



**United Nations Development Programme
Country: Colombia
PROJECT DOCUMENT**



*Empowered lives.
Resilient nations.*

Project title: Reducing UPOPs and mercury releases from healthcare waste management, e-waste treatment, scrap processing and biomass burning.

Country: Colombia	Implementing Partner: Ministry of Environment and Sustainable Development	Management Arrangements: National Implementation Modality (NIM)
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UNDAF/Country Programme Outcome: Resilient livelihoods strengthened by implementing conservation actions, sustainable use of biodiversity, adaptation to climate change, reduction of environmental degradation, and risk management

UNDP Strategic Plan Output:

Output 1.3. Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste

UNDP Social and Environmental Screening Category: *either low, moderate or high. See further information at <http://www.undp.org/content/undp/en/home/operations/social-and-environmental-sustainability-in-undp/SES.html>*

UNDP Gender Marker:
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Planned start date:

1 October 2016

Planned end date:

30 September 2021

FINANCING PLAN

GEF Trust Fund	USD 5,800,000
UNDP TRAC resources	USD 0
Cash co-financing to be administered by UNDP	USD 0
Total Budget administered by UNDP	USD 5,800,000

PARALLEL CO-FINANCING

Government	USD 5,034,194
Private Sector	USD 27,880,824
Total co-financing	USD 32,915,018
Grand-Total Project Financing	USD 38.715.018

Brief project description:

The main objective of this five-year project is to introduce Best Environmental Practices (BEP) and Best Available Technologies (BAT) to reduce the release of unintentionally generated Persistent Organic Pollutants (UPOPs) and mercury from the treatment of healthcare waste (HCW), the processing of Waste Electrical and Electronic Equipment (WEEE), processing of iron and steel, and biomass burning in the sugarcane sector.

The project is divided into four components:

- 1) Prevent and minimize the generation of UPOPs and update their inventory;
- 2) Prevent and reduce mercury releases;
- 3) Strengthening the institutional, administrative, legal, technical and regulatory framework for reducing UPOPs and mercury; and,
- 4) Dissemination of lesson-learned, monitoring and evaluation.

The project lead by the Ministry of Environment and Sustainable Development (MADS) will meet this objective by updating available information on UPOPs and mercury releases, through undertaking UPOPs inventories and national assessments in those four sectors. In addition, the project will support the implementation of 12 demonstration projects that will introduce various BAT and BEP solutions for the different sectors supported by the project.

UPOPs related demonstration projects will introduce technical alternatives such as non-incineration technologies (HCW processing), improved waste segregation and obtaining cleaner scrap metal for high temperature processing (WEEE and iron and steel processing) and mechanical pre-harvesting (sugarcane sector) to reduce or in some cases avoid altogether the release of UPOPs. Mercury related demonstration projects aim to assess mercury-free alternatives, introduce mercury-free alternatives and improve the collection of mercury-containing energy efficient lights and primary batteries for mercury recovery.

The project will also further improve the regulatory and institutional framework to support the environmental management of UPOPs and mercury, including the development of national BAT and BEP guidelines for the four sectors, technical regulations pertaining to UPOPs and mercury management for the Healthcare (HC) and WEEE sectors. The project is also expected to establish a national registration system for WEEE and publish learned-lessons about UPOPs and mercury management.

Authorities, industry, healthcare institutions and waste managers will also benefit from project activities that aim to strengthen national laboratory capacity for UPOPs and mercury analysis. The improved control and monitoring of those pollutants will allow stakeholders to more easily meet sector specific legislation.

The project is expected to reduce UPOPs releases by 100 g-TEQ and mercury releases by 300 kg, over the project's duration, reduce the impact of such pollutants on human and environmental health, and support the country to work towards meeting its obligations under the Stockholm and Minamata Conventions.

SIGNATURES

Signature: **Agreed by Government** **Date/Month/Year:**

Signature: **Agreed by Implementing Partner** **Date/Month/Year:**

Signature: **Agreed by UNDP** **Date/Month/Year:**

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List of Acronyms and Abbreviations

ASOCAÑA	National Association of Sugarcane Growers
ANDI	National Business Association of Colombia
BAT	Best Available Technologies
BEP	Best Environmental Practices
CENARE	WEEE Recovery National Center
CENICAÑA	Sugarcane Research Center
COLNODO	Colombian Association of Non-Governmental Organizations for Communication
COSUDE	Swiss Agency for Development and Cooperation
CPAP	Country Programme Action Plan
CVC	Regional Autonomous Corporation of Valle del Cauca
EEE	Electrical and Electronic Equipment
ERC	Evaluation Resource Center
GEF	Global Environment Facility
HC	Healthcare
HCB	Hexachlorobenzene
HCW	Healthcare Waste
HCWM	Healthcare Waste Management
IDEAM	Institute for Hydrology, Meteorology and Environmental Studies
IEO	Independent Evaluation Office

MADS	Ministry of Environment and Sustainable Development
M&E	Monitoring and Evaluation
MLF	Multilateral Fund
MTR	Mid-Term Review
NGO	Non-Governmental Organization
NIM	National Implementation Modality
NIP	National Implementation Plan
ODS	Ozone-Depleting Substances
PBDE	Polybrominated Diphenyl Ethers
PCB	Polychlorinated Biphenyl
PECB	Pentachlorobenzene
PIR	Project Implementation Report
POPs	Persistent Organic Pollutants
POPP	Programme and Operations Policies and Procedures
ROAR	Results-Oriented Annual Report
SAICM	Strategic Approach to International Chemicals Management
SBAA	Standard Basic Assistance Agreement
SDG	Sustainable Development Goals
SECO	Secretary of State for Economic Affairs
SIDENAL	National Iron and Steel Industry
TE	Terminal Evaluation
UNDP	United Nations Development Programme
UNDP-GEF	UNDP Global Environmental Facility
UNEP	United Nations Environmental Programme
UPOPs	Unintentional Persistent Organic Pollutants
WEEE	Waste Electrical and Electronic Equipment

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I. DEVELOPMENT CHALLENGE

Colombia ratified the Stockholm Convention in 2008 and signed the Minamata Convention in 2013. Even so, Colombia continues to face many challenges pertaining to the management and control of hazardous and toxic substances, including the release of UPOPs and mercury. Colombia undertook its NIP in 2010 with the support of World Bank and UNDP¹. The University of Antioquia realized a national mercury inventory in 2009 with the support of the Ministry of Environment and Sustainable Development (MADS).

Inventory releases for dioxins and furans (from here on referred to as “UPOPs”) undertaken as part of the preparation of Colombia’s National Implementation Plan (August 2010)¹, indicated dioxin and furan releases of 790.17 g-TEQ/year (base year 2002)². Of these releases, 22% (177.44 g-TEQ/year) were released from the healthcare (HC) sector, the iron and steel industry and the sugarcane sector combined. However it should be noted that besides dioxins and furans there are other UPOPs which are covered under the Stockholm Convention’s Annex C, however, for those UPOPs no release information is available or was taken up in the 2010 NIP. The 2010 NIP UPOPs inventory also did not take into consideration releases from Waste Electrical and Electronic Equipment (WEEE) processing, which at the time was not a very large waste stream.

With respect to mercury releases, the 2009 Mercury Inventory report³ indicated that mercury releases amounted to 345,570 kg Hg/yr (base year 2009), of which the HC and WEEE sectors were responsible for 9,735 kg Hg/yr, corresponding to approximately 3% of total releases per year. The other main sectors responsible for mercury releases are ASGM (56%) and production of chemicals (28%).

In terms of human health impact, dioxins can cause chloracne, non-Hodgkin’s lymphoma, soft-tissue sarcoma, and immunosuppression; furans, can cause sperm abnormalities and hepatocellular cancer⁴; while mercury, (which can exist in various forms, all have different toxic effects) can have serious impacts on the nervous, digestive and immune systems, and on lungs, kidneys, skin and eyes⁵.

The National Health Institute in Colombia undertook a study in 2014 which monitored 204 housekeepers in Bogota city (an industrial and services mega city, located far from mining sites). The prevalence of mercury in some of the biomarkers was 99,2% (n=398), with the mercury concentration being higher in individuals who consumed higher amounts of fish. Clinical studies indicated that health consequences included: lost memory 79,6% (n=43), trembling 46.3% (n=25), and attention deficit 25.9% (n=14). This study showed the magnitude of the mercury problem in Colombia and the impact of exposure⁶.

In the country, there are two main barriers that need to be overcome to reduce the releases of UPOPs and mercury (see also Figure 1: Theory of Change). Firstly, the country lacks the required knowledge, awareness and technical know-how on how to improve the management of UPOPs and mercury and the type of BEP and BAT that could be applied in priority sectors to reduce UPOPs and mercury releases. Without overcoming this barrier, the uncontrolled incineration and open burning of Healthcare Waste (HCW) and biomass; the use of contaminated (“uncleaned”) scrap metal as raw material in the Iron and Steel Industry and inadequate recycling and processing of WEEE will continue to lead to the generation of UPOPs and other contaminants of global concern (e.g. PBDEs). Similarly, without overcoming this barriers, releases of mercury will continue to originate from the healthcare sector and the management of lighting products and batteries.

Secondly, the country lacks a clear policy and institutional framework for the management of UPOPs and mercury. This second barrier is apparent through the following immediate causes, which pose challenges in reducing releases of POPs and mercury:

¹ Plan Nacional de Aplicación del Convenio de Estocolmo sobre COP Republica de Colombia. 2010

<http://chm.pops.int/Implementation/NIPs/NIPTransmission/tabid/253/Default.aspx>

² MADS. 2007. Inventario Nacional de Fuentes y Liberaciones de Dioxinas y Furanos en Colombia. Línea Base 2002.

³ MADS, Universidad de Antioquia. 2010. Cuantificación de liberaciones antropogénicas de Mercurio en Colombia. Final Report.

⁴ Pontificia Universidad Javeriana, and Cendex. 2006. Evaluación de los impactos a la salud (pública y ocupacional) asociados a los Contaminantes Orgánicos Persistentes -COP-. Informe Final. Bogota, Colombia.

⁵ http://www.who.int/ipcs/assessment/public_health/mercury/en/

⁶ Osorio-García S.D., et al. Prevalencia de mercurio y plomo en población general de Bogota 2012/2013. Revista Salud Pública 16 (4): 621-628, 2014

- Lack of institutional capacity (environment, health and commerce authorities) to conduct inspections, ensure continuous monitoring and coaching, and thus, control UPOPs and mercury releases.
- Lack of knowledge about laboratory techniques to analyze and monitor UPOPs and mercury.
- Lack of awareness on POPs and mercury among priority sectors and communities.
- Lack of updated information on UPOPs, mercury and PBDEs.

As part of Colombia NIP preparation (2010), the country agreed on eight national priority actions to meet its obligation under the Stockholm Convention on POPs. This project directly supports three (3) of those national priorities actions: i) Develop an action plan for the reduction of dioxin and furan emissions; ii) Establish an inventory of dioxins and furans; and, iii) Issue the necessary regulations and laws for dioxins and furans. The project will focus on four (4) priority sectors: HCW management; WEEE management; Iron and Steel Industry; and, sugarcane production. As such the proposed project is fully in line with the country's NIP and will support the Government of Colombia to meet its obligations under the Stockholm Convention.

Although mercury emissions originating from the healthcare sector and the management of spent lighting products and batteries, are not the main release sources of mercury in the country, the phase-out of mercury containing products from these sectors as well as the improved management of spent products has been taken up in this project as activities are complementary and very closely related to support the project is going to provide to the four priority UPOPs sectors mentioned above. In supporting the healthcare sector in phasing out mercury containing medical devices and the waste management sector in improving the management and treatment of mercury containing wastes, the proposed project will support the country in meeting its future obligations under the Minamata Convention on Mercury.

Healthcare Sector

Infectious healthcare waste (HCW) generated by healthcare facilities is a hazardous waste stream that poses particular challenges in Colombia. Currently, the treatment of HCW is mainly through incineration. However, many incineration facilities use obsolete technologies with deficient emission controls, which is especially the case in poor areas located far away from urban centers. The 2002 UPOPs inventory⁷ concluded that the incineration of HCW resulted in UPOPs releases amounting to 89 g-TEQ/year.

In addition, it is common for hospitals and other healthcare facilities (HCFs) to make use of mercury containing medical devices and products, such as thermometers, blood pressure meters and dental amalgam. When broken these products are most often not kept separate from other waste streams and end up being incinerated or disposed of along with regular household waste.

The 2009 mercury inventory⁸ concluded that HCW incineration was responsible for mercury releases of approximately 176 kg-Hg/year, the breakage of medical thermometers for 1,921 kg-Hg/year, the use and disposal of dental amalgam (including the weight of the metal) 5,208 kg-Hg/year, and the use of mercury manometers (including industrial uses) 225 kg-Hg/year (release rates are based on imported and sold quantities).

WEEE Sector

The Waste Electrical and Electronic Equipment (WEEE) stream is rapidly growing in Colombia. Between 2012 and 2015 this stream has grown by 19.17%⁹. One of the Government's primary concerns with respect to the growth of this waste stream is that there is almost no in-country capacity to manage/treat and dispose of this waste stream properly. Of particular concern are the current practices that are being used to extract precious and strategic metals, resulting in the release of Unintentional Persistent Organic Pollutants (UPOPs), such as Polychlorinated dibenzo-p-dioxins (PCDD) and dibenzofurans (PCDF)¹⁰; Polybrominated diphenyl ethers (PBDEs) contained as flame retardants in plastics of TV and computer casings; and, PCBs¹¹. As electronic goods also contain a wide variety of other hazardous substances (arsenic,

⁷ MADS. 2007. Inventario Nacional de Fuentes y Liberaciones de Dioxinas y Furanos en Colombia. Linea Base 2002.

⁸ MADS, Universidad de Antioquia. 2010. Cuantificación de liberaciones antropogénicas de Mercurio en Colombia. Final Report.

⁹ National Consultant. 2015. Report on WEEE and iron and Steel Industry.

¹⁰ From smoldering of cables or plastic metal mixes in order to obtain copper and precious metals as well as from burning of printed circuit boards and plastics in order to reduce the volume of unusable waste fractions

¹¹ Released from uncontrolled combustion of e-waste and during the dismantling of older electronic and household appliances

cadmium, mercury, bromides, lead, phosphorus pentachloride; mercury) these are also often released during unsafe dismantling, recovery and recycling practices.

It is estimated that brominated flame retardant-containing plastics make up approximately 20% of the total plastics contained in the WEEE stream, however currently there is not a precise quantification of the release of UPOPs as a result of WEEE recycling/recovery practices. It is estimated that between 2016 and 2020, approximately 3,148 tons of plastics from computers, computer peripherals, refrigerators and disintegrated vehicles will be collected.

In addition, the WEEE stream also includes mercury-containing wastes, such as mercury-containing energy efficient lights and primary batteries. Unfortunately, capacity for the treatment and disposal of mercury-containing products is very limited in Colombia. The 2009 inventory estimated that mercury-emissions from energy efficient light bulbs amounted to 2,194 kg Hg/year; and from primary batteries, 11 kg Hg/year⁸.

Iron and Steel Industry

Colombia's iron and steel industry consists of five big companies, one for primary production and four for secondary production. Because of the presence of chlorine components in metal junk, the secondary processing of such metals results in the release of dioxins and furans. According to the 2002 national UPOPs inventory, the nonferrous and ferrous industry produced 47.3 g-TEQ/year of dioxin and furan emissions, of which the iron and steel industry emitted 40% (18.92 g-TEQ/year)⁷. At the same time, this sector also emits mercury releases. The 2009 Mercury Inventory indicated that primary ferrous metal production releases 14 kg-Hg/year and secondary ferrous metal production 0,3 kg-Hg/year⁸.

Sugarcane Industry

In Colombia, sugarcane plantations and mills are an important contributor to the GDP (1%)¹². In the Cauca river valley region alone, more than 200,000 hectares are dedicated to sugarcane plantations, which produce on average 20 million tons of cane per year. To facilitate the sugarcane harvesting process, biomass burning is being practiced, which results in the release of approximately 69.5 g-TEQ/year⁷. Although mechanical pre-harvesting is being practiced in certain areas, replication of this practice cannot be introduced fully unless alternative livelihoods for the families involved in biomass burning have been created (it is estimated that approximately 12,000 families¹³ currently depend on income from this activity).

The project will support the GEF's Chemicals and Waste Focal Area long-term goal, which is to prevent the exposure of humans and the environment to harmful chemicals and waste of global importance, including POPs, mercury and ozone depleting substances, through a significant reduction in the production, use, consumption and emissions/releases of those chemicals and waste.

The proposed project also contributes to the overall objective of the Strategic Approach to International Chemicals Management (SAICM), which supports the achievement of the goal agreed at the 2002 Johannesburg World Summit on Sustainable Development of ensuring that, by the year 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health.

Furthermore, the project is consistent with the Sustainable Development Goals (SDGs). In particular SDG 3 “*Ensure healthy lives and promote well-being for all at all ages*”, and its target 3.9: “*by 2030, substantially reduce the number of deaths and illness from hazardous chemicals and air, water and soil pollution and contamination*”, as well as SDG 12 “*Ensure sustainable consumption and production patterns*”, and its target 12.4: “*by 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment*”.

¹² ASOCAÑA

¹³ ASOCAÑA-CENICAÑA. 2010. Calculo del potencial de emision de dioxinas y furanos en la quema de caña de azúcar en el Valle Geográfico del Río Cauca.

II. STRATEGY

The objective of the proposed project is to decrease and potentially minimize the release of UPOPs and mercury by introducing BAT and BEP into four priority sectors through a number of demonstration projects (12 in total), improve the management and control of these substances by enhancing the policy and regulatory framework pertaining to these substances as well as create laboratory capacity.

The project has been organized into four components:

1. Prevent and minimize the generation of UPOPs and update their inventory;
2. Prevent and reduce mercury releases;
3. Strengthening the institutional, administrative, legal, technical and regulatory framework for reducing UPOPs and mercury; and,
4. Dissemination of lesson-learned, monitoring and evaluation.

Project Component 1: Aims to update the existing UPOPs inventory and to prevent and minimize the generation of UPOPs in four priority sectors.

Updating the UPOPs inventory will be an important tool for project success since it will provide a more accurate overview of the Colombian situation, update existing information and widen knowledge about UPOPs generation and the sectors that are at their sources. Since the last UPOPs inventory was conducted 14 years ago (in 2002) sectors such as waste treatment, metal production, mining activities and informal waste management, have grown significantly. In particular the last sector is known for its primitive practices such as burning plastics or rubber coatings of electric and electronic wires to extract metals. Furthermore, the initial UPOPs inventory report provided assessment results on dioxins and furans but not on hexachlorobenzene, pentachlorobenzene, polychlorinated biphenyls, and polychlorinated naphthalenes.

As part of project component 1, the project plans to undertake four (4) national sector assessments, which will not only assess UPOPs releases but also: Assess technologies and practices and their efficiency applied in the healthcare sector, WEEE sector, iron and steel industry and sugarcane industry; Facilitate dialogue and cooperation among stakeholders; Assess needs and set priorities for the four sectors. The inventory and sector assessments will help overcome the lack of knowledge about UPOPs.

Project component 1 aims to support ten (10) UPOPs demonstration projects which will introduce BAT and BEP in the four priority sectors, consisting of four (4) demonstration projects in the healthcare sector, four (4) in the iron and steel industry, one (1) in the sugarcane industry, and one (1) in the WEEE sector (detailed information about the demonstration projects is provided in Annexes 3 to 12).

Healthcare Sector (UPOPs)

As part of the four (4) demonstration projects to be implemented in the healthcare sector, the project has opted to introduce non-incineration technologies to avoid UPOPs releases. Among the technologies to be applied could be steam sterilization and encapsulation techniques, which are currently being applied by HCW treatment facilities in the four districts (facilities are located in urban centres). As those techniques and technologies have been tested and proven successful in urban centres, the project expects these techniques /technologies and approaches to also be fitting and applicable to rural areas in the same districts.

These four (4) healthcare sector demonstration projects are expected to result in a total UPOPs release reduction of 70 g-TEQ over the project's duration.

Iron and Steel Industry (UPOPs)

Four (4) demonstration projects will be developed in the Iron and Steel Industry. Two demonstration projects will aim to improve the collection, classification, and conditioning of scrap metal with the objective to improve the quality of the scrap metal (raw material), which once processed by Iron and Steel Industry, will result in a reduction in UPOPs releases. These two demonstration projects, in partnership with the metallurgy industry "Diacó", will be implemented in two cities.

To improve the primary and secondary production, a third and fourth demonstration project will be implemented in partnership with "Acerias Paz del Rio, Ternium industries" and "SIDENAL" respectively.

The demonstration projects will engage five (5) recycling associations, regional environmental authorities and the municipal governments of Medellin and Cali City.

Furthermore, the demonstration projects aim to implement BEP and BAT in primary and secondary production processes in the iron and steel industry to help overcome the lack of technology capacity. The demonstration projects will do so through optimization of the operation conditions of steel production, furnace operation, emission conditioning and continuous parameter monitoring, among other interventions to help reduce UPOPs emission generation. The projects will be implemented in line with the BAT/BEP metallurgy industry guidelines, of Section V and Annex C of the Stockholm Convention.

These four (4) demonstration projects are expected to result in a total UPOPs release reduction of 10 g-TEQ over the project's duration.

Sugarcane Industry (UPOPs)

The project will implement one (1) demonstration project in the Sugarcane sector that will aim to reduce pre-harvest waste burning. The demonstration project is expected to be located in the districts of Cauca, Valle del Cauca, and Risaralda. The demonstration project aims to select technologies that apply mechanical pre-harvesting and energy generation from pre-harvest waste. The first technique has been selected as it is considered a well-known technology throughout the world, and because the sugarcane industry in Colombia has already started to use it in certain districts. Technologies and processes that produce energy from pre-harvest waste have also already been implemented, however only for energy production that is used for the industry itself. It is anticipated, that if the demonstration project proves successful, the sugarcane industry could also consider producing energy for the national grid.

To date, the government of Colombia has not been successful in putting a halt to biomass burning in the sugarcane sector, because of socioeconomic consequences. Therefore, this demonstration project also anticipates to identify and create alternative livelihoods for people that are currently involved in biomass burning.

Several sugarmills will participate in the project, which are represented through the National Sugarcane Producers Association (ASOCAÑA, in Spanish) and the Sugarcane Research Center (CENICAÑA in Spanish). The demonstration project is expected to reduce 20 g-TEQ of dioxin and furans over the project's duration.

WEEE sector (UPOPs & PBDEs)

The project will implement one (1) demonstration project related to WEEE. The demonstration project will first and foremost focus on the separation of brominated plastics and polyurethane foams contained in computers, computer peripherals, refrigerators, and old vehicles, from other waste streams. It is anticipated that proper segregation will avoid the treatment of mixed plastics. Through identifying which type of flame retardants are present in these plastics, as well as the quantity of plastics containing POPs flameretardents, the project aims to determine what the required technologies (such as incineration or recycling under strict monitoring and control) and their proper operation are for treatment of these plastics.

Proper segregation, recovery and treatment of these type of PBDE containing plastics, in line with BAT/BEP guidelines for the recycling and disposal of polybrominated biphenyl ether-containing products will allow the country to meet its obligations under the Stockholm Convention.

Over the project's duration, this demonstration project is expected to manage a total of 1,500 tonnes of plastics from computers, refrigerators and old vehicles in a sound manner. According to the UNIDO guidelines for the development of PBDE inventories, it is estimated that those plastics contain 225 kg of PBDEs¹⁴.

Project Component 2: The second project component is related to the prevention and reduction of mercury releases. The project aims to conduct an assessment of mercury-containing medical devices used in the healthcare sector (quantities and types of mercury-containing equipment used in healthcare). The project

¹⁴ Guidance for the inventory of polybrominated diphenyl ethers (PBDEs) listed under the Stockholm Convention on Persistent Organic Pollutants. July 2012, UNIDO.

will also support the development of a guideline on the phase-out of mercury-containing medical devices and replacement by mercury-free alternatives.

In addition, two (2) demonstration projects will be implemented, the first one will support the phase-out of mercury-containing devices and equipment from the healthcare sector in a number of Health Care Facilities (HCFs) and the second one will improve the management, storage and treatment of mercury containing products which have become wastes (e.g. CFLs, batteries, etc.).

Healthcare Sector (Mercury)

This demonstration project aims to improve the management and storage of mercury containing wastes in a sound manner. The demonstration project will undertake an assessment to determine the type and amount of mercury-containing equipment used in the healthcare sector (the 2009 Mercury inventory did not include all mercury-containing medical products in the health sector). The project will start such an assessment through the identification and inventory of mercury-containing equipment in four (4) selected healthcare centers (in Bogota and Medellin), the results of which will prove useful to support the development of an inventory protocol that could be applied at national level.

