more particularly the development of formal health education and technology training programs. MoH will be a key partner of the awareness raising component on the risks associated with mercury. This project will build on past and on-going projects carried out by MoH in the health sector of Mongolia thus avoiding overlapping activities. In practice, the involvement of MoH will be restricted to the awareness raising activities.

Key stakeholders within Mongolia include government agencies, NGOs and local communities.

A Stakeholder Group meeting will be convened at the beginning, mid-way (12 months) and end (24 months) of the project. The Stakeholder Group will consist of representatives from communities of Mandal *soum* (village) and traditional pastoralist households, local government officials (local mayor's

office, local environment/waste management authorities), local educational facilities, local NGOs, other partner project coordinators. The Stakeholder Group functions to help build consensus amongst all participants, and ensures distribution of information to all relevant parties. It is also responsible for implementing project activities. The Stakeholder Group ensures buy-in from all stakeholders, and guarantees the project works closely with the communities and local officials and adheres to local regulations. This ensures that multi-stakeholder involvement during implementation and ensures social responsibility, well beyond the life of the project.

A.3. Socioeconomic benefits:

National and Local Benefits

The establishment of regulatory mechanisms to manage the ecological and human health risks associated with mercury will have a direct positive impact on the health of the Mongolian population. Due to a long history of poor performance in the mining sector, a number of areas have suffered severe environmental degradation and contamination, such as the infamous Boroo mercury spill site. Mercury contamination in this and other regions of Mongolia, pose direct threats to agro-pastoral livelihoods dependent upon crop production and animal husbandry as vegetables or livestock may become contaminated.

Intervention strategies to reduce exposure risks associated with mercury will directly benefit local agribusiness owners through the demonstrated remediation and stabilization activities in hot spot areas and public awareness raising campaigns anticipated through this project. In the vicinity of the Boroo hot spot, 32 families reside in permanent communities. Of these resident families, 23 rely solely on livestock production and 9 cultivate wheat and vegetable crops. The area supports 9004 head of livestock, 800 ha of wheat and 90 ha of vegetable fields at risk of contamination as all local herders and small agricultural holdings use Boroo river water for local livestock rearing, crop cultivation and drinking water needs with no supplementary groundwater resources available in the area. Since past investigations indicated that the sediments of the Boroo River are highly contaminated with mercury, the local population is directly impacted by the mercury contamination, making it a strategic area for intervention as it can deliver multiple benefits at the local, but also national level.

Gender dimensions

The proposed regulatory reform and establishment of national guidelines on sound mercury management can benefit all Mongolians, but will offer particular advantages to women and children who often bear the burden of mercury poisoning. During illegal mining operations, tasks are differentiated by gender where men are in charge of mineral extraction while children and women are often in direct contact with mercury during the amalgamation process. Intervention at historical mercury contamination sites, such at the Boroo river area, can generate specific benefits for women and children due to physiological specificities that increase the risk of developmental and birth defects. Furthermore, cultural norms exist in Mongolia where women take on the bulk of food preparation, house-hold chores, crop cultivation, waste management, and water collection. These activities place women at a greater exposure risk to mercury of contamination. As a consequence, reducing environmental and human health risks at the aforementioned hot spot area will (i) increase the sustainability of rural and traditional pastoral livelihoods by making a positive contribution to local agricultural and animal husbandry sectors adversely affected by the legacy of the Boroo mercury disaster and (ii) deliver household benefits by reducing mercury exposure risks, specifically to women and children.

Finally, as women are often the collectors of water, managers' small agricultural holdings and involved in amalgamation of gold, information and awareness campaigns will be designed with targeted messaging for a female audience and provide specific information to increase women's awareness of the health risks associated with mercury exposure. In a broader sense, the promotion of women's involvement through

socially inclusive and gender sensitive models of engagement in this project not only respect the differential risks to mercury poising in Mongolia but could help Mongolian women have a stronger voice at local and nations levels of influence.

