Government of Uruguay

United Nations Development Programme (UNDP)

Project Document

ID Award: 00074817
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GEFSEC (PMIS) ID: 4998

"Environmental Sound Life-Cycle Management of Mercury Containing Products and their Wastes"

Brief Description:
The ultimate objective of the project is to protect human health and the environment from Mercury releases originating from the intentional use of mercury in products and the unsound management and disposal of such products, by i) Strengthening the regulatory and policy framework for the sound Life-Cycle Management (LCM) of mercury containing products and their wastes; ii) Phasing-out and phasing-down mercury containing devices and products by introducing mercury-free alternatives or products with a lower Mercury content, iii) Improving national (regulatory, policy, technical, financial, etc.) capacity to make LCM of Mercury containing products technically and economically feasible.

In Uruguay, several challenges at national level have to date prevented a LCM approach to Mercury containing products, the most significant of these challenges can be summarized by a lack of legislation, absence of national plans/strategies related to waste management for Hg containing products, low level of awareness, absence of financially sustainable business models for Hg LCM, and lack of storage, pre-treatment, decontamination and disposal options. Considering the contribution of Mercury releases from products containing Mercury (UNEP, 2011) in Uruguay amounts to 56 percent, it is imperative that these challenges are addressed urgently.

The proposed project aims to strengthen national capacities to improve the management of wastes containing mercury, reduce the use of mercury containing products in priority sectors and encourage the use of Mercury-free or low-Mercury content alternatives where feasible. In particular the project will:

Component 1: Strengthen the regulatory and policy framework to allow for LCM of mercury containing products and their wastes
Component 2: Develop environmentally sound schemes and business models for the collection, treatment and disposal of mercury wastes
Component 3: Strengthen technical capacity and infrastructure for the pre-treatment, decontamination and storage (medium- and long- term) of Mercury containing wastes
Component 4: Strengthen national and regional awareness on the Sound LCM of Mercury containing products as well as associated health hazards resulting from their mismanagement
Component 5: Provide monitoring, learning opportunities, adaptive feedback and evaluation

Overcoming the above-mentioned barriers will allow Uruguay to eliminate at least 330 kg of Mercury as a direct outcome of the project's implementation. In addition, changed practices will also result in sustained Mercury reductions of approximately 72.5 kg Hg/year. Such releases would otherwise be added to the "global pool" of mercury, putting environmental and human health at risk everywhere.

The proposed project is consistent with the GEF-V Strategy for Mercury programming as it will support assessment and pilot activities that will advance the development of the global mercury instrument and Uruguay's abilities to implement the provisions of the Minamata Convention when it enters into force.

Expected impact of the UNDAF[1]	The Government, with the participation of civil society, will have designed, implemented and/or strengthened policies, programmes and plans for the sustainable management of natural resources and conservation of biodiversity, and will have reduced social and environmental vulnerabilities and Inter-generational inequities.
Expected impact of the Country Programme	The country will have achieved a development model that includes environmental preservation, sustainable use of natural resources and the reduction of vulnerability and risk for current and future generations.
Product of the Country Programme	Initiatives implemented and strengthened capacities for environmental management and pollution reduction with emphasis on the most vulnerable populations.
Implementing Partner	Ministry of Housing, Land Use Planning and Environment (MVOTMA) - National Environment Directorate (DINAMA)
other partners	Ministry of Public Health (MSP)

Country Program Period: 2011-2015

Program Component: Environmental conservation and vulnerability reduction.

Project Identification: Award ID: 00074817
Date:
Date of completion:

Date of PAC:
Management Agreements (if any): National Execution (NEX)

Total budget: 1,237,800 USD
Service fees: 117,591 (9.5 % GEF Agency fee)
DPS (up to): 30,800 USD

Total resources allocated: 4,268,060 USD

Regular Resources: 1,237,800 USD (GEF)

Unfunded budget: NA

Co-financing Contributions (in kind & cash): 2,947,760 US$

Approved by:

Ministry of Housing, Land Use Planning and Environment (MVOTMA) — **Date**

Uruguayan Agency for International Cooperation — **Date**

United Nations Development Programme (UNDP) — **Date**

[1] United Nations Development Assistance Framework (UNDAF)

LIST OF ACRONYMS

ASSE	Administration of the State Health Services
BC	Basel Convention
BCCC LAC	Basel Convention Coordinating Centre for Training and Technology Transfer for Latin America and the Caribbean
CFL	Compact Fluorescent Lamp
CIAT	Center of Advising and Information on Toxicology
CIU	Uruguayan Industry Chamber
CRA	Cost Recovery Arrangements
DINAMA	National Environment Directorate
EPR	Extended Producer Responsibility
GEF	Global Environment Facility
HCF	Health Care Facility
Hg	Mercury
GoU	Government of Uruguay
LATU	Meteorological Technology Laboratory of Uruguay
LCM	Life-Cycle Management
LL	Lessons-Learned
MIEM	Ministry of Industry, Energy and Mining
MSP	Ministry of Public Health
MSP	Medium Sized Project
MVOTMA	Ministry of Housing, Land Use Planning and Environment
PCTP	Scientific and Technological Park of Pando
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
UTE	National Administration of Power Plants and Energy Transmission

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I. SITUATION ANALYSIS

Context and global significance

When Mercury containing products break or enter the waste stream (e.g. thermometers, sphygmomanometers, dental amalgam, fluorescent light tubes, energy efficient light bulbs, etc.) so does the Mercury they contain. Without proper Mercury management, storage and disposal practices in place, Mercury will be being released to the environment.

The three most common forms of mercury (elemental, inorganic and methyl mercury) are all detrimental to human health because of its toxicity to nervous systems (brain and spinal cord), especially in fetuses and young children. In addition, mercury can also cause serious damage to the ecosystem and biodiversity, both at national and global level. As Mercury can be remitted into the atmosphere several times after being deposited from the atmosphere, it can be transported long distances by air and water, thus making Mercury a significant global pollutant.

In order to address the challenges posed by Mercury on a global scale, UN negotiations on a future global legally binding instrument on Mercury were concluded in January 2013 with 147 governments agreeing to the draft convention text for the Minamata Convention on Mercury. The draft Minamata Convention on Mercury is scheduled to be adopted and opened for signature at a Conference of Plenipotentiaries in Kumamoto and Minamata, Japan from 10 to 11 October 2013. It is expected that the treaty will come into force with the next three to five years. The Minamata Convention will aim to reduce mercury emissions from all sources, including gold mining, dental practices, chlor-alkali plants, coal combustion, medical uses as well as waste management, storage, fate and transport in the atmosphere and other related issues.

The Government of Uruguay has been a strong advocate for a global, legally binding treaty on Mercury and has been chairing all the International Negotiation Committees for the elaboration of the Minamata Convention. It also hosted the fourth session of the Intergovernmental Negotiating Committee - INC4 (27 June to 2 July, 2012). Efforts to reduce Mercury releases at national level which have been supported by the Government of Uruguay to date, were spurred because of pressing issues related to Mercury and its emissions, in particular risks to particular population groups[2] and the general public through various media.

Based on Mercury assessments that have been undertaken at national level to date (see also *Baseline Analysis*) the main sources responsible for Mercury releases in Uruguay are: *Products with Intentional Use of Mercury* (36%); *Intentional Use of Mercury in Industrial Processes* (31%) – predominantly the chlor-alkali industry; and, o*ther products with intentional use of mercury* (19%) - predominantly dental amalgam.

In Uruguay, the contribution to total Mercury releases from products containing mercury amounts to 2,033 Hg kg/yr (56%) and is thus deemed significant. Considering that a UNEP/BCCC LAC project entitled "*Guidance on Best Industrial Practices in the Chloralkali sector*" is exclusively focussing on improving management and operating practices at the national chlor-alkali industry, the proposed project will aim to reduce Mercury emissions from Mercury containing products.

Reducing Mercury in products has been put forward as the most effective means to decrease atmospheric emissions of Mercury from waste streams. For most Mercury containing products, cost-effective mercury-free or low content Mercury alternatives do exist[3]. Further emission reductions can be achieved with appropriate waste handling and recycling practices in order to retain mercury before it is released into the environment (GEF).

In order to protect human health and the environment from Mercury releases originating from the intentional use of mercury in products and the unsound management and disposal of such products, by i) Strengthening the regulatory and policy framework for the sound Life-Cycle Management (LCM) of Mercury containing

[2] Even though an extensive population study has not yet been conducted, based on national stakeholder consultations risks groups include, but are not limited to: operators of the Chlor-Alkali facility, waste handlers, municipality lighting maintenance workers, maintenance staff of larger public and private institutions involved in lighting maintenance, personnel responsible for the calibration of Hg-containing measuring devices, dentists and their staff, healthcare staff, etc.). As part of the USAID/USEPA (2006) support to Hospital de Clinicas – biological samples of hospital staff were analyzed. Results indicated that 2 staff members involved in the calibration of Hg-containing devices - showed contaminations higher then the MAC value. After Hg phase-out their Hg level went down.

[3] Commercially cost-effective alternatives for mercury in batteries and lamps are still needed, while many developing countries state that alternatives to dental amalgam are not yet cost-effective to meet the needs of their expanding healthcare systems.

products and their wastes; ii) Phasing-out and phasing-down Mercury containing devices and products by introducing mercury-free alternatives or products with a lower Mercury content, iii) Improving national (regulatory, policy, technical, financial, etc.) capacity to make LCM of Mercury containing products technically and economically feasible. Mercury containing products and wastes streams to be addressed by the project are expected to include: thermometers (physicians or clinical); sphygmomanometers; dental amalgam; florescent lights (tubes); and energy efficient light bulbs (CFLs).[4]

The proposed project is consistent with the GEF-V Strategy for Mercury programming as it will support assessment and pilot activities that will advance the development of the global mercury instrument and Uruguay's abilities to implement its provisions when the instrument enters into force. In particular the project will support activities consistent with the issue areas as included in GEF-V Strategy for Mercury Programming: Reducing Mercury Use in Products; Enhancing Capacity for Mercury Storage; Reducing Atmospheric Emissions of Mercury; Improved Data and Scientific Information at the National Level; and, Enhancing Capacity to Address Waste and Contaminated Sites.

The proposed project is also consistent with the objectives of the 2011-2015 Country Programme Document (CPD), as well as with the United Nations Development Assistance Framework (UNDAF) in the country. In both programming documents the reduction of pollution and its effects on vulnerable population has been set as a priority.

Threats, fundamental causes and barriers for environmentally sound management of Mercury-containing products and their wastes

Mercury use in products can result in releases to the environment at various stages of the product's life cycle, as such it is important to ensure a life cycle management (LCM) approach to Mercury containing products. In Uruguay, several challenges at national level were observed as part of various assessments, which prevent such a LCM approach for Mercury containing products. Among else challenges encountered are:

a) **Limited use of Mercury-free or low-Mercury content alternatives** – Reducing mercury in products has been put forward as the most effective means to decrease atmospheric emissions of mercury from waste streams. For most mercury containing products, cost-effective mercury-free or low content mercury alternatives do exist[5] and are available in the country. As Uruguay does not manufacture or produce Mercury containing products it relies on imports of such products. Putting in place import restrictions on Mercury containing devices or products with a high Mercury content[6] would encourage manufacturers, distributors and users to make the much needed shift to cost-effective alternatives.

b) **Lack of legislation that is mandating the use of mercury-free or low-content Hg products** – A number of voluntarily initiatives have aimed in the past to substitute mercury products with mercury-free alternatives (e.g. pilot healthcare facilities) or low Mercury content alternatives (e.g. low-Hg CFLs in the energy sector). However legislation urging the phase-out of Mercury containing products or the use of low-level Mercury products has not yet been developed or implemented to ensure a holistic and phased reduction at national level.

c) **Absence of national plans/strategies on waste management of products containing Mercury** - In 2011 guidelines were developed on the management of mercury waste at hospital level, however to date only two hospitals have put these guidelines into practice, for other Hg-containing wastes (e.g. CFLs, tubes, batteries, etc) such guidelines do not exist. One of the main challenges with respect to the adoption and implementation of waste management strategies for Hg-containing discarded products and wastes, is that there are no appropriate (temporary) storage or disposal solutions for such wastes. This situation makes that institutions and companies are very reluctant to improve practices for Hg-waste as they don't want to end up with accumulated Hg-wastes for an

[4] Not (for now): batteries, High Intensity Devices (HID), etc.
[5] Commercially cost-effective alternatives for mercury in batteries and lamps are still needed, while many developing countries state that alternatives to dental amalgam are not yet cost-effective to meet the needs of their expanding healthcare systems.
[6] As part of a prior UNIDO/SAICM project, a proposal for import restrictions on max. Hg levels for light sources was drafted but never approved. As part of this project it is foreseen that his proposal would be reviewed and adapted based on MVOTMA recommendations, and subsequently submitted for approval/adoption.

indefinite period of time[7]. However, whether or not storage/disposal solutions are in place, the adoption and implementation of strategies on the improved management of certain Mercury containing products and their wastes (medical devices, dental amalgam, mercury containing light sources, etc.) is urgently needed to ensure improved waste management of Mercury containing products for priority sectors.

d) **Low level of awareness on the Sound LCM of Mercury containing products** – Low awareness on the proper management, storage, clean-up and disposal of Mercury containing products and wastes as well as associated health hazards resulting from their mismanagement is a major concern. At particular risk are population groups who are exposed to Mercury releases on a regular basis e.g. those that come in close contact with Mercury products and wastes in their professions such as waste handlers, medical personnel, dentist assistants, lighting and calibration maintenance personnel, etc.

e) **Absence of financially sustainable business models that allow for cost-effective and environmentally sound collection, storage, transportation, treatment and disposal of mercury wastes** – The treatment and disposal of Hg containing wastes and spent products is currently not financially sustainable. Therefore it is important to put in place financial incentives (such as Extended Producer Responsibility – EPR, Polluter Pays Principles, rebates, etc.) to cover costs for the sound management, collection and treatment of mercury containing wastes. Currently such instruments are not in place in Uruguay. In addition, the absence of regulations (and their enforcement) mandating the sound management and disposal of wastes influences the quantities of mercury containing wastes being collected and in turn impacts the scale of activities and thus cost-effectiveness. Finally, the small size of the country limits opportunities for economies of scale raising costs for the handling and treatment of Mercury wastes.

f) **Lack of Storage, Pre-treatment and Decontamination of Mercury containing products** - Currently there are no solutions for the temporary-, intermediate- or long- term storage and the pre-treatment and decontamination of Mercury containing wastes,[8] which is cited by the National Mercury Inventory (UNEP, 2011) as one of the main national priorities related to Hg releases. As a direct consequence the majority of mercury containing products is being discarded along with regular municipal waste and ends up in landfills and disposal sites that are not fit to store Mercury wastes. Other Mercury containing wastes (such as dental amalgam) are generally discarded through the sewerage system resulting in releases to air, water and soil. In other cases, certain public and private institutions are storing Hg containing wastes awaiting final disposal options. Unfortunately, such temporary storage facilities are often inadequate for long-term storage, insulting in breakage and exposure to facility staff.

Overcoming the above-mentioned barriers will allow Uruguay to eliminate at least 330[9] kg of Mercury as a direct outcome of the project's implementation. In addition, changed practices will also result in sustained Mercury reductions of approximately 72.5 [10] kg/Hg/year

The proposed project strategy to address these challenges are discussed in detail in Section II.

[7] Since 2011 (when the Montevideo municipality no longer authorized the disposal of CFLs and tubes in the general landfill site), UTE, like other large public and private entities, has been accumulating CFL lamps and tubes in its facilities. For safety purposes it has been urged by DINAMA to dispose of its stockpiles – however no such solutions are in available in Uruguay. UTE is currently exploring disposal options abroad. LATU is in a similar situation as it "holds on" to Hg-containing thermometers that do not pass calibration tests, to avoid that these devices ultimately end up on the market. As a result, LATU alone now holds 230,000 Hg-containing thermometers and has not yet been able to find a proper disposal/treatment solution.

[8] Some exceptional cases for temporary storage do exist in the healthcare sector as a result of pilot initiatives while Mercury containing solid waste from the chlor-alkali industry is temporarily stored on its premises.

[9] 2,000,000 CFL (UTE "Plan a todas luces") ~ 10 kg Hg; CFLs + tubes (2010 imports) ~ 30 kg; Healthcare facilities: Clinicas ~ 48 kg Hg + 11 kg Hg (assessment as part of UNIDO project for 6 healthcare institutions combined); LATU Metrology Department (thermometers) ~ 230 kg Hg (stockpiles), Tienda Inglesa (thermometer) ~ about 5 kg Hg (stockpiles), Triex (crushed bulbs) → Total ~ 330 kg

[10] Putting in place import restrictions on high-mercury content light sources is likely to result in a 50% reduction of mercury emissions from energy efficient light sources (equivalent to ~ 15 kg/yr based on 2010 import), while import restriction on Hg containing medical devices could result in reducing yearly Hg emissions by a mínimum of 57.5 kg/yr (based on 2010 minimum emissions from imported Hg containing thermometers alone). In total adding up to 72.5 kg/yr (not counting restrictions on Hg import for the preparation of dental amalgam or Hg contained in spygmomanometers).

Stakeholder analysis

The development of national capacity for the environmentally sound management for Mercury containing products and their disposal requires the participation of a multitude of different stakeholders, ranging from public institutions and actors, to large-scale private sector users to educational and research partners. Throughout the PPG process these stakeholders have been consulted extensively and detailed roles and responsibilities throughout project implementation were agreed upon (see also Annex II: Responsibilities of National Project Partners).

a) Ministry of Housing, Land Use Planning and Environment (MVOTMA) through the National Environment Direction (DINAMA): will assume the role of project executing agency. It is the national environmental authority and is responsible for the development and implementation of policies and regulations pertaining to the environment. The Ministry has competence in (hazardous) waste management and has in the past supported multiple initiatives in the area of mercury management.

b) Ministry of Public Health (MSP): The Ministry is responsible for the development and implemetation of health policies and assumes responsibilities related to monitoring, control, regulation and standardization. In addition, the Ministry registers medical devices and monitors companies that import, manufacture, distribute and / or store medical equipment and devices.

c) Administration of the State Health Services (ASSE): Leading provider of public health care at national level, through a network of comprehensive health care services throughout the country, focussing on promotion, prevention, diagnosis, early treatment and rehabilitation. ASSE is also the responsible authority for mercury waste management in health centers.

d) PCTP (Scientific and Technological Park of Pando): is a joint initiative of the Faculty of Chemistry, National University (Universidad de la República-UdelaR); MIEM (Ministry of Industry, Energy and Mining), the Canelones Municipality (Intendencia de Canelones) and the CIU (Uruguayan Industry Chamber). PCTP will host the treatment facility and be involved in the bio-monitoring of population groups at risk while PCTP's business incubator will provide technical advice to the private sector entities operating the treatment facility and support the development of a financialy sustainable business plan.

e) Basel Convention Coordination Center (BCCC) for Latin America and the Caribbean (LAC): BCCC LAC leads a network of national Basel Convention Centers and will be involved in the dissemination of project information, lessons-leared, best practices and results at national, regional and international level. BCC-LAC is extensively involved in awareness raising on risks related to mercury exposure, mercury waste segregation and storage campaigns and has been involved in all national and regional projects and programmes which have a bearing on the sound management of Hg and other hazardous wastes and substances.

f) Center of Advising and Information on Toxicology (CIAT)**:** The National Poisson Centre (Faculty of Medicine, University Hospital - Hospital De Clinicas) is a WHO reference centre and supported the pilot phase-out of mercury containing devices at the University Hospital. CIAT, in partnership with PCTP, will also be involved in the bio-monitoring of population groups at risk as well as in conducting the baseline assessments and training at model healthcare and dentist facilities.

g) En.lighten Initiative (GEF/UNEP/OSRAM/Philips/NLTC): Global energy efficient lighting initiative, established to accelerate global market transformation to environmentally sustainable lighting technologies by developing a coordinated global strategy and providing technical support for the phase-out of inefficient lighting. Their efforts including support on the sustainable treatment of discarded mercury lamps. For the project this partnership – but in particular its Spanish stakeholder *AmbiLamp*, will be a key partner for technology advise.

h) UTE (National Public Utility company): Assumes power distribution for the whole of Uruguay and is also the biggest electricity generator. UTE is committed to energy efficiency and among other initiatives has distributed among its clients approximately 2 million CFLs 3 years ago and distributed an additional 2 million CFLs in June 2013 (meeting EU RoHS regulations). The first distribution of CFLs proved successful and resulted in a reduction of 2% in national power demand. Among else, UTE will support the project by providing cash co-financing for the treatment of the CFLs they have

put on the market, while they will also support the project by providing collection points for CFLs/tubes through their branch locations and conduct awareness raising making use of their monthly billing system.

i) LATU (National Technological Laboratory of Uruguay): LATU is responsible for providing import and export certification and hostes BCCC-LAC and the *Legal Metrology Directorate*. The latter verifies callibration requirements (following degree 357/001) for thermometers and sphygmomanometers (both containing mercury and Hg free). LATU currently holds 230,000 Hg containing conviscated thermometers, which are expected to be treated during the start-up phase of the treatment facility. LATU already has information available on Mercury-free medical devices which have already be approved for use in Uruguay and have passed LATU certification.

j) National Dental Association (NDA): During project implementation the NDA will be a key partner in supporting the development of guidelines for best practices pertaining to Hg/dental amalgam management, disposal practices and dissemination of information related to these practices and guidelines among dental association members. Secondly, the NDA will also play an important role in encouraging a ban on the mixing of dental amalgam at dental offices and promoting a shift towards pre-mixed capsules or preferably alternative restorative materials.

k) Private Sector: Involved in various important aspects of the proposed project:
   a. Large institutions producing mercury containing wastes
   b. Services providers involved in waste collection, disposal and treatment
   c. Distributors and retailers of Mercury containing consumer products and Mercury-free devices (e.g. distributors such as Philips, Osram, GE, etc.)
   d. Laboratories for testing and certification
   e. Others….

