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URU/13/G32 Project Terminal Evaluation Report: "Environmentally sound lifecycle management of mercury-containing products and their wastes"

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San Jose, May 2020.

ACKNOWLEDGEMENTS

I would like to thank the members of the UNDP CO Uruguay office and the Project Coordination Team for the logistical support in the realization of the online interviews so that this evaluation could be completed in shutdown conditions in the country. I would also like to acknowledge the commitment of the different institutions and partners that were contributed with their time to participate in the interviews. This has been a successful project and all parties involved deserve a congratulations.

San José, Costa Rica, May 2020.

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ACRONYMS AND ABBREVIATIONS

ASSE	State Health Services Administration
BC	Basel Convention
BCCC LAC	Basel Convention Coordinating Centre, Stockholm Convention Regional Centre for Latin America.
CFL	Compact Fluorescent Lamp
CIAT	Toxicological Information and Advisory Center
CIU	Uruguay Chamber of Industries
CRA	Cost Recovery Mechanisms
DINAMA	National Environment Directorate
EPR	Extended Producer Responsibility
GEF	Global Environmental Facility
FMAM	Fondo para el Medio Ambiente Mundial (GEF por sus siglas en inglés)
GoU	Government of Uruguay
LATU	Uruguay Technology Laboratory
LCM	Life Cycle Management
LL	Lessons Learned
MIEM	Ministry of Industry, Energy and Mining
MSP	Ministry of Public Health
PTM	Medium Size Project
MVOTMA	Ministry of Housing, Land Management and the Environment
PCTP	Pando Science and Technology Park
PNUD	United Nations Development Program
UNEP	United Nations Environment Program

UNIDO United Nations Industrial Development Organization

UTE Administración Nacional de Usinas y Transmisión de Energía Eléctrica del Estado

EXECUTIVE SUMMARY

Table 1. Project Summary

Project Title:	**Environmentally Life Cycle Management of Products Containing Mercury and Its Wastes**			
GEF Project identification:	5084		At the time of approval (millions of USD)	At completion time (millions of USD)
UNDP Project identification:	URU/13/G32	GEF funding:	USD1,237,800	USD1,237,800
Country:	Uruguay	IA/EA:	USD175,000	USD35,000 (to date)
Region	LAC	Government	USD2,772,760	USD1,350,426 (to date)
Area of interest		Other:	0	A la fecha
Operational Program:	GEF-6	Total co-financing:	USD2,947,760	USD1,385,426 (to date)
Execution Agency	Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente (MVOTMA)	Total project expenditure:	USD4,185,560	USD2,623,226 (to date)
Other partners involved:	Ministerio de Salud Pública (MSP)	Signing of the project document (project start date):		26/02/2014
		Closing Date (Operational):	Proposed: 31/12/2016	Real: 30/06/2020

PROJECT DESCRIPTION

The project, "Environmentally Sound Life Cycle Management of Mercury and Waste-containing Products", is a medium-sized project funded by the Global Environment Facility (GEF) and implemented by UNDP and Ministry of Housing, Land Management and Environment (MVOTMA) with the support of Uruguay's Ministry of Public Health (MSP).

The funding for this project comes from GEF funds (US$1,237,800.00) and a public and private sector counterpart of (US$2,947,760.00) for a total budget of US$4,185,560.00.

In addition, the project is aligned with the GEF-V Strategy for Mercury Programming to support evaluation activities and pilot activities, which would enable the necessary capacities to be developed in Uruguay to comply with the provisions of the Minamata Convention, which has been in force since 2017.

This is the first GEF funded project that addresses the issue of the environmentally sound management of mercury. The results of this project are examples for GEF 6 and GEF 7. Lessons learned will be a valuable contribution to other similar projects in the region.

This initiative is consistent with the objectives of the National Program Document (CDP) for the period 2011-2015, as well as with the United Nations Development Assistance Framework (UNDAF) in Uruguay. The reduction of contamination and its effects on vulnerable populations is set out in both program documents.

The long-term objective of this project is to protect human health and the environment from mercury releases caused by the intentional use of this substance in different products, its inadequate management and final disposal. And, on the other hand, strengthen national capacities to improve the management of mercury-containing wastes, reduce the use of mercury-containing products in priority sectors, and encourage the use of mercury-free or low-mercury alternatives where conditions permit.

The project is divided into the following components:

1: Strengthen the regulatory and policy framework to allow for LCM of mercury containing products and their wastes.

2: Develop environmentally sound schemes and business models for the collection, treatment and disposal of mercury wastes.