A.4 Risks:

Risk	**Level**	**Mitigation measure**
Political unwillingness to pass the necessary legal and regulatory reform through parliament	Low	UNIDO has collaborated previously with relevant government ministries on PCB and POP chemical management projects. The goals of the proposed project directly align with current hazardous waste and chemical management objectives and sustainable development policies in country
Extreme continental climate	Low	Field work on the Boroo site will take place between May and October when the average temperature is above 0°C
Lack of commitment and support of Mireco	Low	MNGD and Mireco have established a good working relationship that the project will contribute to strengthen.

A.5. Cost-effectiveness:

The project is based on three dimensions, namely policy, technology transfer and awareness raising. The policy output will set the regulatory framework to ensure the long term sustainability of the project's activities. The regulatory tools on mercury to be developed will be integrated into the broader existing laws and regulations on chemical management.

The awareness raising component will ensure a broad impact of the project. It will build on past and on-going activities of the Ministry of Health, creating thus synergies and avoiding overlaps.

The technology transfer output will include a complementary assessment of the Boroo river site. Previous assessments will thus be validated before various remediation technologies will be tested. The validation assessment and technologies testing are prerequisite for the selection of the most cost-efficient technology for the remediation of the contaminated site.

Finally, depending on the amount of mercury recovered, the most cost-effective solution for stabilization will be implemented. Either stabilization at a pilot scale or export for stabilization and re-import of the stabilized mercury for safe storage. In both cases, the stabilized mercury should be stored in the hazardous waste treatment facility to be built by the Government of Mongolia within the next years.

A.6. Coordination with other relevant GEF financed initiatives:

Awareness about the toxicity of mercury has significantly grown in the past several years. **The United Nations Environment Program (UNEP)** leads the international community in developing the legally binding instrument to control this toxic substance. The project will closely follow the recommendations of the legally binding agreement on mercury particularly on the development and finalization of national strategic action plans. In 2008, UNEP also formed the **Global Mercury Partnership** to address issues holistically and share experience from previous and current projects in order to eliminate duplication of effort and improve efficiency. This project will benefit from the partnership and vice versa, through sharing of information and experience, especially of projects conducted in this region and others. The partnership also represents a large network of experts, many of whom are from low and middle-income countries who can both lend expertise to the project, and gain from it. This project will assist in the

development of a BAT / BEP guidelines to support Mongolia's commitment to the **Basel Convention** and use technical guidelines on environmentally sound management of mercury containing waste in accordance with the convention.

Finally, this project is also complimentary to the overarching **Strategic Approach to International Chemicals Management (SAICM)** policy framework to promote chemical safety around the world. Application of SAICM principals are capable of finding key leverage points for intervention by reducing mercury related risks, governance, capacity-building and technical cooperation, knowledge and information sharing, and reducing transboundary mercury movements. This project will strengthen Mongolia's capacity to soundly manage growing reserves of mercury containing waste as a part of the National Sustainable Industrial Development Plan.

A.7 Institutional arrangement for project implementation:

Institutional arrangement

This project will be implemented by one GEF agency, UNIDO. However, the project will coordinate closely with UNEP and its ongoing mercury initiatives such as the Global Mercury Partnership. In coordination with UNEP, UNIDO will support assimilation of the global legally binding instrument on mercury into national policy for the sound management of mercury containing wastes and promote full integration of technical guidelines for the management of wastes consisting of elemental mercury and wastes containing or contaminated with mercury under the Basel and Rotterdam Conventions.

Project implementation arrangement

UNIDO will be the GEF implementing agency. The Ministry of Nature and Green Development (MNGD) will act as the executing entity. The MNGD will coordinate co-financing agreements with Mine Reclamation Corporation (Mireco), and the Ministry of Health, to provide in-kind contributions of technical expertise, analytical laboratory services and human resources for (i) a verification assessment to be carried out in identified mercury hot-spot sites in northern Mongolia as well as (ii) awareness raising campaigns.

As executing entity, the MNGD will play a key role in ensuring all outcomes and outputs are achieved within the project allotted timeframe and funds. With support with international and national consultants, this specifically includes, (1) revising existing regulatory and legislative frameworks on hazardous and toxic chemicals to include mercury containing waste through policy reform; (2) devising technical guidelines for the environmentally sound collection, transportation, treatment, storage and disposal of mercury containing waste for implemetation at national and local levels; and (3) collaborate closely with the Ministry of Health to coordinate information dissimination and awareness raising campaigns on mercury threats to human health and environment.