Baseline analysis

Uruguay, with assistance provided by the United Nations Environment Programme (UNEP), United Nations Industrial Development Organization (UNIDO) and the Basel Convention Coordinating Centre for Training and Technology Transfer for Latin America and the Caribbean (BCCC LAC) supported the Government of Uruguay in conducting a *National Inventory on Mercury Releases,* which was concluded in October 2011. Based on the methodology as set-out in the UNEP "*Toolkit for Identification and Quantification of Mercury Releases – 2010*", and building upon sector specific inventories[11], the inventory indicated that national Mercury releases were estimated to be a maximum of 3,616 kg Hg/year and a minimum of 2,201 kg Hg/year.

The main categories responsible for these releases were:

1. *Products with Intentional Use of Mercury* – 36% (max. 1334 kg Hg/yr and min. 254 kg Hg/yr). This category includes thermometers; sphygmomanometers; batteries; light sources; switches; contacts and relays; polyurethanes with Mercury catalyst; pharmaceuticals, etc. For a complete overview please refer to Table 1.
2. *Intentional Use of Mercury in Industrial Processes* – 31% (1140 kg Hg/yr (max = min)) predominantly resulting from the chlor-alkali industry.
3. *Other products with intentional use of Mercury* – 19% (max. 700 kg Hg/yr and min. 686 kg Hg/yr) predominantly dental amalgam, see also Table 1.

A breakdown for categories 1 & 2 has been provided in Table 1.

Table 1: ***Mercury emissions resulting from the intentional use of Mercury in products***

Category	Max kg Hg/yr	Min kg Hg/yr

[11] Findings from the National Inventory on Mercury Releases (October, 2011) were confirmed and informed by a number of sector specific inventories:
- Inventory of Mercury Waste in the Industrial Sector (June 2011).
- Inventory of Mercury Releases from its Intentional Use in Consumer Products (2011)
- Pilot Inventory of Mercury Waste in the Health Care Sector (September 2011)

Consumer products – intentional use of Mercury		
Thermometers with Mercury	185	57.5
Switches, contacts and relays with Mercury	836.2	66.9
Light sources with Mercury	59.2	9.80
Batteries with Mercury	70.9	70.9
Polyurethanes with Mercury catalyst[12]	167.2	33.4
Pharmaceuticals (human and animal)	15.1	15.1
SUBTOTAL	**1,333.6**	**253.6**
Intentional other uses of Mercury in products or processes		
Dental amalgam	550.0	550.0
Gauges and meters with Mercury	137.8	123.6
Chemicals and laboratory equipment	11.9	11.9
SUBTOTAL	**699.7**	**685.5**
TOTAL	**2,033.3**	**939.1**

The contribution to total mercury releases from products containing mercury alone amounts to 2,033 Hg kg/yr (56%) and can thus be deemed significant.

Considering that a UNEP/BCCC LAC initiative "*Guidance on Best Industrial Practice in the Chloralkali sector*" is focussing on improving management and operating practices at the national chlor-alkali industry, the proposed project will exclusively aim to reduce Mercury emissions from Mercury containing products in Uruguay.

Mercury containing products and wastes streams to be addressed by the project are the following:

- Thermometers (physicians or clinical)
- Sphygmomanometers
- Dental Amalgam
- Florescent lights (tubes)
- Energy efficient light bulbs (CFLs)[13]

Reasons for the focus of the project on these Hg containing products are various, and include among else that:

- Combined these products' waste streams represent 40% of Hg emissions from Hg containing products.
- Although the products are very different in nature, they can (in comparison) be relatively easily treated/decontaminated using the same technology.
- Considering these type of products are easily recognizable by the general public and are not incorporated into other equipment (e.g. light switches in refrigerators) the establishment of separate waste streams – in comparison – is easy to establish.
- These products present most likely the general public's most direct exposure to Mercury emissions, which could be reduced and controlled by switching to alternative cost-effective available technologies.
- Among the range of Hg containing products, these can be considered the "low hanging fruits" where considerable progress can be made in the most cost-effective manner.

As these products are relatively different in nature, and different approaches will be applied throughout the project's implementation to address challenges surrounding particular Hg containing products (see also the section "*Strategy"*), their baseline will be discussed separately:

[12] It should be noted that data reliability for the "*switches, contacts and relays"* and "*polyurethane*" categories is low due to uncertainties in qualities imported as well as their specific Mercury content. These categories would require further research to improve the reliability of data.

[13] Not (for now): Hg containing batteries, Mercury containing High Intensity Devices (HID), etc.

Clinical Thermometers

While a few institutions have been relatively successful in their efforts to phase-out the use of Mercury containing thermometers, most health care facilities (both public and private hospitals), healthcare clinics, etc. as well as the general public, continue to use Mercury containing medical thermometers.

A number of efforts to date have focused on phasing out Hg containing thermometers, one being a project supported by USAID/USEPA in 2006, which among other technical assistance supported the "Hospital De Clinicas - Dr. Manuel Quintela" (University Hospital of the University of the Republic), in adapting their procurement practices which resulted in a gradual phase-out of Hg-containing thermometers. Subsequently, the Children's hospital (Centro Hospitalario Pereira Rossell) changed its practices based on the experiences of Hospital de Clinicas.

Following the success of these two hospitals, the Ministry of Public Health (MSP) also launched a public awareness campaign (January 2009) on the dangers of Mercury containing medical devices. In partnership with the supermarket chain "Tienda Inglesa" 5,000 digital thermometers were donated and the general public was advised to hand in their Hg-containing thermometers at the one of the supermarket chain stores or at a health center.

It has to be noted though for all of these initiatives, the most challenging part has been the interim storage and final disposal of Hg-containing thermometers.

For example the phase-out of mercury containing devices has put the hospitals in a position where they had to store thermometers for an indefinite time, awaiting a final disposal solution – which until today has not yet been available. In the case of "Hospital De Clinicas", thermometers were packed and subsequently stored at the Chlor Alkali Facility, while Hg-containing thermometers stored at the Children's hospital after an initial storage period have disappeared[14]. The collection of Hg-containing thermometers at the supermarket chain also did not prove very successful, a significant number of devices broke as a result of the collection boxes that were not properly designed, and to date these collected devices are stored in sealed tanks in Tienda Inglesa's commercial warehouses.

The above stated challenges related to disposal is the reason why the project will initially focus on putting in place disposal/treatment solution, before attempting the further collection of Hg-containing devices, which DINAMA and MSP are reluctant to start in order not to create interim storage facilities that turn into "indefinite" storage without proper and necessary safeguards in place.

It also has to be noted that LATU (see additional information below), has in storage approximately 230,000 Hg containing medical devices that have been confiscated over the years because these didn't meet national calibration standards. As such considerable obsolete stocks are available to the project, which would merit a delayed collection approach.

Other challenges that are impeding the phase-out of Mercury containing devices are:

a) A continued misperception of medical institutions in the medical field that there is an insufficient range of cost-efficient Hg-free devices available in the country.

b) Absence of incentives at national level, which could contribute to a phase-down/out of Hg-containing medical devices (e.g. MSP degree stipulating gradual phase-out, national action plan/guidelines on the phase-out of Hg-containing devices, etc.).

c) A reluctance of medical personnel to switch to Hg-free devices.

Table 2 presents an overview of the number of thermometers that have been imported into Uruguay over the period (2005 – 2012), while Figure 1 provides an overview of the import trends. According to information obtained from UCA[15] (Centralized Acquisition Unit), which assumes centralized public procurements of goods, no centralized procurement of clinical thermometers took place in 2011.

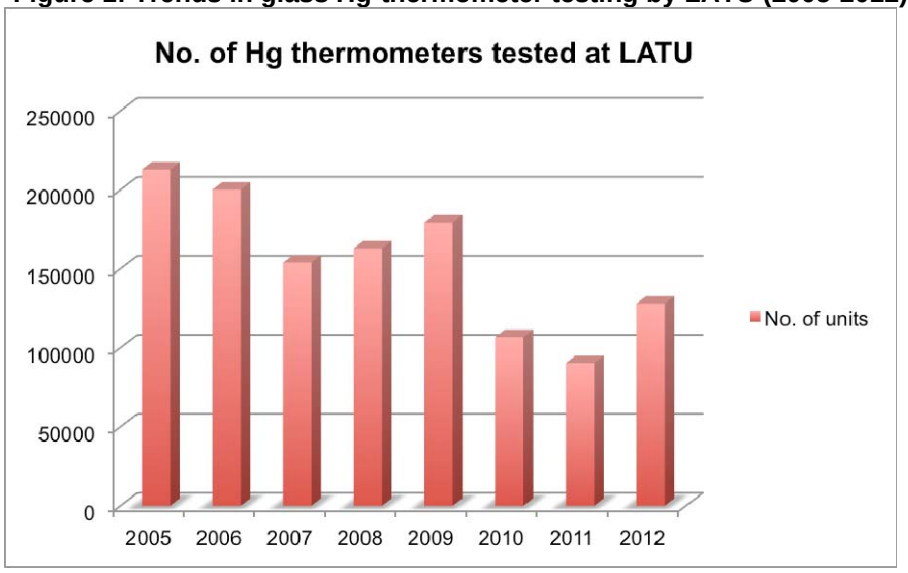
[14] It is unknown if healthcare facilities which substituted Mercury thermometers established plans for waste collection [Source: "Estudio piloto sobre Mercurio en Salud realizado en el Hospital Universitario" Setiembre 2011]
[15] Part of the Ministry of Economy

LATU's Legal Metrology Directorate, following degree 357/001, tests each thermometer entering the country and verifies whether it meets calibration standards. If a thermometer passes the test, it is provided with a seal. Although it is assumed that the majority of thermometers are tested by LATU, complaints of thermometers no carrying the seal have been received, implying that certain amounts of thermometers enter the market illegally. Devices not meeting calibration standards are confiscated by LATU as it is afraid that otherwise these devices might find a way onto the market. LATU estimates that it currently holds approximately 230,000 thermometers in interim storage. Although it has undertaken efforts to find appropriate sound disposal solutions, so far no disposal company has been able to provide a solution which meets national health, safety and environment regulations.

Table 2: Mercury glass thermometers tested, rejected and accepted by LATU between 2005 - 2010

Year	No. units tested	No. of rejected units[16]	N º units entering the market accepted
2005	212,895	21,453	191,442
2006	200,137	20,168	179,969
2007	153,870	15,505	138,365
2008	162,935	16,419	146,516
2009	179,374	18,076	161,298
2010	106,812	10,680	96,132
2011	90,326	9,717	80,609
2012	128,008	20,711	107,297
Average	**154,295**	**16,591**	**137,703**

Figure 1: Trends in glass Hg-thermometer testing by LATU (2005-2012)



At the time of the National Hg Inventory (2010) it was assumed that the observed decrease in the importation of Mercury containing thermometers was a result of the phase-out or reduction of Hg-containing devices in certain sectors (see Figure 1, which on average shows a decrease in the number of thermometers being tested). However, importation in 2012 actually increased as compared to 2010 and 2011 – most likely because of the impeding "threat" from MSP/DINAMA that import restrictions would be put into place – which spurred a lot of distributors and institutions to stock up on their Hg glass thermometers.

The National Hg Inventory assumed that LATU testing figures provided a realistic representation of yearly imports and that the number of "untested" glass Hg thermometers imported illegally could be considered negligible. Following UNEP toolkit guidelines, Hg emissions from clinical thermometer breakage (based on an average breakage of 106,812 thermometers a year) range from **53.4 kg Hg/year** (min) to **160.2 kg Hg/year** (max).

[16] Note that as a result of a phase-out of Hg-containing devices, the project will also avoid the accumulation of rejects, which represents on average 11% of imports.

Another potential emission source are current Hg-thermometers in interim storage (e.g. current stockpiles (~ 230,000) kept at LATU and about 5 kg Hg by Tienda Inglesa). Such stockpiles represent potential Hg emissions around **235 kg Hg**, if these are not properly disposed of.

As will be described in further detail in the section on *Strategy*, the project aims to reduce Hg emissions from two distinct sectors (*health care* and *lighting*) through different but complementary approaches. In order to reduce Hg emissions in the healthcare sector, the project will work with 10 - 12 "model" healthcare facilities including dental facilities, and build the necessary capacity to transition away from Hg-containing medical devices (clinical thermometers and sphygmomanometers) to Hg-free devices as well as improve the life-cycle management of dental amalgam.

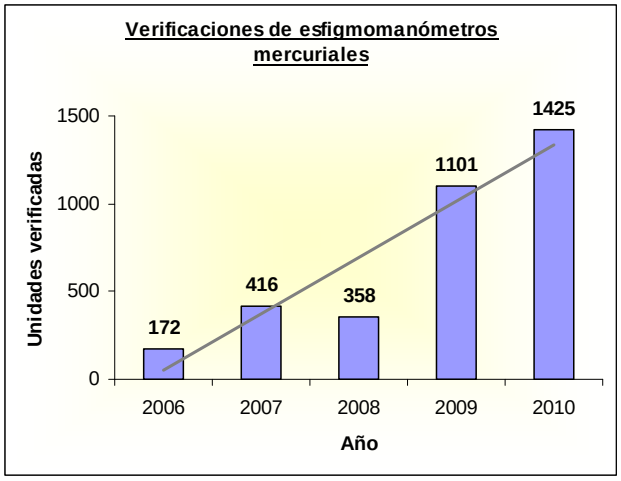
Sphygmomanometers

Mercury sphygmomanometers are used primarily in the health centers to measure patients' blood pressure. In Uruguay, Degree 520/996 and its 2009 amendment regulates three types of sphygmomanometers control:

1. Approval of a new model: testing of at least three samples.
2. Initial verification performed on all new instruments of a model that has previously been approved before being put into service and or reentering service after repair.
3. Periodic verification: every two years.

Tests are conducted by LATU, which keeps records of the number of tests it conducts. Figure 2 shows the numbers of tests performed each year. The graph clearly indicates that the number of tests increases each year. However, there are three types of tests, each of which is performed with a different frequency and tests are also conducted on pre-existing instruments. The life span of sphygmomanometers can vary greatly based on the type (wheeled mobile devices are more likely to break compared to those fixed on walls). Instruments that do not break contribute to the yearly increase in tests performed. Finally, the health care system in Uruguay has also undergone changes, which has resulted in a significant increase of patients relying on care provided by private institutions, which may have resulted in an increase in the use of measuring instruments. As such, the number of tests as depicted in Figure 2 is not directly related to the number of imports.

Figure 2: Number of tests conducted by LATU on sphygmomanometers



Although the National Inventory was aware that it was overestimating Hg releases based on the methodology they had to adhere to as part of the UNEP Toolkit, based on 2010 testing figures (1425), Hg release estimates were calculated to be between **99.8** (min) and **121.1** (max) kg Hg/yr.

Dental Amalgam

The use of dental amalgam is a significant source of mercury discharge into the environment, including scrap

amalgam and amalgam waste, which in Uruguay is predominantly discharged with wastewater into the sewerage, as there are currently no solutions available to deal with such waste streams[17].

Dental amalgam use represents more than one-fourth of total global mercury consumption in products or approximately 8% of global mercury consumption. In 2007, an estimated 250-350 metric tons of mercury were used globally in this sector[18]. In Uruguay, based on inventory results, dental amalgam represents 15% of total Hg releases into the environment, based on 2010 Mercury imports.

Globally, dental mercury use is in decline as a result of regulations and cultural preferences for "white" composite amalgam materials, however in most developing countries as well as countries with economies in transition, Governments and dentistry organizations often state that Hg-free alternatives to dental amalgam are not yet sufficiently cost-effective to meet the needs of rapidly expanding health-care systems. The latter is also the case in Uruguay where currently there does not seem to be a push or drive towards amalgam substitution from any of the institutions involved in health care or dentist sector. The Government of Uruguay is promoting universal access to health and dental services, and seems to favor the most cost-effective measures to expand services to all.

The magnitude of the direct human health impacts on dental workers and patients from dental mercury has always been a debated issue. However when it comes to mercury release from dental offices, there is little doubt that meaningful pollution prevention practices can be implemented to minimize and eliminate this important source of pollution and reduce exposure to dental workers (HCWH, 2007). As part of the USAID/EPA (2006) Mercury pilot phase-out project implemented in Uruguay, it was observed that dental assistants often used unsafe procedures in preparing amalgam mixtures, exposing themselves while also creating unnecessary Mercury waste and spillage, which in turn is often unsoundly disposed of.

In Uruguay, Mercury used for the preparation of dental amalgam is purchased by dentists either in the form of elemental mercury or in the form of pre-packaged dental amalgam capsules which contain the right ratios of the metals to make up the amalgam and only require mixing before application. Although alternatives to dental amalgam are available (e.g. resins and porcelain) and are used in Uruguay to some extent, no data was available at the time of the project's preparation on the degree of substitution.

Based on import records from distributors, the inventory identified the amount of Hg and Hg-containing amalgams imported in Uruguay on a yearly basis (see table 4). As can be derived from Table 4, in 2007 and 2009 only pre-packaged dental amalgams were imported, while in 2008 and 2010 significant amounts of elemental Hg for dental amalgam were imported.