Secondly, this demonstration project aims to reduce the release of 26 Kg of mercury through the substitution of mercury containing thermometers and sphygmomanometers with mercury-free alternatives in the same four (4) selected HCFs..

Finally, this demonstration project aims to treat 87 Kg of mercury, which will be collected from HCFs located in the four districts where the healthcare demonstration projects will be implemented. Mercury waste is expected to be treated by mercury distillation¹⁵.

In total, the demonstration project expects to manage 101 Kg of mercury in a sound manner over the project's duration.

WEEE Sector (Mercury)

The WEEE demonstration project aims to strengthen national capacity for waste management and treatment of mercury-containing energy efficient lights and mercury containing primary batteries through the introduction of BAT/BEP. The current capacity for the treatment of spent mercury-containing lights (mercury distillation) is 1,000 tonnes/yr. Currently, there is no capacity for the treatment of primary batteries, those are currently allowed to be disposed of in a security cell. After 2017, it will be compulsory to have primary batteries treated. The project aims to support the introduction of hydrometallurgy technology for the treatment of mercury-containing primary batteries, investments for which will predominantly be borne by the company ("INNOVA") and which will function as co-financing to the project. As part of the demonstration project, consumer incentives will be put in place to encourage consumer participation in keeping such wastes separate and delivering those to designated collection points, while creating awareness among consumers on the health and environment impacts of mercury.

The project will collaborate with the Selective Collection and Environmental Lights Waste Management System "Lúmina", associated WEEE facilities, and a licenced waste management facility "Tecniamsa".

Over the project's duration this demonstration project aims to soundly treat and store 199 Kg¹⁶ of mercury.

Combined, **project components 1 and 2**, will implement a total of twelve (12) demonstration projects. These demonstration projects will help to overcome the lack of BAT and BEP for UPOPs and mercury management and reduction in these four priority sectors. The demonstration projects will address uncontrolled incineration in HCW management and open burning of pre-harvest waste in sugarcane production, the treatment of uncleaned/polluted metal scrap at high temperatures in the metallurgical sector, and inadequate technologies/practices for the treatment and disposal of PBDE containing plastics in the WEEE sector. Furthermore the project will help phase-out mercury-containing equipment and products and improve capacity for the treatment of mercury-containing wastes in the HC and WEEE sectors.

¹⁵ It is expected that the private company "New Stetic", which collects and treats mercury – will support the project in treating the 87 kgs of mercury.

¹⁶ Over 5 years, 387 kg of mercury is expected to be containing in 8,855 tons of spent mercury containing lights and 2,400 tons of primary batteries.

Project Component 3: The project's third component aims to strengthen the institutional, administrative, legal, technical and regulatory framework for reducing UPOPs and mercury releases. The results of the inventory, assessments and demonstration projects undertaken as part of project component 1 and 2 will inform the development of BAT/BEP guidelines for the four sectors, as well as inform the drafting and development of technical regulations for i) The management of healthcare wastes; ii) Requirements for waste treatment systems; iii) Regulations for operators involved in WEEE management and treatment; and, iv) Guidelines for mercury management and substitution.

The framework will be reinforced further by the establishment of a WEEE registration system, which will contain information about waste generation rates as well as waste management

Additionally, the project will also improve the capacity of regional authorities on institutional, administrative and monitoring aspects related to mercury and UPOPs (e.g. how to overcome the lack of institutional capacity to conduct inspections, ensure continuous monitoring, and control UPOPs and mercury releases), through undertaking training programs targeted at regional authorities. Furthermore, training programs for laboratories will also be undertaken, to increase their analytical capacity for UPOPs and mercury analysis.

Project Component 4: This component is intended to provide the necessary means for the monitoring and evaluation of project results in order to inform adaptive management of the programme and improve the implementation of the project. Mid-term (MTE) and terminal evaluations (TE) will be prepared by independent evaluation teams and compiled into reports.

Component 4 will also enable consolidation of lessons learned extracted throughout the course of the project's implementation and support dissemination of lessons-learned and experiences at national, regional and global level.

Activities, results and lessons-learned from the demonstration projects will be published in individual case study reports, which will help ensure access to this information by the wider stakeholder community to the experiences, failures and successes of the demonstration projects.

Annual workshops will be organized to create awareness, solicit feedback, and allow for networking among stakeholders during the project.

The strategy explained in detail above is expected to result in the improved management and control of toxic chemical substances in Colombia. The strategy is built upon the active participation of public, private and NGO partners and aims to strengthen the legal and institutional framework pertaining to UPOPs and mercury, capacity of industry, stakeholders, waste manager and laboratories to reduce and better control releases. The project anticipates to reduce 100 g-TEQ of UPOPs and treat and dispose of 300 Kg of mercury, to help meet its obligations under the Stockholm and Minamata Conventions (see also Figure 1 – Theory of Change).

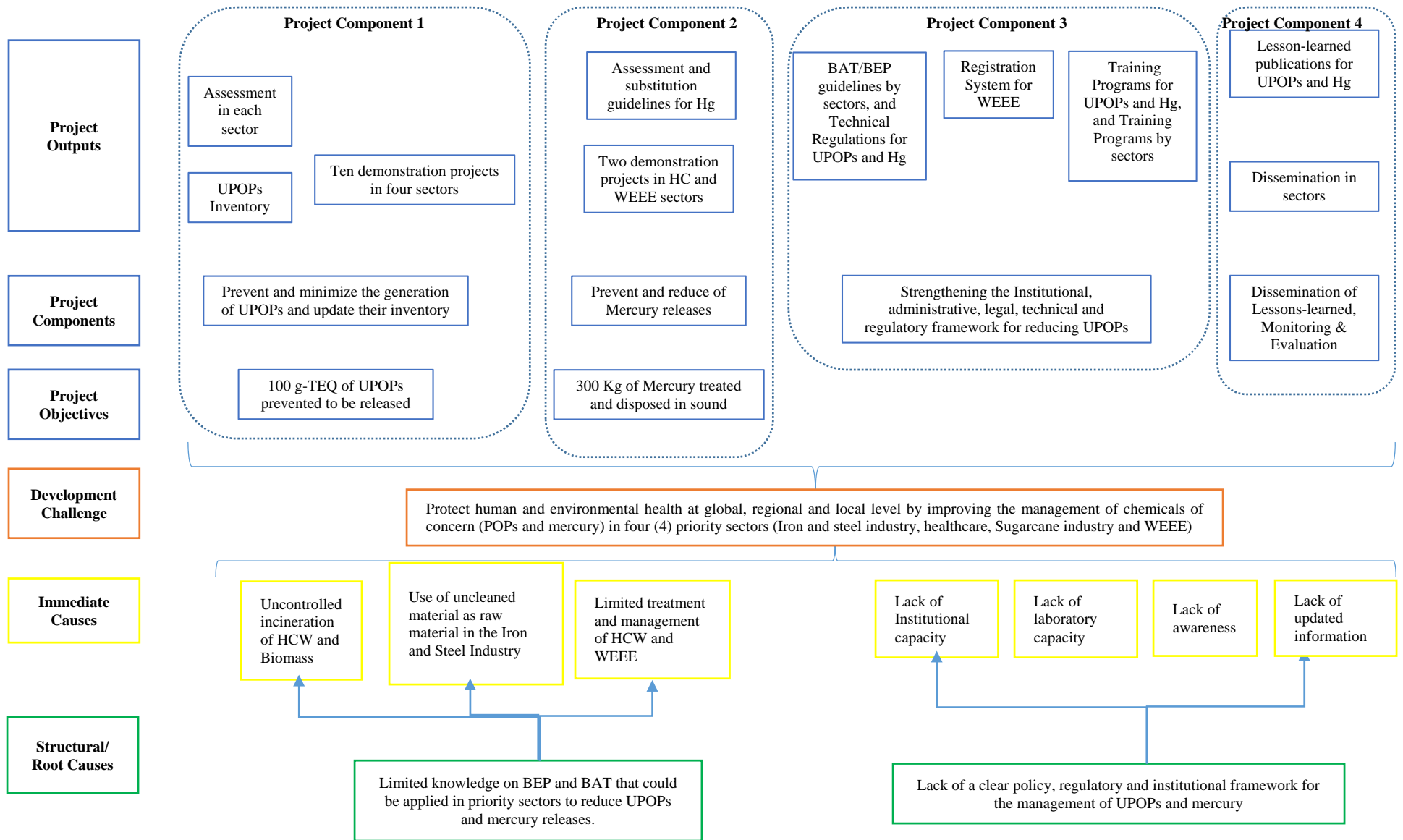


Figure 1. Theory of Change

III. RESULTS AND PARTNERSHIPS

Expected Results: The project's objective is to introduce BEP and BAT to reduce the release of unintentionally generated POPs and Mercury from the treatment of healthcare waste (HCW), the processing of Waste Electrical and Electronic Equipment (WEEE), primary and secondary metal processing and biomass burning.

Over its duration, the project aims to reduce UPOPs releases by 100 g-TEQ and mercury releases by 300 Kg to decrease the risk to human health and the environment globally, as these chemicals of concerns have been recognized as global threats¹⁷.

The principal outputs of the project, which will support the achievement of the project's four (4) outcomes are the following:

Outcome 1. Prevent and minimize the generation of UPOPs and realize their inventory

Output 1.1 One (1) UPOPs inventory developed.

A UPOPs inventory will be carried out at national level based on the emission factors established by the UNEP Toolkit 2013, and by undertaking laboratory analysis of UPOPs emissions from priority sectors, in accordance with national legislation. The inventory will encompass UPOPs contained in Annex C of the Stockholm Convention.

This inventory will exist of two components. The first one is related to dioxins and furans. An initial dioxin and furan inventory was undertaken in 2002 and this inventory needs to be updated. The second component of the inventory will be related to other UPOPs, for which no prior experience exists in the country. An international expert will be hired to guide and train national experts on how to realize the analysis of other UPOPs other than dioxins and furans.

The project will collect data on national dioxin and furan releases and will compare this data with the results emerging from the emission factors applied by the UNEP Toolkit; this comparison will establish the consistency between the two methods and determine necessary adjustments. The sectors that the inventory will focus on will be biomass burning, waste incineration, metal processing, power generation, and waste treatment. The results emerging from the UPOPs inventory will be compared with the results from the Toolkit (which applies emission factors) and adjustments will be made if deemed necessary.

The results from the inventory (identification of priority sources, release quantities, etc.) will be taken up in the National Implementation Plan.

Output 1.2 Four national sector assessments completed and assessment reports finalized.

The project will realize 4 assessments focusing on the four following priority sectors: Healthcare, WEEE, iron and steel processing and pre-harvest sugarcane waste handling. The assessment will include the identification and quantification of principal waste streams, UPOPs releases and mercury releases from these sectors.

Furthermore, these assessments will analyze national capacity for collection, transportation, storage, treatment, recovery and final disposal, and include an evaluation of technical, economic and environmental aspects.

The assessments will also review and assess technological and economic aspects of the technologies applied in these sectors. These assessments will include technology characterization of the capacity installed for treatment and recycling, operational costs, and compliance with environmental requirements. The assessments will also compare current technologies with other available BAT technologies as well as BEP approaches.

¹⁷ Statement of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes at the 30th session of the Human Rights Council. September, 2015

Output 1.3 Ten (10) demonstration projects implemented leading to a UPOPs release reduction of 100 g-TEQ.

The project aims to implement ten (10) demonstration projects. Combined, four (4) demonstration projects in the healthcare sector, four (4) demonstration projects in the iron and steel industry and one (1) demonstration project in the sugarcane industry, are expected to avoid the release of 100 g-TEQ UPOPs through the introduction of BAT/BEP. In the WEEE sector, one demonstration project will be implemented to identify brominated flame-retardants in plastics of computers, refrigerators and vehicles (additional information on the demonstration projects is presented in Annex 3 to 12).

Each of these demonstration projects will, prior to improving practices and technologies in particular sectors, establish the demonstration project's UPOPs release baseline. After the project activities have been completed, a similar UPOPs assessment will be carried out to verify the UPOPs release reduction achieved by each of the demonstration projects.

Healthcare Sector: The project will support the implementation of four (4) demonstration projects located in Uraba Antioqueño, Choco, Caribbean Coast and Amazon. Each of the projects aims to introduce applicable BAT and BEP fit for local needs and circumstances.

Uraba Antioqueño: The demonstration project, which will be implemented in Uraba Antioqueño includes four (4) sub-components. The first sub-component will introduce a waste traceability system (reverse logistics) specifically designed for the type and size of the hazardous waste generator located in Itagui municipality. The second sub-component will support a healthcare facility located in the El Tres municipality with an autoclave and shredder combination, which will service all healthcare facilities located in the Northeast of the Department. The third sub-component will move a container, fitted with an autoclave and necessary equipment for sterilization and shredding for medical waste and sharps, to a healthcare facility located in Medellín city where the service would be required. The fourth sub-component will be a pilot project using physico-chemical treatment to phase-out incineration in Uraba Antioqueño (For more information kindly refer to Annex 3).

Choco: The demonstration project to be implemented in the Department of Choco, a department located far from large urban centers, will introduce BEP and BAT to improve the collection, transport and final disposal of healthcare waste in the entire department to avoid their disposal in water resources, which is currently the main practice (For more information kindly refer to Annex 4).

Caribbean Coast: The demonstration project to be implemented in the Caribbean Coast (Departments of Córdoba, Sucre, Bolívar, and Cesar) has two (2) sub-components. The first sub-component will consist of improving the operation of BAT technologies by redesigning and replacing the post-combustion chamber and a closed circuit cooling tower; improving the neutralization and adsorption of incinerator gasses by installing a dry scrubbing system, and installing a ceramic baghouse system. The second sub-component aims to expand healthcare waste treatment coverage in the Caribbean Coast until the Department of La Guajira, by installing a microwave and autoclave technology (For more information kindly refer to Annex 5).

Amazon Region: In the Amazon Region, the demonstration project will be implemented in the La Chorrera municipality. The project aims to increase the capacity of the municipality's public hospital, for the treatment and disposal of healthcare waste by installing non-incineration technologies and ensuring that secured disposal at the landfill would be facilitated (For more information kindly refer to Annex 6).

Iron and Steel Industry: The project will support the implementation of four (4) demonstration projects in the iron and steel industry. Two (2) of the demonstration projects will focus on strengthening the collection, segregation and conditioning of scrap metal in two big cities, Cali and Medellín. The idea of those projects will be to optimize the scrap quality, by improving the flow of raw material and ensuring that it is clean and free of pollutants when it ultimately get processed. These two (2) demonstration projects will involve recycling associations to ensure that the work is socially inclusive, by engaging around 1,500 scrap collectors. The demonstration project will also build the capacity of scrap collectors for improved collection and pre-conditioning of scrap metal and help improve their working conditions. (For more information kindly refer to Annex 7 and 8).

The third demonstration project will be realized in the primary production sector. Currently, the primary production sector also involves secondary production. Therefore, this demonstration project first will implement BAT and BEP in the electric furnace for primary production, and optimize the fragmentation process of the scrap metal by strengthening capacity for the management of the waste generated by the fragmentation process of scrap metal (For more information kindly refer to Annex 9).

The fourth demonstration project will be developed in partnership with two iron and steel industries (“Sidenal” and “Ternium”). These two industries use scrap metal from different sources as well as from vehicle dismantling which is undertaken by “Sidenal” and “CI Metals La Union” (vehicle dismantling undertaken by CI Metals La Union is expected to be in operation by 2018). The project aims to improve the quality of scrap metal, as well as its storage and conditioning practices. Both approaches are expected to lead to improved combustion performance in furnaces, among else (For more information kindly refer to Annex 10).

The latter two (2) demonstration projects will also introduce BAT and BEP technologies and approaches to support the reduction of UPOPs releases.

Sugarcane Industry: The project aims to implement one (1) demonstration project to reduce UPOPs releases from the intentional burning of sugarcane prior to the harvesting process. This demonstration project will identify and introduce BAT and BEP for pre-harvest biomass clearing, mostly focusing on the establishment of a programme to introduce mechanical pre-harvesting. Furthermore, the demonstration project will work with local communities to identify two (2) alternative livelihood options¹⁸ to decrease their reliance on intentional pre-harvest sugarcane burning (For more information kindly refer to Annex 11).

Combined, the nine (9) demonstration projects described above aim to decrease UPOPs releases by 100 g-TEQ during the project period. This amount is made up of a reduction of 70 g-TEQ in the healthcare sector, 10 g-TEQ in the iron and steel industry and 20 g-TEQ in the sugarcane sector.

WEEE: The demonstration project in the WEEE sector will in particular focus on the separation of brominated plastics and polyurethane foams contained in wastes of computers and peripherals, refrigerators, and vehicles. The demonstration project aims to eliminate existing barriers. Currently, waste generators and waste managers do not identify and segregate plastics containing brominated flame retardants, and have not implemented appropriate measures to deal with these types of plastics, since they have no knowledge about the risks, how to identify such plastics, why it is important to separate them.

This demonstration project aims to improve the collection of such plastics, implement identification methods for plastics containing brominated flame-retardants, segregate PBDE containing plastics from other plastics, and ultimately treat such plastics by co-processing in cement kilns. The project expects that international experts engaged by the project will also assess the feasibility and application of treatment technologies other than thermal treatment, such as monitored and controlled recycling (For more information kindly refer to Annex 12).

Outcome 2. Prevent and reduce mercury releases

Output 2.1 One (1) assessment on the use of mercury-containing devices in the HC sector completed and one (1) guideline on the replacement of mercury-containing equipment in the HC sector drafted/ developed.

The assessment will include an analysis of mercury-containing equipment used in the healthcare sector (including type and quantities) as well as currently applied disposal methods. The results from the assessment will be incorporated in the country's Minamata Initial Assessment¹⁹ related reporting.

¹⁸One is related to the mushroom crops, and the second one is related to the collection of biomass resulting from mechanical pre-harvesting for energy generation.

¹⁹GEF/UNIDO project “Minamata Convention Initial Assessment (MIA) in the Republic of Colombia”

The project will also develop guidelines on the phase-out of mercury containing medical devices and the introduction of mercury-free alternatives in the healthcare sector, which will serve as training for the staff involved in the management of this kind of products and mercury containing wastes.

For both the assessment as well as preparation of the guidelines, the project will make use of tools and guidance materials on this particular subject produced by the international NGO Healthcare Without Harm (<https://noharm-global.org/issues/global/mercury-health-care>) and the UNDP/GEF.WHO/HCWH Global Medical Waste Project (www.gefmedwaste.org).

Output 2.2 Two (2) demonstration projects in the HC and WEEE sectors implemented, resulting in the improved management/phase-out of 300 kg of mercury through BAT/BEP introduction.

Healthcare Sector: The demonstration project in the healthcare sector aims to reduce the use of mercury-containing medical equipment and products and to improve the management of mercury containing wastes. The project will be implemented in two (2) hospitals in Bogota City and in a network of public hospitals in Medellin City.

The demonstration project will start up with an inventory of mercury containing medical devices, supplies and biomedical and industrial equipment, in order to establish an accurate baseline for the demonstration project. Subsequently the demonstration project will support the hospital in establishing a mercury substitution program. Since the substitution program might take several years, the demonstration project also will support the sound clean up, storage and disposal of dental amalgams and mercury containing wastes (For more information kindly refer to Annex 13).

WEEE: The demonstration project will determine the quantity of mercury compounds present in WEEE. This demonstration project will have two (2) sub-components. The first sub-component will focus on mercury-containing energy efficient lights.

As part of this sub-component, the project will undertake a life cycle analysis for energy-efficient mercury containing lights and determine mercury releases during their production, distribution, use and disposal. The sub-component will also undertake an analysis of the quantities and type of collected lights through existing national programmes (the results of which will be incorporated in the country's MIA related reporting); as well as, assess methods/strategies to increase community participation in lights segregation programmes and improvement of the light collection system. The sub-component will also undertake technical, transportation and environmental assessments of facilities, which currently have licenses for spent lamp transportation and waste treatment. Finally, this demonstration sub-component will also make the necessary adjustments to allow this sector to adopt BAT and BEP, and improve the transportation of mercury-containing energy efficient spent lights. Currently, the country counts one facility where mercury is recovered from energy efficient lights, which is located in Cali City, and which has proven to be a technically and economically feasible process. A second facility is going to be established in Bogota City. Necessary investments will be made by the waste facility ("ECOINDUSTRIA") and will be counted as co-financing to the project, while a small GEF contribution will be applied to cover incremental costs.

The second sub-component will be related to the prevention and reduction of mercury wastes generation from primary batteries. This sub-component will support capacity creation for waste stream segregation, improve the management capacity of primary batteries in remote areas and strengthen overall national capacity for the treatment of these types of wastes (For more information kindly refer to Annex 14).

Combined these two demonstration projects are expected to improve the reduce the release of 300 kg of mercury, made up of 101 Kg of mercury from the healthcare sector (87 Kg of mercury treated and stored originating from the project's four (4) districts; and 14 Kg phase-out from four (4) hospitals), and 199 Kg from the WEEE sector.

Outcome 3. Strengthening the institutional, administrative, legal, technical and regulatory framework for reducing UPOPs and mercury.

Output 3.1 Four (4) national guidelines and two (2) technical regulations based on BAT/BEP published.

The project aims to develop four (4) national guidelines, one for each of the project's focal sectors (healthcare waste management, scrap metal management, WEEE management and pre-harvest biomass management). These four (4) technical guidelines will be based on Stockholm, Basel and Minamata Convention requirements and existing guidelines. The guidelines will be developed taking into consideration other countries' experiences, the results of the project's demonstration activities and the Colombian setting. The ultimate aim of the guidelines is support these 4 sectors in avoiding and reducing UPOPs and mercury releases.

For the healthcare sector, the guidelines will include technical aspects related to the management and disposal of HCW. For the WEEE sector, the guidelines will emphasize the sound management and disposal of plastics containing flame retardants and mercury containing wastes. For the iron and steel industry, the guidelines will include primary and secondary production, recovery, as well as cleaning and management of scrap metal. The guidelines for the iron and steel industry will also include metal recovery from old vehicle dismantling as it is a major source of scrap metal. The guideline for the sugarcane industry will include techniques and practices to decrease biomass burning.

In the case of the two technical regulations, one will be on the management of HCW and the other one on the management of WEEE.

Healthcare Sector: A technical regulation for Healthcare Waste will be drafted based on Decree 351 (2014), which establishes the minimal conditions and requirements for HCW generators, transporters and waste managers. In addition to drafting a new HCW regulation, the project will also revise and improve the current HCW Manual (Resolution 1164, 2002) in accordance with Decree 351 and in light of new developments in the area of HCW treatment and disposal.

The HCW regulation will introduce new tools and approaches in line with technical and normative advances during recent years, not only taking into consideration those in Colombia but also those at the international level. The technical regulation will also establish the necessary conditions for the management of HCW in order to avoid/reduce releases of UPOPs and mercury in the healthcare sector.

WEEE: A technical regulation for WEEE will be drafted based on the need to develop and issue a regulation that establishes the legal, technical and administrative features from a holistic perspective, founded on Extended Producer Responsibility (EPR), which is set in the WEEE Law (law 1672 of 2013). The new technical regulation also will establish the necessary management aspects to consider in the management of WEEE containing brominated flame retardants and mercury.

Output 3.2 One (1) WEEE generation and management registration system established.

This project output aims to establish a WEEE generation and management registration system, including manufacturers, importers, generators, waste facilities and recycling companies. The system will also capture information on existing collection systems, the quantity of imported equipment and licensed waste handlers.

It is expected that this system will also play an important role in creating awareness among consumers and the general public on WEEE management. The system is expected to help inform consumers and the general public on WEEE classification, the risks that such wastes present to human health and the environment, as well as the plans, programmes, projects and strategies which have been developed at national level for the environmental sound management of this waste stream.

Furthermore, this system will facilitate the identification and quantification of components and wastes with hazardous characteristics, mainly those containing mercury, brominated flame-retardants and substances listed under international chemicals related MEAs.

The *WEEE generation and management registration system* also aims to include a list of all producers (importers and local manufacturers), distributors, refurbishment, repair and second-hand companies, transporters, waste handlers (formal and informal), recyclers, WEEE exporters, ferrous and non-ferrous exporters and consumers or users.

Output 3.3 Four (4) training programmes for authorities developed, and two (2) training programmes for laboratories developed.

The project aims to develop four (4) training programmes targeted at relevant authorities. These training programmes will focus on the introduction of measures, practices and technologies (BEP & BAT) that would prevent and reduce emissions of UPOPs and mercury.