3: Strengthen technical capacity and infrastructure for the pre-treatment, decontamination and storage (medium- and long- term) of Mercury containing wastes.

4: Strengthen national and regional awareness on the Sound LCM of Mercury containing products as well as associated health hazards resulting from their mismanagement.

5: Provide monitoring, learning opportunities, adaptive feedback and evaluation.

Achieving these targets set within these components will enable Uruguay to eliminate at least 330 kg of mercury, as well as obtain a sustained mercury reduction of approximately 72.5 kg of mercury per year.

Table 2. Evaluation rating table

1.Monitoring and Evaluation	Rating	2. Ejecución IA & EA	Rating
M and E design at the beginning of the project	S	Implementation Agency Quality (UNDP)	S
M and E Implementation Plan	S	Quality of the Execution Agency (MVOTMA)	S
Overall quality of M and E	S	Overall, AI and EA quality	S
3. Evaluación de Resultados	Rating	4. Sustainability	Rating
Relevance	R	Financial resources	ML
Effectiveness	HS	Sociopolitical	L
Efficiency	HS	Institutional framework and governance	L
Results	S	Environmental	L
Overall rating of project outcome	S	Overall probability of sustainability	L

Source: Rating parameter established in the Guide to Final Evaluations of UNDP-supported and GEF-Funded Projects, Evaluation Office 2012.

SUMMARY OF CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED

CONCLUSIONS

A. The design of the project was developed based on assumptions that were totally representative of the reality of our countries. Such is the case of achieving the passage of a law and thus setting a tax at a time when countries in the region have sociopolitical claims against new taxes. In addition, the deadline for the adoption of a law is not in line with the project's implementation time.
B. The project was successful insofar as it managed to meet the objective of strengthening the legal framework, analytical capacity, technical capacity and provided an alternative or the storage and treatment of waste from mercury products.
C. The project was complex, due to the different types of expected results that were related to mercury waste management. The formation of the Project Coordination Unit with four technical experts was an effective decision; each of these people coordinated all activities within their area of expertise. Therefore, it can be concluded that this form of working has been efficient for the results and expected outcomes.
D. The recommendations resulting from the Mid-Term Evaluations were well-focused and reflected an objective analysis of the required changes. The Project Coordination and UNDP implemented the recommendations efficiently and effectively.

RECOMENDATIONS

A. The COVID19 Pandemic has had the effect of virtually stopping almost every activity in the world. Uruguay is no exception and although the project is virtually completed, some activities that had not been completed at the time of the shutdown order are still lacking. Some of activities listed in the 2020 work plan presented in the Planning Report submitted to the Project Steering Committee. It is the recommendation of this evaluator that as far as possible a temporary extension of about 3 or 4 months be made so that certain important activities can be completed.
B. In the future when designing projects involving the need for approval of regulations, the time required for the elaboration, socialization and possible approval should be considered. In this particular case, the change from a law to a decree consumed quite a bit of time and when Decree 15/2019 was finally enacted the project was one year away from being completed.
C. When proposing business models and in particular for activities such as waste management, it is important to have greater clarity on the volume to be generated given the size of the population and the investment needed to achieve its economic feasibility. It is common to think that, because an activity is necessary, it can be sustainable without considering a cost-benefit analysis of what the operation implies with first-class environmental management standards.

LESSONS LEARNED

A. To promote the participation of the Institutions from the moment in which of the planning of the results expected in the different consultancies, in this way generating involvement and commitment to achieve objectives.
B. Develop new strategies when project deadlines are subject to administrative processes and institutional structures, as they tend to extend longer than expected.
C. The use of follow-up committees by topic, and not just one with all the institutions involved, thus involving the corresponding institutions, allowing to legitimize the process and the results obtained.
D. The including of institutions to issues that require fostering interinstitutional linkage and the use of appropriate management channels.
E. Identify at first what is expected by each institution from the Project allowing to concentrate the efforts and achieve their involvement.

1. INTRODUCTION

1.1. PURPOSE OF THE EVALUATION

This Terminal Evaluation has the main purpose of determining whether the project has achieved the initially planned results and how they were later corrected by the Mid-Term Evaluation (MTE). It also aims to identify the best practices and lessons learned that not only strengthen project outcomes and contribute to both national ownership and the sustainability of these results, but support the overall programming framework of the United Nations Development Program - Uruguay. Identifying design implementations and issues that need to be strengthened, changed, or replicated.