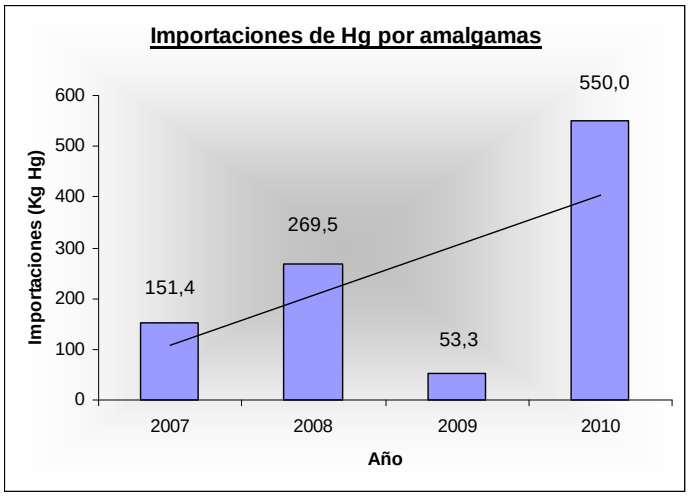
Table 3: Total imports of pre-packaged dental amalgams and elementary mercury for dental purposes

Year	Imports of prepared dental amalgam *(kg)	Imports of elemental Hg for the preparation of dental amalgam (kg)	Total imports (kg Hg)
2007	302.83	-	151.4
2008	82.00	228.50	269.5
2009	106.66	-	53.3
2010	---	550.00	550.0
Average			**256,0**

** Pre-packaged dental amalgam capsules contain 50% Hg.*

[17] Dental mercury should also be considered a source of air borne emissions from cremation of dental amalgam.
[18] http://www.fdiworldental.org/fdi-at-work/programme-for-africa/unep-dental-amalgam-phase-down-project.aspx

Figure 3: Import trends of Hg for purposes of dental amalgams (2007 – 2010)



As can be observed in Figure 3, the use of dental amalgam seems to follow an upward trend, most likely as a result of an improving healthcare system. It is expected that the use of dental amalgam will experience a further increase over the coming years. Amounts of dental amalgam and elementary Mercury for dental amalgam purposes imported on a yearly basis vary greatly, due to the fact that distributors seem to purchase in bulk over relatively long intervals.

In order to quantify releases, the UNEP toolkit recommends to take into consideration all inputs on an annual basis, and whenever possible, of the year in which the inventory was conducted. As a result, the input factor for amalgam was subsequently defined as the total imports of dental mercury for the year 2010, which corresponds to **550 kg**.

Uruguay's Dental Association has expressed a strong interest in the project and has confirmed its support, in particular with respect to the adoption and implementation of "Good Dental Practices". Keeping in mind that there is currently is no drive/push for moving towards the use of dental amalgam alternatives at national level (although the recent establishment of the Minamata Convention and its Delegates agreeing to a phase-down of the use of dental fillings using mercury amalgam under the Convention, might become an additional incentive to change this) the project will focus efforts on reducing Hg emissions to the environment and reducing exposure to staff working in dental offices.

According to HCWH (2007) a variety of inexpensive pollution prevention opportunities exists, which vary from using prepackaged dental amalgam capsules rather than mixing amalgam by dental staff (10% reduction), to applying inexpensive "traps" incorporated in dentist chairs reducing release to the environment by approximately 60% as compared to regular disposal through severage. An additional 30% release reduction can be achieved with an amalgam separation device. It is expected that, awareness raising and the results obtained from the "population-at-risk" study will help make the case as to why it is important to support an accelerated shift towards dental amalgam alternatives (please refer to *Strategy* for further details on project approaches).

As previously mentioned, the project will work with 10 - 12 "model" healthcare facilities. Public healthcare facilities, such as hospitals, often host a dentistry department. Private dentist offices however operate outside of healthcare facilities. The project will work with the dentistry departments that are part of public hospitals which will function as the project's model facilities, while in addition the project might engage with 1-2 privately owned dentist offices to institute "*Good Dental Practices*".

Energy Efficient Lighting *(*Compact Fluorescent Lamps (CFLs) and Fluorescent Tubes (double ended)[19])

In Uruguay there are currently no environmentally sound collection, storage or disposal opportunities in place for Hg-containing spent lamps. As a result spent lamps (in the case of the residential sector) are discarded

[19] See also the section on project *Strategy* for the reasons for which the project exclusively focuses on these Hg-containing products

along with regular municipal household waste and end up on the municipal landfill sites or unregulated open dumps which both are not fit to receive Hg containing wastes.

Until a few years ago, it was somewhat acceptable for institutions using high volumes of energy efficient lamps (e.g. UTE, municipalities, government institutions, hospitals, large private sector entities, educational facilities, etc.) to dispose of these at the municipal landfill site. Because of the large volumes these lamps represent, and their Mercury content, the Montevideo municipality does no longer allow for large volume disposal at the landfill since 2011. A consequence has been that large institutions have started to accumulate spent CFLs and tubes. In turn DINAMA has urged institutions to dispose of lamps over a certain threshold, however as appropriate and environmentally sound solutions at national level or abroad that meet national health, safety and environment standards and requirements are not available, institutions are unable to meet this request.

In Uruguay there is one local company, which owns a bulb crusher. Until a few years ago it was allowed to dispose of crushed lamps at the landfill, however the company is currently storing crushed lamps in barrels on its premises, until a final disposal/decontamination solution will be found[20]. The company estimates that it crushes approximately 2% of the total spent lamps in the country.

Considering the steady increase in the use of energy efficient lighting, and national policies promoting a further shift, the collection, storage, disposal of spent lamps will have to be addressed the soonest to ensure that sound disposal practices options are adopted, mercury releases to the environment are reduced significantly, the creation of "hotspots" is avoided and significant exposure of personnel in charge of storage, maintenance and waste is minimized or avoided altogether.

According to the National Energy Efficiency Programme (DNTNE), CFLs are predominantly used for household consumption. According to URUNET data (foreign trade statistics database), the distribution between CFLs and incandescent lamps is approximately 30 – 70 % (see figure 4), with the percentage of incandescent lamps being higher in the countryside.

Figure 4: Distribution of lamps in the residential sector (2010)

Type of lamp	%	Units
Incandescent	66	7,478,183
CFLs	23	2,643,277
Fluorescent tubes	8	909,364
Other	3	287,991

Table 4: Annual Flow of lamps in Uruguay (2010)

Type of Lamp	Units
CFLs	**3,218,088**
Fluorescent tubes	**1,284,894**
High Intensity Devices (HID)	**392,915**
TOTAL	**4.895.897**

There are a significant number of importers of energy efficient lights in Uruguay, however the majority of the market is held by 10 major companies, who combined are supplying 78.6 % of energy efficient lights (imports). In the period 2007 - 2009 the no. 1 importer accounted for 25.9% of total imports, with the second largest importer accounting for 11.7%. Based on inventory results, 57% of Mercury emissions from this source correspond to a single brand (Philips).

[20] It has to be noted that the filters in bulb crushers are only able to capture part of the Hg emissions (mostly the Hg contained in the vapors) but are unable to remove the Mercury contained in the powder which remains attached to the glass.

Until 2009, import records combined all energy efficient lights into a single category; in 2010 records started differentiating between different types of lamps (see table 5 and figure 4).

Figure 5: Importation of fluorescent tubes and lights (2007 – 2010) [DINAMA, 2010]

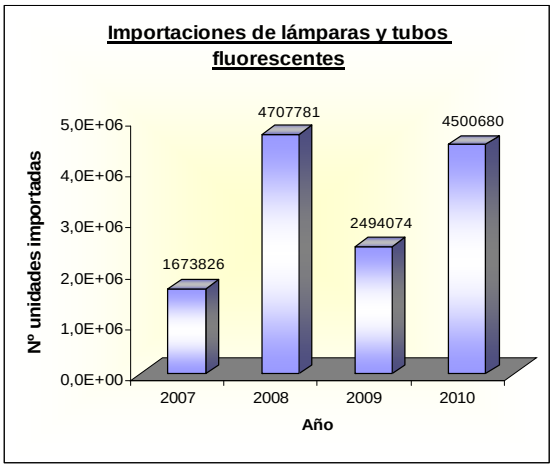


Table 5: Minimum and Maximum Mercury Content by brand [DINAMA, 2011]

	CFL Hg content (mg)		Tubes Hg content (mg)	
Brand	**Min**	**Max**	**Min**	**Max**
Philips	1,56	10	3	10
General Electric	Not declared	6	6	15
Tienda Inglesa	Not declared	5	Not applicable	Not applicable
Osram Sylvania	1,5	6	1,8	15
Others	1,56	10	6	15

Based on the figures presented in table 6 - the range of mg Hg / unit of CFL varies between 1.5 – 10 mg/unit. The National Inventory therefore determined that Mercury releases from CFLs range from a minimum of **4,90** kg Hg/year to a maximum of **32,7** kg Hg/year (based on 2010 imports).

In the case of fluorescent tubes, for which Hg content ranges from 1,8 - 15 mg Hg/unit, the National Inventory determined that Mercury releases from tubes range from a minimum **2,22** kg Hg/year to a maximum of **18,5** kg Hg/year (based on 2010 imports).

A national policy is in place to advance the use of energy efficient lighting, therefore a further increase in the use of energy efficient lighting and Mercury releases as a result of it, can be expected. A partnership between the global *en.lighten initiative* (UNEP/OSRAM/Philips/NLTC) and the Ministry of Energy, Ministry of Industry, DINAMA and BCCC-LAC currently works on developing and implementing a strategy aiming to phase-out the use of incandescent lamps. The partnership is reviewing the taxation of energy efficient and incandescent lights with the objective to induce a further shift to energy efficient lighting as well as putting in place import restrictions and labeling requirement regarding the energy efficiency of the lamps imported.

In tandem, UTE, the national electricity provider and distributor, procured 3 years ago 2,000,000 CFLs, which were exchanged with the general public against incandescent lights (2 lamps max)[21]. According to UTE, the initial large volume procurement has contributed to an accelerated migration towards energy saving lamps and resulted in a 2% reduction in national power demand. In June 2013, UTE organized a similar procurement procedure, again for 2 million CFLs, which will be the last of such type of procurements. Although no import restrictions have been adopted at national level, UTE has drawn up their bid

[21] During CFL distribution, the general public was informed through an accompanying flyer that in time UTE would provide for adequate disposal solutions for the distributed lamps, which is one of the reasons why UTE is eager to support the project's implementation and provide cash co-financing for disposal of the lamps they have put on the market.

specifications in-line with EU RoHS Directives for CFLs and has stated that the brands that won the bidding (General Electric and Philips) contain half the Mercury as prescribed by the last update of the Directive.

Among initiatives that are currently underway in this area are the *GEF/UNEP Global Efficient Lighting Project*. As part of this project, participating countries have sent lamps to an analysis laboratory in China (Chinese National Lighting Test Centre), where lamps during a 31 day trial period will be tested on energy efficiency. During this period the actual Hg content of the lamps will also be verified – the outcomes of this study will be very important to further inform the baseline for this project.

As will be described in further detail in the section on *Strategy*, the project aims to reduce Hg emissions from two distinct sectors (*health care* and *lighting*) through different but complementary approaches. In order to reduce Hg emissions from light sources, the project will work with 3 large public/private "model" facilities (e.g. those that consume large quantities of CFLs and tubes) and build the necessary national and institutional capacity to improve the sound management, storage, transportation and disposal of CFLs and fluorescent tubes. In the second phase of the project (see *Strategy*) the project will also deal with residential spent lamps.

Legislation and Regulations

National strategies and plans related to the sound management of mercury containing wastes currently fall within the framework of the General Law on Environment Protection (17.283/2000).

At the time of the development of this proposal and project document, the Government of Uruguay (DINAMA heading the development process) was in the process of formulating a General National Waste Law, The main objective of this law will be to improve municipal solid waste management, however it is DINAMA's intension to ensure that reference to particular waste streams of concerns, e.g. Mercury waste, is being made in the waste law. It was uncertain at the time of writing by when the drafting of the Law would be finalized and adopted[22].

The Hazardous Waste Law in place (law 17.220/1999) has already transposed the Annexes of the Basel Convention and refers in specific to hazardous waste streams including waste containing mercury. Under the Hazardous Waste Law, Extended Producer Responsibility (EPR) is in place for car batteries, however this is the only hazardous waste item that is currently subject to EPR. A proposal for the EPR and Life-Cycle Management (LCM) of pesticide containers has been developed.

EPR regulations are not only important to ensure improved LCM but also to ensure that sustainable financial mechanisms can be put in place that can provide financial resources for the sound disposal of discarded products (e.g. through import or sales taxes), sometimes covering even the costs for disposal of products that were put on the market before the regulation came into force.

Depending on the anticipated timing of the drafting and approval of the General Waste Law, sub-degrees related to Mercury containing wastes could either be drafted under the Hazardous Waste Law currently in place and migrated once the new General Waste Law will be adopted, or developed under the framework of General Waste Law in case its adoption will take place before or in the early stage of project implementation.

In 2011, as part of a pilot initiative on the inventory of mercury waste in the health sector, a guideline was developed on the management of mercury waste for implementation at hospital level. However, except for a few exceptions, not many hospitals have started to phase-out the use of Hg-containing devices or improve Hg management practices at hospital level. This is probably due to the fact that at national level there are no real incentives for Hg phase-out or Hg management in combination with the fact that there are no available solutions for Hg waste disposal.

Currently there are no import restrictions for Hg-containing devices and no mandated phase-out of Hg containing medical devices is foreseen in the nearby future. Although a national Health Care Waste Management (HCWM) plan has been prepared, which also touches upon the management of Hg waste, proposed activities relating to Hg management have not (yet) been implemented.

[22] Initially the anticipated deadline for the drafting of the General Waste Law was 31 December 2012.

II. STRATEGY

Project rationale and policy conformity

The Government of Uruguay has been a strong advocate for a global, legally binding treaty on Mercury - the *Minamata Convention on Mercury*. Uruguay has been chairing all the International Negotiation Committees for its elaboration and also hosted the fourth session of the Intergovernmental Negotiating Committee - INC4 (27 June to 2 July, 2012). Agreement on the treaty was reached in January 2013, and the treaty will be open for signature at a special meeting in Japan in October 2013. It is expected that the treaty will come into force with the next three to five years. Following ratification, Uruguay aims to transpose the Convention's annexes into national legislation as soon as possible. The proposed project is expected to support Uruguay in meeting its obligations under the Minamata Convention, while building upon past activities which have informed and shaped the project rationale as presented in this project document. The project design takes a strategic approach with the overall objective of meeting the Minamata targets[23] which include among else a ban by 2020 on Mercury containing medical devices, certain CFLs and tubes as well as phasing down the use of dental amalgam.

In 2012, during the 32nd Meeting of Health Ministers of MERCOSUR[24], health ministers made a commitment to work on the gradual elimination of mercury-containing devices in the health sector. This position was strengthened at the 16th Meeting of Environment Ministers of MERCOSUR, which was held in November 2012, where health was considered one of the most relevant aspects for MERCOSUR countries in light of the Minamata Convention which at the time was still under development.

With assistance provided by UNEP, UNIDO and BCCC LAC, a National Inventory on Mercury Releases was conducted in October 2011 (see section on baseline). The inventory concluded that national Mercury releases were estimated to be a maximum of 3,616 kg Hg/year and a minimum of 2,201 kg Hg/year, and that the main "categories" from which mercury releases originate in Uruguay are 1. Products with Intentional Use of Mercury (37%); 2. Intentional Use of Mercury in Industrial Processes (32%, predominantly the chlor-alkali industry); and, 3. Other products with intentional use of mercury (19%, mostly dental amalgam).

The contribution to mercury releases from products containing mercury (such as thermostats, thermometers, blood pressure gauges; batteries; switches, relays and other electronic equipment; fluorescent lamps; and dental amalgam) amounts to 2,033 Hg kg/yr (56%) and can thus be considered significant. Considering the chlor-alkali industry is already receiving support from a UNEP/BCCC LAC[25] supported initiative, the proposed project will aim to reduce Mercury emissions from Mercury containing products, in particular focussing on the following Mercury containing products and wastes streams:

- Thermometers (physicians or clinical)
- Sphygmomanometers
- Dental Amalgam
- Florescent lights (tubes)
- Energy efficient light bulbs (CFLs)[26]

Reasons for the focus of the project on these Hg containing products are various, and include among else that: i) Combined these products' waste streams represent 40% of Hg emissions from Hg containing products; ii) Under the Minamata Convention, Governments have agreed to either ban production, import and export or phase down (dental amalgam) by 2020 and as such the project will contribute to meeting Uruguay's future obligations; iii) Although the products are very different in nature, they can (in comparison) be relatively easily treated/decontaminated using the same technology; iv) Considering these type of products are easily recognizable by the general public and are not incorporated into other equipment (e.g. light switches in refrigerators) the establishment of separate waste streams – in comparison – is relatively easy to establish; v) These products present most likely the general public's most direct exposure to Mercury emissions, which

[23] http://www.unep.org/newscentre/default.aspx?DocumentID=2702&ArticleID=9373

[24] An economic and political agreement among Argentina, Brazil, Paraguay (which is currently suspended), and Uruguay to promote the free movement of goods, services and people among member states. Mercosur's primary interest has been eliminating obstacles to regional trade, such as high tariffs and income inequalities

[25] UNEP/BCCC LAC "*Guidance on Best Industrial Practice in the Chloralkali sector*"

[26] Not (for now): Mercury containing batteries, Hg containing High Intensity Devices (HID), etc. Once the project has established sufficient experience and expertise, the scope of the LCM of Hg containing devices might expand beyond the products listed above.

could be reduced and controlled by switching to alternative cost-effective available technologies; vi) Among the range of Hg containing products, these can be considered the "*low hanging fruits*" where considerable progress can be made in the most cost-effective manner.

Although quantities are estimates, current "*stockpiles = spent, phase-out or discarded Hg containing products in interim storage*" are estimated to comprise: ~ 230,000 thermometers kept at LATU representing potential Hg emissions of approximately 230 kg Hg; thermometer stockpiles kept at Tienda Inglesa, representating potential Mercury emissions of about 5 kg; while model healthcare facilities are estimated to hold an average of about 11 kg of Hg (with hopital de Clinicas holding ~ 48 kg Hg). In addition UTE, as well as other large public and private institutions/entities have been storing Hg containing wastes, in particular CFLs and tubes, awaiting final disposal/treatment solutions.

The *National Energy Efficiency Programme* in Uruguay is promoting the use of energy efficient light sources. As a result, the importation of Hg containing lights will continue to grow over the years to come and, while reducing energy demand for lighting, this will result in a growing mercury containing waste stream. A regulation on Efficient Lighting Labeling (which aims to ensure that only products with minimum efficiency requirements are allowed into the country) has been recently put in place. As per DINAMA guidance, such a regulation based on EU RoHS directives, could go hand in hand with a very similar regulation on maximum Hg levels in efficient lights.

The government is currently also formulating policies and regulations with respect to Electronic and Electrical Equipment Waste (EEE). Certain mercury containing products and their wastes (e.g. CFLs) will be considered as EEE waste under this law, providing addition incentives for their sound management.

Based on previous experience with the phase-out of mercury containing medical devices (thermometers and sphygmomanometers), the project and its national partners are very keen to initially focus project efforts on putting in place sustainable solutions for the final treatment/disposal of mercury containing products (e.g. treatment, decontamination, disposal, storage) before starting to undertake wide-spread awareness raising geared towards the general public. In the past, premature awareness raising has lead to the accumulation of discarded products, when no fitting temporary storage facilities or disposal options were in place, resulting in a disillusioned public, inadequate disposal of Hg containing wastes and interim storage locations that have turned into long-term storage facilities. Current "stockpiles" of Mercury containing spent products kept on premises of project partners are thus large that initial operation of a treatment/decontamination facility can be assured, without necessitating an additional influx of waste.

The GEF contribution will enhance the country's capacity in the following aspects:

i) Strengthening the regulatory and policy framework[27] to allow for life-cycle management of mercury containing products and their wastes, among else by developing and putting in place national regulations and degrees:
    a. Banning the importation of high-level Hg content energy saving lights (as per EU RoHS directives), promoting a shift to better quality and lower Hg content light sources.
    b. Development of a "phased" ban on the importation of Mercury containing medical devices (thermometers and sphygmomanometers).
    c. Banning the import of elemental Mercury for the preparation of dental amalgam (promoting a shift towards the use of prepackaged dental amalgam capsules ad ultimately towards Hg-free alternatives.

ii) Provide technical assistance for the preparation of a National Plan for the phase-out of Mercury-containing medical devices as well as development of guidelines for the sound procurement, cleanup and temporary storage of Mercury waste in the Health Care Sector.