One (1) training programme will be developed and implemented to train relevant authorities about the adverse impacts of UPOPs and the ways in which to prevent their generation through strategies of sustainable production and consumption. The second training programme will prepare environmental and sanitary authorities to create awareness on mercury issues and to build necessary capacity to support industries and priority sectors in the implementation of BAT and BEP.

The third and fourth training programmes will target HCW generators and waste companies, as well as WEEE generators and waste companies respectively, on the implementation of BAT and BEP in those sectors.

The project also aims to develop two (2) training programmes for laboratories focusing on the validation of protocols for the measurement of UPOPs, brominated flame-retardants, and mercury. Furthermore, this training component aims to train laboratories on accreditation processes of those protocols.

Outcome 4. Dissemination of Lessons-learned, Monitoring & Evaluation

Output 4.1 Two (2) publications with lessons-learned from the UPOPs and mercury demonstration projects published.

The project aims to publish two publications. The first one on UPOPs will include the learned lessons from the management and disposal of HCW, management of plastics containing brominated flame retardants, scrap metal recovery, primary and secondary iron and steel production and the techniques implemented to eliminate biomass burning in the sugarcane industry.

The second publication on mercury will include lessons learned on the substitution of mercury-containing equipment and supplies in healthcare facilities, and the management of mercury wastes from WEEE and the healthcare sector.

These two publications will include information on the methodology applied in each of the demonstration project, the difficulties encountered, as well as the projects' successes and their compliance with the project's objectives.

Output 4.2 One (1) Project Inception Workshop and five (5) annual workshops organized.

One project Inception Workshop as well as five (annual) workshops (one-each project year) will be organized during the project's duration to create more awareness, and allow for information exchange and networking between project partners and present the results and progress of each of the project's activities.

Output 4.3: One (1) mid-term report and one (1) final evaluation report prepared.

The mid-term evaluation will be carried out 2.5 years after the project's launch, and will assess the progress of each project activity and attainment of the project's indicators presented in the Project Results Framework (Section V) and Multiyear Plan (Annex 1). This evaluation will also assess the disbursement

of financial resources and co-financing provided by project partners, as well as monitor and assess administrative aspects as agreed upon between UNDP and MADS for the execution of the project.

The Mid-Term Evaluation/Review (MTR) will also inform the adaptive management of the project and improve its implementation for the remainder of the project’s duration.

The Terminal Evaluation (TE) aims to evaluate whether all planned project activities have been developed, resources granted by the GEF have been disbursed and spent in line with GEF and UNDP policies and rules, and in accordance with the activities as set-out in this project document. The Terminal Evaluation will also extract and identify lessons-learned, how to disseminate them most efficiently and make recommendations to ensure that project results become sustainable.

Partnerships:

The implementation of this project requires the active participation of several partners, government partners as well as civil society and private sector partners. Responsibilities of these partners in the project’s implementation as well as initiatives supported by these partners in addressing the project’s development challenge, have been summarized in the Tables 1, 2 and 3 below

Table 1. Partnerships from Government Partners

Partner	Responsibilities of the partner in the project’s implementation and other initiatives this partner is implementing that contribute towards the achievement of this project.
Ministry of Health and Social Protection	<p>Responsibility in the project: Participate in the development of the UPOPs inventory. Coordinate the development of demonstration projects for the treatment of HCW, WEEE, scrap metal and pre-harvest wastes. Support the development of the two (2) technical regulations (HCW, WEEE) and the four (4) guidelines, in collaboration with MADS.</p> <p>Other on-going initiatives/baseline projects, which contribute towards the project’s results: The Ministry is responsible for the development and implementation of policies related to the protection of the environment and human health. The Ministry is also coordinating with other governmental entities the implementation of Stockholm and Minamata Conventions.</p>
Ministry of Housing and Territorial Development	<p>Responsibility in the project: Support the project’s strategies to recover scrap metal and to improve the social conditions of scrap collectors. Provision of financial support (co-financing) in the area of waste management to reduce the open burning of waste.</p> <p>Other on-going initiatives/baseline projects, which contribute towards the project’s results: Control the services of collection and final disposal of municipal solid waste, as well as the implementation of waste recovery programmes.</p>
Ministry of Agriculture and Rural Development	<p>Responsibility in the project: Follow and provide strategic advise on the implementation of activities related to green and/or mechanical harvesting in the sugarcane sector; as well as create awareness among communities living close to the plantations.</p> <p>Other on-going initiatives/baseline projects, which contribute towards the project’s results: Monitor and control agricultural activities and issues in the country and develop programmes for various agricultural areas.</p>

Partner	Responsibilities of the partner in the project's implementation and other initiatives this partner is implementing that contribute towards the achievement of this project.
Ministry of Interior	<p>Responsibility in the project: Establish the measures to avoid that communities living close to sugarcane plantations promote fires, an illegal practice which is often applied to obtain sugarcane from the sugar mills and commercialize it to produce panela (a typical product from sugarcane commonly used in Colombia).</p> <p>Other on-going initiatives/baseline projects, which contribute towards the project's results: The Ministry participates in meetings with community leaders and regional authorities to address the problems related to uncontrolled sugarcane biomass burning.</p>
Regional Autonomous Corporation of Valle del Cauca (CVC)	<p>Responsibility in the project: The CVC is in charge of the control and monitoring of the sugarcane plantations involved in the project. Their participation is critical to decreasing biomass burning, and to ensure the continuity of the programmes.</p> <p>Other on-going initiatives/baseline projects, which contribute towards the project's results: The CVC has participated in meetings with the various sugarcane parties involved in the activities envisaged by the project, since those activities should be approved by its environmental authority.</p>
Ministry of Trade, Industry and Tourism	<p>Responsibility in the project: Provide advise regarding the development of regulations pertaining to mercury-containing products. Support the implementation of measures regarding the use of mercury-containing products and electronic and electric equipment, as well as support the implementation of regulations related to the iron and steel industry. Support the development of the two (2) technical regulations (HCW, WEEE) and the four (4) guidelines, in collaboration with MADS and MHSP.</p> <p>Other on-going initiatives/baseline projects, which contribute towards the project's results: Monitor and control the quality of locally produced and imported products in Colombia.</p>
Ministry of Information, Technology and Communications	<p>Responsibility in the project: The Ministry is implementing a programme which supplies and replaces computers in public schools, located throughout the country. The ministry also has a computer collection and disassembly facility.</p> <p>Other on-going initiatives/baseline projects, which contribute towards the project's results: The Ministry issues the regulations and policies related to the implementation and use of EEE, and participates in the implementation of Law 1672 that regulates WEEE.</p>
Ministry of Labour	<p>Responsibility in the project: The Ministry is required to monitor Occupational Risks and is responsible for the establishment of measures to protect the population at risk from occupational exposure to UPOPs, brominated flame retardants, and mercury.</p> <p>Other on-going initiatives/baseline projects, which contribute towards the project's results: The Ministry promotes the development and implementation of technical security measures in sectors which manage or generate mercury and UPOPs.</p>
Regional Environmental Authorities	Responsibility in the project: Support implementation of environmental standards at local level. Regional Environmental Authorities will receive

Partner	Responsibilities of the partner in the project’s implementation and other initiatives this partner is implementing that contribute towards the achievement of this project.
Instituto of Hydrology, Meteorology and Environmental Studies (IDEAM)	<p>the necessary training in BAT and BEP application, and subsequently support the review and improvement of the policy and regulatory framework governing UPOPs and mercury. Their participation will ensure the proliferation of established policies across the country to achieve a decrease in UPOPs, brominated flame retardant, and mercury releases.</p> <p>Other on-going initiatives/baseline projects, which contribute towards the project’s results: Regional Environmental Authorities support the implementation of environmental standards at local level</p> <p>Responsibility in the project: The Institute will provide advise throughout the development of validation and accreditation activities targeted at laboratories participating in the project, to help strengthen and improve their capacity.</p> <p>Other on-going initiatives/baseline projects, which contribute towards the project’s results: The institute is in charge of the accreditation of laboratories that work with environmental matrixes. IDEAM also approves validation manuals for analytical methods to ensure that these methods are recognized at national level.</p>
Ozone Technical Unit (unit belonging to MADS)	<p>Responsibility in the project: Activities related to WEEE containing Ozone-Depleting Substances (ODS) will be developed in conjunction with this UPOPs/Hg project.</p> <p>Other on-going initiatives/baseline projects, which contribute towards the project’s results: The Ozone Unit supports the implementation of a demonstration project entitled “End of Life, ODS Destruction Management”, which is funded by the Multilateral Fund (MLF). The project estimates to achieve the destruction of 56 tonnes of CFC-11 and 29 tonnes of CFC-12 as part of the project.</p>

Table 2. Partnerships from the Civil Society Organizations

Partner	Responsibilities of the partner in the project’s implementation and other initiatives this partner is implementing that contribute towards the achievement of this project.
COLNODO	<p>Responsibility in the project: This institution aims to promote this project by using online socialmedia networks, since its function is to facilitate communication, information, and experience exchange among networks and stakeholders.</p> <p>Other on-going initiatives/baseline projects, which contribute towards the project’s results: This institution prepares content and information on Sustainable Development, which is disseminated through online social media networks.</p>
National Business Association of Colombia, ANDI	<p>Responsibility in the project: ANDI’s Environmental Vice-President will be part of the project’s Steering Committee to represent industry partners and their participation in this project.</p>

National Center of Cleaner Production	<p>Other on-going initiatives/baseline projects, which contribute towards the project's results: This association, representing the industrial sector, participates in the development and review of various norms relevant to this sector.</p> <p>Responsibility in the project: This entity will contribute to the dissemination of project results through its website, as well as participate in project meetings and committees related to WEEE.</p> <p>Other on-going initiatives/baseline projects, which contribute towards the project's results: The CPC is an entity that supports the development of a WEEE management project in Colombia. The WEEE project will be financially supported by the Swiss Agency for Development and Cooperation – COSUDE – and the Secretary of State for Economic Affairs – SECO – of the Swiss Government.</p>
Association of Recyclers and Waste Pickers	<p>Responsibility in the project: The association will participate in the dissemination of the project results, in particular those related to the collection of scrap metal. Since the scavengers pay attention to the association's recommendations, the association's influence will play an important role in scrap collection in cities, such as Cali and Medellin.</p> <p>Other on-going initiatives/baseline projects, which contribute towards the project's results: This Association organizes the scavengers who collect and manage scrap metal.</p>

Table 3. Partnerships from the private sector

HCW sector	<p>ASEI (Waste management facility) Implement a waste-bag to waste-bag traceability system by reverse logistics, specifically designed for the type and size of the hazardous waste generator located in Itagui municipality.</p> <p>COAMBIENTAL (Waste management facility) Implement a pilot project using physico-chemical treatment.</p> <p>VERTISA (Waste management facility) For a cluster of hospitals, a mobile unit (containing an autoclave and necessary equipment for sterilization and shredding of biomedical waste and sharps) will be introduced which can be transported from hospital to hospital for treatment of medical waste.</p> <p>FUTURASEO (Waste management facility) Introduce an autoclave and shredder for HCW treatment</p> <p>PRESERVEC (Waste management facility) Implement the collection, transport and final disposal of hazardous healthcare waste in a sound manner.</p> <p>TECNIAMSA (Waste management facility) Introduce HCW treatment by autoclave and microwave.</p> <p>ECOFUEGO (Waste management facility) Redesign and substitute the post-combustion chamber and closed circuit cooling tower; improve neutralization and adsorption of gasses from incineration by the installation of a dry scrubbing system, and set up a ceramic baghouse system.</p>
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La Chorrera HC center – San Rafael (hospital) Improve the coverage of HCW treatment and disposal by installing autoclaves and secure landfills.

Other on-going initiatives/baseline projects, which contribute towards the project’s results: Waste treatment facilities are currently implementing waste treatment systems, which can be considered as co-financing to the project.

Iron and steel industry

SIDENAL Participate in BAT and BEP implementation for scrap metal segregation, cleaning and treatment resulting from vehicle dismantling.

GERDAU DIACO Participate in the programme on recovery and selection of scrap metal from municipal solid waste in Medellin and Cali City. Implement BAT and BEP for waste treatment in its steel furnaces.

Siderúrgica de Caldas Ternium Implement BAT and BEP in the production of alloy steel.

Paz del Rio Implement BAT and BEP for the electric furnace and scrap metal fragmentation in its production process.

CI Metales la Unión Implement a vehicle dismantling plant in Pereira city.

Other on-going initiatives/baseline projects, which contribute towards the project’s results: The iron and steel companies have established extensive programmes for scrap metal suppliers to obtain scrap metal from industrial waste streams which is as clean as possible. An additional source of scrap-metal is an on-going vehicle dismantling project which will be counted as co-financing to the project.

Sugarcane industry

ASOCAÑA **Responsibility in the project:** ASOCAÑA constitutes a union of the majority of sugarcane mills in Colombia. The sugarcane mills will invest in harvest methods such as mechanical sugarcane harvesting and green sugarcane cutting. These sugarmills will also invest in the use of agrochemical supplies without chlorine. The sugarcane mills will provide resources to develop economic projects within the communities surrounding the plantations to avoid intentional biomass burning and to mitigate non-intentional burning.

Other on-going initiatives/baseline projects, which contribute towards the project’s results: In November 1996, the Colombian sugar industry signed the “Convention for Clean Production Agreement” with MADS, the Regional Autonomous Corporations of Cauca, Valle del Cauca and Risaralda and civil society represented by the community of Palmira. The Convention aims to reduce environmental impacts by promoting the use of best environmental practices and eco-efficiency in the sugarcane sector. The sector also has an Automated Meteorological Network for the Sugar Sector consisting of 28 stations, which provide climatological and meteorological information for the proper programming of sugar cane field burning, to avoid ashes falling in dense population areas.

Brominated Flame Retardants WEEE

ECOCOMPUTO Provide physical, economic and human resources for the collection and segregation of plastics from computers and peripherals; identify plastics containing brominated flame retardants, and manage them in a sound way.

Red Verde
CENARE Provide physical, economic and human resources for the collection and segregation of plastics from large appliances; identify the plastics containing brominated flame retardants, and manage them in a sound way.

SIDENAL Selection and segregation of plastics containing brominated flame retardants resulting from the vehicle dismantling programme.

OCADE	Selection and segregation of plastics containing brominated flame retardants resulting from the WEEE disassembly programme.
Holcim	Develop a demonstration project for the treatment of plastics containing brominated flame retardants.

Other on-going initiatives/baseline projects, which contribute towards the project's results: ECOCOMPUTO, Red Verde, and CENARE have implemented post-consumer programmes for the collection of computer, peripherals, and large appliances. Holcim have introduced co-processing of WEEE in cement kilns combined with another types of hazardous wastes. In addition, there is also a vehicle dismantling project and WEEE disassembly program (see above).

Hg HCW	Medellin hospitals network	Establish demonstration programmes for the phase-out and improved management of mercury-containing medical equipment. Ensure the sound management of mercury wastes and its treatment at a facility fit and licensed for the treatment of mercury waste (private company “ <i>New Stetic</i> ”).
	Meredi Hospital	

Other on-going initiatives/baseline projects, which contribute towards the project's results: Private hospitals are currently implementing waste treatment systems, which can be considered as co-financing to the project.

New Stetic	Invest in the expansion of its facilities, and in mercury wastes management.
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Other on-going initiatives/baseline projects, which contribute towards the project's results: The company (New Stetic) currently collects dental amalgam and recovers the mercury through distillation. The recovered mercury is subsequently stored.

Hg WEEE	Lúmina	Invest in infrastructure to collect, segregate and manage mercury-containing energy efficient spent lights at national level.
	TRONEX RECOPILA Pilas con el Ambiente	Invest in infrastructure to collect, segregate and manage mercury containing spent primary batteries at national level.
	INNOVA	Expand and modernize the facility for treatment of mercury-containing energy efficient lights. Install a hydrometallurgical treatment plant for mercury-containing primary batteries.
	ECOINDUSTRIA	Set up a treatment facility for mercury-containing energy efficient lights (predominantly financed through co-financing, with a small contribution provided by the GEF Grant.
	LITO S.A.S	Set up a treatment facility for mercury-containing energy efficient lights (predominantly financed through co-financing, with a small contribution provided by the GEF Grant.

Other on-going initiatives/baseline projects, which contribute towards the project's results: Lumina, Recopila and Pilas con el Ambiente have established post-consumer collection programmes at national level. Innova is a facility with experience in spent lights treatment, while Ecoindustria has a storage facility for mercury-containing energy efficient lights.

Stakeholder engagement:

The project will involve communities from indigenous and afro-american regions, local communities and waste pickers, as summarized in Table 4 below.

Table 4. Stakeholders

Key Project Stakeholder	Strategy to Ensure Stakeholders are Engaged
Indigenous and Afro-American Communities	The project will involve and benefit communities from Uraba, Choco, Amazonia, and the Caribbean Coast regions. These communities are expected to benefit from the HCW demonstration projects since they make use of the healthcare facilities participating in the project and live nearby, and thus are exposed to any negative healthcare waste impacts and associated pollution. The project will organize workshops and invite representatives of the communities.
Local communities located close to sugarcane plantations	The project will propose and develop alternative livelihood options for these communities, who currently are intentionally burning biomass to recover the sugar and sell it illegally.
Local communities generating and segregating wastes at household level	The project will undertake a large scale awareness campaigns on waste segregation, showing the general public the economic, social and environmental benefits by separating WEEE from the municipal solid waste stream.
Waste pickers and recyclers	The project will involve waste pickers, who recover valuable materials (e.g. scrap metal) from municipal solid waste streams and depend on this activity for their livelihoods. The project will encourage waste picker participation through training and scrap metal collection activities.

Mainstreaming gender:

According to a preliminary analysis conducted during the project's formulation, gender aspects related to the project's activities can be considered to be the following:

Healthcare Sector: Within healthcare facilities, the management of HCW and mercury-containing equipment and wastes is mostly assumed by women (90%), which make up the majority of healthcare facility staff (e.g. nurses and cleaning staff). Once healthcare wastes are passed on to waste treatment facilities, they are in the majority of cases handled by men (99%). Therefore, it can be concluded that healthcare waste impacts both genders. This analysis also reiterated the importance to involve the Ministry of Labour in the project's implementation as it is supposed to safeguard occupational health for any workers.

WEEE: The management of WEEE is predominantly undertaken by the male population, not only at the side of waste generators, but also on the side of waste treatment facilities. For the purposes of tailoring project activities to project beneficiaries, WEEE management is therefore considered as a male dominated activity, and measures need to be implemented to mitigate exposure risks to workers in this area. However, it should be noted that the inadequate disposal of these wastes could generate exposure risks to both genders, as well as children.

Iron and Steel Industry: The demonstration projects that will be carried out in the iron and steel sector will involve waste pickers, of which 52% are women and 48% are men. Their activity is considered informal, but upon which many families depend. In Bogota city alone, there are 2,000 families involved in waste picking. The demonstration projects will involve the waste pickers and recyclers associations located in Medellin and Cali City, and aim to improve the labor aspects and income of waste pickers participating in these demonstration projects.

Within the iron and steel industry, day-to-day physically demanding activities are mostly undertaken by men, while administrative activities are supported by both men and women (50 – 50). In terms of environmental management, it is mostly women who are involved in decision making related to environmental aspects in this industry.

Sugarcane Industry: In the sugarcane plantations, field activities are supported by men, however (according to ASOCAÑA) female participation has been increasing recently. Informal sugarcane harvesting is mostly undertaken by surrounding communities, mostly by poor female-headed households.

During the project's preparation it was estimated that there are approximately 5,000 people involved in this illegal activity, women making up the majority. The project therefore aims to create alternative livelihoods for these communities with a focus on poor female headed households.

Project activities will be implemented with a gender perspective in a manner that they will prevent, mitigate and correct the conditions where women and men (and sometimes children) are exposed to UPOPs, brominated flame retardants and mercury.

The project will closely look at activities that have been implemented in other countries in the Regional South-South and Triangular Cooperation (SSTrC) will be promoted.

IV. FEASIBILITY

Cost efficiency and effectiveness:

At the formulation stage of this project, the priority sectors have demonstrated that they are willing to provide their own resources (as co-financing) to implement measures that promote the reduction of mercury and UPOPs releases. However project partners will require additional support and funding to prepare and implement specific demonstration projects that will aim for equipment substitution or technology implementation in their production and waste management processes. As such the use of GEF funding is entirely complementary.

The activities under this project are based on the formalization and implementation of cooperation schemes between principal actors in the four (4) priority areas the project will be focusing on. The strategy presented in this project is based on the following considerations that allow GEF and counterpart resources to offer maximum results.

UPOPs

The UPOPs inventory will be updated using the more recent version (2013) of the Toolkit for Identification and Quantification of Releases of Dioxins, Furans and Other Unintentional POPs. This methodology has been used in different countries including Latin-American countries. The UPOPs measurements in waste treatment, metals production, coke production, cement manufacturing and biomass burning, will be taken by applying the methodologies recognized internationally, developed by the Environmental Protection Agency from the US or European Union countries. Some of those methodologies have been employed in Colombia before. As such the project will apply proven approaches and methodologies, which have been tested widely and proven the most cost-effective and efficient.

Healthcare Waste Management: The four (4) HCW demonstration projects will apply practices and technologies, which are being widely used in different parts of the world. Mainly, these demonstration projects will take into consideration the results from the GEF/UNDP/WHO/HCWH Global Medical Waste project (Argentina, India, Latvia, Lebanon, Philippines, Senegal, and Vietnam) as well as other HCWM projects implemented worldwide. Such projects and programmes have demonstrated the feasibility of the use of HCW technologies such as autoclaves, chemical treatment, among others. The application of approaches and technologies that have proven successful elsewhere, will ensure cost efficiency and cost effectiveness of the proposed project interventions.

Iron and Steel Production: Improving the process for the collection of metal scrap will involve waste pickers and recyclers from two big cities in Colombia. Although the project developers are unaware of similar initiatives undertaken elsewhere, it is believed that the process will be effective because of the direct involvement of the Association of Recyclers and Waste Pickers. The association will participate in the dissemination of the project results, in particular those related to the collection of scrap metal. Since the scavengers pay attention to the association's recommendations, the association's influence will play an important role in scrap collection in cities. The involvement of the informal sector, the Association and in particular the waste-pickers/recyclers themselves who are eager to increase their income from scrap metal, is believed to make this project approach very cost effective (and above that a pro-poor intervention).

WEEE: The technologies that will be introduced to separate the plastics containing brominated flame retardants from plastics that do not contain these flame-retardants have been applied successfully and at low cost in Africa and Asia. Regarding treatment for these types of plastics, Colombia has experience in the co-processing of plastics contaminated with pesticides and foam with CFCs in cement furnaces or thermal treatment in rotary furnaces. Plastics and scrap metal recovered during the dismantling of obsolete vehicles has been successfully implemented in the USA, where this practice is one of the principal sources of scrap metal according to the Automotive Recyclers Association and the Institute of Scrap Recycling Industries. Although the environmental and economic benefits from the segregation and management of obsolete vehicles are obvious, Colombia does not yet have experience in this area. However the project has considered to incorporate this practice as part of the project since its potential for the recovery of plastics, and ferrous and nonferrous metals, which will reduce reliance on the raw materials (often through imports). As such this practice is considered cost-effective.

Sugarcane production: In the area of biomass burning, the project considers applying Colombian experiences in substitution practices promoted by Asocaña and Cenicaña. The project will also take into consideration experiences from Brazil, where manual harvesting has been replaced by mechanical harvesting (aka “Green Harvesting”). In both cases, mechanical harvesting and alternative practices have proven to be cost-effective and efficient.

Mercury

Healthcare: The substitution programme for mercury-containing equipment and products in healthcare institutions takes into consideration the results and success of the UNDP’s Global Medical Waste Project (Argentina, India, Latvia, Lebanon, Philippines, Senegal, and Vietnam). This project supported the phase-out of mercury containing medical devices to reduce mercury releases in order to protect public health at the local level as well as the global level. Other experiences in Uruguay, Argentina, and Costa Rica also have remarkable achievements in mercury substitution, which have also been considered in the development of this project.

Mercury containing wastes is expected to be collected from HCFs located in the four (4) districts supported by the project, and to be treated by mercury distillation for mercury recovery²⁰. During implementation, the project will consider various internationally accepted technologies, and based on the amount of waste to be treated and stored, will decide on the feasibility and cost-effectiveness to treat the waste in the country or abroad.

Energy Efficient Lights: Mercury contained in energy efficient lights is already being recovered in Colombia, the plant is located in Cali City, and it has proven to be technically and economically feasible. Therefore, the company is going to open a new facility in Bogota City.