According to the UNDP Evaluation Guide for GEF-funded projects, project evaluations have the following complementary purposes:

- Promote accountability, transparency, evaluate and disseminate the scope of project achievements.
- Synthesize lessons that can help improve the selection, design and implementation of future GEF-funded UNDP activities.
- Provide feedback on issues that are recurrent throughout the UNDP portfolio that need attention, and on improvements on previously identified issues.
- Contribute to the overall evaluation of results in the achievement of GEF's strategic objectives for global environmental benefit.
- Assess the extent of the project convergence with other priorities within UNDP's country agenda, including poverty and risk reduction, disaster vulnerability, as well as cross-cutting imperatives on women's empowerment and human rights support.

1.2. SCOPE AND METHODOLOGY

The scope of this exercise is the objective evaluation of the design, implementation and project results achieved, structured around the criteria of Relevance, Effectiveness, Efficiency, Results and Sustainability.

To develop this evaluation, the approach undertaken is consistent with the methodology developed for final evaluations of projects implemented by UNDP and funded by GEF. Its objective is to fully evaluate the project objectively, determining the scope of the results obtained and providing evidence-based information based on information to support all reported findings.

The tools used to collect the relevant data are:

- Document review.
- Interviews with stakeholders.

Due to the limitations of travel as a result of the COVID19 Pandemic, it was not possible to conduct the mission to Uruguay to conduct interviews with stakeholders in person. All of the interviews were conducted by the evaluator through the Zoom video conferencing platform.

The review of documents referred to all documents listed in the Terms of Reference and other additional documents requested to supplement the missing information in the aforementioned documents. The full list of revised documents is contained in Annex 5.1.

The semi-structured interview allowed this evaluator the opportunity to speak candidly with key stakeholders, from private consultants who facilitated key processes to focal points of the institutions involved. This method also ensured a participatory approach, giving the same voice to all stakeholders and ensuring that different multi-party perspectives were evaluated to reach conclusions on the different processes undertaken by the project.

These interviews were structured according to the matrix of evaluation questions (Annex 5.4.), so that the five criteria were addressed in the interviews without necessarily asking a question by criteria or mentioning these criteria in the interviews.

The two methods mentioned, together with the review of documents, provided important evidence-based information that was analyzed to carefully draw conclusions, lessons and findings on all stages of the project. In addition, they allowed cross-references of all evaluations from different perspectives: each issue raised was addressed from the point of view of the project/document, from the perspective of the government and from stakeholders in the private sector and civil society. This strengthened the Mid-Term Evaluator's conclusions on how the processes were carried out, which stakeholders were key, how government and civil society participated, the potential impact and sustainability that the project's main results can produce in the coming years.

1.3. STRUCTUREOF THE EVALUATION REPORT

This report follows the structure outlined in the Terms of Reference of this final evaluation, which corresponds to the specifications detailed in the UNDP Evaluation Guide for GEF-funded projects:

- Executive summary, including the project summary table, a brief project description, the evaluation score table, and a summary of the conclusions, recommendations, and lessons learned.
- Introduction, detailing the purpose of the evaluation, the scope, methodology, and structure of the report.
- Description of the project and development context, explaining the start and duration of the project, the problems that were sought to be addressed, the immediate and development objectives of the project, the established benchmarks, the main stakeholders and the expected results.
- Results of the evaluation process, detailing a descriptive evaluation of the design, formulation, implementation and results of the project, as well as the qualification of the criteria indicated in the Terms of Reference.

- Conclusions, recommendations, and lessons learned, all evidence based, credible, reliable, and relevant, is inferred from both the review of documents and from semi-structured interviews with key stakeholders.
- Annexes, including the Report used to evaluate, the timetable for the evaluation, the evaluation consultant agreement form, the lists of documents examined, the interviews, the evaluation question matrix and the questionnaire used.

2. PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

2.1. START AND DURATION OF THE PROJECT

The project started in 2014 with a completion date originally planned for December 2016. In May 2016, prior to the filing of the 2016 PIR, and due to significant changes in the proposed regulatory framework for mercury product management, the Project Implementation Partner submitted a request for an extension of the 24-month that was approved in October 2016. A new application for a 12-month extension was presented and this second request was approved in October 2018, with the new planned completion date for 30 June 2020.

Originally, the project was designed to be completed within 3 years, with a total budget of US$4,185,560.00, of which the GEF contribution was US$1,237,800,00 in cash and a co-financing of US$ 2,947,760.00 provided by the Government of Uruguay (DINAMA, MS, UTE), UNDP and the Pando Science and Technological Park (PCTP). This was how it was detailed in the project document.

The project implementation modality of implementation is National Implementation Modality (NIM) and was implemented by the Ministry of Housing, Land Management and Environment (MVOTMA), through its National Environment Directorate (DINAMA) and in close coordination with the Ministry of Public Health (MSP) of Uruguay.