[27] Ensuring consistency with the General National Waste Law (expected to be approved end of 2012) and the WEEE and Hazardous Waste (HW) legislative framework (under development).

iii) Enable the development and implementation of Extended Producer Responsibility (EPR) for energy efficient lighting, to ensure adequate financial sources to cover the storage, decontamination and disposal of past and future importation of Hg-containing lamps.

iv) Build the necessary technical capacity and infrastructure for the installation and operation of a (pre-) treatment/decontamination and disposal facility, that will allow the treatment/decontamination of CFLs, tubes, Mercury-containing thermometers and sphygmomanometers.

Note: At the time of project preparation it was uncertain which technology/process would be selected for treating Hg wastes. Therefore throughout the ProDoc we will refer to a "treatment/decontamination facility."[28]

v) Establishing/upgrading an intermediate storage facility to serve the treatment/decontamination facility (for storage of Hg-containing wastes prior to treatment) as well as identify options for long-term storage of recovered elemental Mercury (the latter only applies if the selected treatment process will recover elemental Mercury).

vi) Build the technical and operational capacity of PCTP as well as private sector operators, in managing, running and operating the treatment/decontamination facility according to health and safety norms.

vii) Build the technical capacity of private sector operators in soundly managing the various stages (collection, transport, interim storage, decontamination, and final disposal) of Mercury-containing waste products as well as recovered elemental Mercury.

viii) Build the technical and research capacity of both PCTP and CIAT in undertaking bio-monitoring of risk-populations and control groups, for the purpose of monitoring the safe operation of the treatment/decontamination facility, awareness raising (in particular for healthcare and dentistry professionals) as well as publication of research findings in support of the implementation of the Minamata Convention.

ix) Provision of technical assistance to 10 - 12 model health-care facilities in phasing out the use of Mercury-containing medical devices (thermometers and sphygmomanometers) and introducing best practices related to the cleanup and temporary storage of Mercury waste at facility level.

x) Conducting staff-preference studies to facilitate the voluntary transfer to Mercury-free alternatives.

xi) Provision of technical assistance to dental facilities, which are an integral part of selected model healthcare facilities to introduce best and cost-effective practices related to staff protection and improved waste management practices. If the bio-monitoring results in combination with awareness raising proof effective, this might result into an accelerated shift towards the adoption of dental amalgam alternatives.

xii) Allow institutions generating large amounts of Mercury-containing spent products (CFLs and tubes), as well as project model facilities (e.g. health-care and dentist facilities, UTE, LATU, etc.) to dispose of waste in accordance with national regulations, while reducing exposure to their staff resulting from long-term inadequate storage.

xiii) Strengthening national and regional awareness on the Sound Life-Cycle Management of Mercury containing products as well as associated health hazards resulting from mismanagement.

[28] During the preparation of the PIF and PPG phase, quotes and technical specifications for decontamination technologies that meet Basel Convention requirements and have a capacity that fit national needs, have been solicited to help draw up the project's budget.

xiv) Allow Uruguay to eliminate at least 330 kg of Mercury throughout the duration of the project. As a result of changed practices the project will also result in sustained Mercury reductions of approximately 72.5 kg/Hg/year.

xv) Allow other Latin-American countries as well as small and medium income countries worldwide, who anticipate ratifying the Minimata Convention and aim to improve the management and treatment of Mercury containing products and their waste, to learn from Uruguay's experiences and lessons-learned.

The proposed project is consistent with the GEF-V Strategy for Mercury programming. In particular the project will support activities consistent with the issue areas as included in GEF-V Strategy for Mercury Programming: Reducing Mercury Use in Products; Enhancing Capacity for Mercury Storage; Reducing Atmospheric Emissions of Mercury; Improved Data and Scientific Information at the National Level; and, Enhancing Capacity to Address Waste and Contaminated Sites.

Project objective

Minimize and reduce Mercury releases originating from the intentional use of mercury in products (thermometers, sphygmomanometers, dental amalgam, CFLs and tubes) and the unsound management and disposal of such products in Uruguay, in order to safeguard human and environmental health at the local, regional and global level.

The Ministry of Housing, Land Use Planning and Environment (MVOTMA) of Uruguay as the Implementing Partner is the entity responsible and accountable for managing the project, through its National Environment Directorate (DINAMA). The sub-national environmental authorities will play an important role in the project implementation.

Project components, outcomes and outputs

The project is made up of 4 inter-linked components with associated outcomes and outputs, as well as a component for monitoring, learning, adaptive feedback, outreach and evaluation (Component 5). Further details on the project activities are described below. A summary of project activities, major risks and assumptions as well as indicators for success are presented in the Project Results and Resources Framework (Section VI).

The order in which components are to be implemented (installation of the treatment/decontamination facility having priority) is not necessarely reflected throughout this section, and is best deducted from the Annual Work Plan. For example, Component 1 and 3 will be launched as soon as the project starts implementation.

<u>Component 1</u>: Strengthen the regulatory and policy framework to allow for life-cycle management of mercury containing products and their wastes (Total Budget: 428,000 US$, GEF contribution: 80,500 US$, Co-financing: 347,500 US$)

Expected outcomes and outputs:

A. National Extended Producer Responsibility (EPR) policy and regulations for mercury containing products adopted and introduced.

A.1 National EPR policy and regulations for Hg-containing light sources developed.

A proposal for the EPR of Hg-containing light sources (CFLs and tubes) will be developed according to existing EPR regulations (car batteries and pesticides containers) and in line with the Efficient Lighting Labeling regulation. EPR regulations will provide financial resources (e.g. through import or sales taxes), for the future disposal of discarded products as well as a percentage of the disposal of products that were put on the market before the regulation came into force. Depending on the

anticipated timing of the drafting and approval of the General Waste Law, EPR regulations will be either drafted under the current Hazardous Waste Law and migrated once the new General Waste Law will be adopted, or developed under the framework of new General Waste Law if already in place.

B. Strengthened policy and regulatory framework to enable the phase-out/down of mercury containing products and encourage Hg-free or low Hg content products.

B.1 National plans/strategies for LCM of Hg containing products and their wastes (for priority sectors) revised and finalized.
B.2 National phase-out plans/strategies for priority Hg containing products developed.
B.3 National (import) standards on max. Hg content in products and wastes (BC) developed.

A draft national plan on the LCM of light products (CFLs and tubes) has been developed under the previous SAICM project. The project will revise the plan in light of planned project activities and facilitate its adoption. The plan will also include guidelines for the management, storage, collection and disposal of CFLs and tubes for large public and private entities in line with the new Electronic and Electrical Equipment Waste (EEE) policies and regulations, which are being formulated. *RoHS directives will be transposed into national regulations through a degree to restrict importation of high content lamps (CFLs and tubes).*

A national plan for the LCM of Hg-containing medical devices and dental amalgam will be developed, including a phased approach for the replacement of Hg-containing medical devices. Guidelines on the management of mercury waste at hospital level (including dental clinics) will be reviewed and revised based on international best practices. An MSP degree prescribing a phased approach for the phase-out of Hg-containing devices in the health-care sector will be developed and combined with a MSP degree prohibiting import of Hg containing medical devices developed (coming into place based on an agreed upon phase-out scheme).

C. Improved enforcement of and adherence to the sound collection, temporary storage, pre-treatment, decontamination and disposal of products containing mercury.

C.1 Development and implementation of guidelines and legal provisions with respect to the sound collection, temporary storage, decontamination and disposal of products containing mercury.

To ensure that entities involved in the collection, temporary storage, decontamination and disposal of products containing Mercury (and the storage of elemental mercury), adhere to international best practices (Basel Convention) related to the sound management of Mercury containing products, existing (hazardous waste) regulations will be reviewed and revised if necessary.

<u>Component 2</u>: Development of environmentally sound schemes and business models for the collection, treatment and disposal of mercury wastes (Total Budget: 1,679,500 US$, GEF Contribution 204,500 US$, Co-financing 1,475,000 US$).

Expected outcomes and outputs:

A. Mercury releases from priority sectors reduced and segregated Hg containing waste streams augmented.

A.1 Capacity of 13 - 15 model entities and the general public built on the LCM of Hg containing products and their wastes.
A.2 Phase-out and phase-down of mercury containing products through introduction of best practices and Hg-free/low Hg alternatives.
A.3 Conduct a study on staff preferences on cost-effective Hg-free alternatives at model HCFs and subsequently provide training on the use of Mercury-free medical devices.

The project will work with 13 - 15 project model facilities (including 10 - 12 healthcare facilities and their dentistry department as well as 3 large public/private entities with significant use of Hg containing light sources). The project will support each model facility in setting up a waste

management committee, which supported by the project will conduct detailed Hg baseline assessment for its own model facility to assess the procurement, use, management, storage, clean-up and disposal of Mercury containing wastes. For each of the model facilities, a plan for the management, storage and collection of Hg containing waste (in particular waste streams that will not be phased-out as part of the project such as CFLs, dental amalgam) and phase-out of Mercury will be drawn up, based on the national guidelines for the management of mercury waste as develop/revised as part of Component 1. Mercury Management and phase-out plans will be implemented at each of the facilities by the waste management committees while training of model facility personnel in the sound LCM of Hg containing wastes and waste products will be carried out. Each of the project model facilities will become part of the collection network as developed under component 3, for future disposal of Hg containing wastes.

The project will undertake a study on staff preferences for cost-effective Hg-free alternatives for Hg containing medical devices. Each of the healthcare model facilities will be invited to participate and based on the results of the study and individual model facility preferences, healthcare facility procurement plans will be adjusted and selected Hg-free alternatives will be introduced at the facilities by adapting existing procurement practices. Costs for treatment/decontamination and disposal of phased-out Mercury containing medical devices (not CFLs/tubes), as part of project efforts will be covered by the project only during the initial testing phase of the retorting facility and only for the model healthcare facilities. Once the treatment/decontamination facility is operating on a cost-recovery basis, disposal costs will have to be born by the disposer. This will be an incentive for model facilities to dispose of their stockpiles early on in the project. For other model facilities participating in the project, disposal costs for stockpiles will be covered through cash co-financing provided by the stockpile holder.

Initially the project will focus on establishing the treatment/decontamination facility. When operational, existing stockpiles held by project model facilities will be decontaminated at the facility. Once cost recovery arrangements (through EPR regulations) have been put in place, and the collection, interim storage, decontamination and disposal of existing stockpiles have been tested and proven successful, will the project start with awareness raising activities targeting the general public. Public awareness raising will be pursued through a partnership with UTE, which will provide for collection points at UTE branches throughout the country and print messages on the electricity bills to make customers aware of disposal options, as a co-financing contribution to the project.

B. Business models and cost recovery arrangements (CRA) for the collection, transport, temporary storage and treatment of different types of Hg wastes operational and financially sustainable.

- B.1 Development of a detailed business plan for the operation of the treatment/decontamination facility and associated logistics and management arrangements.
- B.2 CRAs for the collection, transport, temporary storage and treatment of different types of Hg wastes assessed and put in place.
- B.3 Private Sector capacity built for various stages of Hg LCM.
- B.4 Business operations for LCM of Hg containing products launched.

To ensure long-term financial sustainability of the operation of the treatment/decontamination facility and associated logistics, PCTP/Pando will develop a detailed business plan for the operation of the treatment/decontamination facility, associated logistics (including production and collection of packaging boxes based on AmbiLamp designs) and management arrangements.

EPR regulations, developed *as part of Component 1 will allow cost-recovery arrangements (CRA) for the disposal of CFLs and Tubes to be put in place. CRAs will need to cover costs related to the disposal of lamps that will be imported in the future, but also have to cover costs for the disposal of lamps currently in use (as per the best practice of AmbiLamp in Spain). The project will carry out an assessment of various CRAs, calculate tariffs for (import/sales) and propose ways in which such taxes are to be channeled to benefit disposal operations (e.g. directly to PCTP/Pando – as it hosts the decontamination facility and is partly a state entity).*

Although some of the private sector entities that have expressed an interest in participating in the collection, transport, temporary storage and treatment of different types of Hg wastes, have some

experience this area, further training will be conducted in line with the guidelines for Hg management as developed under Component 1. If training is completed successfully, the entities have proven that in practice they are able to meet required standards, and bidding procedures for private sector operators have been finalized, business operations will be launched.

Note: Initially private sector operators will be renumerated by the project through payments originating from co-financing contributions sourced from stockpile holders. After CRAs become operational, operators will start receiving payments originating from taxes.

<u>Component 3:</u> Strengthening technical capacity and infrastructure for the (pre-) treatment, decontamination and storage (medium – and long- term) of Mercury containing wastes (Total Budget: 1,410,260 US$, GEF Contribution 627,500 US$, Co-financing 782,760 US$).

Expected outcomes and outputs:

A. (Pre-) treatment/decontamination technology to treat collected Hg containing product waste established.

A.1 Assessment of technology needs conform to national needs and Basel guidelines completed.
A.2 Technology and site specifications determined.
A.3 Technologies procured and made operational.
A.4 Testing and trials completed.
A.5 Facility workers and operators trained.
A.6 Scenarios for technology transfer analyzed and optimum scenario implemented.

Procurement, installation and operationalization of the treatment/decontamination technology are the project activities that will be launched the soonest to ensure that other project components can make use of the infrastructure put in place.

When project implementation starts, technical specifications – based on the business plan prepared by PCTP/Pando (see Comp. 2 B.1) will be drawn up the soonest, in order to launch international procurement procedures.

Preferably, ownership of the technology would be transferred to the national project partners the soonest (in this case PCTP), to avoid that the technology is being operated under "UNDP ownership." Considering PCTP will be hosting the technology, PCTP will ensure an EIA has been completed and construction permits are in place before technology installation commences and operating permits are in place before testing and trails are started. PCTP will develop and implement operating procedures for the various aspects related to the operation of the facility and subsequently train private sector operators and PCTP staff in the safe operation of the treatment/decontamination facility.

Once commissioned, testing of the facility will be conducted using available Hg containing stockpiles. Funding for the disposal of these stockpiles will be provided as co-financing to the project by stockpile holders.

B. Intermediate Hg storage options established and long-term storage options identified.

B.1 Intermediate and long-term storage and disposal options assessed.
B.2 One medium term Hg storage facility to service the treatment/decontamination facility established/upgraded.
B.3 Safe interim storage spaces for Mercury containing products made available/established at each model facility.
B.4 Operational procedures developed and implemented for the management of storage facilities/spaces.
B.5 Long-term storage option(s) for recovered elemental Mercury established *(if applicable – depends on the treatment/disposal technology selected)*.

B.6 Private sector operators, PCTP and model facility staff trained in the safe management of Hg storage spaces.

An assessment for short-term, interim and long-term storage and disposal options will be conducted as part of the project.

Each model facility will require a proper storage space, which meets BC and national guidelines (including Hg monitoring) as developed under the project, and have at its disposal sufficient packaging material[29] that allows for safe storage to minimize breakage and facilitate collection.

Although PCTP has a storage space available that could potentially function as an interim storage for Hg containing wastes between drop-off and treatment/decontamination, an assessment has to be conducted to determine what type of improvements have to be made so that the storage space meets BC and national guidelines (including Hg monitoring).

Long-term storage options for elemental Mercury (and potentially dental amalgam) that will be recovered as part of the project will also need to be assessed, but only in the situation that a treatment/decontamination technology would be selected which recovers elemental Mercury.

Finally, solutions for the disposal of decontaminated waste have to be identified.

Note: As part of A.3; B.2 and B.3 regular environmental monitoring (air, water/leachate and soil) will also be conducted and made part and parcel of the operation of the treatment/decontamination facility as well as interim and final storage facilities, to verify that Mercury levels remain indeed below Maximum Allowable Concentrations.

<u>Component 4:</u> Strengthening national and regional awareness on the Sound Life-Cycle Management of Mercury containing products as well as associated health hazards resulting from mismanagement (Total Budget: 383,000 US$, GEF Contribution 183,000 US$, Co-financing 200,000 US$).

Expected outcomes and outputs:

A. National capacity to monitor Mercury levels in populations strengthened.

A.1 Technical specifications for PCTP and CIAT (MSP) bio-monitoring laboratory equipment prepared.
A.2 Procurement of laboratory equipment and reagents.
A.3 Protocol for sampling and analysis of Hg in water/leachate, soil, air and biological samples developed.
A.4 PCTP/CIAT personnel/staff trained in sampling and conducting analysis.
A.5 Samples for "population-at-risk" study obtained and analyzed by PCTP/CIAT. Results interpreted by PCTP/CIAT and published in scientific journal.
A.6 Environmental and bio-monitoring programme launched for all model facilities.

With a few minor technology adaptations in their laboratory department, in addition to air, water and soil samples, PCTP would be able to analyze Hg content in biological samples. Although CIAT does not have the equipment to perform Hg analysis in air/water and soil media, it would be necessary for the population-at-risk study and future safeguarding of healthcare facility personnel, that CIAT would have the capacity to analyze Hg content in biological samples. The project will therefore provide the necessary technology and equipment to PCTP and CIAT to enable them to conduct analysis of Hg levels in biological samples.

Within the scope of the project, PCTP will monitor Hg levels in air, water and soil at the interim storage and decontamination facility as well as Hg levels in operators and staff involved in the management of the decontamination facility. CIAT will support the analysis of bio-samples as part of the population-at-risk study, in particular the segment focusing on staff working at model facilities in the healthcare sector.

[29] It is anticipated that packaging and collection materials developed in Spain for the Ambi Lamp initiative will be re-produced in Uruguay with consent from Ambi Lamp.

The "population-at-risk" study will be supported by both CIAT and PCTP (similar to the approach they have taken in the past for a study on lead). CIAT would be engaged for the design of the sampling study and questionnaires, conduct the sampling at healthcare facilities and support the interpretation of study results, while PCTP/Pando will obtain and analyze air/water/soil samples in the vicinity of the interim storage and treatment/decontamination facility while also monitoring Hg levels in operators and staff involved in the transportation of Hg containing waste and management of the treatment/decontamination facility. Both PCTP and CIAT will manage obtained data, support interpretation of study results and publish research findings in scientific journals.

Finally, regular monitoring of interim storage facilities and staff working at project model facilities who regularly come in close contact with Hg containing wastes, will also be conducted as part of the projects, to ensure that Hg level remain well within safety margins.

B. Awareness on LCM of Mercury containing products increased among project stakeholders, the general public and countries at regional and global level.

B.1 Website, Facebook and Twitter page developed and regularly updated containing all relevant project related information and documentation (in Spanish and English) to ensure that Lessons-Learned (LL) and best practices are disseminated at national, regional and global level in partnership with BCCC LAC.
B.2 Side event organized at a chemicals-related COP (Basel, Minamata) to present project results and lessons-learned.
B.3 Video on the LCM of Mercury management produced at the end of project implementation and posted on YouTube.

At national level, publication and dissemination of the population study results are expected to support project activities in accelerating a shift towards the introduction of best practices for dental amalgam management, phase-out of Mercury containing devices in the health-care sector and introduction of best practices related to the handling, storage and disposal of CFLs and tubes.

The dissemination of project results at national, regional and global level will be assumed by BCCC LAC. Practical experiences and scientific results published by DINAMA, PCTP, MSH/CIAT and UTE on the introduction of life-cycle management of Hg containing products in Uruguay (detailing each of their stages), are expected to be an invaluable contribution to other small size countries trying to tackly national challenges pertaining to the LCM of Hg containing products, in particular in light of the new Minamata Convention.

Such information might be related to the introduction of regulatory measures at national level; commissioning, testing and operation of the decontamination facility; practicalities related to the collection, storage, and final disposal; results of Hg monitoring; and, the introduction of best practices at model facilities.

<u>Component 5:</u> Monitoring, learning, adaptive feedback, outreach and evaluation (Total budget US$ 108,000, GEF budget 58,000 US$ and co-finance US$ 50,000)

Expected outcomes and outputs:

A. Project results sustained and replicated.

M&E and adaptive management applied in response to needs, MTE findings and LL extracted. The activities include the preparation of quarterly and annual project progress reports as required by the GEF and UNDP (including PIRs). In lieu of a mid-term evaluation (as this is an MSP) the project will opt for a mid-term technical review rather than a mid-term evaluation. Finally, the project will also carry out a final evaluation by an independent expert (for more information on this component please refer to the M&E work plan and budget in Section IV).