Primary batteries: In the case of primary batteries, different technologies have been studied in the country, and hydrometallurgical technology has been selected as the most technical and economic feasible according to the volume of waste batteries produced. This technology has also been used successfully in Spain, where other materials are recovered as well and sold to recyclers.

The manufacturers of mercury-containing energy efficient lights and primary batteries are interested in investment in these technologies since it is cost-effective to treat this type of waste in the country instead of shipping it abroad, reducing the costs from 5,000 US dollars per tonne of waste to 2,000 US dollars/tonne of waste.

The proposed project approach is the best since the project’s two intervention (UPOPs and Hg reduction) are interconnected and will generate clear measurable results of 100 g-TEQ of UPOPs release reductions and 300 Kg of mercury release reductions respectively.

The UPOPs inventory, national assessments in the four sectors and mercury-containing equipment assessment in the healthcare sector will help to understand the current situation in the country on UPOPs

²⁰ It is expected that the private company “New Stetic”, which collects and treats mercury – will support the project in treating the 87 kgs of mercury.

and mercury releases, technologies/practices used, etc. Awareness on the risks to the environment and human health from these pollutants, as well as knowledge on the sound management of BAT and BEP, through the training programmes, will be created among authorities, partners and stakeholders.

Partners and stakeholders from the four sectors will support and participate in the different demonstration projects. These demonstration projects will help to observe and understand options for BAT and BEP that could be applied in the four sectors and achieve the project's results. From these experiences, national guidelines for BAT/BEP for each of the four sectors will be developed and learned-lessons on UPOPs and mercury management in the country will be published. Government authorities will obtain sufficient information from all these processes to be able to generate technical regulations for the HC and WEEE, as well as establish a national registration system for WEEE. Authorities, industry, HC institutions and waste managers will benefit from the strengthening of the national laboratory capacity in the analysis of UPOPs and mercury which will facilitate the control and monitoring by responsible authorities of the generation of those pollutants, and support partners in meeting national legislative obligations. All these interventions will result in an improvement of the human health and environmental conditions in the country, and in meeting the obligations that Colombia has the Stockholm and Minamata Conventions.

Finally, the coordination of three (3) UNDP/GEF Chemicals and Waste projects being implemented through one joint project unit, will allow synergies between the various actors, such as laboratories, waste facility operators, environmental authorities and associations that already plan an active role in these POPs projects.

Risk Management:

The key risks that could threaten the achievement of project results have been summarized in Table 5 below.

Table 5. Project Risks

Description	Type	Impact & Probability	Mitigation Measures	Owner	Status
<p>There are no locally suitable BAT and BEP alternatives available .</p>	<p>Organizational</p>	<p>Probability: 3 Impact: 2 Significance: Moderate</p> <p>Potential effect on the project:</p>		<p>MADS</p>	
		<p>Healthcare staff continues to use mercury containing medical products because mercury-free alternatives are not available or cost-effective.</p> <p>Mercury containing wastes (e.g. batteries, CFLs, thermometers) continue to be dumped at municipal waste landfills and dumpsites leading to releases to air and water, or wastes are being collected and stored at central facilities, potentially creating a mercury hotspot.</p>	<p>Develop and introduce economic incentives that support the process of substitution and upgrades in waste management.</p> <p>Demonstration projects, benefitting from the advice of experts and consultants, will showcase alternatives for substitution processes, materials recovery, and waste management.</p>		<p>The private sector has participated in the preparation and presentation of studies on alternative waste management practices. In the case of public institutions, the substitution of mercury-containing equipment has been slowly due to the dependency in public budgets, and additionally, there is a lack of knowledge among the HC staff about the mercury-free alternative equipment.</p> <p>Although there are currently companies at national level, which are able to recover mercury from mercury containing wastes, these companies currently do not yet offer solutions for the treatment for this heavy metal (e.g. immobilization).</p>
<p>BAT and BEP are not well implemented in the sectors involved in the Project due to encountered challenges</p>	<p>Strategic</p>	<p>Probability: 3 Impact: 3 Significance: Moderate</p> <p>Potential effects on the project: Demonstrations or protests against halting sugarcane burning prevent the sugarcane plantations from introducing BAT/BEP; or</p>	<p>Social aspects will be embedded in the development of pilot projects, such as the creation of alternative</p>	<p>Cane crop associations Social studies organizations</p>	<p>There are groups and schools that have supported the resolution of conflicts between cutters and businessmen in the past</p>

Description	Type	Impact & Probability	Mitigation Measures	Owner	Status
		<p>alternatively the sugarcane industry does not make the necessary investments for BEP/BAT introduction, leading to continued biomass burning.</p> <p>Trade recyclers do not participate in the activities of improvement in the processes of collection, segregation, and cleaning of scrap metal, leading to the smelting of contaminated scrap metals and thus UPOPs releases.</p> <p>Waste collection companies do not make the necessary investments to service poorer areas, resulting in continued indiscriminate dumping and disposal of hazardous wastes.</p> <p>The entities involved in the demonstration projects, do not actively participate or make the necessary investments, leading to continued releases of UPOPs and Hg.</p> <p>The adoption of an amendment to the national emissions standards is being opposed by the private sector and thus not adopted, resulting in continued releases of UPOP and Hg.</p>	<p>livelihoods for families currently involved in biomass burning.</p> <p>To compile and present financial incentives to make the necessary investments in the implementation of BAT and BEP found by the project.</p> <p>To provide technical support to and build capacity of authorities responsible for regulatory processes pertaining to the management of waste containing mercury and emission control.</p>	<p>NGO Environmental authorities MADS</p>	<p>and have experience in working with associations of recyclers.</p> <p>Private sector companies have attended workshops for the preparation and formulation of the project, helped identify opportunities to participate and potential benefits.</p> <p>The ministries responsible for the regulation of the Law of Mercury have not developed technical studies or discussion areas to support the measures they promulgate.</p>

Description	Type	Impact & Probability	Mitigation Measures	Owner	Status
<p>Difficulties in obtaining and gaining access to information and data required for the inventories and baseline assessments.</p>	<p>Strategic</p>	<p>Probability: 2 Impact: 2 Significance: Low</p> <p>Potential effects on the project: If companies do not participate in sampling exercises and waste management companies are not willing to provide available information, it might result in inventory results, which do not properly and adequately reflect UPOPs releases or the project's baseline situation.</p>	<p>Engage companies early on in the project's implementation and encourage them participate in capacity building and awareness raising activities. At the same time encourage the registration of waste generators and waste treatment facilities.</p> <p>Make use national registries on waste generation to obtain official information.</p>	<p>MADS IDEAM (national reports)</p>	<p>Companies have shown an interest in receiving official information on the quantities of material as well as money flows in waste management processes, but not all of them have submitted the information requested.</p> <p>Laboratories and universities are actively participating in other projects, which offer technical assistance to strengthen analytical/monitoring capacity.</p>
<p>Trade authorities, customs, and health authorities are not actively participating in the project or training components</p>	<p>Political</p>	<p>Probability: 2 Impact: 3 Significance: Moderate</p> <p>Potential effects on the project: As a result, law making processes /development of regulations do not adequately advance because of insufficient capacity/knowledge on UPOPs/Hg issues with relevant authorities.</p>	<p>Organize meetings and workshops with directors and technical officers of relevant authorities to ensure willingness to participate in the development of and advance the approval regulatory measures developed by the project.</p>	<p>Ministry of Trade MADS WEEE National Committee Environmental Health Committee</p>	<p>An interagency committee on the management of chemicals and waste electrical and electronic equipment, made up of health and trade authorities, already exists.</p> <p>Foreign trade authorities do not (yet) actively participate in processes and</p>

Description	Type	Impact & Probability	Mitigation Measures	Owner	Status
					discussions on chemicals-related regulations.
Laboratories do not make the necessary investments to strengthen the required installed capacity to offer services of identification and analysis of UPOP or brominated flame retardants	Strategic	<p>Probability: 2 Impact: 2 Significance: Low</p> <p>Potential effects on the project: Lack of laboratories that are able to measure/monitor UPOPs in environmental media in Colombia, impacting the successful implementation of UPOPs emission standards.</p>	<p>Promote economic instruments that support the process of substitution and upgrades in equipment for analysis of UPOPs and BFR.</p> <p>The project will implement two (2) training programmes for laboratories focusing on the validation of protocols for the measurement of UPOPs, brominated flame-retardants, and mercury. This training component also aims to train laboratories on accreditation processes of those protocols.</p>	MADS IDEAM (accreditation)	<p>As a result of the PCB Project, national capacity for analytical services and monitoring has been increased through capacity building activities undertaken as part of the PCB project. Laboratories have also invested in their own capacity to meet the growing demand for analytical services.</p> <p>The same equipment and qualified personnel will more easily be trained to sample and measure UPOPs and mercury in environmental media.</p>
The project experiences high staff turnover (with the project as well as government entities) and is unable to engage high quality international experts.	Operational	<p>Probability: 2 Impact: 2 Significance: Low</p> <p>Potential effects on the project: There are no qualified or trained government staff/experts to undertake some of the activities to be implemented by the project.</p>	<p>The project aims to develop four (4) training programmes targeted at relevant authorities. These training programmes will focus on the introduction of measures, practices and technologies (BEP & BAT) that would</p>	Project staff MADS Environmental authorities	<p>Regional workshops and events organized by UNDP projects in the region have allowed for the identification of suitable consultants who could support the project's implementation in Colombia.</p> <p>The Ministry of Environment is making progress in the developing online courses</p>

Description	Type	Impact & Probability	Mitigation Measures	Owner	Status
			<p>prevent and reduce emissions of UPOPs and mercury.</p> <p>The project will widely advertise positions for international experts through UNDP's job website, network of experts and other UN agencies.</p>		for environmental issues, designed and run through its website.
<p>There is no a wide (national, regional, global) dissemination of learned lessons and project results.</p>	Operational	<p>Probability: 2 Impact: 2 Significance: Low</p> <p>Potential effects on the project: If the project's lessons learned and results of the project are not adequately disseminated it is unlikely that project results would be replicated elsewhere.</p>	<p>Create opportunities for information exchange, sharing of lessons-learned and project results by organizing project workshops, training and making use of social media networks to disseminate project related information.</p> <p>Promote public-private meetings and annual workshops for discussion on measures and actions to implement BAT and BEP in the project's priority sectors.</p>	Project Staff MADS	<p>Progress was made in the design and operation of a website dedicated to chemicals (part of the Ministry of Environment's website).</p> <p>The PCB project achieved the participation of public and private partners at national meetings on PCB management as well as organized regional and sectoral workshops that could function as a basis for meetings on mercury and UPOPs.</p>

As per standard UNDP requirements, these risks will be monitored quarterly by the Project Manager. The Project Manager will report on the status of the risks to the UNDP Country Office who will record progress in the UNDP ATLAS risk log. Risks will be reported as critical when the impact and probability are high (i.e. 5). Management responses to critical risks will also be reported to the GEF in the annual PIR.”

Social and Environmental Safeguards

Seven risks were identified from the SESP Attachment 1. Social and Environmental Risk Screening Checklist²¹ (For more information kindly refer to Annex 15).

Inside the Principle 3, Standard 3: Community Health, Safety and Working Conditions, it was identified that the project could pose potential risks to community health and safety due to transport, storage, and use and disposal of hazardous or dangerous materials. This risk is Low since the project aims to reduce the release of UPOPs and mercury, introduce mercury-free alternatives and improve the management, storage and disposal of mercury-containing wastes as well as other types of wastes which are precursors of UPOPs (healthcare wastes, scrap metal and pre-harvest biomass waste and e-waste). It was also identified that the project poses potential risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during Project construction, operation, or decommissioning. But this risk during project construction is very Low and the risks related to decommissioning do not apply to this project. The project involves support for employment or livelihoods that may fail to comply with national and international labor standards. This item also represents a Low risk since the project aims to work with two groups of informal workers, waste pickers and their recycler associations in two cities, they recover scrap metal from municipal solid waste streams, and poor female-headed households currently involved in sugarcane biomass burning. In both these cases, the project anticipates to improve labour conditions and increase income, the ILO standards will be revised during the developing of the BAT/BEP guidelines.

In the Standard 6, Indigenous People could potentially be present in the project area, but the risk is Low. One demonstration project will be realized in the Amazon region, and indigenous people might potentially be present.

In the Standard 7, Pollution Prevention and Resource Efficiency, the project could potentially result in the release of pollutants into the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and transboundary impacts. This risk is Low since the project’s principal components aim to reduce the release of Mercury, POPs and other chemicals of concern to the environment, that have a potential for adverse local, regional and trans-boundary impacts. As a result of the project, it is expected that these pollutant releases will be significantly reduced. The project could potentially result in the generation of waste (both hazardous and non-hazardous). This risk is Medium since the project includes components that aim to improve the management, storage, and disposal of mercury-containing wastes, as well as other types of wastes (healthcare wastes, scrap metal, WEEE and pre-harvest wastes). The proposed project will potentially involve the release of hazardous chemicals and materials. This risk is Low since as a result of the project, it is expected that these pollutant releases will be significantly reduced, however, pollutant releases will continue to occur.

²¹ Social and Environmental Screening Procedure. UNDP, 2014.

V. PROJECT RESULTS FRAMEWORK

Intended Outcome as stated in the UNDAF/Country Programme Results and Resources Framework: Programmes implemented to reduce deforestation, gas emissions that produce greenhouse effects, and environmental degradation					
Outcome indicators as stated in the Country Programme Results and Resources Framework, including baseline: No. of people that strengthen their livelihood through management of natural resources, ecosystem services, chemicals and waste, disaggregated by sex and Afro-Colombian populations					
Applicable Outputs from the 2014 – 2017 UNDP Strategic Plan: Output 1.3: Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste.					
Applicable Output Indicators from the UNDP Strategic Plan Integrated Results and Resources Framework: Output 1.3 Indicator 1.3.1 Number of new partnership mechanisms with funding for sustainable management solutions of natural resources, ecosystem services, chemicals and waste at national and/or sub-national level.					
	Objective and Outcome Indicators	Baseline²²	Mid-term Target	End of Project Target	Assumptions²³
Project Objective: The main objective of this five-year project is to introduce Best Environmental Practices (BEP) and Best Available Technologies (BAT) to reduce the release of unintentionally generated Persistent Organic Pollutants (UPOPs) and mercury from the treatment of	Number of new partnership mechanisms with funding for sustainable management solutions of natural resources, ecosystem services, chemicals and waste at national and/or sub-national level, disaggregated by partnership type.	Number of partnership (mechanisms) for the sustainable management of WEEE (0); HCWM (0); Metallurgy (0); and Biomass (0).	Number of partnership (mechanisms) for the sustainable management of WEEE (2); HCWM (5); Metallurgy (4); and Biomass (1).	Number of partnership (mechanisms) developed for the sustainable management of WEEE (2); HCWM (5); Metallurgy (4); and Biomass (1).	Interested public and private sector parties are willing to make the required investments for BAT/BEP implementation to meet national obligations under the Stockholm Convention on POPs. The private sector is going to participate in the project through some of its established programs and mechanism in the area of HCW and WEEE management. The iron and steel industry and the sugarcane industry are interested in implementing measurements to decrease UPOPs releases in their processes.

²² Baseline, mid-term and end of project levels must be expressed in the same neutral unit of analysis as the corresponding indicator.

²³ Risks must be outlined in the Feasibility section of this project document.

	Objective and Outcome Indicators	Baseline²²	Mid-term Target	End of Project Target	Assumptions²³
healthcare waste (HCW), the processing of Waste Electrical and Electronic Equipment (WEEE), processing of iron and steel, and biomass burning in the sugarcane sector.	100 g-TEQ of UPOPs releases prevented.	At the project's PPG stage, dioxin and furan releases for HC institutions, the iron and steel industry and sugarcane sector was estimated to be 177.44 g-TEQ/yr according to the national UPOPs inventory (base year 2002).	30 g-TEQ of UPOPs releases prevented from the three sectors.	100 g-TEQ of UPOPs releases prevented from the three sectors.	The three sectors are willing to participate in the demonstration projects and are open to sharing information related to their UPOPs releases.
	300 kg of mercury treated and stored in a sound way in HC and WEEE sectors.	During the project's duration (2016 – 2020), it is estimated that 387 kg of mercury will be generated from lights and primary batteries in the WEEE sector, and 157 kg of mercury from mercury-containing equipment in the health sector.	70 kg mercury-containing waste soundly treated and stored.	300 kg of mercury containing waste soundly treated and stored.	The replacement of mercury-containing energy efficient lights will take several years in Colombia. Substitution of mercury-containing medical equipment will start with thermometers and manometers in HC institutions, which represents 6% (34 Kg-Hg) of the total mercury generated in the HC and WEEE sectors (544 Kg-Hg).
Component/ Outcome 1 Prevent and minimize the generation of UPOPs and update their inventory	1.1 One (1) UPOPs inventory developed.	One (1) dioxins and furans inventory was conducted in 2002, indicating a UPOPs generation of 790.17 g-TEQ/year. The inventory did not record other UPOPs including in Annex C of the SC.	One (1) report containing the proposed methodology to undertake the UPOPs inventory, identifying information sources and collecting information of UPOPs measurements in waste incineration, iron and steel industry, and sugarcane sector drafted.	One (1) UPOPs inventory completed.	National project partners, stakeholders, and UPOPs generators, are willing to share the necessary information that is required to realize the UPOPs inventory.
	1.2 Four (4) national assessments completed, and assessment reports finalized.	To date, no such national assessments have been conducted.	One (1) national assessment on HCW treatment technologies completed.	Four (4) national assessments completed.	National project partners, stakeholders, and UPOPs generators are willing to share the necessary information and grant access to installed technologies that is required to realize the national assessments.

	Objective and Outcome Indicators	Baseline²²	Mid-term Target	End of Project Target	Assumptions²³
	<p>1.3 Ten (10) demonstration projects implemented leading to a UPOPs release reduction of 100 g-TEQ</p>	<p>HC: Nationwide, dioxins and furans generated by the HC sector are estimated to be 89.02 g-TEQ/year (2002). The four demonstration projects are estimated to release 18 g-TEQ/yr.</p> <p>IRON AND STEEL INDUSTRY: Nationwide, dioxins and furans generated by this industry are estimated to be 18.92 g-TEQ/year (2002). The four demonstration projects are estimated to release 2.5 g-TEQ/yr.</p> <p>SUGARCANE INDUSTRY: Nationwide, dioxins and furans generated by this industry are estimated to be 69.5 g-TEQ/year (2002). The one demonstration project is estimated to release 5 g-TEQ/yr.</p> <p>WEEE: National programs for post-consumer computers, peripherals, refrigerators, and the vehicle-dismantling programme, are estimated to collect 3,148 tonnes of plastic between 2016 and 2020, it is estimated that the</p>	<p>HC: Four (4) demonstration projects launched in Amazon, Choco, Uraba Antioqueño, and Caribbean Coast.</p> <p>IRON AND STEEL INDUSTRY: Four (4) demonstration projects have been established, two of them focusing on the improvement in metal scrap quality, and the other two on the primary and secondary steel production industry.</p> <p>SUGARCANE INDUSTRY: Validation and assessment of the feasibility of mechanical pre-harvesting to substitute pre-harvest burning in sugarcane production realized.</p> <p>WEEE: One (1) demonstration project established in the WEEE sector for the identification, classification, and segregation of plastics containing brominated flame retardant from WEEE management and vehicle dismantling.</p>	<p>HC: Four (4) HCWM demonstration projects fully implemented and have resulted in UPOPs release reductions of 70 g-TEQ.</p> <p>IRON AND STEEL INDUSTRY: Four (4) demonstration projects finalized and have resulted in UPOPs release reductions of 10 g-TEQ.</p> <p>SUGARCANE INDUSTRY: One (1) demonstration project implemented which resulted in UPOPs release reductions of 20 g-TEQ.</p> <p>WEEE: One (1) demonstration project finalized in the WEEE sector, and 1,500 tonnes of plastics are managed/treated soundly according to the BAT and BEP, avoiding the release of 225 Kg of PBDEs.</p>	<p>Waste facility operators are interested in investing in the treatment of wastes generated in remote areas as Amazon, Choco, Uraba Antioqueño, and the Caribbean Coast.</p> <p>Four of the five iron and steel industries will participate in the development of the pilot projects.</p> <p>The sugarcane industry is willing to make the necessary investments to decrease pre-harvest burning, in line with technical, economic and social aspects and interventions proposed as part of the demonstration project.</p> <p>The managers of the programs for post-consumer computers, peripherals and refrigerators, and for vehicle dismantling are willing to participate in the demonstration project and provide information about the quantities and types of plastics produced.</p>

	Objective and Outcome Indicators	Baseline ²²	Mid-term Target	End of Project Target	Assumptions ²³
		plastics contain 472 Kg of PBDEs.			
Component/ Outcome 2 Prevent and reduce mercury releases	2.1 One (1) assessment on the use of mercury-containing devices in the HC sector completed and one (1) guideline on the replacement of mercury-containing equipment in the HC sector drafted/developed.	<p>During 2009, an assessment and quantification of the anthropogenic mercury releases were realized by MADS and the University of Antioquia. This inventory estimated mercury releases at 345,570 Kg-Hg/yr. 2.5% of these mercury releases originated from the HC sector (dental amalgams, medical thermometers and medical laboratories).</p> <p>There are not substitution guidelines for mercury-containing devices. To date, only a few hospitals have substituted mercury thermometers.</p> <p>Bogota city had adopted Resolution 159 in March 2015, which stipulates that public hospitals have to phase-out mercury-containing equipment and supplies by 2018.</p>	<p>One (1) assessment on the use of mercury-containing devices in the HC sector, including types, quantities, and disposal methods completed.</p> <p>One (1) list of the mercury-containing equipment/products that is currently used in HC institutions prepared. As well as a list of cost-effective available alternative mercury-free devices that could replace them.</p>	<p>One (1) assessment on the use of mercury-containing devices in the HC sector, including types, quantities, and disposal methods completed.</p> <p>One (1) guideline on mercury-equipment substitution drafted.</p>	<p>Two hospitals in Bogota city and the net of public hospitals in Medellin city are interested in sharing information related to mercury-containing equipment and supplies they use.</p> <p>Healthcare facilities (public and private) participating in the project are willing to realize substitution activities for mercury-containing supplies and equipment.</p>
	Two (2) demonstration projects in the HC and WEEE sectors implemented, resulting in the	<p>HC: Only one hospital (Mederi Hospital in Bogota City) has an on-going project on the substitution of mercury-containing equipment and supplies.</p>	<p>HC: One (1) demonstration project on the phase-out of mercury-containing medical devices and proper treatment and storage of mercury wastes launched in four (4) hospitals.</p>	<p>HC: One (1) demonstration project on the phase-out of mercury-containing medical devices and proper treatment and disposal of mercury wastes in the</p>	<p>The two hospitals in Bogota city and the net of public hospitals in Medellin city are willing to participate and share the information related to the mercury-containing equipment</p>

	Objective and Outcome Indicators	Baseline ²²	Mid-term Target	End of Project Target	Assumptions ²³
	improved management/phase-out of 300 kg of mercury through BAT/BEP introduction.	<p>The 4 hospitals participating in the demonstration projects are estimated to release 34 kg Hg/yr from the use of thermometers.</p> <p>The mercury wastes generated by the hospitals participating in the UPOPs demonstration projects in the four districts are estimated at 123 Kg Hg during the entire project.</p> <p>WEEE: There are existing post-consumer programmes for mercury-containing energy efficient lights and primary batteries, which are estimated to collect 8,855 tonnes of waste lights and 2,400 tonnes of waste batteries between 2016 and 2020. These quantities correspond to 378 Kg-Hg contained in spent lights, and 9 Kg-Hg contained in waste batteries.</p>	<p>WEEE: One (1) demonstration project on the proper treatment and disposal of lights and primary batteries launched in the WEEE sector.</p>	<p>health sector completed – resulting in the phase-out of 14 Kg-Hg from the four hospitals participating in the phase-out demonstration project, and the collection, management and treatment of 87 Kg-Hg originating from the UPOPs demonstration hospitals located in the 4 districts.</p> <p>WEEE: One (1) demonstration project on the proper treatment and disposal of waste lights and primary batteries in the WEEE sector completed – resulting in the proper treatment and storage of 199 Kg of mercury, 194 Kg-Hg from spent lights, and 5 Kg-Hg from waste batteries.</p>	<p>and supplies that are used; to evaluate mercury-free devices alternatives; and introduce mercury-free alternatives.</p> <p>The post-consumer programmes agree to realize the demonstration project for the spent lights and batteries that are expected to be collected between 2016 and 2020.</p>
<p>Component/ Outcome 3</p> <p>Strengthening the institutional, administrative, legal, technical and regulatory framework for</p>	3.1 Four (4) national guidelines, and two (2) technical regulations based on BAT/BEP published.	There are no BAT and BEP guidelines available for HC institutions, WEEE sector, iron and steel industry, and sugarcane industry.	Four (4) national guidelines based on BAT/BEP drafted.	Four (4) national guidelines based on BAT/BEP finalized.	Parties/point sources responsible for the release of UPOPs and mercury from the HC, WEEE, metallurgy industry, and sugarcane production sectors are interested to know BAT/BET that could be applied for them.