2.2. PROBLEMS THE PROJECT SEEKS TO ADDRESS

The 2011 National Mercury Emissions Inventory identified as the main contributors to these emissions being: products with unintentional use of Mercury (37%), intentional uses of mercury in industrial processes (32%, mainly in the country's existing chloro-alkali industry, and other products with intentional use of mercury (19%, mostly in dental amalgams).

The contribution to the inventory of mercury emissions that is directly related to products containing this substance such as thermostats, thermometers, blood pressure meters, batteries, switches, relays and other electrical equipment, as well as fluorescent lamps and dental amalgams totals 2,033 Hg kg/year which represents 56%, becoming a considerable problem.

To achieve the goal of protecting human health and the environment in Uruguay, the country faced several national implementation challenges of environmentally safe mercury management throughout its Life Cycle (LCM).

This project seeks to address the following challenges to achieve this objective:

- Limited use of mercury-free or low-mercury alternatives: Uruguay depends on imports of mercury-containing products, therefore the implementation of import restrictions on mercury will result in the use of mercury-free or low-mercury alternatives to importers, distributors and users.
- Lack of legislation requiring the use of mercury-free or low-mercury products: the country has undertaken initiatives to stimulate the replacement of mercury products with free or low-content alternatives. There was no legislation that would require the phasing out of these products or promote the use of low mercury products.
- Absence of national plans or strategies on waste management of mercury-containing products: the absence of solutions for temporary storage or final disposal of mercury waste means that users of mercury waste are not likely to improve their management of mercury wastes so not to have it accumulated. In addition, activities with the Faculty of Dentistry of the University of the Republic, the company UTE, and with LATU resulted in inventories of fluorescent lamps, dental amalgams, thermometers, sphygmomanometer stored without a final disposal option.
- Low level of awareness of the LCM of mercury-containing products: the general population has a low degree of awareness with respect to the health and environmental risks that are caused by inadequate management (storage and final disposal) of these products and their wastes. It is of particular concern that, although there may be a level of awareness in medical professionals, dentists and lighting maintenance personnel there was no desire to change the use of these products to mercury-free or low-content.
- Absence of commercially sustainable models that allow the collection, storage, transport, treatment and final disposal of mercury waste: the original design of the project considered implementing regulations that would generate financial incentives to meet the sustainability of a possible treatment center with environmentally adequate mercury waste management.
- Lack of storage, pre-treating, decontamination and final disposal of mercury-containing products: waste from mercury-containing products was available in municipal waste and landfills, or through sanitation systems that produce emissions to air, water and soil. The National Mercury Inventory (UNEP, 2011) defined as one of the national priorities associated with mercury emissions the search for national solutions for the temporary storage, pre-treatment and final disposal of mercury-containing wastes.

The project seeks to solve these challenges and barriers for Uruguay to eliminate at least 330 kg of Hg as a result of the implementation of the project and the improvement of management for the sustained reduction of mercury by approximately 72.5 kg of Hg/year.

2.3. IMMEDIATE AND PROJECT DEVELOPMENT OBJECTIVES, ESTABLISHED BASELINE INDICATORS AND EXPECTED RESULTS

The ultimate goal of this project is to protect the human health and environment of Uruguay's population from mercury emissions originating from the intentional use of this substance in different products, inadequate management and final disposal of their wastes.

To meet the challenges that prevent achieving this goal, the project must address major gaps in issues such as the absence of a regulatory framework prohibiting imports and promoting the progressive reduction of current mercury stocks and thus the emissions produced, the absence of technical guidance and national plans to guide the management of mercury-containing products based on environmental sustainability criteria throughout the LCM, the urgency of raising public awareness of health and environmental risks that use and inadequate management of mercury-containing products, providing one or more alternatives for storing, pre-treatment and final disposal of marked mercury stocks in a business model that is economically viable and sustainable.

The project objective and its components seek to strengthen national capacities to improve waste management without producing contaminants, reduce the use of mercury in products, reduce mercury emissions into the atmosphere, raise awareness of the general population about health and environmental impacts, and improve national storage and final disposal capacity.

2.4. EXPECTED RESULTS

At the end of the project, Uruguay is expected to have a regulatory framework which defines the environmental responsibility of importers and/or sellers of mercury-containing products, as well as the technical guide for storage management, pre-processing and final disposal throughout its LCM.

These achievements will be complemented by raising awareness among users in priority sectors and the general population of the health risks and the environment that mercury exposure produces. In addition, the country will have an analytical capacity to carry out biomonitoring tests of mercury levels in different sectors of the population.