Key indicators, risks and assumptions

The overall risks and risk mitigation measures that will be applied throughout the project's implementation are presented in Annex I "*Risk Analysis and Risk Monitoring.*" A detailed description of assumptions organized by project activity can be found in section VI (*Project results and resources Framework*).

Project indicators are related to expected performance achievements and on the fulfillment of desired outcomes that lead to meeting the project goals and objectives in reference to: a) Strengthen the regulatory and policy framework to allow for LCM of Hg containing products and their wastes, b) Development of environmentally sound schemes and business models for the collection, treatment and disposal of mercury wastes, c) Strengthening technical capacity and infrastructure for the (pre-) treatment/decontamination and storage (medium and long-term) of Hg containing wastes and d) Strengthening national and regional awareness on the Sound LCM of Hg containing products as well as associated health hazards resulting from their mismanagement.

Cost effectiveness indicators for the decontamination of Hg containing devices have not yet been established, considering this project proposal is among one of the first Mercury projects financed by the GEF and the GEF-V cycle is a pilot cycle for Hg projects. That said, the project will help determine the costs per kg of Mercury recovered and stored (based on total disposal/storage achieved by the project and total funding (GEF + co-financing) provided to the project). In addition the project will attempt to calculate the average costs for the environmentally sound disposal of Hg containing medical devices and the average costs for environmentally sound disposal of Hg containing lamps (tubes & CFLs). The outcomes of such cost estimates will help other countries in the development of Mercury related disposal and decontamination programmes. Results will also be compared with costs as experienced in developed countries where decontamination programmes are already in place and data is relatively easily accessible (e.g. Spain).

Project consistency with GEF strategic priorities and operations program for POPs focal area identified in GEF V.

Please refer to corresponding GEF project PIF and the GEF CEO Endorsement request document.

Incremental reasoning and expected global, national and local benefits

To date, Uruguay has undertaken important efforts to complete Mercury release inventories from main sources (industry, consumer products, healthcare, etc); undertook a preliminary assessment of temporary, medium and long-term storage sites as well as treatment options; completed a review of its regulatory framework and developed guidelines for the management of Mercury wastes in certain sectors (healthcare, chlor-alkali industry, etc.). These efforts clearly show Uruguay's continuous commitment to address the challenges it faces with respect to Mercury management.

However, because options for the sound management, collection, transport, storage and treatment of mercury wastes at national level are currently lacking, and there are no policy or regulatory incentives in place to transition to Mercury-free or low-Mercury alternatives, efforts so far have only resulted in a fraction of the mercury release reductions that could be achieved.

It is for this reason that funding from the Global Environment Facility (GEF) is critical to act as an "agent of change" to assist Uruguay in achieving a tipping point where the phase-out and sound management of mercury wastes becomes technically and economically feasible. Without GEF funding, it is very likely that unsafe practices related to Hg-containing medical devices, Hg-containing lamps and dental amalgam would prevail, putting the environment and human health at risk, in particular those people who handle such products frequently.

Funding provided by the GEF will enable Uruguay to transition away from current practices and provide tangible experiences and lessons-learned to countries facing similar challenges – especially those in the region, providing encouraging experiences for the implementation stage of the Minamata Convention.

GEF funding will also result in significant Mercury release reductions at national level (330 kg Hg over the duration of the project). In addition, changed practices will also result in sustained Mercury reductions of approximately 72.5 kg/Hg/year, releases which otherwise would have been added to the "global pool" of mercury, putting environmental and human health at risk at national, regional and global level.

Reducing mercury in products has been put forward as the most effective means to decrease atmospheric emissions of mercury from waste streams. By restricting the import of Hg-containing medical devices and high-content Hg lamps, effort in Uruguay will contribute to a global consumer push to encourage manufacturers to reduce Hg content in their products, or entirely eliminate it, resulting not only in national benefits but also global benefits.

Another important national benefit is the experience and capacity gained by project stakeholders in developing and adopting best practices and implementing procedures and practices related to the sound management of a toxic/hazardous substance. The overall approach and tools developed and implemented throughout the project can with modifications be utilized for other problematic chemicals.

Finally, major project beneficiaries will be the entities that currently store large amounts of Hg containing waste products and are unable to dispose of them in a cost-effective manner and in-line with national regulations. The project will provide them with a cost-effective option for disposing of such wastes.

The proposed project is regarded as a natural continuation of previous initiatives. Activities proposed as part of this project which will be supported with GEF funding can be considered entirely complementary.

Country ownership, country eligibility and country driveness

The Government of Uruguay (GoU) has been a strong advocate for the global, legally binding *Minamata Convention on Mercury* that was agreed in January 2013 and which will be open for signature at a special meeting in Japan in October 2013. The GoU is expected to sign the Convention at that particular event. The GoU has been chairing all the International Negotiation Committees for its elaboration and also hosted the fourth session of the Intergovernmental Negotiating Committee - INC4 (27 June to 2 July, 2012). It is expected that the treaty will come into force with the next three to five years and considering the commitment the GoU has shown during the Convention's preparatory phase, it is anticipated that the country will be dedicated to achieving its commitments under the Convention.

To date, several initiatives and activities with the objective to assess and improve the management of Mercury and Mercury containing wastes have been undertaken. Uruguay conducted a National Inventory on Mercury Releases in October 2011 (for inventory findings, please refer to section I - Baseline Analysis) In addition the GoU has also supported other Mercury related initiatives, such as the phase-out of Hg-containing devices in hospital de Clinicas (as part of a USAID/USEPA initiative), a review of best practices for Mercury containing products (part of a SAICM/UNEP/BCCC-LAC project), implementation of guidance on best industrial practices in the Chloralkali Industry (part of a UNEP/BCCC-LAC project) and regional initiatives on storage and final disposal of Mercury and Mercury containing wastes (UNEP/BCCC-LAC and USEPA/Norway/BCCC-LAC). The GoU also co-leads the "supply and storage" technical committee of the UNEP Global Mercury Partnership.

The development of the Hg inventory and participation in national and regional initiatives pertaining to the sound management of Mercury is a clear indication of the GoU's commitment to address national issues related to Mercury management.

Uruguay's environmental authorities are also committed to improving Hg management. From a regulatory perspective, the Hazardous Waste Law in place (law 17.220/1999) has already transposed the Annexes of the Basel Convention and refers in specific to hazardous waste streams including wastes containing mercury. The General Waste Law, which is currently under development, will also make reference to particular waste streams of concern, including Mercury waste.

Finally, larger public and private entities that generate a significant volume of Hg containing product waste are relatively well aware of their legal and environmental responsibilities to properly manage and dispose of their Hg containing wastes. However, because there are currently no solutions for the treatment/decontamination and final disposal of such wastes, the sector is expectant of the government to provide them with the necessary guidelines and technical alternatives for Hg management and disposal.

Financial modality

The project will be applying the National Implementation Modality (NIM) and will follow standard UNDP rules and regulations.

Cost effectiveness

The proposed project will be cost effective in achieving its objectives because of several aspects. It will build upon previous efforts aiming to improve the sound management of products containing Mercury (see Section I - Baseline Analysis) as well previous projects implemented in the country/region that are related to Hg waste management (see GEF PIF – Section B.5.).

As part of a UNEP/BCCC-LAC "Bi-national project on storage and final disposal of Mercury" an assessment of the situation in Uruguay and Argentina indicated that the most cost-effective solution for disposing of Mercury containing products was to treat/decontaminate such wastes at national level, as compared to interim storage, or shipment abroad. As such the proposed approach by this project is deemed the most cost-effective.

The small size of the country unfortunately limits opportunities for economies of scale. However the project will select a treatment/decontamination facility scale that fits current and future Hg waste streams, to guarantee that the capacity of the facility is consistent with the country's requirements (now and in the future) in order for operating and treatment costs to be kept at a minimum. In addition, the project will develop financially sustainable business models that opt for the most cost-effective solutions for the sound collection, storage, transportation, treatment and disposal of mercury wastes. The project will also put in place financial incentives in combination with regulatory measures to cover the operational costs to ensure life-cycle management of Mercury containing products.

At national level private and public sector entities are present that have demonstrated and expressed an interest in managing and operating technologies and processes for the treatment of products containing Mercury. Based on incremental cost reasoning, GEF funding will be applied as seed capital to enable the project to purchase financially viable technologies and allow these entities to operate these technologies (and when sufficiently tested ownership will be transferred to them) and provide solutions at national level for Hg decontamination. As such funding provided by the GEF can be deemed exclusively incremental.

Laboratories (e.g. PCTP/Pando) and institutions (CIAT) that will be involved in the project's implementation already have experience in monitoring heavy metal emissions and as such only require incremental support to strengthen capacity to a level necessary to ensure regular Mercury monitoring.

The financially viable operation of the technologies, which will be provided through the project in combination with capacity building, will allow for the safe handling and disposal of Mercury containing wastes on a national scale and will be the basis for Uruguay's long term treatment and disposal for Mercury containing products. At the same time new regulatory measures will minimize the amount of Mercury used in products by restricting their imports in various ways – ultimately deemed the most cost-effective approach.

All in all these efforts combined will reduce the burden of Mercury exposure on human health and the environment both at national and international level, in turn reducing costs related to abatement activities, healthcare costs and other socio-economic costs resulting from Mercury exposure and pollution.

Sustainability

Reducing mercury in products has been put forward as the most effective means to decrease atmospheric emissions of mercury from waste streams. For most mercury containing products, cost-effective mercury-free or low content mercury alternatives do exist[30]. This is the reason why the project, through Component 1 will support the development of a national (import) standard on maximum content of Mercury in light sources (CFLs and tubes) and a MSP degree prescribing a stepped approach towards the phase-out of Hg-containing devices in the health care sector. This will be followed by the implementation of a MSP degree

[30] Commercially cost-effective alternatives for mercury in batteries and lamps are still needed, while many developing countries state that alternatives to dental amalgam are not yet cost-effective to meet the needs of their expanding healthcare systems.

prohibiting import of Hg containing medical devices when alternatives have been introduced and options for final disposal are available.

Restricting the import of high-content Hg-containing efficient lights and phasing-down and prohibiting the import of Hg-containing medical devices, will significantly reduce the amount of Mercury coming into the country which ultimately ends up in the atmosphere. It also encourages industry abroad to increase production and design of low content or Mercury-free alternatives. When the project comes to an end, the benefits of project efforts will continue to last.

Further Mercury emission reductions can be achieved with appropriate waste handling and recycling practices in order to retain mercury before it is released into the environment (Strategy for Hg programming in the 5th replenishment period of the GEF). This is why the project will provide technically sound technologies for treatment/decontamination.

However, running such a facility beyond the timeframe of the project, requires the establishment of financially feasible business models and economic incentives sufficient to cover the costs associated with the collection, transportation, interim storage, treatment and disposal of Hg containing products throughout the lifespan of the decontamination facility.

First and foremost, the project will put in place cost-recovery arrangements (CRA) for the disposal of CFLs and Tubes through the development of Extended Producer Responsibility (EPR) regulations. These will provide financial resources (e.g. import or sales taxes), for the future disposal of discarded products as well as a percentage of the disposal of products that were put on the market before the regulation came into force.

It will be critical for project sustainability that the business plan for the operation of the treatment/decontamination facility and the logistical arrangements related to collection and storage, are worked out in detail. Therefore, the project will carry out an assessment of various CRAs, calculate tariffs for (import/sales) and develop a business plan, which will function as the blue print for Hg waste product disposal in Uruguay.

The main issue with regard to the disposal of Hg containing wastes has been the absence of national disposal solutions and the high cost of exporting of such wastes for disposal abroad. The development of disposal options at national level, the fact that costs for the LCM of such wastes will be covered through EPR and that the capacity of private sector entities involved in the collection, transportation, storage and disposal has been built, will allow entities (in particular large size ones) to comply with existing and future regulations, which currently is not possible. Once the project comes to an end, owners of such wastes will be able to continue independently with the necessary actions to comply with their responsibilities.

Replicability

At international level, information dissemination through a partnership with BCCC-LAC, will allow other countries in and outside of the LAC region, in particular countries of a similar population size as Uruguay, benefit from its experience in putting in place the LCM of Hg containing products.

To the extent feasible, each aspect/step of the process of putting in place the LCM of Hg containing wastes will be documented, with the objective to help provide valuable experiences and lessons-learned for the implementation of the Minamata Convention in other countries. When possible, national project partners will also attempt to publish the results from the population-at-risk study (as well as other scientific findings obtained as part of the project) in scientific research papers.

At national level, replicability will apply to three aspects of the project, i) expanding the range of Hg containing products to be collected/treated/decontaminated; ii) expanding services beyond model facilities; iii) replication of best practices beyond model facilities.

Initially the project will focus its attention on 12 - 15 model facilities to improve the LCM of Hg containing products[31] and support the phase-out of Hg-containing medical devices.

[31] Thermometers, sphygmomanometers, dental amalgam, florescent lights (tubes) and energy efficient light bulbs (CFLs)

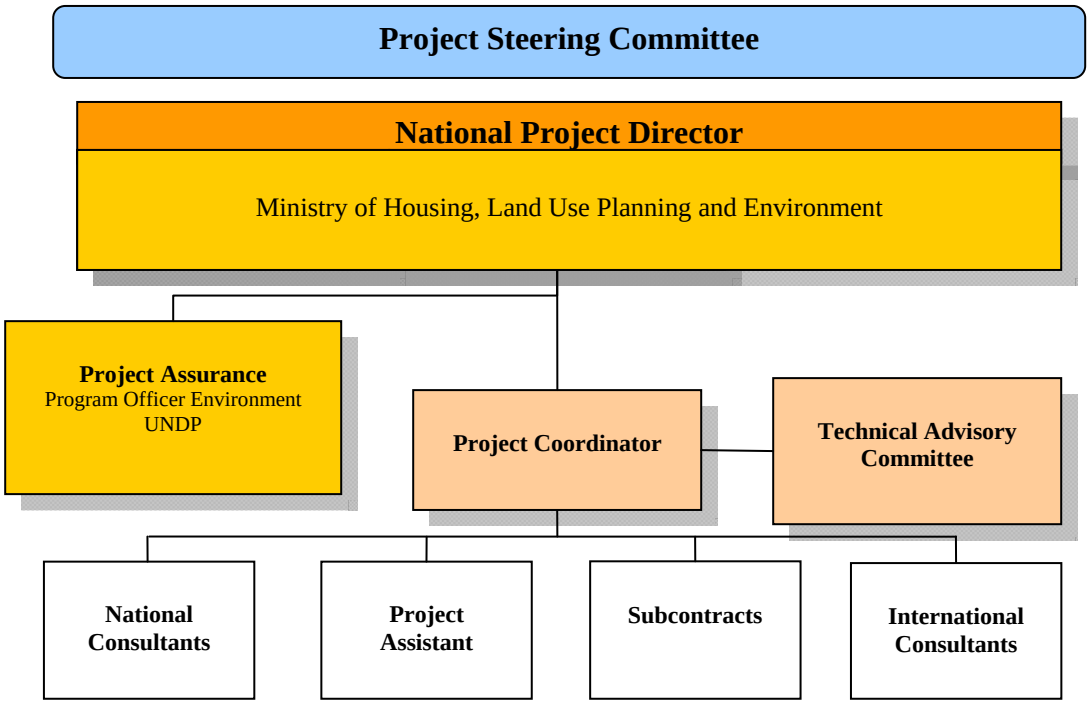
Opportunities for replication therefore include:

i) **Treatment of additional types of Hg containing products, such as High Intensity Devices (HID) and Hg containing batteries**. At first, the project aims to build the confidence of its national partners by ensuring that the LCM of Hg containing products is functioning and successful for a certain number of waste streams, which require similar treatment and handling – before trying to tackle additional types of Hg containing products. When the initial stage has proven successful, additional types of Hg containing products can be considered for treatment.

ii) **Expansion of the collection of CFLs and tubes beyond model facilities and expanding services to the public at large**. Again, the project anticipates to initially put in place a working LCM system for CFLs/tubes focusing on large public and private entities (which manage such items in bulk) before offering the opportunity to do so to the larger public. This to ensure that a working system is in place before taking on the collection and disposal of a more complex and dispersed waste stream and avoid a disappointed public.

iii) **Replication of LCM of Hg containing products beyond the model facilities**. Initially the project will build the capacity of 12 - 15 model facilities and those of private sector operators involved in the LCM of Hg containing wastes. However the objective of the project is to create an enabling environment so that, when the MSP degrees become enacted and EPR for CFLs/tubes is implemented, entities other than the model facilities will be able to benefit from national disposal options, available alternatives and guidance on good practices.

The project, through the BCCC-LAC, its regional partners and its role in the preparation of the Minamata Convention, will be in close contact with similar projects that are being implemented and those that will start implementation throughout the course of this project. The lessons learned from each of such projects will be shared and reviewed in order benefit from GEF supported efforts worldwide.



The project will be executed and implemented through the Ministry of Housing, Land Use Planning and Environment (MVOTMA), under the direct lead of the National Environment Directorate (DINAMA). The project will be implemented in close coordination with the Ministry of Public Health (MSP).

MVOTMA will coordinate the project and head the Project Steering Committee. The other members of this committee will be representatives of the Ministry of Public Health (MSP)/Administration of the State Health Services (ASSE), National Administration of Power Plants and Energy Transmission (UTE) and UNDP-Uruguay.

A Technical Advisory Committee will be established comprising important sector stakeholders (including but not limited to MSP/ASSE, UTE, MIEM, PCTP/Pando, LATU, BCCC LAC, CIAT, CIU, en-lighten initiative, NDA, representatives from project model facilities, private sector operators, efficient lighting distributors, local municipalities, waste and hazardous waste disposal facilities, CSO/NGO representatives, among else.

The Implementing Partner shall designate a Project Coordinator who will be in charge of managing all activities in order to meet project objectives, outcomes and outputs according to the established schedule as put forward in the project document. The project coordinator reports directly to the Project Director, which is the Ministry of Housing, Land Use Planning and Environment (MVOTMA), through its National Environment Directorate (DINAMA). The responsibilities of the Project Coordinator regarding requests for procurement of goods and services, cash advances, direct payments, etc. are specified in the NEX/DIM Project Management Guide (NEX/DIM www.undp.org.uy).

In its role as GEF Implementing Agency (IA) for this project, UNDP shall provide project management services as defined by the GEF Council. Upon request by the Government of Uruguay, UNDP will provide such project services (procurement of goods and services) specific to project inputs according to UNDP rules and procedures as set forth in UNDP Finance and Administration programming manuals. The Implementing Partner may refer to the local standards as specified in the NEX Project Management Guide (NEX www.undp.org.uy).

In accordance with GEF Council requirements, the costs of these services will be part of the executing entity's Project Management Cost allocation identified in the project budget. UNDP and the Government of

Uruguay acknowledge and agree that these services are not mandatory and will only be provided in full accordance with the UNDP policy on direct cost recovery.

As provider of the funds for this project, the GEF logo will appear on all project related publications. Any quote appearing in publications must also acknowledge the GEF's participation. The UNDP logo will be more visible and separate from the GEF logo, if possible, since for safety reasons UN visibility is more important.

The UNDP office will ensure that all contracts for consultants, purchase orders and contracts for services companies, comply with UNDP rules and procedures. In those cases where the UNDP Resident Representative signs the contracts mentioned, UNDP will participate in the selection and hiring processes. The UNDP office will ensure that all contracts for consultants, purchase orders and contracts for services companies, comply with UNDP rules and procedures. In those cases where the UNDP Resident Representative signs the contracts mentioned, UNDP will participate in the selection and hiring processes. UNDP also may provide advances of funds to the project for purchasing and payments of small amounts, make direct payments claimed by the project and maintain accounting and financial control of the project.

Project authorities will carry out the procurement and contracting of service companies for amounts less than US$ 5,000 and may request fund advances to make payments for these purchases and contracts. To perform these operations, it is agreed that rules and procedures contained in the Project Management Guide for NEX are applied and followed. For purposes of convenience, the Implementing Partner may conduct procurement and contracting following national rules and procedures, however this should coordinated with UNDP in advance.