Mireco will play a critical role in output 1.2 as it will (1) undertake a detailed field assessment to characterize the full extent of the mercury contamination, and (2) test various remediation technologies. Based on Mireco's recommendation, the pilot technology demonstration to remediate the contaminated soil and sediments will be undertaken by UNIDO and MNGD. Mireco's role during the actual remediation will be limited to technical guidance.

The Ministry of Health will provide human resources and consultation to facilitate mercury health and environment risk reduction through information dissemination. Awareness raising campaigns will be designed jointly by MNGD and MoH. The involvement of the Ministry of Health will be limited to the output 1.3 focusing on public awareness rasing.

UNIDO will be responsible for overall project implementation, monitoring and reporting. UNIDO will play a key coordinating role between ongoing initiatives with UNEP and other mercury projects in the region and globally. In addition, UNIDO will subcontract the pilot environmental remediation at the former Mongolor site.

B. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

B.1 National strategies and plans or reports and assessments under relevant conventions.

Governance and Chemical Management Strategies in Mongolia

Mongolia is currently experiencing rapid economic growth with one of the fastest emerging mineral based resource markets in the world. Immense gold, copper and coal reserves have attracted waves of foreign direct investment since 1990 following the transition period from a centralized to market economy. Although mining has the potential to underpin broad based economic and social development, such intense growth in the extractive mineral sector coupled with rapid urbanization, poor environmental performance and low levels of public awareness, have placed increasing pressure on local and national capacities to manage growing reserves of hazardous chemicals and industrial wastes. In response, hazardous waste and chemical management have become central components of the Mongolian governments' platform on sustainable development over the last decade.

Recognizing the need for intergovernmental cooperation to mitigate the ecological and health threats associated with hazardous substances, Mongolia became a signatory of the Basel Convention on the control of transboundary movements of hazardous wastes and their disposal in 1997. Since that time, numerous laws and decrees have been developed for environmental protection and the management of hazardous wastes and toxic substances. The Law on Hazardous and Toxic chemicals, approved by Parliament in 2006, had a transformative effect on chemical management and procedures in Mongolia. This law entitles the state central administrative body in charge of nature and environment (i.e. Ministry of Nature and Green Development) to implement policy measures that enhance legal compliance, fully enforce relevant legislation to chemical management and coordinate activities related to toxic and hazardous chemicals. Today, intersectoral coordination is executed by the National Chemicals Management and Policy Coordination Council, and the Minister of Nature and Green Development (previously the Ministry of Nature, Environment and Tourism), ex-officio, who acts as council Chairperson. Daily activities of the Council are managed by the Council's Office, comprised of an expert technical team of government officials, scholars and researchers from related Ministries, agencies and academic institutions.

In recent years the use, transport and public health risks associated with mercury and mercury containing wastes have become increasingly controversial and are highly political issues on the national hazardous and chemical management agenda in Mongolia. As mercury is a common by product of mineral extraction and ore processing, national mercury emissions are anticipated to increase in coming decades as the mineral sector continues to expand. Unfortunately, mercury has been characterized by poor rather than good management practices in Mongolia, dating back to gold prospecting in the early 1900s. In response to patterns of unregulated and irresponsible mercury use in mining and mounting concerns with the numerous risks to human and environmental health associated with mercury exposure, the government revised the list of banned and limited use toxic and hazardous chemicals through Resolution 95 in 2007, to include mercury and its organic and inorganic compounds as chemicals with limited use. "Procedures for Storage, Transportation, Use and Disposal" was approved by the joint order 151/126/52 of Ministers of Environment, Health and Emergency in 2007, regulating the storage, transportation, use and disposal of mercury and its compounds. However, this legal order does not provide technical and pragmatic guidelines for the storage, transportation, use and disposal of mercury and its compounds.