	Objective and Outcome Indicators	Baseline²²	Mid-term Target	End of Project Target	Assumptions²³
reducing UPOPs and mercury.		<p>Decree 351 (February, 2014) establishes the framework and responsibilities for the different actors involved in the HCW management. However, a technical regulation is missing which establishes technical aspects to be considered in the segregation, storage, transport, treatment and disposal of HCW in line with BAT and BEP requirements.</p> <p>A WEEE management guideline (2010) is in place but requires modification in line with Law 1672 (July 2013), which establishes guidelines for the adoption of a WEEE Comprehensive Public Policy Management, and the results of the demonstration project.</p>	One (1) technical regulation on the management of HCW drafted.	<p>One (1) technical regulation on the management of HCW drafted.</p> <p>One (1) technical regulation on the management of WEEE drafted.</p>	The Ministry of Environment and Sustainable Development plans to establish the technical aspects to be considered for the HCW and WEEE management. It is assumed that MADS' technical team will realize the work required for the development of those regulations.
	3.2 One (1) WEEE generation and management registration system established.	<p>There is no information system available which provides insight into the generation and management of WEEE (even though legislation requires it).</p> <p>Law 1672 (2013) was created to regulate WEEE management. This law established that it is mandatory to have a Registration System where</p>	One (1) Registration System designed.	One (1) Registration System tested and operational.	Manufacturers, importers, generators, waste managers and recycling companies of EEE and WEEE are willing to share information related to the generation and management of WEEE equipment and wastes.

	Objective and Outcome Indicators	Baseline ²²	Mid-term Target	End of Project Target	Assumptions ²³
		all information related to WEEE generation is registered at national level, including mercury-containing energy efficient lights and primary batteries.			
	3.3 Four (4) training programmes for authorities developed, and two (2) training programmes for laboratories developed.	<p>No training programmes are available that offer an introduction into BAT/BEP application to reduce releases of UPOPs and mercury.</p> <p>At the PPG stage, Colombia did not have the capacity to measure/analyze UPOPs. Samples taken by the national laboratories are sent for analysis to international laboratories,</p>	<p>Two (2) training programmes on measures, approaches, and technologies to reduce UPOPs/Hg releases from the HC and WEEE sectors developed.</p> <p>Two (2) training programmes on measures, approaches, and technologies to reduce UPOPs/Hg releases from the metallurgy and sugarcane production sectors developed.</p> <p>One (1) training programme on validation of protocols for the measurement of UPOPs, brominated flame retardants and mercury developed.</p>	<p>Two (2) training programmes on measures, approaches, and technologies to reduce UPOPs/Hg releases from the HC and WEEE sectors used to train 32 national authority staff.</p> <p>Two (2) training programmes on measures, approaches, and technologies to reduce UPOPs/Hg releases from the metallurgy and sugarcane production sectors used to train 32 national authority staff.</p> <p>After conclusion of the training programmes, materials are uploaded onto MADS's website as permanent available courses/resources.</p> <p>One (1) training programme on the validation of protocols for the measurement of UPOPs, brominated flame retardants and mercury</p>	<p>Regional environmental authorities (responsible for inspection, monitoring, and control of pollutants) are interested in receiving training in the different aspects related to international and national measures to decrease UPOPs and mercury releases.</p> <p>Several laboratories are willing to implement analytical techniques for the analysis of brominated flame retardants considering they have the required equipment (e.g. chromatography and X-ray diffraction).</p>

	Objective and Outcome Indicators	Baseline ²²	Mid-term Target	End of Project Target	Assumptions ²³
		<p>principally located in Canada and the United States.</p> <p>An assessment conducted by MADS showed that capacity in UPOPs monitoring laboratories is insufficient. Especially, with respect to staff capacity and equipment calibration.</p>	<p>One (1) training programme on accreditation processes for the validation of protocols for the measurement of UPOPs, brominated flame retardants and mercury developed.</p>	<p>used to train 20 laboratory staff.</p> <p>One (1) training programme on accreditation processes for validation of protocols for the measurement of UPOPs, brominated flame retardants and mercury used to train 20 staff from the laboratories.</p>	<p>Several laboratories are willing to strengthen the control quality and the validation of analytical methods for the measurement of mercury in various environment matrixes and food.</p>
Component/ Outcome 4 Dissemination of Lessons-learned, monitoring & evaluation	4.1 Two (2) publications with lessons learned from the UPOPs and mercury demonstration projects published..	No publications or awareness raising materials are available on the topic of UPOPs and Hg reduction efforts.	Lessons-learned from the demonstration projects are extracted/captured on a yearly basis.	Two (2) publications on learned lessons from the demonstration projects drafted, published and disseminated (one on UPOPs and one on mercury).	Project partners are open about project challenges and successes, as well as lessons-learned so these can be captured, published and disseminated at national level.
	4.2 One (1) Project Inception Workshop and five (5) annual workshops organized.	One workshop was held in 2015, during the project's PPG phase, which indicated the interest of different actors participating in this project.	Two (2) workshops realized to communicate the project's progress and results to all project partners and beyond.	Five (5) workshops realized to communicate the project's progress and results to the project partners.	The project's partners are keen to participate in the project's annual workshops and enthusiastic about sharing their feedback about the project's progress.
	4.3 One (1) Mid-term report and one (1) final evaluation report prepared		Mid-term report prepared and lessons-learned extracted	Final evaluation report prepared and lessons-learned extracted.	Findings from the MTR will be used to revise the project's progress and to establish the corrective measures to achieve project objectives.

VI. MONITORING AND EVALUATION (M&E) PLAN

The project results as outlined in the project results framework will be monitored annually and evaluated periodically during project implementation to ensure the project effectively achieves these results. Supported by Project Component 4 “*Knowledge Management and M&E*” the project monitoring and evaluation plan will also facilitate learning and ensure knowledge is shared and widely disseminated to support the scaling up and replication of project results.

Project-level monitoring and evaluation will be undertaken in compliance with standard UNDP requirements as outlined in the [UNDP POPP and UNDP Evaluation Policy](#). Though these UNDP requirements are not detailed in this section of the project document, the UNDP Country Office will ensure that UNDP M&E requirements are met in a timely fashion and to high quality standards. The additional mandatory GEF-specific M&E requirements as outlined in this section will be undertaken in accordance with the [GEF M&E policy](#) and GEF guidance materials. In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management and the exact role of project target groups and other stakeholders in project M&E activities, will be finalized during the Inception Workshop and will be detailed in the Inception Report.

Oversight and monitoring responsibilities:

The primary responsibility for day-to-day project implementation and regular monitoring rests with the Project Manager. The Project Manager will develop annual work plans based on the multi-year work plan included in the annexes, including annual targets at the output level to ensure the efficient implementation of the project. The Project Manager will ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality. This includes, but is not limited to, ensuring the results framework indicators are monitored annually in time for reporting (i.e. GEF PIR), and reporting to the Project Board at least once a year on project progress. The Project Manager will inform the Project Board and the UNDP Country Office of any delays or difficulties as they arise during implementation, including the implementation of the M&E plan, so that the appropriate support and corrective measures can be adopted. The Project Manager will also ensure that all project staff maintain a high level of transparency, responsibility and accountability in monitoring and reporting project results.

The UNDP Country Office will support the Project Manager as needed, including through annual supervision missions. The UNDP Country Office is responsible for complying with all UNDP project-level M&E requirements as outlined in the [UNDP POPP](#). This includes ensuring the UNDP Quality Assurance Assessment during implementation is undertaken annually; that annual targets at the output level are developed, and monitored and reported using UNDP corporate systems; and, updating the UNDP gender marker on an annual basis based on progress reported in the GEF PIR and UNDP ROAR reporting. Any quality concerns flagged by the process must be addressed by project management. Additional M&E implementation quality assurance and troubleshooting support will be provided by the UNDP-Country Regional Technical Advisor and the UNDP-GEF Unit as needed. The project target groups and stakeholders including the GEF Operational Focal Point will be involved as much as possible in project-level M&E activities.

Audit Clause: The project will be audited according to UNDP Financial Regulations and Rules and applicable audit policies on NIM implemented projects.

Additional GEF monitoring and reporting requirements:

Inception Workshop and Report: A project inception workshop will be held after the project document has been signed by all relevant parties to: a) re-orient project stakeholders to the project strategy and discuss any changes in the overall context that influence project implementation; b) discuss the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms; c) review the results framework and discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E plan; d) review financial reporting procedures and mandatory requirements, and agree on the arrangements for the annual audit; e) plan and schedule Project Board meetings and finalize the first year annual work plan. The Project Manager will prepare the inception report no later than one month after the inception workshop. The final inception report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Advisor, and will be approved by the Project Board.

GEF Project Implementation Report (PIR): The Project Manager, the UNDP Country Office, and the UNDP-GEF Regional Technical Advisor will provide objective input to the annual GEF PIR covering the reporting period July (previous year) to June (current year) for each year of project implementation. The Project Manager will ensure that the indicators included in the project results framework are monitored annually well in advance of the PIR submission deadline and are reported on accordingly in the PIR. The PIR that is submitted to the GEF each year must also be submitted in English and shared with the Project Board. The UNDP Country Office will coordinate the input of the GEF Operational Focal Point and other stakeholders to the PIR. The quality rating of the previous year's PIR will be used to inform the preparation of the subsequent PIR. The project's terminal PIR along with the terminal evaluation (TE) report and corresponding management response will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

GEF Focal Area Tracking Tools: In line with its objective and the corresponding GEF Focal Areas/Programs, this project will prepare the following GEF Tracking Tool: GEF POPs Tracking tool. The baseline/CEO Endorsement GEF Focal Area Tracking Tool – submitted in Annex 21 to this project document – will be updated by the Project Manager/Team and shared with the mid-term review consultants and terminal evaluation consultants before the required *review/evaluation* missions take place. The updated GEF Tracking Tool will be submitted to the GEF along with the completed Mid-term Review report and Terminal Evaluation report.

Mid-term Review (MTR): An independent mid-term review process will begin after the second PIR has been submitted to the GEF, and the final MTR report will be submitted to the GEF in the same year as the 3rd PIR. The MTR findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the final half of the project's duration. The terms of reference, the review process and the final MTR report will follow the standard templates and guidance available on the [UNDP Evaluation Resource Center \(ERC\)](#). Additional quality assurance support is available from the UNDP-GEF Directorate. The final MTR report will be available in English and will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and approved by the Project Board.

Terminal Evaluation (TE): An independent terminal evaluation (TE) will take place before operational closure of the project. The Project Manager will remain on contract until the TE report and management response have been finalized. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance available on the [UNDP Evaluation Resource Center](#). Additional quality assurance support is available from the UNDP-GEF Directorate. The final TE report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board. The TE report will be publically available in English on the UNDP ERC.

The UNDP Country Office will include the planned project terminal evaluation in the UNDP Country Office evaluation plan, and will upload the final terminal evaluation report in English and the corresponding management response to the UNDP Evaluation Resource Centre (ERC). Once uploaded to the ERC, the UNDP Independent Evaluation Office will undertake a quality assessment and validate the findings and ratings in the TE report, and rate the quality of the TE report. The UNDP IEO assessment report will be sent to the GEF Independent Evaluation Office along with the project terminal evaluation report.

The UNDP Country Office will retain all M&E records for this project for up to seven years after project financial closure in order to support ex-post evaluations undertaken by the UNDP Independent Evaluation Office and/or the GEF Independent Evaluation Office.

Table 6. Mandatory GEF M&E Requirements and M&E Budget:

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget ²⁴ (US\$)		Time frame
		GEF grant	Co-financing	
Inception Workshop	UNDP Country Office	USD 11,000	USD 3,000	Within two months of project document signature
Inception Report	Project Manager	None	None	Within two weeks of inception workshop
Standard UNDP monitoring and reporting requirements as outlined in the UNDP POPP	UNDP Country Office	None	None	Quarterly, annually
Monitoring of indicators in project results framework by	Project Manager	Per year: USD 7,000 Total: USD 35,000	Per year: USD 1,000 Total: USD 5,000	Annually
GEF Project Implementation Report (PIR)	Project Manager and UNDP Country Office and UNDP-GEF team	None	None	Annually
NEX Audit as per UNDP audit policies	UNDP Country Office	Per year: USD 3,000 Total: USD 15,000	None	Annually or other frequency as per UNDP Audit policies
Supervision missions	UNDP Country Office	None ²⁵	None	Annually
Oversight missions	UNDP-GEF team	None	None	Troubleshooting as needed
Knowledge management as outlined in Outcome 4	Project Manager	USD 58,000 ²⁶	USD 10,000	On-going
GEF Secretariat learning missions/site visits	Project Manager and UNDP-GEF team	None	None	To be determined.
Mid-term GEF Tracking Tool to be updated by	Project Manager	USD 4,000	USD 3,000	Before mid-term review mission takes place.
Independent Mid-term Review (MTR)	UNDP Country Office and Project team and UNDP-GEF team	USD 30,000	USD 5,000	Between 2 nd and 3 rd PIR.
Final GEF Tracking Tool to be updated by	Project Manager	USD 4,000	USD 3,000	Before terminal evaluation mission takes place
Independent Terminal Evaluation (TE) included in UNDP evaluation plan	UNDP Country Office and Project team and UNDP-GEF team	USD 40,000	USD 3,000	At least three months before operational closure

²⁴ Excluding project team staff time and UNDP staff time and travel expenses.

²⁵ The costs of UNDP Country Office and UNDP-GEF's participation and time are charged to the GEF Agency Fee.

²⁶ 1% of GEF grant

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget ²⁴ (US\$)		Time frame
		GEF grant	Co-financing	
Translation of MTR and TE reports into English	UNDP Country Office	USD 6,000	USD 2,000	As required. GEF will only accept reports in English.
TOTAL indicative COST		USD 203,000	USD 34,000	
Excluding project team staff time, and UNDP staff and travel expenses				

VII. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

Roles and responsibilities of the project’s governance mechanism: The project will be implemented following UNDP’s national implementation modality, according to the Standard Basic Assistance Agreement between UNDP and the Government of Colombia, and the Country Program Action Plan (CPAP). The **Implementing Partner** for this project is the Ministry of Environment and Sustainable Development. The Implementing Partner is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources.

The project organisation structure is as follows:

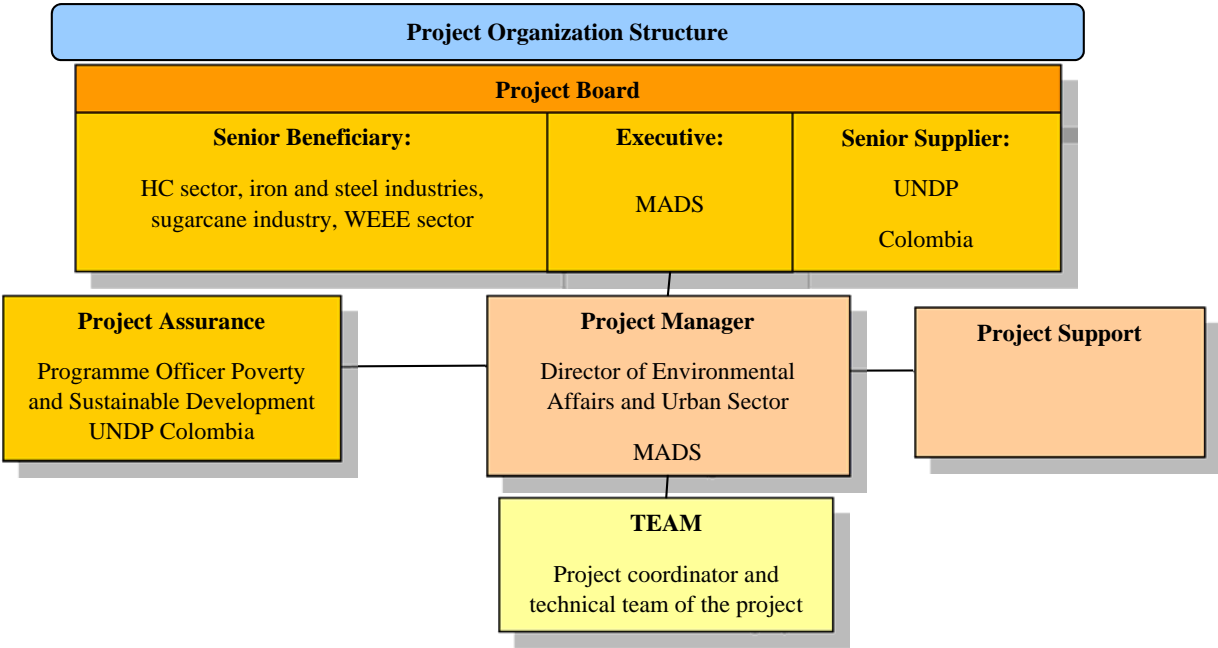


Figure 2. Project Organization Structure

The Project Board (also called Project Steering Committee) is responsible for making by consensus, management decisions when guidance is required by the Project Manager, including a recommendation for UNDP/Implementing Partner approval of project plans and revisions. To ensure UNDP's ultimate accountability, Project Board decisions should be made following standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case a consensus cannot be reached by the Board, the final decision shall rest with the UNDP Programme Manager. The terms of reference for the Project Board are contained in Annex 16. The Project Board is comprised of the following individuals: the Director of Environmental Affairs and Urban Sector of the MADS, who will act as Project Manager and will direct the Steering Committee, the Officer Program Sustainable Development and Poverty UNDP Colombia and a representative of the Environmental Vice Presidency of the National Business Association of Colombia.

The **Project Coordinator** will run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board. The Project Coordinator function will end when the final project terminal evaluation report, and other documentation required by the GEF and UNDP, has been completed and submitted to UNDP (including the operational closure of the project). The **Project Manager** will be the Director of Environmental Affairs and Urban Sector of the MADS. He will be in charge of guiding and advising the project implementation process, on behalf of the implementing agency, in accordance with the decisions taken by the project Steering Committee. The principal responsibility of the Project Manager is to ensure the achievement of the results presented in the PRODOC under the established quality standards, within the specified period and costs, and supervise the Project Coordinator.

The **Project Assurance** role is provided by the Programme Officer Poverty and Sustainable Development – UNDP Colombia

Governance role for project target groups: Among various project management mechanisms, four (4) committees will be created. They will inform and advise the Project Manager and/or Project Coordinator on project activities, project progress and the implementation of project components supported in specific sectors:

The committees to be established are the following:

- a. **Healthcare Committee:** Set up by a representative of the Ministry of Health and Social Protection or the National Health Institute, and includes a representative of the hospitals participating in the project, and a representative of the waste facility operators.
- b. **Iron and Steel Industry Committee:** Comprised of the industries, participating in the project.
- c. **WEEE Committee:** Comprised of representatives from each of the post-consumer programmes for light bulbs and fluorescent lamps, computers, primary batteries, refrigerators and waste facility operators who are participating in the project's implementation.
- d. **Sugarcane Industry Committee:** Consisting of a representative of ASOCAÑA, a representative of CENICAÑA and a representative of the Regional Autonomous Corporation (CVC, Spanish name).

The committees will meet at least once per year, to discuss project progress, to listen to different proposals about the project development and how overcome challenges encountered.

UNDP Direct Project Services as requested by Government: The UNDP, as International Agency for this project, will provide management services for the project as defined by the GEF Council (Annex 18). The Colombian Government will request to the UNDP direct services for specific projects, according to its policies and convenience. These services (and their costs) are specified in the Agreement (Annex 18). As is determined by the GEF Council requirements, the services costs will be assigned as Project Management Cost, identified in the project budget. The UNDP and Colombian Government acknowledge and agree that those services are not mandatory, and only they will be provided following the UNDP policies on the recovery of direct costs.

Agreement on intellectual property rights and use of the logo on the project's deliverables: to accord proper acknowledgment to the GEF for providing funding, the GEF logo will appear together with the UNDP logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgment to the GEF.

Project management: The project will be implemented in a coordinated manner with two (2) other UNDP Colombia managed GEF financed Chemicals and Waste projects, namely the project “*Development of the Capacity for the PCB Environmental Sound Management and Disposal (COL84851-71268)*” and the project “*Revision and Update of the National Plan for the Implementation of Stockholm Convention on POPs (COL94300/87174)*”.

For the three (3) UNDP-GEF Chemicals and Waste projects, coordination and administrative issues will be supported by a joint project unit. Each project contributes to the costs of the project unit in line with the time and effort that is needed for each. The project unit, which will consist of a Project Coordinator, an Administrative Assistant and technical coordinators, will support the implementation of project activities for the three projects. The project unit will be located in an office situated at MADS headquarters.

The project coordinator will be selected through a selection procedure lead by MADS. The project coordinator will be supported by an administrative assistant as well as a team of national and international experts, who have expertise related to the various areas of the project.

VIII. FINANCIAL PLANNING AND MANAGEMENT

The total cost of the project is USD 38,512,631. This is financed through a GEF grant of USD 5,800,000, and USD 32,712,631 in parallel co-financing. UNDP, as the GEF Implementing Agency, is responsible for the execution of the GEF resources and the cash co-financing transferred to UNDP bank account only.

Parallel co-financing: The planned parallel co-financing will be used as follows in Table 7.

Table 7. Parallel Co-financing

Co-financing source	Type of organization	Co-financing type	Co-financing amount	Planned Activities/Outputs	Risks	Risk Mitigation Measures	
Ministry of Environment and Sustainable Development	Government	In kind	800,000	Office Equipment, Office supplies	Low risk since the resources belong to the national budget	The UNDP CO will monitors the Ministry's co-financing contributions to the project.	
Healthcare waste management facilities	La Chorrera HC center – San Rafael	Government	Grant	6,129	Investment in BAT equipment purchase, upgrading of the facilities and monitoring of UPOPs releases.	Low risk since the waste management facilities were already planning to make these investments and are committed.	The MADS project healthcare facilities and waste management facilities will sign legally binding agreements.
	TECNIAMSA	Private company	Grant	3,525,806			
	ECOFUEGO	Private company	Grant	500,000			
	PRESERVEC	Private company	Grant	191,935			
	ASEI	Private company	Grant	200,000			
	COAMBIENTAL	Private company	Grant	69,355			
	VERTISA	Private company	Grant	400,000			
	FUTURASEO	Private company	Grant	164,129			
Iron and steel industries	SIDENAL	Private company	Grant	2,900,000	Investment in the upgrading of facilities and monitoring of UPOPs releases.	Low risk since investment plans of these industries have already been approved by their board of directors. They also seem very	The Ministry and the companies will sign an agreement that is legally binding.
	GERDAU DIACO	Private company	Grant	1,200,000			

Co-financing source	Type of organization	Co-financing type	Co-financing amount	Planned Activities/Outputs	Risks	Risk Mitigation Measures	
	CI Metales la Unión	Private company	Grant	1,611,732		interested in the advice given by MADS and UNDP.	
	Siderúrgica de Caldas Ternium	Private company	Grant	554,437			
ASOCAÑA	ASOCAÑA	Association of sugarcane growing companies.	Grant	4,500,000	Investment to increase mechanical harvesting and to decrease biomass burning.	Low risk since the companies' investment plans have already been approved. They are also interested in the advice to be provided by MADS and UNDP.	The Ministry and ASOCAÑA will sign an agreement that is legally binding.
Facilities for the collection and management of WEEE	ECOCOMPUTO	Association of companies that manufacture and import computers	Grant	2,000,000	Investment in the collection and management of computers and peripherals.	Low risk since there is a regulation, which requires the sector to make investments in computers collection.	The Ministry and the Program sign an agreement that is legally binding.
	Red Verde Programme	Association of manufacturers and importers of appliances	Grant	2,096,774	Investment in the collection and management of large appliances.	Low risk since the programme is already underway, which is managed by a CEO. Resources for the programme have already been secured.	The Ministry and the programme will sign an agreement that is legally binding.
	CENARE	Government	Grant	4,234,194	Investment in the collection and management of large appliances.	Low risk since the programme is already underway, which is managed by a CEO. Resources for the programme have already been secured.	This programme has received funding from the national budget and will be implemented over the next five years.