For payments corresponding to procurement of consultants (and buy if applicable) under the project, the Implementing Partner (DINAMA-MVOTMA) will act as withholding agent of IVA, which will be financed by DINAMA-MVOTMA.

In accordance with the decisions and directives of UNDP's Executive Board reflected in its cost recovery policy, the contribution will be subject to cost recovery by UNDP for two different categories of costs related to the provision of support services, namely:

- As a General Management Services (GMS) USD 99,980 as agreed with the GEF for this type of project, outside of the project budget.
- According to the Universal Price List in respect of direct costs incurred by Services Implementation Support (ISS) included in the project budget and specified in the PMC allocation (http://www.undp.org.uy/docs.asp).

Ownership of equipment, supplies and other property financed with the contribution shall be granted to UNDP. The issues related to the transfer of ownership by UNDP shall be determined in accordance with the policies and procedures of UNDP.

The contribution shall be subject exclusively to the internal and external audit required by the rules, regulations and financial directives of UNDP.

The Annual Budget shall appropriately reflect project activities under the Annual Work Plan. UNDP will hold two budget review exercises (from March to May and October to December of each year), in order to adjust the budget according to the estimated performance for the year. Financial adjustment revisions without modification of activities or the total budget may be made by UNDP in the periods mentioned and reflected in budget revisions signed only by UNDP.

The following types of revision to this Project Document may be made with the signature of the UNDP Resident Representative only, provided there is security that other signatories of the Project Document have no objections to the proposed changes:

a) Revisions of any of the annexes of the Project Document or additions to them.
b) Revisions, which do not involve significant changes in the immediate objectives, products or activities of the project, but are caused by the rearrangement of the inputs already agreed to or increased costs.

c) Annual reviews by the that fits the budget of a year to reflect actual expenditures and commitments made by the Project during that calendar year and resources are transferred to future years to finance expenditures already agreed substantively unchanged the total budgeted in the Project.

IV. MONITORING FRAMEWORK AND EVALUATION

The project will be monitored through the following M&E activities. The M&E budget is provided in the table at the end of this section.

Project start:
A Project Inception Workshop will be held within the first 2 months of project start with participation of those with assigned roles in the project organization structure, the UNDP Country Office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results.

The Inception Workshop should address a number of key issues including:

a) Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of the UNDP CO and RCU staff *vis à vis* the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
b) Based on the project results framework and the relevant GEF Tracking Tool (if at the time of the Inception Workshop GEF tracking tools/indicators are available for Mercury), finalize the first Annual Work Plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
c) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed upon and scheduled.
d) Discuss financial reporting procedures and obligations, and arrangements for annual audit.
e) Present and formalize the Project Steering Committee and Technical Advisory Committee.
f) Plan and schedule Project Steering Committee meetings. Roles and responsibilities of all project organization structures should be clarified and meetings planned. The first Steering Committee meeting should be held within the first 12 months following the inception workshop.

Note: the project Steering Committee will review and approve the first year's Annual Work Plan.

An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

Quarterly:

- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of Energy Service Companies are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).
- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc. The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Annually:

- *Annual Project Review/Project Implementation Reports (APR/PIR*): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and GEF reporting requirements.

  The APR/PIR includes, but is not limited to, reporting on the following:
  - Progress made toward project objectives and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative).
  - Project outputs delivered per project outcome (annual).
  - Lesson learned/good practices.

- AWP and other expenditure reports.
- Risk and adaptive management.
- ATLAS QPR.
- Portfolio level indicators (i.e. if GEF focal area tracking tools are available for Mercury at the time of the preparation of the APR/PIR these will also be completed on an annual basis).

Annual Project Steering Committee meetings will be organized to review project progress. During these meetings the following year's Annual Work Plan should be presented for approval to the Steering Committee.

Periodic Monitoring through site visits:
The UNDP CO and the UNDP RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/Back-to-Office-Report (BTOR) will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Board members.

Mid-term of project cycle:
Considering this is an MSP and a mid-term evaluation is not compulsory, the project's design team would propose for the project to undergo an independent **Project Review** by an International Technical Advisor at the mid-point of project implementation (Jan 2015; exact date will depend upon project start date). The Mid-Term **Project Review** will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the second half of the project's term. The organization, terms of reference and timing of the **Project Review** will be decided by the Project's Steering Committee. The Terms of Reference for this Mid-term Project Review will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

The relevant GEF Focal Area Tracking Tools, if those are available for Mercury at the time of the time of the Project Review, will also be completed.

End of Project:
An independent Final Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term Project Review, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response, which should be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Center (ERC).

The relevant GEF Focal Area Tracking Tools, if those are available for Mercury at the time of the time of the Project Review, will also be completed completed during the final evaluation.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

Learning and knowledge sharing:
Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

M&E work plan and budget

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team staff time*	Time frame
Inception Workshop and Report.	▪ Project Manager ▪ UNDP CO, UNDP GEF.	Indicative cost: 3,000	Within first two months of project start up.
Measurement of Means of Verification of project results.	▪ UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on *output and implementation*	▪ Oversight by Project Manager ▪ Project team	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans.
ARR/PIR	▪ Project manager and team ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EEG	None	Annually
Periodic status/ progress reports	▪ Project manager and team ▪ UNDP CO	None	Quarterly
Int. Expert for Technical Review of Project	▪ Project manager and team ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost: 15,000	At the mid-point of project implementation.
Final Evaluation	▪ Project manager and team, ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost: 25,000	At least three months before the end of project implementation.
Project Terminal Report	▪ Project manager and team ▪ UNDP CO ▪ local consultant	0	At least three months before the end of the project.
Audit	▪ UNDP CO ▪ Project manager and team	5,000 US$	Once in four years
Visits to field sites	▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives	For GEF supported projects, paid from IA fees and operational budget.	Yearly
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		**US$ 48,000**	

V. LEGAL CONTEXT

This project document is the instrument referred to in Article I, paragraph 1, of the Agreement (hereinafter the Agreement) between the Government of the Oriental Republic of Uruguay and the United Nations Program for Development (hereinafter the Parties), signed on December 12, 1985 and ratified by national law No.15.957 of June 2, 1988 (Official Gazette of October 5, 1988).

The forms of assistance and support services to the United Nations Program for Development (UNDP onwards) provides the Government of the Oriental Republic of Uruguay, in the framework of a technical cooperation project in various areas of social development , economic and technological developments, including those provided with funding from UNDP sources other than as may be expressly approved by both parties, are those forms listed in Article II of the Agreement and the services included in section 2. the "Memorandum of Understanding on the Agreement between the Government of the Oriental Republic of Uruguay and UNDP", signed in Montevideo on July 21, 1999, pursuant to the provisions of paragraph 1. literal g) of Article II of that Agreement.

For the purposes of this Project Document, and under the verbal exchange of notes between the Foreign Ministry and UNDP July 2012 be understood that: I) the Uruguayan International Cooperation Agency, which advises the Government on all aspects pertaining to the technical assistance provided to the country, is the Government Cooperating Agency, referred to Article III, paragraph 1), the Agreement and the official channel for everything related to the administration and enforcement of policies Technical Cooperation offered to the Government, through UNDP, as stipulated in paragraph 3 of Article I of the Agreement. It is also the agency responsible for coordinating the relationship between international suppliers and government agencies and private organizations demanding cooperation and disseminate programs and determine areas, sectors and priority issues for international technical cooperation activities. II) the Implementing Partner (referred to in the Agreement as IA) agreed with the Government for this project is one that is identified as such on the face of this instrument, and iii) the Ministry of Foreign Affairs is the official channel Government for all matters relating to privileges and immunities issues that may arise by reason of the application by the UNDP of this instrument, as stipulated in Article I, paragraph 3, of the Agreement before related.

In terms of responsibilities, privileges and immunities of UNDP, are applicable in addition to the provisions of paragraph 1 above, the provisions of Article 105 of the Charter of the United Nations and the Convention on Privileges and Immunities of the United Nations adopted on February 13, 1946 and ratified by Decree Law 15482 of November 9, 1983.

VI. PROJECT RESULTS AND RESOURCES FRAMEWORK

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD: 2. The country will have achieved a development model that considers the preservation of the environment, sustainable use of natural resources and the reduction of vulnerability and risk for current and future generations.					
Country Programme Outcome Indicators: Initiatives implemented and strengthened capacities for environmental management and pollution reduction with emphasis on the most vulnerable populations.					
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): Preservation of the environment and reducing vulnerability.					
Applicable GEF Strategic Objective and Program: 3. Pilot sound chemicals management and Mercury reduction					
Applicable GEF Expected Outcomes: 1.3 Country capacity built to effectively manage Mercury in priority sectors					
Applicable GEF Outcome Indicators: 3.1.1 Countries implement pilot mercury management and reduction activities.					
	Indicator	**Baseline**	**Targets End of Project**	**Source of verification**	**Risks and Assumptions**
Project Objective The objective of the project is protect human health and the environment from Mercury releases originating from the intentional use of mercury in products and the unsound management and disposal of such products	No. of Hg-containing medical devices and energy saving light sources decontaminated and disposed of within the project period (2014 – 2017). Quantity (kg) of elemental Hg safeguarded which has been recovered from the decontamination process.	In Uruguay there are no adequate storage, decontamination and disposal solutions in place for Mercury containing product waste. Most of such wastes are disposed of along with regular household waste. If not disposed of, such wastes are kept in inappropriate interim storage locations. Current “stockpiles” (underestimated) are described in the	In total the project expects to recover 330 kg of Mercury as a direct outcome of the project’s implementation. In addition, changed practices will also result in sustained Mercury reductions of approximately 72.5 kg Hg/year. Elemental Hg recovered from treatment/decontamination has been safely stored (at the Chlor-Alkali facility), exported to a long-term storage facility or immobilized using appropriate technologies.	Certificates of destruction. Logbook of the decontamination facility.	It is assumed that the disposal of current stockpiles will be financed by the stockholders as co-financing to the project. **Risk**: Low It is assumed that stockpiles will be used to test the operation of the decontamination facility and operate it until all the stockpiles have been disposed of before the decontamination facility will start treating the waste flow from the project’s model facilities (healthcare, dental and large public entities) before expanding services to the general public.

		project's baseline and on page 8 footnote 9[32].			**Risk**: Low
	Safe decontamination options for Mercury containing products established. Safe interim storage (to serve decontamination facility) for Mercury containing products established. Environmental and bio-monitoring programme developed.	In the whole of Uruguay there are no options for the sound decontamination, storage or disposal of Mercury containing products.	Treatment facility constructed (in-line with Basel Convention guidelines and in compliance with national regulations). Interim storage facility establish/upgraded to serve the decontamination facility for storage of Hg-containing wastes prior to treatment (in-line with BC guidelines and in compliance with national regulations). Environmental and bio-monitoring programme in place to monitor Hg levels in air, soil, water as well as in biological samples (in the decontamination facility, interim storage, final storage of elemental Mercury as well as in the immediate surroundings)	Photos and videos of the established treatment facility in operation. Copy of approved EIA, as well as construction and operation permits. Logged laboratory results for air, soil, water of facility and immediate surroundings as well as bio-monitoring of facility staff indicates levels that are well within safety margins.	Financial proposal for the decontamination and retorting facility submitted during the int. bidding procedures do not exceed budget restrictions. **Risk**: High Municipalities will allow disposal of decontaminated crushed products at municipal landfills. **Risk**: Low Private sector enterprises are interested in operating the decontamination facility (and continue to operate the facility after the project comes to an end) following the successful implementation of financial incentives making the operation of the facility financially sustainable (EPR, taxes, polluter-pays, etc). **Risk**: Medium Decontamination, interim storage and long term storage of elemental Mercury is undertaken according to national and international best practices, even after the project has come to an end. **Risk**: Medium
Outcome 1 Strengthen the	National Extended Producer Responsibility (EPR) policy and	There are no financial mechanisms in place that promote the LCM	EPR for Hg-containing lamps established as a tool to provide for the financial resources necessary to cover operational costs of the	EPR degree drafted and submitted for approval.	EPR regulations will preferably be adopted and become operational before the treatment facility will start

[32] Putting in place import restrictions on high-mercury content light sources is likely to result in a 50% reduction of mercury emissions from energy efficient light sources (equivalent to ~ 15 kg/yr based on 2010 import), while import restriction on Hg containing medical devices could result in reducing yearly Hg emissions by a mínimum of 57.5 kg/yr (based on 2010 minimum emissions from imported Hg containing thermometers alone). In total adding up to 72.5 kg/yr. In addition the project will improve Hg waste practices at 12-15 project model facilities. Which might result in further reductions of an average 2 kg Hg/yr per facility (based on baseline assessments carried out as part of the UNIDO project).

regulatory and policy framework to allow for life-cycle management of mercury containing products and their wastes. (Equivalent to activity in ATLAS)	regulations for mercury containing products adopted and introduced.	of Hg containing lamps (CFLs and tubes).	collection, interim storage, decontamination and disposal of Hg-containing lamps costs.		treating the day-to-day flow of CFLs and tubes. **Risk**: Medium
	Strengthened policy and regulatory framework to enable the phase-out/down of mercury containing products and encourage Hg-free or lower level Hg products.	There are no restrictions on the importation of high Hg-content lamps (CFLs, tubes) or Hg-containing medical devices. Guidelines on the management, storage and disposal of Hg containing lamps are not available. In 2011, a guideline was developed on the management of mercury waste for implementation at hospital level. However, in most facilities, Hg management practices have not improved. Guidelines on the management of dental amalgam are not available.	National plan(s) on the LCM of mercury containing products (CFLs/tubes; medical devices; dental amalgam) developed. National workshop held to present the national action plans on LCM of Hg containing products. Guidelines for the management, storage and disposal of mercury containing products developed for large public and private entities developed. EU RoHS directives for lighting products transposed into national regulations through a degree (restricting importation of high Hg content lamps). MSP degree prescribing a phased approach/total phase-out for the use of Hg-containing devices at Health-care facility level developed.	National plan(s) on LCM of Hg containing products published. Attendance sheets of the workshop. Guidelines for the management, storage and disposal of Hg containing products published and disseminated. Degree restricting importation of high Hg content light sources submitted for approval. MSP degree prescribing a phased approach for the phase-out of Hg-containing devices at Health-care facility level submitted for approval.	Importers/distributors of low Hg content lamps and government agencies are eager to restrict import of high Mg content lamps. **Risk**: Low The Ministry of Health (MSP) and ASSE are willing to support a phase-out of Mg-containing devices, on the condition that cost-effective alternatives and solutions for the final disposal of Hg containing devices are available and operational. **Risk:** Medium
	Improved adherence to the sound collection, (temp.) storage and treatment of products containing mercury (in particular project partners and model facilities)	Annexes of the BC have been transposed in the Hazardous Waste Law (law 17.220/1999), which refers in specific to hazardous waste streams including waste containing mercury and regulates storage, transportation and disposal of hazardous waste, including Hg containing products. No norm is available	Guidelines and legal provisions with respect to the sound collection, (temp.) storage and treatment of products containing mercury (and the storage of elemental mercury), will be reviewed based on int. best practices (Basel Convention) and revised/developed if necessary.	Guidelines and legal provisions related to LCM have been published.	All necessary guidelines and legal provisions are in place that allow for the proper LCM of Hg-containing products as undertaken and supported as part of the project. **Risk**: Medium.

		that regulates the decontamination of Hg containing products.			
Outcome 2 Development of environmentally sound schemes and business models for the collection, treatment and disposal of mercury wastes	Mercury releases from priority sectors reduced and segregated Hg containing waste streams augmented. Number of private sector operators, model healthcare facilities and PCTP staff capacitated in best practices related to collection, storage, treatment of Hg containing products and long-term safe storage of elemental Mercury, as well as the use of cost-effective Hg-free or low-Mercury content alternatives (if applicable)	Current "stockpiles" (underestimated) are described in the project's baseline and on page 8 footnote 9[32]. Some model facilities have waste management committees in place (a few of the HCFs), but most do not. None of the model facilities have Hg management or phase-out plans in place, waste is either improperly stored or disposed of. Cost-effective Hg-free alternatives for medical devices and low Hg content CFLs and tubes are available in the country.	Waste management committees operationalized in each model facility. Hg baseline assessments (procurement, use, management, disposal, storage, etc) completed for each model facility. Mercury management and phase-out plans developed and implemented at each model facilities. 500 personnel of model facilities trained in LCM of Hg containing wastes and waste products. Study on staff preferences on cost-effective Hg-free alternatives conducted at the model HCFs. Mercury-free alternatives introduced at the project's model HCFs through adaptation of procurement practices. Collection systems for Hg containing products operational.	List of committee members and copy of regular meeting minutes available. Baseline reports available for each model facility. Hg management and phase-out plans available for each facility. Certificates of training completion and attendance sheets of training sessions. Report of staff preference study available. Certificates of destruction. Logbooks of the model facilities and the decontamination facility.	HCFs and their personnel are eager to phase-out Hg-containing medical devices. **Risk**: Low Facilities holding vast "stockpiles" of Hg-containing product waste are willing to cover disposal costs as co-financing contribution to the project. **Risk**: medium As co-financing, facilities allocate adequate storage space for interim Hg-waste storage, appoint waste management committee members, and allocate staff time to participate in training on Hg LCM, staff preferences study as well as the use of Hg-free alternatives. **Risk**: Low
	Business models and cost recovery arrangements (CRA) for the collection, transport, temporary storage and treatment of different types of Hg wastes operational and financially sustainable.	There are no financial mechanisms in place to cover the costs for the LCM of Hg containing lamps (CFLs and tubes).	Business plan for the collection, transport, temporary storage and treatment of different types of Hg wastes finalized. Assessment of potential Cost-Recovery Mechanisms including recommendations for tax tariffs, tax modalities and channeling of funds, completed (to inform drafting of EPR degree). 30 personnel of private sector entities trained in LCM of Hg containing wastes and waste products. Bidding process for private sector operators completed.	Business plan presented to Project Steering Committee and approved. Assessment report completed and findings presented to Ministry of Commerce. Certificates of training completion and attendance sheets of training sessions. Supporting documentation of bidding procedures. Certificates of destruction.	CRA will be put into place early on in the project to ensure financial sustainability for the collection, interim storage, decontamination and disposal of Hg-containing lamps costs. **Risk**: High

			Business operations launched (collection, transportation, interim storage and treatment).	Logbooks of the model facilities and the decontamination facility.	
Component 3: Strengthening technical capacity and infrastructure for the treatment and storage (medium – and long- term) of Mercury containing wastes.	Technology to treat collected Hg containing product waste operational.	In the whole of Uruguay there are no options for the treatment of Mercury containing products.	Technical specifications for the treatment facility, (in-line with Basel Convention guidelines and in compliance with national regulations), developed. International procurement process for technology successfully completed. Operational procedures for the treatment technology developed and implemented. 2 - 3 private sector operators and 30 PCTP staff trained in the safe operation of the treatment facility/technology. Operation of decontamination facility officially launched.	EIA concluded and approved. Construction and operation permits in place. International bidding documentation available. Operational procedures for the treatment technology available. Photos and videos of the established treatment facility in operation. Certificates of training completion and attendance sheets of training sessions.	Technologies that meet the technical specifications are available for the level of funding available under the project component. **Risk**: High At least three technology providers have submitted technical proposals in response to the int. request for proposals that meet the technical specifications for the decontamination facility. **Risk**: High
	Intermediate Hg storage options established and long-term storage options identified.	In the whole of Uruguay there are no safe options for the sound interim storage of Mercury containing products/wastes or the long-term storage of elemental Mercury.	Assessment for short-term, interim and long-term storage and disposal options completed. Operational procedures developed and implemented for the management of storage facilities/spaces. Safe interim storage spaces for Mercury containing products available/established at model facilities and PCTP and staff trained in the safe management of storage spaces. Safe long-term storage of recovered elemental Mercury established (in-line with BC guidelines and in compliance with national regulations)[33].	Report on the assessment on storage and disposal options has been published. Photos and video materials of all storage facilities (at PCTP, model facilities, etc.) available. Air, water/leachate and soil monitoring as well as bio-monitoring of staff in close contact with Hg storage spaces indicates Hg levels that are below MAC. Storage facility and landfill (for decontaminated waste) logbooks.	Municipalities will allow disposal of decontaminated crushed products at municipal landfills. **Risk**: Low Interim storage of Hg containing wastes and long-term storage of elemental Mercury is undertaken according to national and international best practices, even after the project has come to an end. **Risk**: Medium

[33] This aspect is optional and depends on the type of treatment technology selected. If a decontamination facility is opted for, a solution for the storage or use of recovered elemental Hg needs to be identified, however if the project opts for a Hg immobilization technology/process, this project aspect will not be necessary.