The role of Mining and Mercury use in Mongolia

Mining and the magnitude of mercury use in Mongolia increased in frequency following the transition period from a socialist political regime to a parliamentary republic (1990-1992) in two major ways. First of all, the Mongolian governments "Gold Program" (1997) liberalized trade barriers and offered tax

exemptions to catalyze investments in the extractive industrial sector. Under this program Mongolian mining policies were viewed as the most attractive foreign direct investment climates in Asia, which resulted in explosive growth in the mining sector, particularly in gold extraction. Secondly, severe economic shocks that occurred during the transition to a market based economy contributed to the emergence of illegal artisanal and small scale gold mining (ASGM). The rise of ASGM known as "Ninja" mining in Mongolia, occurred after the period of socialism when rangelands became open access commons (Baitma, Bold, Sainkhuu & Bayuu, 2008). Further, a series of unusually severe winter events, known as *dzud*, during 1999 – 2002 coincided with severe drought, resulting in massive livestock death with catastrophic impacts on traditional herding livelihoods, resulting in widespread unemployment, food insecurity, rapid urban migration, and a deepening of rural poverty, reinforcing the Ninja mining phenomenon (Grayson et al., 2004).

ASGM in Mongolia is unique compared to other Asian countries, in that it has a brief history and did not exist prior to 1990 (World Bank, 2006). The Mongolian governments' position of ASGM has evolved overtime with notable legislative shifts in 2001 when the Ministry of Industry and Trade took the first step towards the creation of a proper legal environment for artisanal mining with Resolution 33 (Regulating Artisanal Miners) and Resolution 53 in 2002. These regulations authorized local authorities to enter into agreements with artisanal miners, then working illegally, to grant permission for the use of the tailings from formal mines.

In response to the growing awareness of ASGM in Mongolia, in 2008, the government enacted Resolution 28 (Regulating Activities of Artisanal Miners), followed by Resolution 72 (Temporary Regulation to Regulate Artisanal Miners). In December of 2010 however, the Government of Mongolia withdrew the temporary Resolution 72, and enacted Resolution 308 (Regulation of Extracting Minerals by Micro Mining), ensuring full integration of the amendments into the Mineral Law.

Mongolia's Zero Mercury Policy

Recognizing the direct correlation between mercury and the mineral sector (both formal and informal), Mongolian authorities adopted a zero mercury policy in 2008. The use of mercury in mineral processing was formally banned and a paid information campaign among residents to report illegal chemical (cyanide and mercury) storage and usage was announced. In the same year national authorities mobilized efforts to remediate several contaminated sites polluted by illegal use of hazardous chemicals. Based on a situational analysis in 2011, over 300 kg of mercury were collected under this initiative. Despite the positive effect the 2008 mercury ban had on mercury use, Mongolia lacks a hazardous waste disposal or treatment facility to manage and safely store the mercury collected. Although a feasibility assessment for a hazardous waste management facility was funded by the Ministry of Nature, Environment and Tourism (MNET) in 2006, the first part of the substantial funds for the construction of the facility were only allocated in the national budget in 2012. The facility is still to be constructed. Also, in 2009 "Procedure(s) for Export, Import, Transboundary Movement, Production and Trade of Toxic and Hazardous Chemicals" were approved by the joint order of Ministers of Environment and Foreign Affairs, serving as a mechanism to control the regulation of the export, import, transboundary movement, production and trade of mercury containing compounds but national mercury management remains an ongoing challenge.

A national mercury emissions inventory was developed in 2011 by MNET in cooperation with the United Nations Institute for Training and Research (UNITAR) with financial support from the US Environmental Protection Agency (US EPA). The inventory was based on UNEP's toolkit for identification and quantification of mercury releases, which served as a background document for the creation of a national mercury risk management plan prepared by the Ministry also in 2011 in coordination with UNITAR and the US EPA. Estimated annual mercury releases in Mongolia are 548.4 tons with gold extraction (by methods other than mercury amalgamation) identified as the largest contributor to national mercury emissions. Other significant sources include the production of copper

from concentrate, informal dumping of general waste, and coal combustion of large power plants, controlled landfills/deposits, and waste water system/treatment. Out of the total recorded emissions it is estimated that 88.66% are discharged on to land, 4.39% released to air, 4.15% with by-products and impurities, 2.07% to water, 0.11% with household wastes and 0.15% discharged with sector specific waste treatment/disposal.