Co-financing source	Type of organization	Co-financing type	Co-financing amount	Planned Activities/Outputs	Risks	Risk Mitigation Measures	
	SIDENAL	Private company	Grant	100,000	Vehicle dismantling and plastic segregation for treatment and final disposal.	Low risk since the company has existing facilities for vehicle dismantling, which are going to be modified to meet BAT/BEP guidelines.	The Ministry and the programme will sign an agreement that is legally binding.
	OCADE	Private company	Grant	5,000	Segregation, recycling and treatment of plastics containing flame retardants from the WEEE disassembly programme.	Medium risk since the company depends on contracts with the computer collection programmes.	The Ministry and the programme will sign an agreement that is legally binding.
	Holcim	Private company	Grant	64,000	Develop a thermal processing pilot for plastics containing flame retardants.	Low risk since the company provides waste treatment services by means of co-processing in its cement kiln.	The Ministry and the programme will sign an agreement that is legally binding.
Healthcare institutions	Meredi Hospital	Government	Grant	100,000	Investment in programmes for mercury-containing equipment substitution, and proper management of mercury wastes.	Low risk since the waste management facilities plan to make the investment and are committed.	The Ministry and the healthcare facilities and waste management facilities will sign an agreement that is legally binding.
Mercury waste facility	New Stetic	Private company	Grant	968,387	Investment in infrastructure and equipment for the treatment of mercury wastes by mercury distillation technology.	Low risk since the company has an approved investment plan and has on-going contracts with mercury waste generators to treat their wastes.	The Ministry and the company will sign an agreement that is legally binding.
Mercury-containing energy efficient lights	Lúmina Programme	Association of manufacturers	Grant	2,903,226	Investment in the collection and management of spent	Low risk since there is a regulation, which requires the sector to make	The Ministry and the programme will sign

Co-financing source	Type of organization	Co-financing type	Co-financing amount	Planned Activities/Outputs	Risks	Risk Mitigation Measures	
and primary batteries collection programmes	and importers of lighting products			mercury-containing energy efficient lights.	investments in waste management of mercury-containing energy efficient lights.	an agreement that is legally binding.	
	TRONEX Recopila Program	Private company	Grant	505,548	Investment in the collection and management of spent primary batteries.	Low risk since there is a regulation that requires the sector to make investments in waste management of primary batteries.	The Ministry and the programme will sign an agreement that is legally binding.
	Pilas con el Ambiente Program		Grant	1,909,677			
Mercury-containing energy efficient lights and primary batteries facilities	INNOVA	Private company	Grant	505,548	Investment in infrastructure and equipment for the treatment of mercury waste.	Low risk since the company is growing and has the resources to invest. Furthermore, the company has long-term contracts to treat batteries and mercury-containing energy efficient lights wastes.	The Ministry and the company will sign an agreement that is legally binding.
	ECOINDUSTRIA	Private company	Grant	350,754		Low risk since the company is growing and has the resources to invest.	
	LITO S.A.S	Private company	Grant	548,387		Furthermore, the company has long-term contracts to treat mercury-containing energy efficient lights wastes.	
Total				32,915,018			

The actual realization of project co-financing will be monitored during the mid-term review and term evaluation process and will be reported to the GEF.

Budget Revision and Tolerance: As per the UNDP requirements outlined in the UNDP POPP, the project board can agree on a budget tolerance level for each plan under the overall annual work plan allowing the project manager to expend up to the tolerance level beyond the approved project budget amount for the year without requiring a revision from the project board. Should the following deviations occur, the Project Manager and UNDP Country Office will seek the approval of the UNDP-GEF team as these are considered major amendments by the GEF: a) budget re-allocations among components in the project with amounts involving 10% of the total project grant or more; b) introduction of new budget items/or components that exceed 5% of original GEF allocation.

Project Closure: Project closure will be conducted as per the UNDP requirements outlined in the UNDP POPP (see <https://info.undp.org/global/popp/ppm/Pages/Closing-a-Project.aspx>) On an exception basis only, a no-cost extension beyond the initial duration of the project will be sought from in-country UNDP colleagues and then the UNDP-GEF Executive Coordinator.

Operational completion: The project will be operationally completed when the last UNDP-financed invoice have been provided and the related activities have been completed including the final clearance of the Terminal Evaluation Report that must be available in English, and after the final project board meeting. The Implementing Partner through a Project Board decision, will notify the UNDP Country Office when the operational closure has been completed. The relevant parties will then agree on the disposal of any equipment that is still the property of UNDP.

Financial completion: The project will be financially closed when the following conditions have been met: a) the project is operationally completed or has been cancelled; b) the implementing partner has reported all financial transactions to UNDP; c) UNDP has closed the accounts for the project; d) UNDP and the implementing partner have certified a final Combined Delivery Report (which serves as final budget revision).

The project will be financially completed within 12 months of operational closure or after the date of cancellation. Between operational and financial closure, the implementing partner will identify and settle all financial obligations and prepare a final expenditure report. The UNDP Country Office will send the final signed closure documents including confirmation of final cumulative expenditure and unspent balance to the UNDP-GEF Unit for confirmation before the project will be financially closed in Atlas by the Country Office.

Refund to Donor: should a refund of unspent funds to the GEF be necessary, this will be managed directly by the UNDP-GEF Unit in New York.

IX. SUSTAINABILITY OF RESULTS

Sustaining:

The financial sustainability necessary for continuation of activities launched as part of the project will be put in place and ensured by the project and its demonstration projects. Waste Management Facilities will make the necessary investments in infrastructure and BAT/BEP equipment. After the project comes to an end, those facilities will continue to operate in line with the conditions established by the project. Waste generators will continue to be responsible to carry the costs for waste management and treatment established by Law 1252 (2008), and as such avoid reliance on national budget or project budget allocations. Finally, because BEP and BAT have been introduced through the demonstration projects, the decrease in UPOPs releases will be sustained beyond the project's duration.

Healthcare facilities participating in the mercury substitution programme will maintain the substitution beyond the project's duration, since such requirements are established by Law 1658, 2013 (by 2020, it will be mandatory for all HCFs to use mercury-free equipment). As such reductions in mercury releases from the project's demonstration activities will be sustained.

The demonstration project related to the brominated flame-retardants containing plastics originating from WEEE and vehicle disassembling will determine the type of management/treatment that these plas-

should receive in the future. Based on the project's results, MADS will draft a guideline for the management and treatment of these types of plastics, which after its adoption/approval should be adhered to by waste generators and waste management facilities.

Finally, installed infrastructure/technologies for mercury waste treatment and management will continue to be used while service costs for mercury treatment will be covered by mercury-waste generators. Even when mercury-containing medical devices and other products will be phased-out by 2020, installed BAT capacity for the treatment of mercury containing wastes will continue to be applied/used for other mercury containing products and wastes, such as mercury containing lights (in accordance with Resolution 1511 (2010)), and primary batteries (in accordance with Resolution 1297 (2013)). Currently these types of wastes are allowed to be disposed of in a security cell, but starting in 2017 these types of wastes will need to be treated and recycled (glass and metals in the case of spent lamps, and recovery of mercury, manganese and zinc in the case of primary batteries). Without treatment options being available at national level, such wastes would have to be treated abroad, which would be much more costly.

The measures which will be taken in the iron and steel industry to reduce UPOPs releases, will address a pressing need in this industry, as it needs to collect cleaner scrap and in high enough quantities to avoid the import of (more expensive) raw/recycled materials. Through the demonstration projects, the industry will invest in BAT/BEP technologies and process modifications, which will result in UPOPs reductions. Because new practices and technologies will have been introduced by the demonstration projects and result in UPOPs reductions, these will also be sustained in the future.

The introduction of BAT and BEP in the sugarcane sector to reduce burning will be undertaken in close collaboration with ASOCAÑA and CENICAÑA. ASOCAÑA represents approximately 90% of the sugarcane plantation firms while CENICAÑA provides technical directions for improvements in sugar production in the sector. The demonstration projects, in partnership with the plantations, will spur investments in mechanical biomass clearing, which will continue to be used beyond the project's duration (especially in light of the legislation which controls and prohibits biomass burning). The project's initiatives to create alternative livelihoods for those households currently involved in biomass burning, will further decrease biomass burning practices and provide such households with other means of income.

Finally, the legislative framework already in place, which will be further strengthened through the development of guidelines and technical regulations as part of the project, will provide an additional assurance that UPOPs and mercury reductions will be sustained beyond the project's duration.

Mainstreaming: *What measure will be taken to ensure information lessons learned are incorporated into broader stakeholder initiatives?*

Lessons-learned and results from each of the project components will be published and disseminated at national level. The project will prepare two (2) publications on learned lessons from the demonstration projects, one on UPOPs and one on mercury. In this manner, entities that were not directly benefitting from the project will be informed about the project's successes, difficulties, and the way that economic, social and technical barriers which presented itself during the project's implementation, were overcome. In turn, this will help such entities replicate the project's successes (see also the section on "*Scale-up and Replication*").

The project will also draft and publish four (4) national BAT/BEP guidelines, one for each demonstration sector (Health Care Waste Management, WEEE Management, Iron and Steel Production and Sugarcane Harvesting). The guidelines will be drafted based on the experiences from the 10 demonstration projects, focusing on the introduction and application of BEP and BAT. Once finalized these guidelines can direct practices and technologies in these four sectors, whether they are being applied by public and private entities, or whether they are used for monitoring purposes by the government, and as such practices, approaches and

technologies introduced by the project and proven successful will be maintained/incorporated into stakeholder initiatives.

Some of the measures that will be implemented by the project are related to improving the policy and regulatory framework pertaining to UPOPs and mercury management, as well as the application of BAT/BEP in the four priority sectors. The project aims to develop two (2) technical regulations, one on the management of HCW and one on the management of WEEE. The development – to be followed by their adoption – of these technical regulations will be based on the lessons-learned and experiences from the demonstration projects pertaining to these sectors. Once these technical regulations have been adopted, it is assumed that entities, which did not directly benefit from project interventions will be able to incorporate these lessons and adhere to the newly issued guidelines.

Finally, the project will engage a wide range of project partners. With respect to mainstreaming and incorporating lessons-learned that will emerge from the project, in particular associations engaged in project activities and demonstration projects such as Asocana (Association of sugarcane growing companies); CENICAÑA (Institute that investigates and spread the different research results related to sugarcane plantations); Ecocomputo (Association of companies that manufacture and import computers); Red Verde Programme (Association of manufacturers and importers of appliances); and Lumina Programme (Association of manufacturers and importers of lighting products), will play an important role in ensuring that lessons-learned will be disseminated among their members so that in turn these could be incorporated.

Scale-up and Replication: *Outline the transition arrangement/phase-out plan to sustain or scale-up and replicate results.*

Scale-up and replication will be achieved through the following project measures:

- **Development (and subsequent adoption) of 2 technical regulations and 4 technical guidelines** (see also “*Mainstreaming*”). The technical regulations and guidelines, which will be developed based upon the experiences, results, challenges and lessons-learned from the project’s assessments and demonstration projects, will support the scale-up/replication of project interventions among entities/partners which did not participate in the project, through enactment and monitoring of these regulations/technical guidelines by MADS and other public entities.

Examples:

Health Care Waste Management: The HCWM regulation will be modified to restrict HCW waste incineration, and promote the use of alternative technologies that do not generate UPOPs. The HCWM regulation will be based on the project’s results, which will also help to establish operational parameters of alternative technologies. After adoption this regulation will need to be adhered to by all waste management facilities through the different regions of the country.

WEEE: Brominated flame-retardant containing plastics and mercury-containing products belong to a waste stream that is rapidly growing in Colombia. The project’s results from the demonstration projects, the guidelines on WEEE management, and the revised technical regulation on WEEE management (which will be developed based on demonstration project experiences), will continue to guide companies to develop their activities related to this waste stream waste, after the project comes to an end.

Iron and Steel Industry: The project’s BAT and BEP demonstration projects in this sector will already cover 80% of the entire steel industry. However, results from the demonstration project could also be replicated in other metal industries, such as lead or aluminum production, which are considered smaller type producers to ensure replication of project successes, these type of industries will be involved in the

training and workshops that will be organized during the project's implementation. Furthermore, the project's results from the demonstration projects, the guidelines on Iron and Steel management (which will be developed based on demonstration project experiences), will continue to guide companies to develop their activities, after the project comes to an end.

Sugarcane Industry: The results from BAT and BEP implementation in the sugarcane sector will be replicated by ASOCAÑA, the association who represents the majority of sugarcane mills in the country, and CENICAÑA, an institute that investigates and disseminates research results related to sugarcane plantation among growers and producers. Additionally, the project's results from the demonstration projects and the guidelines on biomass management during harvesting (which will be developed based on demonstration project experiences), will continue to guide sugarcane companies to develop their activities even after the project comes to an end.

The staff trained during the project, ranging from environment and health authorities to research centers and companies, will act as multiplying agents for the project's results. The environment authorities that exert control and ensure monitoring to prevent/minimize pollution, could guide companies in the implementation of BAT and BEP in their production processes after the project comes to an end.

Information dissemination: The project expects to organize one workshop each project year to create awareness, and allow for an exchange of experiences and networking among project partners. In addition, project results are expected to be disseminated by MADS annually at the occasion of different environmental events and exhibitions. Finally, project activities and results will be posted on the MADS website (chemicals and waste section).

After conclusion of the training programmes, training materials will be uploaded onto MADS's website as permanent available courses/resources.

The training programme will also develop a competition among undergraduate students. This competition is about BAT and BEP implementation in the different sectors, in order to help raise awareness and encourage research and studies on the priority areas taken up in this project.

The project results are also expected to be replicated in other Latin-American countries since almost all have similar problems related to UPOPs generation from waste treatment, metal production, and sugarcane pre-harvest burning, as well as related to mercury releases from mercury-containing equipment and products.

X. LEGAL CONTEXT

This document together with the CPAP signed by the Government and UNDP which is incorporated herein by reference, constitute together a Project Document as referred to in the Standard Basic Assistance Agreement (SBAA); as such all provisions of the CPAP apply to this document. All references in the SBAA to "Executing Agency" shall be deemed to refer to "Implementing Partner", as such term is defined and used in the CPAP and this document.

Consistent with the Article III of the Standard Basic Assistance Agreement (SBAA), the responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP's property in the Implementing Partner's custody, rests with the Implementing Partner. To this end, the Implementing Partner shall:

- a. Put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- b. Assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the Implementing Partner's obligations under this Project Document.

The Implementing Partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml. This provision must be included in all sub-contracts or sub-agreements entered into under/further to this Project Document”.

XI. TOTAL BUDGET AND WORK PLAN

Total Budget and Work Plan												
Atlas ²⁷ Proposal or Award ID:			00094749			Atlas Primary Output Project ID:			00098842			
Atlas Proposal or Award Title:			Reducing UPOPs and Mercury releases from healthcare waste management, e-waste treatment, scrap processing and Biomass burning.									
Atlas Business Unit			COL10									
Atlas Primary Output Project Title			Reducing UPOPs and Mercury releases from healthcare waste management, e-waste treatment, scrap processing and Biomass burning.									
UNDP-GEF PIMS No.			5481									
Implementing Partner			Ministry of Environment and Sustainable Development (MADS)									
GEF Component / ATLAS Activity	Responsible Party	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	See Budget Note:
Component/ Outcome 1 Prevent and minimize the generation of UPOPs and update their inventory	MADS	62000	GEF	71200	International Consultants	20,000	60,000	50,000	20,000	10,000	160,000	1.2.3,4
				71300	Local Consultants	10,000	25,000	30,000	25,000	10,000	100,000	5,6,7,8,9,10
				71400	Contractual Services - Individuals	80,000	100,000	100,000	95,000	80,000	455,000	11, 12 and 13
				71600	Travel	4,000	15,000	20,000	10,000	10,000	59,000	14
				72100	Contractual Services - Companies	50,000	309,000	1,200,000	1,161,000	300,000	3,020,000	15, 16, 17, 18, 19 and 20.
				74200	Printed Media		40,000				40,000	21
				75700	Workshop/Training	2,000	6,000	7,000	8,000	4,000	27,000	22

²⁷ See separate guidance on how to enter the TBWP into Atlas

					sub-total GEF	166,000	555,000	1,407,000	1,319,000	414,000	3,861,000	
					Total Outcome 1	166,000	555,000	1,407,000	1,319,000	414,000	3,861,000	
Component/ Outcome 2	MADS	62000	GEF	71200	International Consultants	10,000	30,000	35,000	15,000	-	90,000	23
Prevent and reduce mercury releases				71300	Local Consultants	-	10,000	10,000	-	-	20,000	24
				71400	Contractual Services - Individuals	15,000	25,000	25,000	25,000	10,000	100,000	25, 26 and 27
				71600	Travel	2,000	6,000	6,000	6,000	2,000	22,000	28
				72100	Contractual Services - Companies	10,000	90,000	190,000	130,000	-	420,000	29, 30 and 31
				74200	Printed Media		10,000				10,000	32
				75700	Workshop/Training	3,000	6,000	6,000	6,000	3,000	24,000	33
					sub-total GEF	40,000	177,000	272,000	182,000	15,000	686,000	
					Total Outcome 2	40,000	177,000	272,000	182,000	15,000	686,000	
Component/ Outcome 3	MADS	62000	GEF	71300	Local Consultants	15,000	60,000	60,000	40,000	20,000	195,000	34 and 35
Strengthening the institutional, administrative, legal, technical and regulatory framework for reducing UPOPs and mercury.				71400	Contractual Services - Individuals	10,000	20,000	30,000	30,000	10,000	100,000	36
				71600	Travel	4,000	8,000	8,000	8,000	5,000	33,000	37
				72100	Contractual Services - Companies	31,000	50,000	150,000	130,000	50,000	411,000	38
				75700	Workshop/Training	3,000	7,000	10,000	7,000	4,000	31,000	39
					sub-total GEF	63,000	145,000	258,000	215,000	89,000	770,000	
					Total Outcome 3	63,000	145,000	258,000	215,000	89,000	770,000	
Component/ Outcome 4	MADS	62000	GEF	71200	International Consultants			20,000		25,000	45,000	40
				71300	Contractual Services - Individuals	7,000	7,000	11,000	7,000	11,000	43,000	41 and 42

Dissemination of Lessons-learned, monitoring & evaluation				71600	Travel			10,000		15,000	25,000	43
				74100	Audit	3,000	3,000	3,000	3,000	3,000	15,000	44
				74199	Translation Costs			3,000		3,000	6,000	45
				74200	Printed media			6,000		6,000	12,000	46
				75700	Workshop/Training	20,000	9,000	9,000	9,000	10,000	57,000	47
					sub-total GEF	30,000	19,000	62,000	19,000	73,000	203,000	
					Total Outcome 4	30,000	19,000	62,000	19,000	73,000	203,000	
Project Management Unit	MADS	62000	GEF	71400	Contractual Services - Individuals	20,000	25,000	25,000	25,000	20,000	115,000	48 and 49
				72500	Office Supplies	2,000	5,000	5,000	5,000	3,000	20,000	50
				64398/74598	Direct project costs	20,000	30,000	40,000	40,000	10,000	140,000	51
				74500	Miscellaneous	1,000	1,000	1,000	1,000	1,000	5,000	52
					sub-total	43,000	61,000	71,000	71,000	34,000	280,000	
					Total Management	43,000	61,000	71,000	71,000	34,000	280,000	
PROJECT TOTAL						342,000	957,000	2,070,000	1,806,000	625,000	5,800,000	

	Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Amount Year 5	Total
Outcome 1	166,000	555,000	1,407,000	1,319,000	414,000	3,861,000
Outcome 2	40,000	177,000	272,000	182,000	15,000	686,000
Outcome 3	63,000	145,000	258,000	215,000	89,000	770,000
Outcome 4	30,000	19,000	62,000	19,000	73,000	203,000
Project Management	43,000	61,000	71,000	71,000	34,000	280,000
TOTAL	\$342,000	\$957,000	\$2,070,000	\$1,806,000	\$625,000	\$5,800,000

Budget notes:

1. International Consultant, UPOPs inventory expert
2. International Consultant, brominated flame retardant plastics management expert
3. International Consultant, BAT implementation expert in the metallurgy sector
4. International Consultant, biomass burning decrease expert in the sugarcane sector
5. National Consultant, emissions expert
6. UPOPs inventory consultancy
7. National Consultant, metal scrap recycling expert
8. National Consultant, use of biomass to energy production expert
9. National Consultant, iron and steel industry processes expert
10. National Consultant, productive processes expert in sugarcane plantation.
11. National expert in the Stockholm Convention, which oversees the activities Outcome 1.
12. National Consultant national expert in the management of plastics with flame-retardants.
13. National Consultant expert in the management hazardous waste.
14. Travel related costs (plane tickets, TE, DSA) for cover missions and field visits for international and national consultants who carry out activities under Outcome 1.
15. UPOPs measurements at selected UPOPs release sources
16. Technical and economic assessment for Waste Management in the HC sector, WEEE management, BAT and BEP implementation in the steel production and biomass burning.
17. HCW management demonstration projects in four regions
18. One (1) WEEE plastics management demonstration project.
19. Iron and steel industry demonstration projects
20. Biomass burning demonstration project in the sugarcane sector
21. Layout, design and printing of UPOPs inventory; and Four (4) national assessments.
22. Payment of logistics services for meetings, consultation and training with stakeholders under Outcome 1.
23. International Consultant, Mercury-containing equipment, and compounds substitution in the HC sector
24. National Consultant expert in the design of facilities that handle hazardous waste
25. National expert in the management of chemical substances to coordinate and supervise the activities of Outcome 2.
26. National Consultant expert in the management of WEEE to advise the project activities.
27. National Consultant expert in the management hazardous waste with mercury.
28. Travel related costs (plane tickets, TE, DSA) for cover missions and field visits for international and national consultants who carry out activities under Outcome 2.
29. Study Use of Mercury-containing equipment in the HC sector
30. Mercury substitution project in the HC sector
31. Mercury containing energy efficient lights and primary batteries management project
32. Layout, design and printing of assessment on the use of mercury-containing devices in the HC sector

33. Payment of logistics services for meetings, consultation and training with stakeholders under Outcome 2.
34. National Expert in WEEE inventories
35. System Engineer, database designer expert
36. National expert in standards and technical regulations Colombians for managing hazardous waste and chemicals to coordinate and develops the activities of Outcome 3.
37. Travel related costs (plane tickets, TE, DSA) for cover missions and field visits for national consultants who carry out activities under Outcome 3.
38. Consultancy for Laboratory strengthening
39. Payment of logistics services for meetings, consultation and training with stakeholders under Outcome 3.
40. International Consultants for Mid-term and Terminal evaluation.
41. National consultant for monitoring of indicators in project results framework
42. National consultant Mid-term GEF Tracking Tool to be updated by and final GEF Tracking Tool to be updated by
43. Travel related costs (plane tickets, TE, DSA) for cover missions and field visits for international and national consultants engaged to conduct the MTR and TE.
44. Costs for company that ensures national level audits
45. Translation of MTR and TE reports into English
46. Design and printing of publications. Two (2) publications on learned lessons from the demonstration projects drafted, published and disseminated (one on UPOPs and one on mercury).
47. Organization of Project inception workshops as well as five (5) workshops (one each project year) to communicate the project's progress and results to the project partners.
48. Administrative assistant project
49. Project coordinator
50. Stationery and office items
51. Project management services provided by UNDP
52. Insurance, banking, unforeseen.