Component 4: Strengthening national and regional awareness on the Sound Life-Cycle Management of Mercury containing products as well as associated health hazards resulting from mismanagement	National capacity to monitor Mercury levels in populations strengthened.	As part of a CIAT/USAID pilot project (2006) bio-monitoring of Mercury levels in healthcare staff was undertaken by CIAT's poison control center at a model facility. PCTP is currently capable of monitoring Hg in environmental media, and have at their disposal a Jerome analyzer for air monitoring. The country has no continuous/frequent monitoring system in place for Hg levels. The country has no capacity for analyzing Hg levels in biological samples.	Technical specifications for PCTP/CIAT bio-monitoring laboratory equipment prepared. International procurement process successfully completed. Protocol for sampling and analysis of Hg in water, soils, air and biological samples developed and CIAT/PCTP personnel/staff trained in sampling and conducting analysis. "Population-at-risk" study completed (samples analyzed and results interpreted by CIAT/PCTP) and results published. Continuous environmental and bio-monitoring programme developed for project model facilities (treatment facility, storage facilities and maintenance/storage staff) to analyze Hg levels in air, soil, water as well as in biological samples frequently and beyond project duration.	International bidding documentation and photos of the installed laboratory equipment available. Sampling/analysis protocol available and approved by int. expert. Results of population study published (preferably in a scientific journal). Environmental and bio-monitoring programme launched for model facilities.	Model facilities are willing to have staff tested as part of the bio-monitoring study -who might be at a high risk of Mercury exposure. **Risk**: Medium Sufficient project funding will be available to ensure frequent monitoring/sampling of storage spaces and personnel in close contact with Hg containing wastes, and costs for the environmental and bio-monitoring programme are internalized into PCTPs business plan to ensure continuation beyond the project's duration. **Risk**: Low
	Awareness on LCM of Mercury containing products increased among project stakeholders, the general public and countries at regional and global level.	BCCC LAC has a website which it uses for information dissemination. BCCC LAC also leads a network of national Basel Convention Centers through which information on hazardous waste management can be disseminated.	Website and Facebook page developed and regularly updated (English and Spanish). Project related documentation (legislation, guidelines, national plans, model facility plans, operational and testing protocols, Hg monitoring studies, etc.) all published on the project website and disseminated among regional and int. partners. Side event organized at a chemicals-related COP (Basel, Minamata) to present project results and lessons-learned. Video on the LCM of Mercury management produced at the end of project implementation to share lessons-learned.	Project related documentation, photos and videos posted on the project's website and Facebook page.	BCCC LAC is able to develop a website and Facebook page in both English and Spanish which has a significant outreach. **Risk**: Low
Component 5: Monitoring, adaptive	Number of high quality monitoring and evaluation	No documents in baseline situation.	4 Quarterly Operational Reports submitted to UNDP each year	Reports submitted to UNDP	It is assumed that the project manager will prepare all the reports that are

feedback, outreach and evaluation.	documents prepared during project implementation		1 annual APR/PIR submitted to UNDP each year. 1 Mid-term project review. 1 Final evaluation. MTE and FE must include a lessons learned section and a strategy for dissemination of project results.		required by the GEF and UNDP. **Risk**: Low

VII: TOTAL BUDGET AND WORK PLAN

GEF Outcome/Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Total (USD)	See Budget Note:
OUTCOME 1: Strengthen the regulatory and policy framework to allow for life-cycle management of mercury containing products and their wastes.	Ministry of Housing, Land Use Planning and Environment	62000	GEF	71200	International Consultants	0	0	0	0	
				71300	Local Consultants	17,000	24,000	7,000	48,000	A, B, C, D, E, F and G (preferable 1 national consultant undertaking all these tasks as they are similar in natureand to ensure continuity)
				71400	Contractual services	0	0	0	0	
				71600	Travel	0	0	0	0	B and C (travel for int. consultants)
				72500	Office Supplies	0	0	0	0	
				74500	Miscellaneous	1,500	24,000	7,000	32,500	
					Sub-total GEF	**18,500**	**48,000**	**14,000**	**80,500**	
					Total Outcome 1	**18,500**	**48,000**	**14,000**	**80,500**	
OUTCOME 2: Development of environmentally sound schemes and business models for the collection, treatment and disposal of mercury wastes.	Ministry of Housing, Land Use Planning and Environment	62000	GEF	71200	International Consultants	0	0	0	0	
				71300	Local Consultants	65,000	60,000	60,000	185,000	H*, I*, J*, L, N, xiii, xiv
				71400	Contractual services	5,000	5,000	5,000	15,000	K, M and O
				71600	Travel	0	0	0	0	
				74500	Miscellaneous	1,500	1,500	1,500	4,500	
					Sub-total GEF	**71,500**	**66,500**	**66,500**	**204,500**	
					Total Outcome 2	**71,500**	**66,500**	**66,500**	**204,500**	
OUTCOME 3: Strengthening technical capacity and infrastructure for the pre-treatment,	Ministry of Housing, Land Use Planning and Environment	62000	GEF	71200	International Consultants	30,000	15,000	0	45,000	P, R and T
				71300	Local Consultants	20,000	5,000	5,000	30,000	W, xiii and xiv
				71400	Contractual services	0	5,000	5,000	10,000	S and Y
				71600	Travel	10,000	5,000	0	15,000	P, R and T

decontamination and storage (medium – and long- term) of Mercury containing wastes.				72300	Materials and Goods	0	523,000	0	523,000	Q, U, V and X
				72500	Office supplies	0	0	0	0	
				74500	Miscellaneous	1,500	1,500	1,500	4,500	
					Sub-total GEF	**61,500**	**554,500**	**11,500**	**627,500**	
					Total Outcome 3	**61,500**	**554,500**	**11,500**	**627,500**	
OUTCOME 4: Strengthening national and regional awareness on the Sound Life-Cycle Management of Mercury containing products as well as associated health hazards resulting from mismanagement	Ministry of Housing, Land Use Planning and Environment	62000	GEF	71200	International Consultants	**0**	**0**	**0**	**0**	
				71300	Local Consultants	**10,000**	**5,000**	**5,000**	**20,000**	Z, ii and iii****
				71400	Contractual services	**10,000**	**10,000**	**15,000**	**35,000**	iv, v, vi, vii and viii
				71600	Travel	**0**	**2,500**	**1,000**	**3,500**	Local travel necessary for environmental and biological monitoring
				72300	Materials and Goods	**0**	**120,000**	**0**	**120,000**	i
				72500	Office supplies	**0**	**0**	**0**	**0**	
				74500	Miscellaneous	1,500	1,500	1,500	**4,500**	
					Sub-total GEF	**21,500**	**139,000**	**22,500**	**183,000**	
					Total Outcome 4	**21,500**	**139,000**	**22,500**	**183,000**	
OUTCOME 5: Monitoring, learning, adaptive feedback & evaluation.	Ministry of Housing, Land Use Planning and Environment	62000	GEF	71200	International Consultants	0	15,000	25,000	40,000	x and xi
				71300	Local Consultants	0	0	0	0	
				71400	Contractual services	3,000	0	0	3,000	ix
				71600	Travel	0	5,000	5,000	10,000	x and xi
				74100	Audit Fees	0	0	5,000	5,000	xii
					Sub-total GEF	**3,000**	**20,000**	**35,000**	**58,000**	
					Total Outcome 5	**3,000**	**20,000**	**35,000**	**58,000**	
OUTCOME 6: Project Management	Ministry of Housing, Land Use Planning and Environment	62000	GEF	71300	Local Consultants	17,000	16,000	16,000	49,000	xiii and xiv
				74500	Miscellaneous	1,500	1,500	1,500	4,500	
				74599	UNDP Cost Recovery Chrgs-bills (ISS)	6,200	20,200	4,400	30,800	xv
					Sub-total	24,700	37,700	21,900	84,300	
					Total Management	**24,700**	**37,700**	**21,900**	**84,300**	0.073081925
				PROJECT TOTAL		**200,700**	**865,700**	**171,400**	**1,237,800**	

Budget notes

Note	Description	Type
A	Component 1. A1 Legal Expert of the development of a national EPR regulation for Hg-containing consumer products	Local Consultant***
B	Component 1. B1 Technical expert for the development of a national plan on the LCM of Hg containing light products (CFLs and tubes)	Local Consultant***
C	Component 1. B2 Technical expert for the development of a national plan for the LCM of Hg-containing medical devices and dental amalgam	Local Consultant***
D	Component 1. B2 Legal Expert for the development of a MSP degree prescribing a phased approach for the phase-out of Hg-containing devices in the health-care sector	Local Consultant***
E	Component 1. B2 Legal Expert for the development of a MSP degree prohibiting import of Hg containing medical devices and elemental Mercury for dental amalgam	Local Consultant***
F	Component 1. B3 Legal Expert for the development of national (import) standards on max. Hg content in light products (CFLs and tubes)	Local Consultant***
G	Component 1. C1 Legal Expert/Technical Expert for the development of guidelines with respect to the sound collection, (temp.) storage, decontamination and disposal of products containing mercury	Local Consultant***
H	Component 2. A1 Technical Expert(s) to support the fostering of Waste Management Committee in each of the model facilities and support committees in conducing detailed Hg baseline assessment for each facility.	Local Consultant*
I	Component 2. A1 Technical Expert (s) to support facilities in drafting plans for the management, storage and collection of Hg containing waste and phase-out of Mercury at each facility.	Local Consultant*
J	Component 2. A1 Technical Expert works with UTE to develop simple steps and guidance for the general public how to store and hand-in spent CFLs/tubes (for printing on electricity bills)	Local Consultant*
K	Component 2. A2 Training and awareness raising workshops for model facility staff on the sound LCM of Hg containing products and wastes	Contractual services
L	Component 2. A3 Medical professional to undertake a study on staff preferences for cost-effective Hg-free alternatives for Hg containing medical devices	Local Consultant
M	Component 2. A3 Training on the proper use of Mercury-free medical devices	Contractual services
N	Component 2. B1 Economic specialist for the preparation of a business plan for the collection, transport, temporary storage and treatment of different types of Hg wastes (including assessment of various CRAs, potential tariff levels for (import/sales) ways in which such taxes are to be collected/channeled)	Local Consultant
O	Component 2. B2 Training for Private Sector Operators to built capacity for various Hg LCM stages.	Contractual services
P	Component 3. A1 Technical Expert to conduct site assessment and draw up technology specifications for decontamination facility itself and technical specification for the entire site (including on-site storage which will service the facility)	International Consultant

Q	Component 3. A3 Procurement of decontamination technologies	Materials and Goods
R	Component 3. A4 Testing and trials of decontamination facility and technologies as well as the development of operating procedures for the various aspects related to the operation of the facility	International Consultant
S	Component 3. A4 Training of facility workers and operators on the functioning, operation and procedures for the decontamination facility	Contractual services
T	Component 3. B.1 Assessment of intermediate and long-term storage and disposal options for elemental Mercury which has been recovered from the retorting process	International Consultant
U	Component 3. B.2 Upgrading of the on-site storage facility, which will service the decontamination facility, as per Basel Convention guidelines (to be covered through co-financing)	Materials and Goods
V	Component 3. B.3 Safe interim storage spaces for Mercury containing products made available/established at each model facility (to be covered through co-financing)	Materials and Goods
W	Component 3. B.4 Operational procedures developed and implemented for the management of storage facilities/spaces.	National Consultant
X	Component 3. B.5 Long-term storage/disposal option(s) for recovered elemental Mercury established/put in place.	Materials and Goods / Contractual Services
Y	Component 3. B.6 Private sector operators, PCTP and model facility staff trained in the safe management of storage spaces for Mercury containing products and wastes as well as elemental Hg.	Contractual services
Z	Component 4. A.1 Technical specifications for PCTP and CIAT bio-monitoring laboratory equipment prepared	Local Consultant
i	Component 4. A.2 Procurement of laboratory equipment and reagents.	Materials and Goods
ii	Component 4. A.3 Protocol for sampling and analysis of Hg in water, soils, air and biological samples developed	Local Consultant
iii	Component 4. A.4 CIAT/PCTP personnel/staff trained in sampling and conducting analysis	Local Consultant
iv	Component 4. A.5 Samples for "population-at-risk" study obtained and analyzed by PCTP/CIAT and results interpreted by CIAT/PCTP and published in scientific journal.	Contractual Services
v	Component 4. A.6 Continuous environmental and bio-monitoring programme launched for model facilities.	Contractual Services
vi	Component 4. B.1 Website, Facebook and Twitter page developed and regularly updated containing all relevant project related information and documentation in both Spanish and English.	Contractual services
vii	Component 4. B.2 Side event organized at a chemicals related COP (Basel, Minamata) to present project results and lessons-learned.	Contractual services
viii	Component 4. B.3 Video on the LCM of Mercury management produced at the end of project implementation and posted on YouTube	Contractual services
ix	Component 5. A.1 Inception Workshop	Contractual services
x	Component 5. A.2 Project Mid-Term Review	International Consultant

xi	Component 5. A.3 Final Evaluation	International Consultant
xii	Component 5. A.4 Audit	International Consultant
xiii	Project Management Unit - Part-time (90%) National Project Coordinator	National Consultant
xiv	Project Management Unit - Part-time (50%) National Project Assistant	National Consultant
xv	UNDP cost recovery chrgs-Bills (Refer to Annex V – Letter of Agreement for Direct Project Services in the Annexes section)	

Summary of Funds: [34]

	Amount: Year 1	Amount: Year 2	Amount: Year 3	Total
GEF	200,700	865,700	171,400	1,237,800
Private sector		782,760	1,350,000	2,132,760
Government (in-kind)	525,000	372,500		897,500
TOTAL	**725,700**	**2,020,960**	**1,521,400**	**4,268,060**

ISS Estimation (as per UNDP Uruguay Universal Price List)

ISS estimation	Estimated number	UNDP Uruguay Universal price list	Total
Hiring of consultants	20	260.53	5210.6
Payment procedures (consultants deliverables, monthly salaries project manager and assistant, procurement related payments, etc.)	220	36.39	8005.8
International buying process	6	599.94	3599.64
Local buying process (with CCA)	12	599.94	7199.28
Local buying process (without CCA)	15	232.74	3491.1
Equipment transfer	5	305.94	1529.7
Customs formalities	5	65.1	325.5
Hotel reservations	20	19.72	394.4
Travel authorizations	10	35.74	357.4
Travel request	15	44.54	668.1
		TOTAL	**30,781.52**

[34] *Summary table should include all financing of all kinds: GEF financing, co-financing, cash, in-kind, etc...*

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WHO/HCWH "*Toward the Tipping Point: WHO-HCWH Global Initiative to Substitute Mercury-Based Medical Devices in Health Care"* http://www.gefmedwaste.org/downloads/Toward%20the%20Tipping%20Point:%20WHO-HCWH%20Global%20Initiative%20to%20Substitute%20Mercury-Based%20Medical%20Devices%20in%20Health%20Care.pdf

List of Annexes

Annex I: Risk analysis and risk monitoring

Annex II: Responsibilities of National Project Partners

Annex III: Overview of Co-financing

Annex IV: Universal Price List Uruguay.

ANNEX I: RISK ANALYSIS AND RISK MONITORING

Type of risk (1)	Description of risk	Identification Date	Impact (2) and probability (3) (1 = very low and 5 = very high)	Measures to mitigate risk (4)	Responsible (5)
Environmental/ Health	Staff at model facilities is being exposed above MAC to Mercury emissions due to work place exposure, either because they themselves are not following prescribed guidelines related to the LCM of Hg containing products and their waste, or the facilities they are working in are not ensuring the proper safety guards.	Continuous throughout project implementation	Impact: 5 Probability: 2	- It will be compulsory for all the project's model facilities to allow staff which is at risk to a) participate in the "population-at-risk" study and b) be tested on a regular basis for Mercury levels. - Costs for the environmental and bio-monitoring programme will be are internalized into PCTPs business plan to ensure continuation of monitoring beyond the project's duration. - If staff/operators involved in the operation of the PCTP decontamination facility are found not to follow guidelines and operation protocols and therefore are endangering the safety of themselves, their colleagues and the suroounding environment/communities, they will be relieved from their duties immediately and not allowed to work at the decontamination facility again. - If through environmental and biomonitoring Hg test results indicate that staff has Hg levels higher than allowed by WHO guidelines, they will be assigned tasks and responsibilities that involve no significant exposure to Hg, while in the mean time extensive mercury monitoring will be conducted to identify the cause of the Hg exposure and subsequently resolve the issue.	PCTP/CIAT/project team.
Environmental	No safe final disposal options for elemental Mercury can be identified in Uruguay or in the region that meet Basel Convention guidelines.	In the process of selecting the de	Impact: 4 Probability: 2	- Building upon experiences and results from previous Hg related projects, the project will conduct an assessment of intermediate and long-term storage and disposal options for elemental Mercury, and make recommendations for the safest and most cost-effective options to dispose/store the elemental Mercury recovered from the retorting process. - If long-term disposal/storage are no option – as a last resort the project might consider allowing the recovered elemental Mercury to be used as an input for the national Chlor-Alkali Industry – at a minimum to offset Hg imports into the country.	Project Team*
Regulatory	Slower than expected enhancement, adoption and implementation of national policies, plans	At PPG phase	Impact: 3 Probability: 2	- The project will support project stakeholders in further strengthening the national policy and regulatory	Project Team*

	and strategies as well as the enforcement of regulations, that either have an impact on activities implemented under the project and/or are being developed/drafted as part of the project and are key in creating an enabling environment for replication across the country.			framework with respect to the management of mercury in consumer products and healthcare by building upon efforts undertaken to date while actively promoting their adoption and implementation to create the necessary enabling environment. Technical support and capacity building will be provided to environment and health authorities to improve enforcement, awareness will be created among target sectors to ensure stakeholder buy-in.	
Regulatory	The General Waste Law might not be finalized/approved by the time the project starts implementation (late 2013/early 2014), which may complicate the inclusion of EPR provisions related to Hg containing *waste products.	First 2 quarters of project implementation.	Impact: 2 Probability: 2	- In the situation that the General Waste Law has not bee approved at the time of project launch, an EPR regulation would drafted and put into place under the current Hazardous Waste Law and could be migrated once the new General Waste Law has been approved and adopted.	Project Team*
Financial	Actual costs for the decontamination and retorting facility (as quoted during the int. bidding procedures) exceeds budget allocations due to rapidly rising market prices as the adoption of the Minamata Convention is getting closer.	When the int. bidding procedures are being finalized	Impact: 3 Probability: 3	- Throughout the PPG, the project team has communicated with various technology providers to obtain a better idea of the costs involved. It was observed that the prices were increasing and therefore the project requested a budget increase from the GEF, which was granted. However, it is feared that market prices might further increase. - Throughout project implementation the team with continue to stay in close contact with providers to stay well informed of actual pricing. If it turns out that insufficient budget is available to procure the right equipment, either certain project activities will be eliminated to allow a budget revision to increase the funding allocation for technology procurement or Pando/PCTP might decide to design/develop its own decontamination technology.	Project Team*
Financial	Creation of a monopoly position on the disposal of Hg containing products might result in high prices for disposal.	1 year after the launch of the operation of the decontaminatio n facility	Impact: 3 Probability: 1	- Several operators will ensure the collection, transport and temporary storage of Hg containing products and their wastes and directed towards the retorting facility, which is administrated by the project and PCTP/Pando. As such the project will have significant influence on the pricing system. When the project will come to an end, the pricing for decontamination will be set in such a way that do not distort the market.	Project Team*
Financial	EPR regulations, necessary to cover the operational costs of the collection, interim storage, decontamination and disposal of Hg-containing lamps) might not be adopted and operational at the time the treatment facility	At project launch	Impact: 3 Probability: 2	- When project implementation starts, one of the first activities the project will concentrate on will be the drafting of the EPR regulations – considering these will be key in ensuring financial sustainability for the LCM of the Hg containing products.	Project Team*