Regarding the storage, handling, transport and disposal of mercury containing products, the Ministry of Health and World Health Organization (WHO) conducted a survey of medical mercury containing equipment and devices in Ulaanbaatar, Darkhan and Erdenet cities and Uvurkhanghai province, covering 578 units and sections of 32 hospitals and clinics in 2010. 797 devices were registered, 38% of which were thermometers and 24% sphygmomanometers. Survey results indicated that air inside the medical premises may be contaminated with mercury. Despite these serious risks in medical facilities, awareness of the risks to human health remain low and medical workers have limited access to information on appropriate storage, handling, transporting and disposal of mercury containing equipment and as such, awareness raising activities and training programs are urgently required. Furthermore, amalgam is used in 14.7% of dental clinics and wastes are discharged directly to the sewage system, which can be a potential source of environmental pollution.

There are currently no regulatory mechanisms, controls or reporting in practice with Mongolian customs on whether imported goods and products contain mercury. As a result, although the Mongolian government actively supports agreements such as the Basel convention, customs officials are not actually monitoring or tracking the movement of mercury containing products, thus very limited data are available about transboundary movements of medical equipment, batteries or other goods that contain mercury. This project is designed to address current regulatory weakness on mercury management, provide technical assistance and increase awareness among civil society to ensure that risks to human health and the environment from unintended releases of this persistent, toxic and bioaccumulative chemicals are reduced.

B.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities

The proposed project is directly in line with the GEF 5 Focal Area Strategy for the Chemicals focal area, "to promote the sound management of chemicals throughout their lifecycle in ways that lead to the minimization of significant adverse effects on human health and the environment" and in particular Objective 3 to "pilot sound chemicals management and mercury reduction." It also aligns with Outcome 3.1 "country capacity build to effectively manage mercury in priority sectors" and Outcome 3.2 to "contribute to the overall objective of the Strategic Approach to International Chemicals Management (SAICM) of achieving sound chemical management of in ways that lead to the minimization of significant adverse effects on human health and the environment." This project will support the GEF Chemicals program focal area by strengthening local and national capacity to effectively manage and reduce mercury use, emissions and exposure in Mongolia.

Consistent with prior GEF approaches to chemical programming and strategic focusing of resources for mercury management schemes, the proposed project will build upon and make a real contribution to strengthening Mongolia's foundational capacities for sound chemical management, promote pollution prevention approaches, and employ a lifecycle approach to minimize adverse effects on human health, while extending benefits to the global environment.

B.3 UNIDO's program and UNIDO's comparative advantage for implementing this project:

UNIDO's mandate is to promote the eradication of poverty through the promotion of sustainable productive activities. The organization is committed to introducing technological solutions in an integrated manner to address issues that adversely affect human health and the environment. UNIDO has experience in chemical management projects such as POPs project and mercury projects in different

regions of the world, including Mongolia. UNIDO staff in Mongolia have worked closely with the National Chemicals Management Council on capacity development for environmentally sound PCB management and coordinated additional activities in close cooperation with the Mongolian government and National Chemicals Management Council to support sustainable development goals. Previous experience gleaned from capacity building for environmentally sound PCB and POP management and disposal, has established a strong rapport with international, national and local stakeholders, which increases UNIDO's ability to successfully act as the implementing agency and collaborate with the main executing partners proposed in this project. In terms of mercury, UNIDO has been, along with Natural Resource Defense Council (NRDC), leading the Artisanal and Small-scale Gold Mining (ASGM) sector of the Global Mercury Partnership and implementing, since fall 2012, projects in West Africa (Burkina Faso, Mali, and Senegal), Latin America (Ecuador and Peru) and Asia (China and Philippines). While UNIDO has mainly demonstrated past experience in the ASGM area (over 20 years and in 17 countries), it also acts as an active partner in the mercury in products, mercury in waste, chlor-alkali sectors and even in the non-ferrous sector, which is currently not a partnership area. In addition, UNIDO is implementing projects on E-waste management in Ethiopia and Cambodia and on medical waste in China. Therefore, UNIDO has the capacity and experience to mobilize its partners at national, regional and international levels, including members from the Global Mercury Partnership, to ensure collaboration in this project. In these various areas, UNIDO's role is to provide technical guidance based on its experience working with the industrial sectors and mainstreaming sound chemical management in developing and emerging economies like Mongolia.