ANNEXES

Work plan

PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
	Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
<p>conduct UPOPs measurements in Colombia's priority sectors, uncontrolled biomass burning, waste incineration, metal processing, power generation and waste treatment. Verify whether Colombian emission factors are in line with the release factors as calculated by UNEP & Stockholm Convention Toolkit</p>		X	X			<p>Ministry of Environment and Sustainable Development.</p> <p>Thermal waste treatment facilities.</p> <p>Iron and Steel Industry</p> <p>Sugarcane plantations where biomass burning is realized</p>	<p>GEF</p> <p>Funds from the companies that own facilities where the UPOPs are generated.</p>	<p>The GEF funds will be used to pay UPOPs measures in sectors where these measures have not been taken.</p> <p>The companies funds are the measures make by the companies with their resources.</p>	100.000
<p>review available companies data on measurements of dioxins and furans that have been conducted in sectors such as waste treatment, metal processing industry, and other sectors.</p>	X					<p>Ministry of Environment and Sustainable Development</p>	<p>GEF</p> <p>Ministry of Environment and Sustainable Development.</p>	<p>The GEF funds will be used to hire national consultants to support the revision</p> <p>The MADS funds will be in-kind contributions.</p>	30.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
	1.3 Update the dioxins and furans inventory using the emission factors of the Toolkit 2013. Overtake the inventory of other UPOPs in Annex C, by emission factors.		X	X			Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	The GEF funds will be used to hire national and international consultants to support the inventory preparation. The MADS funds will be in-kind contributions.	240.000
	1.4 Realize workshops and meetings with the interested parties to socialize the results and methodologies.	X	X	X	X	X	Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	The GEF funds will be used to rent the places to realize the workshops and to buy the material needed. The MADS funds will be in-kind contributions.	12.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
<p>Output 2 Four (4) national assessments finalized, including technical and economic assessment of the available technologies.</p> <p>Result Indicator 2: Four national assessments</p> <p>Baseline (year): There are no national</p>	<p>2.1. Assess the HCWM situation in Colombia, especially in socially vulnerable areas and areas with high environmental interest (e.g. regions of the Amazon, Caribbean Coast, Uraba Antioqueño, and Choco). Conduct a technical and economic assessment (Cost-Benefit Analysis - CBA) of available technologies (national/international level) for the treatment of HCW. And, develop a national HCWM Strategy and Plan, based on the assessment and CBA.</p>	X	X				<p>Ministry of Environment and Sustainable Development.</p>	<p>GEF</p> <p>Ministry of Environment and Sustainable Development.</p>	<p>The GEF funds will be used to hire national consultants to realize the assessment.</p> <p>The MADS funds will be in-kind contributions.</p>	80.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
assessments for the four sectors Target (Y1, Y2, Y3, Y4): Completed in Y2	2.2 Prepare a technical and economic assessment of WEEE technologies for the treatment and recycling of WEEE	X	X				Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	The GEF funds will be used to hire national consultants to develop the assessment. The MADS funds will be in-kind contributions.	100.000
	2.3 Finalize the assessment of primary and secondary metallurgic processes (steel and other base metals), including the size of facilities, metals produced, and type and sources of raw materials.	X	X				Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	The GEF funds will be used to hire national consultants to develop the assessment. The MADS funds will be in-kind contributions.	80.000
	2.4 Assess the biomass burning practices and techniques in the sugarcane production sector for pre and post-harvest biomass processing.	X	X				Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	The GEF funds will be used to hire national consultants to develop the assessment. The MADS funds will be in-kind contributions.	90.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
Output 3 Ten (10) demonstration projects implemented. In HC sector, iron and steel industry, and sugarcane sector, nine projects are implemented to reduce UPOPs	3.1 Realize a demonstration project for the disposal of HCW generates in the Amazon region.			X	X	X	Ministry of Environment and Sustainable Development. Healthcare Service located in Amazonas region.	GEF Healthcare Service located in Amazonas region.	The GEF funds will be used to purchase the materials and supplies required for the waste treatment and the effectiveness evaluation. Also to hire the national and international experts in this sector. The Amazon Healthcare service will invest in infrastructure.	110.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
releases. In the WEEE sector, one project is implemented to identify the brominated flame retardants in plastics of computers, refrigerators and vehicles. Result Indicator 3:	3.2 Realize a demonstration project for the disposal of HCW generates in the Caribbean Coast.		X	X	X	X	Ministry of Environment and Sustainable Development. Waste management facilities located in the Caribbean Coast.	GEF Waste management facilities located in the Caribbean Coast.	The GEF funds will be used to purchase the materials and supplies required for the waste treatment and the effectiveness evaluation. Also, to hire the national and international experts in this sector. The facility managers will invest in infrastructure, purchase of equipment, and waste treatment operation.	135.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
<p>Four demonstration projects in the HC sector, 70 g-TEQ of UPOPs avoided being released</p> <p>Baseline (year): 89 g-TEQ of UPOPs generated by year (base year 2002)</p> <p>Target (Y1, Y2, Y3, Y4):</p>	<p>3.3 Realize a demonstration project for the disposal of HCW generates in the Choco department.</p>		X	X	X	X	<p>Ministry of Environment and Sustainable Development.</p> <p>Waste management facilities located in Choco Department.</p>	<p>GEF</p> <p>Waste management facilities located in the Choco Department.</p>	<p>The GEF funds will be used to purchase the materials and supplies required for the waste treatment and the effectiveness evaluation. Also to hire the national and international experts in this sector.</p> <p>The facility managers will invest in infrastructure, purchase of equipment, and waste treatment operation.</p>	130.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
Completed in Y5	3.4 Realize a demonstration project for the disposal of HCW generates in the Uraba Antioqueño region.		X	X	X	X	Ministry of Environment and Sustainable Development. Waste management facilities located in the Uraba Antioqueño region.	GEF Waste management facilities located in the Uraba Antioqueño region.	The GEF funds will be used to purchase the materials and supplies required for the waste treatment and the effectiveness evaluation. Also to hire the national and international experts in this sector. The facility managers will invest in infrastructure, purchase of equipment, and waste treatment operation.	130.000
	3.5 Collect and publish the operational conditions of the technologies introduced at the demonstration sites. As well as the BEP measures used to improve the HCWM situation.					X	Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	The GEF funds will be used to hire a consultant to develop the document. The MADS funds will be in-kind contributions.	30.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
Result Indicator 4: Four demonstration projects in the iron and steel industry and 10 g-TEQ of UPOPs	3.6 Quantify the impact of the introduction of BAT and BEP in the UPOPs release reductions in the HC sector.					X	Ministry of Environment and Sustainable Development.	GEF	The GEF funds will be used to hire a consultant to realize the quantification.	20.000
								Ministry of Environment and Sustainable Development.	The MADS funds will be in-kind contributions.	
								Waste management facilities	The facility managers will invest in infrastructure, purchase of equipment, and waste treatment operation.	

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
<p>prevented to be release.</p> <p>Baseline (year): 18.92 g-TEQ/yr (base year 2002)</p> <p>Target (Y1, Y2, Y3, Y4): Completed in Y5</p>	<p>3.7 Realize a demonstration project for the recovery and preparation of the scrap metal from vehicle dismantling</p>	X	X	X	X	X	<p>Ministry of Environment and Sustainable Development.</p> <p>Companies developing activities of Vehicles dismantling.</p>	<p>GEF</p> <p>Companies developing activities dismantling of Vehicles.</p>	<p>The GEF funds will be used to hire national and international experts on vehicle disassembly, and material characterization.</p> <p>The vehicle disassembly facility will invest in infrastructure and purchase of equipment for the disassembly activities.</p>	100.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
	3.8 Realize a demonstration project for the recovery and preparation of the scrap metal from the municipal solid waste collection in Cali city.	X	X	X	X	X	Ministry of Environment and Sustainable Development. Companies that perform the collection and sorting of scrap metal	GEF Secondary steel production companies	The GEF funds will be used to hire national and international experts on segregation, classification and characterization of scrap metal. Also to purchase the supplies to be delivered to the waste collectors to facilitate their work. The secondary steel production companies will invest in scrap metal collection in two Colombian cities.	127.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
	3.9 Implement the BAT and BEP in a primary iron and steel production company.	X	X	X	X	X	Ministry of Environment and Sustainable Development. Primary production company	GEF Primary production company	The GEF funds will be used to hire national and international experts in the measures to be implemented to decrease UPOPs releases, as well as the measurement to be realized to establish the reduction. The secondary steel production companies will invest in the transformation of their processes.	260.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
Result Indicator 5: One demonstration project in the sugarcane industry and 20 g-TEQ of UPOPs prevented to be release. Baseline (year): 69.5 g-TEQ/yr. (base year 2002) Target (Y1, Y2, Y3, Y4): Completed in Y5	3.10 Implement the BAT and BEP in a secondary iron and steel production company.	X	X	X	X	X	Ministry of Environment and Sustainable Development.	GEF	The GEF funds will be used to hire national and international experts on the measures to be implemented to decrease UPOPs releases, as well as the measurement to be realized to establish the reduction	400.000
	3.11 Quantify the decrease in UPOPs releases as a result of four demonstration projects in the iron and steel industries.					X	Ministry of Environment and Sustainable Development.	GEF	The GEF funds will be used to hire a consultant to calculate the UPOPs releases reduction. The MADS funds will be in-kind contributions.	30.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
Result Indicator 6:	3.12 Establish a program for the increase of sugarcane mechanical harvest processes and the management of generated biomass.	X	X	X	X	X	Ministry of Environment and Sustainable Development. ASOCAÑA	GEF ASOCAÑA	The GEF funds will be used to realize a study in the mechanical sugarcane cutting and its implementation ASOCAÑA will invest in infrastructure, supplies, and staff to develop the activities.	244.000
	3.13 Realize a project with the communities at the Cauca and Valle del Cauca departments. The aim of this project is to decrease the intentional sugarcane burning for harvesting.	X	X	X	X	X	Ministry of Environment and Sustainable Development. ASOCAÑA	GEF ASOCAÑA	The GEF funds will be used to purchase materials and supplies for the productive programs, and support for the activities to be developed with the communities involved in the project. ASOCAÑA will invest in infrastructure and staff to develop the activities.	340.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
<p>One demonstration project in the WEEE sector and 3148 tons of plastics treated in a sound way.</p> <p>Baseline (year): 3148 tons of plastics estimated to be produced during 2016-2020.</p> <p>Target (Y1, Y2, Y3, Y4): Completed in Y5.</p>	<p>3.14 Implement Good Agricultural Practices to decrease the use of chemical fertilizers and pesticides, which could supply chlorine to the biomass.</p>	X	X	X	X	X	<p>Ministry of Environment and Sustainable Development.</p> <p>ASOCAÑA</p>	<p>GEF</p> <p>ASOCAÑA</p>	<p>The GEF funds will be used to hire a consultant to realize the assessment and laboratory tests to establish the effectiveness</p> <p>ASOCAÑA will invest in infrastructure, supplies, and staff to develop the activities.</p>	200.000
	<p>3.15 Calculate the reduction in UPOPs emissions according to the BAT and BEP established in the sugarcane sector.</p>					X	<p>Ministry of Environment and Sustainable Development.</p>	<p>GEF</p> <p>Ministry of Environment and Sustainable Development.</p>	<p>The GEF funds will be used to contract a study about the effectiveness of the proposed measures in the UPOPs reduction.</p> <p>The MADS funds will be in-kind contributions.</p>	30.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
	3.16 Establish the identification methods in WEEE for the flame retardants listed in Stockholm Convention.	X	X				Ministry of Environment and Sustainable Development. Facilities responsible for the collection and management of WEEE	GEF Facilities responsible for the collection and management of WEEE	GEF resources will be used to hire an international expert on the issue of identification of flame retardants The facility managers will invest in infrastructure, purchase of equipment, and waste treatment operation.	78.000
	3.17 Eliminate the brominated flame retardants-containing plastics, using the best technology available in Colombia.	X	X	X	X	X	Ministry of Environment and Sustainable Development. Facilities responsible for the collection and management of WEEE	GEF Facilities responsible for the collection and management of WEEE	The GEF funds will be used to purchase the materials and supplies required for the waste treatment and the effectiveness evaluation. Also to hire the national and international experts in this sector. The facility managers will invest in infrastructure, purchase of equipment, and waste treatment operation.	720.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
	3.18 Assess the generation and management of POPs-containing WEEE (brominated and halogenated flame retardants)					X	Ministry of Environment and Sustainable Development. Facilities responsible for the collection and management of WEEE	GEF Facilities responsible for the collection and management of WEEE	The GEF funds will be used to hire a consultant to realize the assessment. The companies who realize the plastics identification and treatment will contribute to the measurements.	30.000
	3.18 Realize workshops and meetings with the interested parties to socialize the results and methodologies.	X	X	X	X	X	Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	The GEF funds will be used to rent the places to realize the workshops and to buy the material needed. The MADS funds will be in-kind contributions.	15.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
Output 4 One (1) assessment of the use of mercury-containing devices in the HC sector completed and one (1) guideline on the replacement of mercury-containing	4.1 Make a diagnostic of mercury-containing equipment used in the HC sector (including type and quantities) and disposal methods.	X					Ministry of Environment and Sustainable Development. Ministry of Health and Social Protection.	GEF Ministry of Environment and Sustainable Development.	The GEF funds will be used to contract a study, which will make a diagnostic about the Mercury-containing equipment used in HC sector. The MADS funds will be in-kind contributions.	50.000

<p>equipment in the HC sector drafted/developed.</p> <p>Result Indicator 7: One assessment about mercury-containing equipment and supplies used in HC sector, and one guideline about mercury-free alternatives for HC sector.</p> <p>Baseline (year): An assessment of anthropogenic mercury releases (base year 2009), there is not a substitution guideline.</p> <p>Target (Y1, Y2, Y3, Y4): Assessment completed in Y1 and</p>	<p>4.2 Publish a guideline that promote Hg-containing equipment substitution and train healthcare workers in the mercury-free devices alternatives.</p>					X	<p>Ministry of Environment and Sustainable Development.</p> <p>Ministry of Health and Social Protection</p>	<p>GEF</p> <p>Ministry of Environment and Sustainable Development.</p> <p>Ministry of Health and Social Protection</p>	<p>The GEF funds will be used to finance the development and publication of the guideline.</p> <p>The ministries fund will be in-kind contributions, as their staff.</p>	20.000
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EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
guideline in Y5										
Output 5 Two (2) demonstration projects in the HC and WEEE sectors implemented, resulting in the improved management/ phase-out of 500 kg of mercury through BAT/BEP introduction.	5.1 Develop two demonstration projects in the hospital Meredi in Bogota city and the public hospitals network in Medellin city. The activities are the Mercury-containing equipment substitution and the mercury waste sound management		X	X	X		Ministry of Environment and Sustainable Development. Ministry of Health and Social Protection. Hospitals where the mercury-containing equipment replacement program will be implemented	GEF Hospitals where the mercury-containing equipment replacement program will be implemented	The GEF funds will be used to hire a consultant to advise the hospitals in the equipment substitution and the purchase of some demonstration equipment. The hospital will realize the purchase of equipment and supplies for the equipment substitution.	100.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
Result Indicator 8: Two demonstration projects in the HC and WEEE sectors and 500 Kg of mercury treated and storage in a sound way. Baseline (year): 9735 Kg of mercury wastes from HC and WEE sectors. (base year 2009) Target (Y1, Y2, Y3, Y4): Completed in Y5	5.2 Quantify the mercury avoided and disposed in a sound manner in the HC sector					X	Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	The GEF funds will be used to finance the quantification of Mercury recovered or avoided to be released. The MADS funds will be in-kind contributions.	10.000
	5.3 Optimize the mercury-containing energy efficient lights and primary batteries collection system in Colombia	X	X	X	X		Ministry of Environment and Sustainable Development. Waste mercury-containing energy efficient lights and waste primary batteries collection programs	GEF Waste mercury-containing energy efficient lights and waste primary batteries collection programs	The GEF funds will be used to contract a study to optimize the fluorescence lamps, lights bulbs, and primary batteries. Also, to hire an international expert. The luminary and primary batteries collection programs will invest in the waste collection.	100.000

	5.4 Increase the installed capacity of the existent facilities, which treat mercury-containing energy efficient lights and primary batteries in Colombia.	X	X	X	X		Ministry of Environment and Sustainable Development. Waste mercury-containing energy efficient lights and waste primary batteries collection programs Waste mercury-containing energy efficient lights and waste primary batteries facilities	GEF Waste mercury-containing energy efficient lights and waste primary batteries collection programs Waste mercury-containing energy efficient lights and waste primary batteries facilities	The GEF funds will be used to hire an international expert in the treatment of Hg lamps and batteries, as well as to purchase supplies and consumables for the waste treatment during the assessment stage. The collection programs and the waste management companies will invest in infrastructure and equipment purchases.	226.000
	5.5 Install a new facility for the treatment of mercury-containing energy efficient lights.			X	X		Ministry of Environment and Sustainable Development.	GEF	The GEF funds will be used to hire an international expert in the treatment of Hg	130.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
							<p>Waste mercury-containing energy efficient lights and waste primary batteries collection programs</p> <p>Waste mercury-containing energy efficient lights and waste primary batteries facilities</p>	<p>Waste mercury-containing energy efficient lights and waste primary batteries collection programs</p> <p>Waste mercury-containing energy efficient lights and waste primary batteries facilities</p>	<p>lamps and batteries, as well as to purchase supplies and consumables for the waste treatment during the assessment stage.</p> <p>The collection programs and the waste management companies will invest in infrastructure and equipment purchases.</p>	

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
	5.6 Quantify the mercury disposed in a sound manner in the WEEE sector					X	<p>Ministry of Environment and Sustainable Development.</p> <p>Waste mercury-containing energy efficient lights and waste primary batteries collection programs</p> <p>Mercury-containing waste facility</p>	<p>GEF</p> <p>Waste mercury-containing energy efficient lights and waste primary batteries collection programs</p> <p>Mercury-containing waste facility</p>	<p>The GEF resources will be used to hire a consultant to estimate mercury avoided and disposed of.</p> <p>The waste management companies will also realize the HG quantification.</p>	20.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
	5.7 Realize workshops and meetings with the interested parties to socialize the results and methodologies.						Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	The GEF funds will be used to rent the places to realize the workshops and to buy the material needed. The MADS funds will be in-kind contributions.	24.000
Output 6 Four (4) national guidelines based on BAT/BEP for HC institutions, WEEE sector, iron and steel industry, and	6.1 Publish the BAT and BEP guidelines for the HCW treatment.					X	Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	The GEF resources will be used to contract the design and publishing. The MADS funds will be in-kind contributions to the document elaboration.	35.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
<p>sugarcane industry published, and two technical regulations, one on the management of HCW and one on the management of WEEE drafted.</p> <p>Result Indicator 9: Four national guidelines based on BAT and BEP.</p> <p>Baseline (year): There are not BAT and BEP guidelines</p> <p>Target (Y1, Y2, Y3, Y4): Completed in Y5</p>	6.2 Publish the BAT and BEP guidelines for the WEEE management.					X	Ministry of Environment and Sustainable Development.	GEF	The GEF resources will be used to contract the design and publishing. The MADS funds will be in-kind contributions to the document elaboration.	35.000
	6.3 Publish the BAT and BEP guidelines for the primary and secondary iron and steel production					X	Ministry of Environment and Sustainable Development.	GEF	The GEF resources will be used to contract the design and publishing. The MADS funds will be in-kind contributions to the document elaboration.	35.000
	6.4 Publish the BAT and BEP guidelines for the sugarcane crop.					X	Ministry of Environment and Sustainable Development.	GEF	The GEF resources will be used to contract the design and publishing. The MADS funds will be in-kind contributions to the document elaboration.	40.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
Result Indicator 10: Two technical regulations for HCW and WEEE management. Baseline (year): The Decree 351 in 2014 about the responsibilities in HCW management, and a WEEE management guideline in 2010, which should be modified according to	6.5 Realize workshops and meetings with the interested parties to socialize to Publish the BAT and BEP			X	X	X	Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	The GEF funds will be used to rent the places to realize the workshops and to buy the material needed. The MADS funds will be in-kind contributions.	8.000
	6.6 Establish the technical regulation for HCW generation management.	X	X				Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	GEF resources a national consultant to support the formulation of the regulations is engaged The MADS funds will be in-kind contributions.	20.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
Law 1672 in 2013. Target (Y1, Y2, Y3, Y4): Completed in Y5	6.7 Establish the technical regulations for WEEE management.	X	X				Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	GEF resources a national consultant to support the formulation of the regulations is engaged The MADS funds will be in-kind contributions.	20.000
	6.8 Realize workshops and meetings with the interested parties to socialize to regulations.		X	X	X		Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	GEF resources a national consultant to support the formulation of the regulations is engaged The MADS funds will be in-kind contributions.	10.000

<p>Output 7 One (1) WEEE registration system established, including manufacturers, importers, generators, waste managers and recycling companies.</p> <p>Result Indicator 11: One Registration System</p> <p>Baseline (year): There is not a registration system but, it is required by Law 1672 in 2013</p> <p>Target (Y1, Y2, Y3, Y4): Completed in Y5</p>	<p>7.1 Develop a Registration System where is collected the information about generation and management of WEEE in Colombia.</p>	X	X	X	X	X	<p>Ministry of Environment and Sustainable Development.</p>	<p>GEF</p> <p>Ministry of Environment and Sustainable Development.</p>	<p>The GEF resources will be used to contract the design and development of the database that collated the required information</p> <p>The MADS funds will be in-kind contributions, and also the Registration System has a budget from the MADS</p>	280.000
<p>Output 8</p>	<p>8.1 Train the relevant authorities about the</p>		X	X	X	X		<p>GEF</p>	<p>The GEF resources will be used to contract</p>	40.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
Four (4) training programs for authorities developed. Their contents are related to the impacts, measures to prevent and reduce emissions of UPOPs and mercury, and the implementation	adverse impacts of UPOPs and the ways to prevent their generation through strategies for sustainable production and consumption.						Ministry of Environment and Sustainable Development.	Ministry of Environment and Sustainable Development. Regional Environmental Authorities.	the design and the development of the training program. The MADS funds will be in-kind contributions. The Regional Environmental Authorities will give the travel expenses and allowance for their staff.	