	will start decontaminating the day-to-day flow of CFLs and tubes.				
Financial	No interest from the private sector to take on the collection, transport and treatment of Hg containing products and their wastes due to uneconomic conditions.	First 2 quarters of project implementation.	Impact: 3 Probability: 1	- A business plan for the collection, transport, temporary storage and treatment of different types of Hg wastes (including assessment of various CRAs, suggestions for tariff levels (import/sales) and the ways in which such taxes are to be collected/channeled) will be developed, to be followed immediately by putting in place EPR regulations. By doing so the financial sustainability of the operation would be warranted. - Secondly, the development and adoption of guidelines with respect to the sound collection, storage, decontamination and disposal of products containing mercury will ensure sufficient "supply stream" of Hg containing wastes.	Project Team*
Financial	Partners not meeting their co-financing commitments. This would be a considerable risk, as for example the disposal of existing Hg containing product stockpiles is to be financed by the current holders, without co-financing it is unlikely that these stockpiles would be properly disposed of. Critical infrastructure for the successful implementation of the project, e.g. for the decontamination facility as well as interim storage areas in each of the model facilities, also fully depends on co-financing contributions. Finally, without the public collection points to be provided by UTE, expanding the collection of CFLs beyond the model facilities towards the general public, would also become very challenging.	Continuous	Impact: 5 Probability: 2	- As per one of the best practices under the UNDP/WHO/GEF GMW project, Memoranda of Understandings with model facilities, as well PPP agreements with private sector partners for the collection, storage and treatment of Mercury containing wastes will be developed and signed. Such agreements will outline responsiblities, timelines as well as rights and commitments (including co-financing commitments).	Project Team*
Strategic	Little confidence of healthcare facilities and healthcare staff in mercury-free medical devices, resulting in continued use of mercury containing devices. The Ministry of Health (MSP) and ASSE are not eager to support a compulsory phased approach towards the phase-out of Mg-containing devices.	After model facility baseline studies have been completed.	Impact: 3 Probability: 3	- In partnership with LATU, information will be disseminated on readily available certified mercury-free devices in Uruguay, while results from the population at risk study will also encourage healthcare professionals to make the shift towards Hg-free products. - A "Staff Preference Study" in which each model facility will participate, will be undertaken during which healthcare staff will try, test and select affordable, accurate and safer alternatives. Based on staff preference (e.g. ease of use) procurement practices at the healthcare facilities will be adapted and training on the use of mercury-free products will be provided to all	Project Team*

				staff. - The project will share technical specifications, standards, test results, and experiences from the current UNDP/WHO/GEF global HCWM project. - Finally, when this shift in practices has proven successful at the model facilities, a MSP degree to (a phased) ban the import of Hg-containing medical devices will be submitted for approval/adoption.	
Operational	Slower than expected implementation of best practices at project model facilities.	Continuous	Impact: 2 Probability: 3	- As per one of the best practices under the UNDP/WHO/GEF GMW project, Memoranda of Understandings with model facilities, as well PPP agreements with private sector partners for the collection, storage and treatment of Mercury containing wastes will be developed and signed. Such agreements will outline responsiblities, timelines as well as rights and commitments (including co-financing commitments and allowing staff to participate in the population at risk study). - The Component 5 evaluation will identify problems and recommend improvements half way through the project, while continuous monitoring of project activities will aim to address any delays in implementation based on needs as they arise.	Project Team*
Political	The roles and responsibilities of the two key ministries (Ministry of Housing, Land and Environment – MVOTMA and the Ministry of Public Health - MSP), with respect to Hg waste management - in particular the management of Mercury containing Healthcare Waste - might prove to require further clarification. Possibly resulting in limited guidance, conflicting decisions, duplication, or slower than expected implementation of certain project components.	Continuous throughout project implementation	Impact: 3 Probability: 2	- All project stakeholders will be involved in the project's proposal planning phase during which their roles and responsibilities will be clarified and agreed upon. - Throughout project implementation, continuous communication will be ensured between the two main project partners (DINAMA and MSP) and the project team.	Project Team*

By risk we mean a circumstance, condition or external event that can potentially compromise the future of the project)
(1) Type of risk: environmental, financial, operational, organizational, political, regulatory, strategic, other.
(2) Impact. Concerns the potential effect on the project if the risk occurs. Based on a scale of 1 to 5 (1: very low and very high 5)
(3) Likelihood of risk. Based on a scale of 1 to 5 (1: very low and very high 5)
(4) What actions have been taken or will be taken to mitigate the risk.
(5) Responsible for monitoring risk

*Project Team: Project Coordinator and DINAMA Project Manager

ANNEX II: RESPONSIBILITIES OF NATIONAL PROJECT PARTNERS

Name of Entity	**Description of Role at Nat. Level**	**Description of responsibilities in the project's implementation** (*considered co-financing contributions*)
DINAMA (Ministry of Housing, Land Use Planning and Environment - MVOTMA)	National environmental authority responsible for the development and implementation of policies and regulations pertaining to the environment. The Ministry has competence in (hazardous) waste management and has in the past supported multiple initiatives in the area of mercury management.	a. Project executing agency. b. Host project management unit and allow use of DINAMA facilities (e.g. allocation of office space) as well as communication infrastructure (e.g. tel., fax, internet, etc.).
Ministry of Public Health (MSP)	The Ministry is responsible for the development and implemetation of health policies and assumes responsibilities related to monitoring, control, regulation and standardization. In addition, the Ministry registers medical devices and enables companies that import, manufacture, distribute and/or store medical equipment and devices.	a. Support the selection process of model facilities. b. Support the project in setting up Waste Management Committees in each of the model facilities. c. Identify 5 MSP staff to participate in the "training of trainers" to become a trainer in Hg management related to healthcare. d. Provide guidance to the project team in the development of policy and regulatory activities related to Hg management in the healthcare section and subsequently support and lobby for their adoption: - National and Model Facility Guidelines related to the clean-up, storage and disposal of mercury containing medical devices. - National Policy and Plan on the phase-out of Mercury containing medical devices. e. Support the "*Staff Preference Study*" at each of the project model facilities, in partnership with LATU and MSP. Hospital staff will try, test and select affordable, accurate and safer alternatives already available on the Uruguay market (which have passed LATU certification). Based on staff preference (e.g. ease of use) procurement practices at the hospital will be changed. f. Draft a (potential) degree on import restrictions for mercury containing medical devices (e.g. applying a phased-approach). g. Cover the costs related to the disposal of existing Hg stockpiles (Hg containing devices and CFLs) currently stored at public healthcare and dental facilities participating in the project. h. Cover costs (through individual public healthcare facility budgets) for the disposal of Mercury containing medical devices phased-out during the project's implementation.
PCTP (Scientific and Technological Park of Pando) which includes on its board the Faculty of Chemistry (National University), MIEM (Ministry of Industry, Energy and Mining),	Joint initiative of the Faculty of Chemistry, National University (Universidad de la República-UdelaR); MIEM (Ministry of Industry, Energy and Mining), the	a. Develop business plan for the retorting facility and secondary entities (provision of staff time from the Pando chemistry platform and business support section) b. Put in place necessary infrastructure requirements for the retorting facility (*Allocation of ground space for retorting facility, allocation of ground space for additional storage*

Canelones Municipality,CIU (Uruguayan Industry Chamber)	Canelones Municipality (Intendencia de Canelones) and the CIU (Uruguayan Industry Chamber). PCTP will host the treatment facility and be involved in the bio-monitoring of population groups at risk while PCTP's business incubator will provide technical advice to the private sector entities operating the treatment facility and support the development of a financialy sustainable business plan.	*location, purchase of construction materials for retorting building, upgrading storage facility and additional storage facility if necessary*)
		c. Arrange for the necessary operating permits (*construction/building permits, operational, environmental permits and licenses*)
		d. Develop operating and testing guidelines and procedures for the retorting equipment (*provision of staff time from the Pando chemistry platform*)
		e. Allocate staff time during start-up and operation (Provision of 2 full time staff members for 50% of their time)
		f. Support the Hg population (at risk) study and ensure regular Hg and risk monitoring throughout operation of the retorting facility and project implementation (*Support the development of guidelines for the testing protocols of Hg (organic and inorganic) in different media (in partnership with CIAT) and ensure regular Hg monitoring throughout operation of the retorting facility, for safety purposes and to support scientific research publication*)
		g. Publish project findings (Publish scientific research related to the running and operation of the retorting facility, the population study (in partnership with CIAT), etc. and provide inputs for popular publications in partnership with the BCCC)
		h. Reporting and Evaluation (*in close collaboration with the private sector operators keep records on the amounts of lamps/medical devices treated as well as the amount of mercury recovered for GEF reporting purposes, scientific publication and cost-effectiveness calculations, Participate in project related evaluation activities*)
		i. Host decontamination treatment technology and allow use of Pando facilities (Infrastructure e.g. meeting rooms, roads, parking, etc., Communications (e.g. tel., fax, internet), Office space, etc.)
Basel Convention Coordinating Centre (BCCC) for Training and Technology Transfer for Latin America and the Caribbean	BCCC LAC leads a network of national Basel Convention Centers and will be involved in the dissemination of project information, lessons-leared, best practices and results at national, regional and international level. BCC-LAC is extensively involved in awareness raising on risks related to mercury exposure, mercury waste segregation and storage campaigns and has been involved in all national and regional projects and programmes which have a bearing on the sound management of Hg and other hazardous wastes and substances.	a. Making use of the existing BCCC-LAC website, *project related information and results will be disseminated at national, regional and global and through the BCCC-LAC network of national Basel Convention Centers.*
		b. BCCC-LAC will also likely support the development and regular updating of dedicated project website pages, as well as a Facebook and Twitter page which will contain all relevant project related information and documentation (in both Spanish and English) to ensure that Lessons-learned (LL) and best practices from the project are disseminated at national, regional and global level in partnership with BCCC LAC.
Center of Advising and Information on Toxicology (CIAT)	The National Poisson Centre (Faculty of Medicine, University Hospital - Hospital De Clinicas) is a WHO reference centre and supported the pilot phase-out of mercury containing devices at the University Hospital. CIAT, in partnership	a. Provide guidance to the project to help determine the size of the sample groups for the population at risk study, as well as the identification of risks groups. In addition help design the questionnaire that will be filled out by participants of the population study.

	with PCTP, will also be involved in the bio-monitoring of population groups at risk as well as in conducting the baseline assessments and training at model healthcare and dentist facilities.	b. Allocate staff to conduct the population at risk study (in partnership with PCTP) c. Publish the findings and scientific research related to the population study (in partnership with PCTP). d. Ensure and facilitate regular Hg and risk monitoring throughout project implementation beyond the population at risk study (in partnership with PCTP)). e. Support the project as well as model health care facilities in conducting Hg baseline assessments and training at model healthcare and dentist facilities. f. Support the "Staff Preference Study" at each of the project model facilities, in partnership with LATU and MSP. Hospital staff will try, test and select affordable, accurate and safer alternatives already available on the Uruguay market (which have passed LATU certification). Based on staff preference (e.g. ease of use) procurement practices at the hospital will be changed.
En.lighten Initiative (GEF/UNEP/OSRAM/Philips/NLTC) & Ambilamp (Spain)	Global energy efficient lighting initiative, established to accelerate global market transformation to environmentally sustainable lighting technologies by developing a coordinated global strategy and providing technical support for the phase-out of inefficient lighting. Their efforts including support on the sustainable treatment of discarded mercury lamps. For the project this partnership – but in particular its Spanish stakeholder AmbiLamp, will be a key partner for technology advise.	a. Provide free-of-charge the design of for the low-cost CFL collection and transportation boxes (*Ambi Lamp*)
UTE (National Public Utility company)	Assumes power distribution for the whole of Uruguay and is also the biggest electricity generator. UTE is committed to energy efficiency and among other initiatives has distributed among its clients approximately 2 million CFLs 3 years ago and distributed an additional 2 million CFLs in June 2013 (meeting EU RoHS regulations). The first distribution of CFLs proved successful and resulted in a reduction of 2% in national power demand. Among else, UTE will support the project by providing cash co-financing for the treatment of the CFLs they have put on the market, while they will also support the project by providing collection points for CFLs/tubes through their branch locations and conduct awareness raising making use of their monthly billing system.	a. Support building customer awareness on the proper disposal of CFLs (e.g. by printing a message on the electricity bill / adding a flyer to the electricity bill, or through mass media campaign). b. Allow the collection of CFL and tube lamps at its business branches (provide for a space to put collection boxes which would be emptied by private sector operators) c. Cover the costs for the disposal of CFL lamps collected from the public, which were distributed free of charge to reduce electricity usage (to a maximum of the no. of lamps provided free of charge through UTE = max. 2 million + 2 million) d. Cover the costs for the disposal of CFLs and tubes that have been/will be spent resulting from UTE's proper operations (usage in UTE's offices and branches, etc.) e. Appoint two focal points at UTE's HQ responsible for project implementation at UTE's side. f. Training of UTE workers involved in the handling, maintenance and storage of CFLs and tubes. g. Allocation and upgrading of CFL and tube storage facilities in order for them to meet Basel Convention guidelines.

LATU (National Technological Laboratory of Uruguay)	LATU is responsible for providing import and export certification and hostes BCCC-LAC and the Legal Metrology Directorate. The latter verifies callibration requirements (following degree 357/001) for thermometers and sphygmomanometers (both containing mercury and Hg free). LATU currently holds 230,000 Hg containing conviscated thermometers, which are expected to be treated during the start-up phase of the treatment facility. LATU already has information available on Mercury-free medical devices which have already be approved for use in Uruguay and have passed LATU certification.	a. Devices not meeting calibration standards are confiscated by LATU. It is estimated that LATU currently holds ~ 230,000 thermometers in interim storage. Although it has undertaken efforts to find appropriate sound disposal solutions, so far no disposal company has been able to provide a solution meeting national health, safety and environment regulations. LATU will contribute to the project by covering the costs associated with the sound decontamination of the confiscated thermometers and sphygmomanometers. b. In partnership with MSP and the model healthcare facilities, LATU will support the "*Staff Preference Study*" by providing easy access and information about Mercury-free medical devices which have already be approved for use in Uruguay and have passed LATU certification (by preparing and disseminating documentation listing these type of products).
National Dental Association	During project implementation the NDA will be a key partner in supporting the development of guidelines for best practices pertaining to Hg/dental amalgam management, disposal practices and dissemination of information related to these practices and guidelines among dental association members. Secondly, the NDA will also play an important role in encouraging a ban on the mixing of dental amalgam at dental offices and promoting a shift towards pre-mixed capsules or preferably alternative restorative materials.	a. Support the development of guidelines for best practices pertaining to Hg and dental amalgam management and disposal practices. b. Disseminate information on best practices related to Hg and dental amalgam management and disposal practices among dental association members. c. Support the drafting of an import ban on elemental Mercury for the "do-it-yourself" mixing of dental amalgam at dental facility level – instead promote the use of premixed capsules and spread awareness on low cost alternative to dental amalgam.
Model Facilities (healthcare facilities - both public and private; dental facilities – both public and private, high volume users of CFLs)	Involved in various important aspects of the proposed project: f. Large institutions producing mercury containing wastes g. Services providers involved in waste collection, disposal and treatment h. Distributors and retailers of Mercury containing consumer products and Mercury-free devices (e.g. distributors such as Philips, Osram, GE, etc.) i. Laboratories for testing and certification j. Others….	a. Establishment of Waste Management Committee (applies to each model facility) b. Allocate staff and staff time to conducing a detailed Hg baseline assessments for the model facility (applies to each model facility) c. Provide for safe interim storage spaces for Mercury containing products/waste at the model facility (applies to each model facility) d. Allocate sufficient staff and staff time for training purposes and the "Staff Preference Study". e. Make a commitment towards adopting procurement practices that exclusively procure Mercury-free medical devices low-mercury content products.
Administration of the State Health Services	Leading provider of public health care at	

(ASSE)	national level, through a network of comprehensive health care services throughout the country, focussing on promotion, prevention, diagnosis, early treatment and rehabilitation. ASSE is also the responsible authority for mercury waste management in health centers.	

ANNEX III: OVERVIEW OF CO-FINANCING AND SUPPORT LETTERS

Table 6: Status of co-financing at the time of project submission for CEO endorsement (for co-financing letters pls refer to Annex IV)

Name of Entity	In-kind (US$)	Cash (US$)	Total (US$)
1. Scientific and Technological Park of Pando (PCTP)	481,560	301,200	782,760
2. Ministry of Public Health (MSP)	245,000	65,000	310,000
3. Basel Convention Coordinating Centre for Training and Technology Transfer for Latin America and the Caribbean (BCCC-LAC)	30,000	10,000	40,000
4. Ministry of Housing, Land Use Planning and Environment (MVOTMA) / National Environment Directorate (DINAMA)	260,000	90,000	350,000
5. National Administration of Power Plants and Energy Submission (UTE)		1,290,000	1,290,000
6. United Nations Development Programme (UNDP)	175,000		175,000
TOTAL	**1,191,560**	**1,756,200**	**2,947,760**

Table 7: List of institutions from which the project has received letters of support (other than letters of co-financing)

1. Conatel (energy efficient light distributor)
2. Hospital de Clinicas (National University Hospital)
3. Margeres del Rio (Private Waste Operator)
4. RAPAL (NGO)
5. TRIEX (private waste operator)
6. Administration of the State Health Services (ASSE)
7. Chlor-Alkali Facility (EFICE)

ANNEX IV: UNDP URUGUAY UNIVERSAL PRICE LIST

LISTA UNIVERSAL DE PRECIOS DEL PNUD 2011
PARA SERVICIOS PRESTADOS POR LA OFICINA EN EL PAÍS
A AGENCIAS Y PROGRAMAS DE ONU

PNUD Uruguay

URUGUAY

(Todos los precios en USD)

Servicio	Costo
Procedimiento de Pago	**36.39**
Contratación de consultores	**260.53**
Publicidad (20%)	*52.11*
Pre-selección & selección (40%)	*104.21*
Emisión de contratos (40%)	*104.21*
Emisión / Renovación Documentos de Identidad (NU LP, NU ID, etc.)	**39.32**
Solicitud de visa (excluida su tasa)	**36.66**
Autorización de viaje	**35.74**
Formulario F10 (Reporte de gastos por viaje)	**32.45**
Proceso de compra que involucra CCAA (y/o requisitos IAL, SDP)	**599.94**
Identificación & selección (50%)	*299.97*
Contratación / emisión de orden de compra (25%)	*149.98*
Seguimiento (25%)	*149.98*
Compras que no involucran CCAA (compras de bajo tenor, locales)	**232.74**
Identificación & selección (50%)	*116.37*
Emisión de orden de compra (25%)	*58.18*
Seguimiento (25%)	*58.18*
Enajenación de equipos	**305.94**
Trámites de Aduanas	**65.10**
Licencias de conducir locales (proceso completo)	**52.75**
Acreditación ante gobierno	**52.75**
Registro de vehículo (proceso completo)	**52.75**
Solicitud de pasajes (reserva, compra)	**44.54**
Reserva de hotel	**19.72**

CCA: Comité de Contrataciones, Activos y Adquisiciones
IAL: Invitación a Licitar
SDP: Solicitud de Propuesta

Nota: Esta lista está prevista para servicios/procesos estandarizados. En aquellos proyectos que se prevean servicios de mayor complejidad y/o urgencia se revisará y adaptará el cargo de acuerdo a cada situación; previa negociación con la Agencia/Proyecto.