C. DESCRIBE THE BUDGETED M &E PLAN:

Monitoring and evaluation (M&E) for this project will rely on several levels of review, quality control and feedback.

Overall M&E: UNIDO will be responsible for overall project monitoring and evaluation, and reporting progress to the donor. UNIDO will conduct annual monitoring and evaluation visits to the project sites within Mongolia, and submit annual project implementation and financial reports to the donor. The final evaluation, to be conducted by an independent local evaluator, will be arranged by and reports submitted to the donor within 90 days of project end. The terms of reference for the local evaluator will be developed by the UNIDO project manager under guidance from UNIDO's Evaluation Group. A budget of USD 40,000 is allocated for evaluation and monitoring purposes.
A Project Steering Committee including the main project's stakeholders will meet every six months to 1) review and approve annual work plans; 2) assess progress against M&E targets as indicated in the Project Results Framework; 3) approve of interim and final reports; and 4) assess any gaps or weaknesses, and make appropriate adaptive management decisions based on progress and achievements. Work plan for year two will be based upon results achieved in the first year, including associated budget allocations. UNIDO's Beijing field office will assist and participate in monitoring and evaluation visits as needed.
An indicative workplan and budget for monitoring and evaluation is presented in annex C.

Programmatic M&E: the main executing entity, the National Council for Chemical Management of the Ministry of Nature and Green Development, will be responsible for day-to-day management and implementation of the project, reporting quarterly to UNIDO. In addition to managing on the ground activities, the National Chemicals Management Council will conduct two monitoring and evaluation visits to the project site each year to review and assess project progress, ensure management decisions are implemented, review strategies and adapt project execution plans accordingly. In addition, the National Project Manager will monitor project activities on a weekly basis. Email, chat, video chat or telephone communications with partners allow for real time, close coordination and feedback between central management, technical specialists, field project staff and partners. Technical experts will be responsible for implementing day-to-day technical assistance activities and reporting progress and any challenges

back to the National Project Manager.

Technical advice and expertise will be coordinated by UNIDO and Ministry of Nature and Green Development. The technical experts will be an important part of the monitoring and evaluation process, as they will provide specific technical project advice, assist with troubleshooting as needed, and ensure quality control and adherence to international environmental and chemical safety standards. The stakeholder groups will also play key roles in project monitoring and evaluation. Stakeholder groups will be involved in all stages of the project planning and implementation, and will be crucial "eyes and ears" on the ground to identify needs and problems or challenges, as well as assist in finding solutions.

Progress of activities and outputs against the targets and desired outcomes will be assessed bi-annually by the Project Steering Committee using the means of verification and indicators for measurement explained in the Project Results Framework. Qualitative indicators will be monitored when quantitative indicators are not feasible or useful. Performance measures will occur at three levels: activity, annual work plans and overall project, and reported upon as explained above. Quarterly reports and bi-annual reports will aggregate, summarize and convert project data/results into more general language indicating project progress towards objectives.

Financial Monitoring: All project costs must be accounted for and documented. Financial reports will be required on a monthly basis from the field to the National Project Manager, according to internal accounting procedures. Interim financial reports will be provided to the donor by UNIDO annually, and a final financial report will be provided within 90 days of project end.

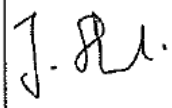
PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter(s) with this template. For SGP, use this OFP endorsement letter).

NAME	POSITION	MINISTRY	DATE *(MM/dd/yyyy)*
Mr. Altangerel Enkhbat	Director of Ecologically Clean Technology and Science Division, GEF Operational Focal Point	**MINISTRY OF NATURE AND GREEN DEVELOPMENT**	**11/28/2012**

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for project identification and preparation.