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
n of BAT and BEP in the four sectors, and two (2) training programs for laboratories developed on validation of protocols for the measurement of UPOPs, brominated flame retardants, and mercury, and for the	8.2 Establish a training program for environmental and sanitary authorities to create awareness on mercury issues, and to create the capacity to support industries and priority sectors in the BAT and BEP implementation for mercury.		X	X	X	X	Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development. Regional Environmental Authorities.	The GEF resources will be used to contract the design and the development of the training program. The MADS funds will be in-kind contributions. The Regional Environmental Authorities will give the travel expenses and allowance for their staff.	40.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
<p>accreditation processes of those protocols.</p> <p>Result Indicator 12: Four training programs for authorities</p> <p>Baseline (year): No training programs available</p> <p>Target (Y1, Y2, Y3, Y4):</p>	8.3 Set up a training program for HCW generators and waste managers in the implementation of BAT and BEP.		X	X	X	X	Ministry of Environment and Sustainable Development.	<p>GEF</p> <p>Ministry of Environment and Sustainable Development.</p> <p>Waste management companies</p>	<p>The GEF resources will be used to contract the design and the development of the training program.</p> <p>The MADS funds will be in-kind contributions.</p> <p>The waste management companies will give the travel expenses and allowance for their staff.</p>	40.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
<p>Completed in Y5</p> <p>Result Indicator 13: Two training programs for laboratories</p> <p>Baseline (year): Some laboratories can take samples but do not have validated protocols and</p>	8.4 Set up a training program for WEEE generators and waste managers in the implementation of BAT and BEP.		X	X	X	X	Ministry of Environment and Sustainable Development.	<p>GEF</p> <p>Ministry of Environment and Sustainable Development.</p> <p>Waste management facilities</p>	<p>The GEF resources will be used to contract the design and the development of the training program.</p> <p>The MADS funds will be in-kind contributions.</p> <p>The waste management companies will give the travel expenses and allowance for their staff.</p>	40.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
accreditation for UPOPs and Hg measurements . Target (Y1, Y2, Y3, Y4): Completed in Y5	8.5 Support a laboratory to develop the validated protocols for monitoring UPOPs, flame retardants, and mercury in several matrixes.		X	X	X	X	Ministry of Environment and Sustainable Development. IDEAM	GEF Ministry of Environment and Sustainable Development. IDEAM Laboratories	The GEF resources will be used to contract a specialized company in the validation of analytical methods. The MADS and IDEAM funds will be in-kind Contributions. The laboratories will invest in reagents and equipment to perform the required analysis.	64.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
	8.6 Start the accreditation process in those techniques.			X	X	X	Ministry of Environment and Sustainable Development. IDEAM	GEF Ministry of Environment and Sustainable Development. IDEAM Laboratories	The GEF resources will be used to contract a specialized company in the developing of quality manuals, and to advise ten laboratories. The MADS and IDEAM funds will be in-kind Contributions. The laboratories will make the investments required to achieve accreditation.	55.000
	8.7 Realize workshops and meetings with the interested parties to socialize to regulations.		X	X	X		Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	GEF resources a national consultant to support the formulation of the regulations is engaged The MADS funds will be in-kind contributions.	8.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
Output 9 Two (2) publications with lessons-learned from the UPOPs and mercury demonstration projects finished	9.1 Elaborate, schematize, edit and publish the documents lessons learned					X	Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	The GEF resources will be used to contract the design and publishing. The MADS funds will be in-kind contributions to the document elaboration.	10.000
Output 10 Inception Workshop and annual workshops realized with the partnerships	10.1 Realize Inception Workshops	X					Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	The GEF resources will be used to contract the design and publishing. The MADS funds will be in-kind contributions to the document elaboration.	11.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
Result Indicator 14: One Inception Workshop and Five workshops Baseline (year): One workshop completed in 2015, PPG phase Target (Y1, Y2, Y3, Y4): Completed in Y5	10.2 Realize workshops annually to communicate the project progress and results to the partnerships.	X	X	X	X	X	Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	The GEF resources will be used to rent the sites and to purchase the materials required for the development of the workshops. The MADS funds will be in-kind contributions to the announcement and dissemination of the workshops.	47.000
Project Evaluation		X	X	X		X	UNDP Ministry of Environment and Sustainable Development	GEF	The UNDP will contract the mid-term final evaluation, audits, Monitoring of indicators, Mid-term an final GEF Tracking Tool and Translation of MTR and TE reports into English	135.000

EXPECTED OUTPUTS and RESULT INDICATORS	PLANNED ACTIVITIES	TIMEFRAME					RESPONSIBLE PARTY	PLANNED BUDGET		
		Y1	Y2	Y3	Y4	Y5		Funding Source	Budget Description	Amount
Administrative Unit	One Consultant for the Administrative Assistance of the project. One Administrative and Financial Coordinator UNDP services Office Supplies Others	X	X	X	X	X	Ministry of Environment and Sustainable Development.	GEF Ministry of Environment and Sustainable Development.	The GEF resources will be used to hire a coordinator and administrative assistant. The Ministry funds will be in-kind contributions with office supplies and equipment.	280.000
TOTAL										5.800.000

ANNEX 2 Monitoring Plan

Monitoring	Indicators	Description	Data Source/ Collection Methods	Frequency	Responsible for data collection	Means of verification	Assumptions and Risks
Project Objective Introduce BEP and BAT to reduce the release of UPOPs and mercury in four sectors: HC, WEEE, iron and steel industry and sugarcane industry	Twelve (12) partnerships mechanisms	The partnership mechanisms are developed five (5) with HC sector, four (4) with iron and steel industry, one (1) with sugarcane industry, and two (2) with WEEE sector.	Reports realized by the partnerships, and national and international consultants, including the results obtained in each demonstration project.	Once, at the end of each demonstration project	Project coordinator (with support from national and international consultants)	Reports with obtained results by the partnerships Reports with obtained results by the national and international consultants	Assumption: The reports will be completed before the project comes to an end.
	Release of 100 g-TEQ UPOPs prevented	From ten (10) demonstration projects, it is planned to avoid the emission of 70 g-TEQ of UPOPs in the HC sector, 10 g-TEQ in the iron and steel industry, and 20 g-TEQ in the sugarcane industry.	Baseline UPOPs releases estimated for each demonstration project at start of project & UPOPs releases estimated for each demonstration project on a yearly basis (using UNEP Toolkit methodology for UPOPs releases and other available and recognized methodologies)	Yearly	Project coordinator (with support from national and international consultants)	Excel calculation sheets	Assumption: The project can obtain sufficient data at project start and on a yearly basis to estimate UPOPs releases and thus UPOPs reduction. Assumption: UNEP methodologies proof sufficiently accurate to support the calculation of these estimates.
	500 kg of mercury are treated and stored soundly in HC and WEEE sectors.	From two (2) demonstration projects, it is planned to treat and storage properly 387 Kg of mercury in WEEE sector and 113 Kg in HC sector	HCW report from the HC institutions, lights, and primary batteries waste reports from the collection programs	Yearly	Project coordinator (with support from national and international consultants)	Copy of Annual reports	Assumption: The project can obtain sufficient data at project start and on a yearly basis to estimate mercury releases, and thus mercury treated and stored soundly.
Project Outcome 1 Prevent and minimize the generation of UPOPs and update	One (1) UPOPs inventory developed.	The UPOPs inventory provides an overview of UPOPs releases from various sectors in Colombia.	The UPOPs inventory will be prepared in a report format following the UNEP & Stockholm Convention Toolkit 2013 for Identification and Quantification of Releases of Dioxins,	Once	Project coordinator	Copy of UPOPs inventory report	Assumption: UPOPs inventory report will be completed before the project comes to an end.

Monitoring	Indicators	Description	Data Source/ Collection Methods	Frequency	Responsible for data collection	Means of verification	Assumptions and Risks
their inventory			Furans, and Other UPOPs.				
	Four (4) national assessment finalized.	The national assessments are going to include the technical and economic assessment of the available technologies in the treatment of HCW, WEEE, iron and steel processes, and the sugarcane production.	The national assessment will be prepared according to standard format from MADS	Once	Project coordinator (with support from national and international consultants)	Copy of the national assessments	Assumption: The national assessments will be completed before the project comes to an end.
	Ten (10) demonstration projects realized in the four sectors.	It will be realized four projects in the HC sector, one in the WEEE sector, four projects in the primary and secondary steel industry, and one project in the sugarcane industry.	The reports will be prepared according to standard format from BAT and BEP for each of the sectors.	Twice during the project, at middle and end of the project.	Project coordinator (with support from national and international consultants)	Copy of the report from the partnerships, the waste management companies, and The national or international consultants	Assumption: The reports will be completed before the project comes to an end.
Project Outcome 2 Prevent and reduce of Mercury releases	One (1) assessment of mercury-containing equipment in the HC sector. And, one (1) guideline of the alternatives for replacement of mercury-containing equipment in HC sector established.	The assessment will contain the types and quantities of the current Mercury-containing equipment used and their disposal methods at the HC sector. The guideline will gather the substitution alternatives applied in the Colombian HC sector.	International experiences in mercury substitution. Experience gathered in the demonstration projects for mercury substitution.	Once	Project coordinator (with support from national and international consultants)	Copy of mercury assessment. Copy of published guideline.	Assumption: Assessment and mercury substitution reports will be completed before the project comes to an end.
	Two (2) demonstration projects in the HC and WEEE sectors implemented	One demonstration project is related to the mercury-containing equipment in the HC sector. The other demonstration project is related to the collection and treatment of mercury-containing energy efficient lights and primary batteries.	Reports realized by partnerships about the developed activities in the demonstration projects. Reports from national and international consultants, who have advised and evaluated the developed activities.	Twice during the project, at middle and end of the project.	Project coordinator (with support from national and international consultants)	Report from the interested parties. Waste management companies reports National or International Consultants Reports	Assumption: The reports will be completed before the project comes to an end.

Monitoring	Indicators	Description	Data Source/ Collection Methods	Frequency	Responsible for data collection	Means of verification	Assumptions and Risks
Project Outcome 3 Strengthening the Institutional, administrative, legal, technical and regulatory framework for reducing UPOPs and Mercury.	Four (4) national guidelines based on BAT/BEP published, and two (2) technical regulations, one on WEEE and the other one on the management of the HCW generated.	Each sector will have a guideline, HCW, WEEE, primary and secondary steel production and sugarcane industry. Those guidelines will be based on the BAT and BEP from Stockholm Convention and the successful technologies and measurements applied in the demonstration projects.	The national guidelines will be prepared based on Guidelines on BAT and Provisional guidance on BEP relevant to the Article 5 and Annex C of the Stockholm Convention on Persistent Organic Pollutants.	Last year of the project	Project coordinator	National guidelines published.	Assumption: The national guidelines will be completed before the project comes to an end.
		The WEEE technical regulation will cover WEEE management, including the mercury-containing compounds. The HCW technical regulation will include the HCW management and the decrease of Dioxins and Furans generation.	Supporting documents prepared by MADS staff and the queries made with the partnerships according to the rules of MADS.	Once	Project coordinator	Copy of the WEEE and HC Technical Regulations	The technical regulations will be completed before the project comes to an end. Risk: The adoption of a regulation in Colombia requires approval at various levels of government; the process could take a long time. Low.
	One (1) WEEE Generation and Management Registration System in Colombia established	This registration system will contain the WEEE generation and management information from manufacturers, importers and generators.	Reports emitted by the software used for the data collection about the Generation and Management Registration System	Once	Project coordinator	Access to WEEE Registration system platform	Assumption: The WEEE registration system will be completed before the project comes to an end. Risk: Partnerships does not report the required information in the system. Low.
	Four (4) training program for authorities and generators in each	Two training programs will be dedicated to the regional environmental authorities.	Attendance lists for the training programs.	The last four years of the project.	Project coordinator	Attendance lists	Assumption: The partnerships will attend the training programs about UPOPs

Monitoring	Indicators	Description	Data Source/ Collection Methods	Frequency	Responsible for data collection	Means of verification	Assumptions and Risks
	sector developed, and two (2) training programs for laboratories developed	The other two training programs will be assigned to the generators from the HCW and WEEE sectors					and Hg reduction and sign the attendance lists.
		The programs will be about validation of protocols for the measurement of UPOPs, brominated flame retardants, and mercury, and for the accreditation processes of those protocols.	Attendance lists for the training programs.	The last four years of the project.	Project coordinator	Attendance lists	Assumption: The laboratories will attend the training programs about UPOPs and Hg reduction and sign the attendance lists.
Project Outcome 4 Dissemination of Lessons-learned, Monitoring & Evaluation	Two (2) publications with lessons learned from the demonstration projects are finished.	The two publications will be related to UPOPs and mercury. Based on the experiences and results from the demonstration projects in the four sectors.	Demonstration projects results	Last year of the project	Project coordinator	Copy of the lesson-learned publications	Assumption: The learned-lessons publications will be completed before the project comes to an end.
	Five workshops realized annually	The workshops will present the results and progress of each of the project activities.	Attendance lists to the workshops.	Annually	Project coordinator	Attendance lists	Assumption: The partnerships will attend the workshops and sign the attendance lists.
Mid-term GEF Tracking Tool	N/A	N/A	Baseline GEF Tracking Tool included in Annex 21	After 2 nd PIR submitted to GEF	For example, national university; project consultant	Annex 14: Mercury Demonstration Project SD 10,000	List assumptions and risks to collecting the GEF TT data
Final GEF Tracking Tool	N/A	N/A	Baseline GEF Tracking Tool included in Annex 21	After final PIR submitted to GEF	For example, national university; project consultant	USD 10,000	List assumptions and risks to collecting the GEF TT data
Mid-term Review (if FSP project only)	N/A	N/A	Independent evaluators	Submitted to GEF same year as 3 rd PIR		USD 20,000 – 30,000	Include translation costs and travel costs as necessary
Total monitoring budget							

ANNEX 3 -14 Demonstration Projects



Annex 3. UPOPs
Demonstration Proj



Annex 4. UPOPs
Demonstration Proj



Annex 5. UPOPs
Demonstration Proj



Annex 6. UPOPs
Demonstration Proj



Annex 7. UPOPs
Demonstration Proj



Annex 8. UPOPs
Demonstration Proj



Annex 9. UPOPs
Demonstration Proj



Annex 10. UPOPs
Demonstration Proj



Annex 11. UPOPs
Demonstration Proj



Annex 12. PBDE
Demonstration Proj



Annex 13. Mercury
Demonstration Proj



Annex 14. Mercury
Demonstration Proj

ANNEX 15 Social and Environmental Screening



Annex 15 Social
and Environmental :

ANNEX 16 Terms of Reference for Project Coordinator and Project Board

Terms of Reference Project Coordinator

JUSTIFICATION

Since the signing of the Stockholm Convention, today Ministry of Environment and Sustainable Development (MADS), with support from other ministries and the private sector, has been progressing in the identification, prevention, reduction and elimination of the Persistent Organic Pollutants (POPs) and their residuals. Thus, since 2003 (during the first phase) have been developed a series of activities that have allowed to identify and analyze the internal condition of the POPs. Such actions were coordinated and carried out by the MADS by granted resources from the Global Environment Facility (GEF) and the Canadian Agency for International Cooperation, with support from the World Bank.

As part of the commitments made with the signing and ratification of the Stockholm Convention, the country through MADS drew up during 2007 the National Implementation Plan of the Stockholm Convention (NIP). From the end of 2008 and part of 2009 was carried out a disclosure and consultation process of NIP with related sectors, to enable its application.

Likewise, Colombia signed in October 2013 the Minamata Convention on mercury, global treaty which aims at protecting human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. Among the resulting obligations to the country under this Convention is the requirement to eliminate the use of mercury and the proper management of its waste.

In 2012, with funds from the Global Environment Facility, Colombia formulated the project for Environmentally Sound Management and Disposal of PCBs. This project began its implementation in 2013, with participation and co-financing from the electric power industry and waste sector which has enabled the country to count on installed capacity for the management of this kind of waste.

In 2015, Colombia received GEF resources for updating the National Implementation Plan of the Stockholm Convention, with which revisions and reformulations of the action plans are being carried out to include recently introduced substances by the conference party.

The GEF granted resources to the MADS to develop the Project Preparation Grant (PPG) presented by Colombia. This project aims at "Reducing UPOPs and Mercury releases from healthcare waste management, e-waste treatment, scrap processing and biomass burning", for which the United Nations Development Programme - UNDP will act as trustee and executor of resources.

The projects of disposing of PCBs, NIP update and formulation of a plan for minimization of releases of UPOPs and Hg have been defined to be carried out under one single project manager called Projects Coordinator PCos. One single manager has allowed optimization of the provided resources by GEF and maintain uniform standards to the implementation of projects and achieve a synergy between them.

Based on the obtained results, MADS and UNDP have agreed to keep unity in the coordination of projects funded by GEF and relevant to the Stockholm Convention and Minamata when working with sectors involving both conventions.

OBJECTIVE

Coordinate the development of activities under each of the components of Reducing UPOPs and Mercury releases from healthcare waste management, e-waste treatment, scrap processing and biomass burning project, considering the requirements of UNDP, GEF and MESD, as well as other projects in the field of chemical funded by GEF and managed by UNDP.

The PCOs of the project must develop the following technical, administrative and financial activities:

TECHNICAL ASPECTS

Ensure the terms of reference to be developed for hiring individual consultants, consulting companies and services contract contain aspects of a technical nature that would enable to meet the project objectives.

Include, in the agreements signed by interested parties, issues of a technical nature that are required for the development of the different activities according to the internationally recognized Best Available Techniques and Best Environmental Practices.

Participate in the preparation and formulation of rules and regulations which MADS considered in connection with the management of POPs, mercury and other chemicals of environmental concern.

Prepare reports and contribute to the technical aspects that would be required to meet the requirements of the Stockholm Convention on Persistent Organic Pollutants and other conventions on chemicals.

Coordinate the development of the different activities carried out in the fulfillment of the objectives of the project and ensure participation of stakeholders in the formulation of initiatives being developed for project formulation.

Develop and establish the requirements of technical nature that are to be considered in each activity developed during the project.

Establish meetings with stakeholders (public and private) to coordinate the development of the various project activities and determine aspects of a technical nature that must be considered in the development of the project.

Submit the annual report required by the GEF to evaluate the development of the projects according to the formats established for this purpose.

Disclose results of the projects in the public and private sectors to raise awareness of the advances, challenges and contribute to the dissemination of results.

Participate in national and international meetings related to the development or dissemination of project results, according to the requirements of MADS and UNDP.

Monitor compliance with the indicators established on the PRODOC of each of the projects, take the respective measures to meet them and keep MADS and UNDP informed of progress and difficulties met.

ADMINISTRATIVE AND FINANCIAL ISSUES

Develop annual operating plans required for the project according to the established rules by UNDP, as well as other projects funded by GEF in the chemical field and administered by UNDP, when required by MADS.

Monitor the implementation of resources provided by GEF and ensure compliance with the regulations of UNDP, GEF and agreed with MADS.

Ensure that the image of UNDP, GEF, and MADS is used according to the rules that are in effect in each of these entities on this issue.

Monitor the annual investment made by interested parties as part of co-financing that the country is committed to the various project activities.

Prepare quarterly and annual reports required by UNDP and GEF regarding the implementation of projects.

Submit annual reports to the Steering Committee concerning the implementation of the project considering administrative and financial technicalities.

Elaborate reports required by the Stockholm and Minamata Conventions regarding the activities carried out in the projects and which are directly related to the implementation of these conventions.

To supervise the implementation of activities and approve reports of individual consultants, consulting companies, and contract services required during the project implementation.

Permanent follow-up of the schedule of activities established for the implementation of the various project activities, propose necessary corrective measures when needed and keep informed the Project Manager.

Terms of Reference Project Board

Project Board: The Project Board will take corrective action as needed to ensure the project achieves the desired results. The Project Board will hold project reviews to assess the performance of the project and appraise the Annual Work Plan for the following year. In the project's final year, the Project Board will hold an end-of-project review to capture lessons learned and discuss opportunities for scaling up and to highlight project results and lessons learned with relevant audiences. This final review meeting will also discuss the findings outlined in the project terminal evaluation report and the management response.

ANNEX 17 Evaluation Plan

Evaluation Title	Planned start date Month/year	Planned end date Month/year	Included in the Country Office Evaluation Plan	Management Response	Budget for consultants ^[1]	Other budget (i.e. travel, site visits etc...)	Budget for translation
Terminal Evaluation	After terminal PIR	To be submitted to GEF within three months of operational closure	Mandatory	Mandatory	USD 40,000	USD 4,000	USD 3,000
Total evaluation budget					USD 47,000		

^[1] The budget will vary depending on the number of consultants required (for full size projects should be two consultants); the number of project sites to be visited; and other travel related costs. Average # total working days per consultant not including travel is between 22-25 working days.

ANNEX 18 Letter of Agreement for Direct Project Services

Letter of Agreement

STANDARD LETTER OF AGREEMENT BETWEEN UNDP AND THE GOVERNMENT OF COLOMBIA FOR THE PROVISION OF SUPPORT SERVICES

Dear Ms. Adriana Soto Carreño.

Vice Minister - Ministry of Environment and Sustainable Development

1. Reference is made to consultations between officials of the Government of *Colombia* (hereinafter referred to as “the Government”) and officials of UNDP with respect to the provision of support services by the UNDP country office for nationally managed programmes and projects. UNDP and the Government hereby agree that the UNDP country office may provide such support services at the request of the Government through its institution designated in the relevant programme support document or project document, as described below.
2. The UNDP country office may provide support services for assistance with reporting requirements and direct payment. In providing such support services, the UNDP country office shall ensure that the capacity of the Government-designated institution is strengthened to enable it to carry out such activities directly. The costs incurred by the UNDP country office in providing such support services shall be recovered from the administrative budget of the office.
3. The UNDP country office may provide, at the request of the designated institution, the following support services for the activities of the programme/project:
 - (a) Identification and/or recruitment of project and programme personnel;
 - (b) Identification and facilitation of training activities;
 - (c) Procurement of goods and services;
4. The procurement of goods and services and the recruitment of project and programme personnel by the UNDP country office shall be in accordance with the UNDP regulations, rules, policies and procedures. Support services described in paragraph 3 above shall be detailed in an annex to the programme support document or project document, in the form provided in the Attachment hereto. If the requirements for support services by the country office change during the life of a programme or project, the annex to the programme support document or project document is revised with the mutual agreement of the UNDP resident representative and the designated institution.

5. The relevant provisions of the Special Standard Agreement between the Government of Colombia and the United Nations Development Programme in Colombia signed in Bogota, (the “SSA”), including the provisions on liability and privileges and immunities, shall apply to the provision of such support services. The Government shall retain overall responsibility for the nationally managed programme or project through its designated institution. The responsibility of the UNDP country office for the provision of the support services described herein shall be limited to the provision of such support services detailed in the annex to the programme support document or project document.
6. Any claim or dispute arising under or in connection with the provision of support services by the UNDP country office in accordance with this letter shall be handled pursuant to the relevant provisions of the SSA and the project document.
7. The manner and method of cost-recovery by the UNDP country office in providing the support services described in paragraph 3 above shall be specified in the annex to the programme support document or project document.
8. The UNDP country office shall submit progress reports on the support services provided and shall report on the costs reimbursed in providing such services, as may be required.
9. Any modification of the present arrangements shall be effected by mutual written agreement of the parties hereto.
10. If you are in agreement with the provisions set forth above, please sign and return to this office three signed copies of this letter. Upon your signature, this letter shall constitute an agreement between your Government and UNDP on the terms and conditions for the provision of support services by the UNDP country office for nationally managed programmes and projects.

Yours sincerely,

Signed on behalf of UNDP

Fabrizio Hochschild

Resident Representative

For the Government

Ms. Adriana Soto Carreño.

Vice Minister –

Ministry of Environment and Sustainable Development

[Date]

Attachment

DESCRIPTION OF UNDP COUNTRY OFFICE SUPPORT SERVICES

1. Reference is made to consultations between the Ministry of Environment and Sustainable Development (MADS), the institution designated by the Government of Colombia and representatives of UNDP with respect to the provision of support services by the UNDP country office for the nationally managed programme or project 00098842 **Reducing UPOPs and mercury releases from healthcare waste management, e-waste treatment, scrap processing and biomass burning** (award 00094749) “the Project”.

2. In accordance with the provisions of the letter of agreement signed on *Date of signature (LOA)* and the project document, the UNDP country office shall provide support services for the Project as described below.

3. Support services to be provided:

Support services* (insert description)	Schedule for the provision of the support services	Cost to UNDP of providing such support services (where appropriate)	Amount and method of reimbursement of UNDP (where appropriate)
1. Payments, disbursements and other financial transactions	During project implementation	Universal Price List	Support Services
2. Recruitment of staff, project personnel, and consultants	During project implementation	Universal Price List	Support Services
3. Procurement of services and equipment, and disposal/sale of equipment	During project implementation	Universal Price List	Support Services
4. Organization of training activities, conferences, and workshops, including fellowships	During project implementation	Universal Price List	Support Services
5. Travel authorizations, visa requests, ticketing, and travel arrangements	During project implementation	Universal Price List	Support Services
6. Shipment, custom clearance, vehicle registration, and accreditation	During project implementation	Universal Price List	Support Services

* UNDP direct project support services will be defined yearly, and for those executed during the period, direct project costs will be charged at the end of each year based on the UNDP Universal Pricelist (UPL) or the actual corresponding service cost

4. Description of functions and responsibilities of the parties involved:

The project will be conducted through the National Implementation modality of UNDP (NIM). The Ministry of Environment and Sustainable Development (hereinafter MADS)), will act as the National Implementing Partner²⁸, through the Direction of Environmental, Sector and Urban Matters of MADS (hereinafter DESUM), and with the support of UNDP as a GEF Implementing Agency. The DESUM will be responsible for directing and managing the project and monitoring compliance with project work plans as a basis for project execution. Within the DESUM a Project Execution/Management Unit (PEU) will be created, which will be responsible for the daily implementation of activities, including direct supervision in coordination with UNDP, for all activities that are carried out by the project. The PEU will include a Management Team composed of a National Project Director NPD and Project Assistant. In addition it will include consultants for specific components and activities.

To ensure an effective assimilation of the Project in permanent institutional structures, the PMU will convene a Steering Committee (Composed by representatives of the Ministry of Mining and Energy, Ministry of Health, Mining and Energy Planning Unit (UPME), the Hydraulic, Meteorological and Environmental Studies Institute of Colombia (IDEAM), UNDP Colombia, and the electrical generation/distribution sector. This committees will be part of the project supervision and is a continuance of the experience of the Preparatory Phase, which adopted this method with good results.

UNDP will provide technical and operational support necessary for the implementation of activities and the results of this project, with constant support from the PEU. The UNDP office will ensure that all consultant contracts, purchase orders and contracts for company services are in compliance with UNDP standards and procedures. In those cases in which the UNDP Resident Representative has to sign the contracts mentioned above, UNDP will participate in the processes for selection and recruitment. UNDP will also provide advances payments to the project to make direct payments and maintain accounting and financial control of the project.

The project authorities will carry out the procurement and contracts for all purchases less than USD\$ 2,500. These minor operations shall comply with rules and procedures contained in the National Implementation Manual. According to the above, ownership of equipment, supplies and other property financed with project funds will be conferred to UNDP. Transfer of ownership rights shall be determined in accordance with the policies and procedures of UNDP. All goods will be considered UNDP property for the following five years since purchased.

²⁸ National Execution partner under new harmonized definition.

UNDP will assist in the administration of funds provided by GEF and UNDP itself. UNDP will be able to assist in the management of any other additional fund for co-financing this project. These arrangements will be included in the relevant Memorandum of Understanding. Contributions will be subject to internal and external audits established in UNDP rules and financial regulations.

ANNEX 19 Co-finance letters

Original Co-finance letters in Spanish can be found in a separate file. Translated documents can be found in the below link.



Letter Co-Financing
UPOPs and Mercury

ANNEX 20 Responses to STAP, GEF Sec and Council comments



Annex 20
Response to STAP, G

ANNEX 21 Tracking Tool for UPOPs emissions.

The tracking tool from the GEF Sec is in the attached document



Annex 21 GEF POPs
Tracking Tool Color