Agency Coordinator, Agency name	Signature	DATE *(MM/dd/yyyy)*	Project Contact Person	Telephone	Email Address
Philippe Scholtès, Officer-in-Charge, Programme Development and Technical Cooperation Division (PTC), UNIDO GEF Focal Point		03/04/2013	Jerome Stucki, Environmental Management Branch 	+43 1 26026 3559	J.Stucki@unido.org

ANNEX A: PROJECT RESULTS FRAMEWORK

HIERARCHY OF OBJECTIVES	Indicators	Sources of verification	Assumptions
Project Development Objective: **Reduce exposure of mercury to human health and the envrionment in Mongolia**	- # kg of mercury safely stored - # kg of mercury recovered and stabilized from the Boroo hot spot area	Final evaluation report	
REGULATORY FRAMEWORK			
Outcome 1.1 Regulatory framework and national guidelines established for environmentally sound management of mercury containing waste	Extent to which mercury regulations/policy /strategies adopted or implemented (score 0 to 4)	Public records	Stakeholders are able and willing to adopt and learn new procedures and/or techniques to manage mercury containing waste
Output 1.1.1 Draft national guidelines and supporting regulatory frameworks developed and adopted for the environmentally sound management of mercury containing waste	Availability of draft document? (Yes/No)	Public records	
PILOT DEMONSTRATION			
Outcome 2.1 Capacity developed for the implementation of remediation and stabilization techniques in mercury hot-spot areas through demonstration activities at the pilot scale	Adoption level of new technologies (score 0 to 4)	- Progress reports - Survey of target groups	Stakeholders are willing to learn and change behavior to reduce mercury related health risks
Output 2.1.1 Pilot demonstration of sound mercury remediation technique at the Boroo river site	- Availability of validation assessment? (Yes/No) - # and types of technologies tested at the Borooriver site	Project progress and self-evaluation report	
AWARENESS RAISING			
Outcome 3.1 Information disseminated and awareness raised through campaigns on mercury health and environment risk reduction	- Increased media coverage on the prevention of mercury risks - % of target group having obtained new knowledge as a result of the project awareness raising campaigns (gender ratio)	- Surveys of target groups - Observations by project experts or stakeholders	Stakeholders are willing to learn and change behavior to reduce mercury related health risks
Output 3.1.1 Publication/training material developed and workshop/campaignconducted	- Availability and number of materials (Yes/No) - # participants sensitized (gender ratio)	- Project progress and self-evaluation report	

ANNEX B: TIMELINE OF PROJECT OUTPUTS

Timeline of the outputs

Output	Year 1				Year 2			
Output 1.1.1 Draft national guidelines and supporting regulatory frameworks developed and adopted for the environmentally sound management of mercury containing waste								
Output 2.1.1 Pilot demonstration of sound mercury remediation technique at the Boroo river site								
Output 3.1.1 Publication/training material developed and workshop/campaignconducted								

ANNEX C: M&E INDICATIVE WORKPLAN AND BUDGET

Type of M&E activity	Responsible Parties	Budget USD*	Time frame
Inception Workshop	Project Manager (PM)	3,000 (workshop costs only)	Within first two months of project start up
Inception Report	Main Executing Entity (MEE)	0	Immediately following the Inception Workshop
	PM		
M&E design and collection of data (performance indicators)	PM will oversee the hiring of specific institutions and delegate responsibilities to relevant team members	8,000	Start and end of project
Steering Committee Meetings to review and assess project progress and performance	Oversight by PM and UNIDO Regional Office in China Project Steering Committee to review the project performance and make corrective decision	12,000	Annually prior to APR/PIR and to the definition of annual work plans
Annual Progress Reports (APRs) and Project Implementation Reviews (PIRs)	PM UNIDO Regional Office in China	0	Annually
Quarterly progress reports	PM	0	Every three months
Technical Committee meeting	PC or UNIDO Regional Office in China	0	Every six months
Final Project Evaluation	Terms of Reference developed by PM under guidance from UNIDO Evaluation Group Final Evaluation carried out by national independent evaluators	10,000 (independent evaluators only)	Evaluation at least one month before the end of the project; report within 90 days of project end
Lessons learned	PM	0	By the end of project implementation; annual as part of PIR
Visits to field sites *(UNIDO staff travel costs to be charged to agency fees not to project)*	MEE	5000	Every six months
	PM and UNIDO Regional Office in China	0	Annually
	Representative from the Steering Committee	2000	
TOTAL indicative cost* ** Excludes project team staff time and UNIDO staff and travel expenses*		40,000	

ANNEX X: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used**)**

Provide a calendar of expected reflows to the GEF/LDCF/SCCF Trust Fund or to your Agency (and/or revolving fund that will be set up)

N/A