Finally, the regulation should prohibit the importation of mercury-containing products, promote alternatives to lighting products and medical equipment, among others, mercury-free, and in turn carry out a process of eliminating current stocks of these products, in order to reduce the sources of mercury air emissions from mercury.

Table 3 then lists the expected results, the corresponding indicators, the baseline at the time of project design and the expected targets at the conclusion of the project.

Table 3. Project strategy, indicators, baseline and end of project targets.

Long-term objective: Protect human health and the environment from mercury releases caused by the intentional use of mercury in different products, their inadequate management and final disposal			
Project strategy	**Project strategy**	**Project strategy**	**Project strategy**
Project Objective The objective of the project is protecting human health and the environment from Mercury releases originating from the intentional use of mercury in products and the unsound management and disposal of such products	No. of Hg-containing medical devices and energy saving light sources decontaminated and disposed of within the project period (2014 – 2017). Quantity (kg) of elemental Hg safeguarded which has been recovered from the decontamination process.	In Uruguay there are no adequate storage, decontamination, and disposal solutions in place for Mercury containing product waste. Most of such wastes are disposed of along with regular household waste. If not disposed of, such wastes are kept in inappropriate interim storage locations. Current “stockpiles” (underestimated) are described in the project’s baseline and on page 8 footnote 932.	In total the project expects to recover 330 kg of Mercury as a direct outcome of the project’s implementation. In addition, changed practices will also result in sustained Mercury reductions of approximately 72.5 kg Hg/year. Elemental Hg recovered from treatment/decontamination has been safely stored (at the Chlor-Alkali facility), exported to a long-term storage facility or immobilized using appropriate technologies.
	Safe decontamination options for Mercury containing products established. Safe interim storage (to serve decontamination facility) for Mercury containing products established. Environmental and bio-monitoring program developed.	In the whole of Uruguay there are no options for the sound decontamination, storage or disposal of Mercury containing products.	Treatment facility constructed (in-line with Basel Convention guidelines and in compliance with national regulations). Interim storage facility establish/upgraded to serve the decontamination facility for storage of Hg-containing wastes prior to treatment (in- line with BC guidelines and in compliance with national regulations). Environmental and bio-monitoring program in place to monitor Hg levels in air, soil, water as well as in biological samples (in the decontamination facility, interim storage, final storage of elemental Mercury as well as in the immediate surroundings)
Outcome 1 Strengthen the regulatory and policy framework to allow for life-cycle management of mercury containing products and their wastes. (Equivalent to activity in ATLAS)	National Extended Producer Responsibility (EPR) policy and regulations for mercury containing products adopted and introduced.	There are no financial mechanisms in place that promote the LCM of Hg containing lamps (CFLs and tubes).	EPR for Hg-containing lamps established as a tool to provide for the financial resources necessary to cover operational costs of the collection, interim storage, decontamination, and disposal of Hg-containing lamps costs.

	Strengthened policy and regulatory framework to enable the phase- out/down of mercury containing products and encourage Hg-free or lower level Hg products.	There are no restrictions on the importation of high Hg-content lamps (CFLs, tubes) or Hg-containing medical devices. Guidelines on the management, storage and disposal of Hg containing lamps are not available. In 2011, a guideline was developed on the management of mercury waste for implementation at hospital level. However, in most facilities, Hg management practices have not improved.	National plan(s) on the LCM of mercury containing products (CFLs/tubes; medical devices; dental amalgam) developed. National workshop held to present the national action plans on LCM of Hg containing products. Guidelines for the management, storage and disposal of mercury containing products developed for large public and private entities developed. EU RoHS directives for lighting products transposed into national regulations through a degree (restricting importation of high Hg content lamps). MSP degree prescribing a phased approach/total phase-out for the use of Hg- containing devices at Health-care facility level developed.
	Improved adherence to the sound collection, (temp.) storage and treatment of products containing mercury (in particular project partners and model facilities	Annexes of the BC have been transposed in the Hazardous Waste Law (law 17.220/1999), which refers in specific to hazardous waste streams including waste containing mercury and regulates storage, transportation, and disposal of hazardous waste, including Hg containing products. No norm is available that regulates the decontamination of Hg containing products.	Guidelines and legal provisions with respect to the sound collection, (temp.) storage and treatment of products containing mercury (and the storage of elemental mercury), will be reviewed based on int. best practices (Basel Convention) and revised/developed if necessary.
Outcome 2 Development of environmentally sound schemes and business models for the collection, treatment, and disposal of mercury wastes	Mercury releases from priority sectors reduced and segregated Hg containing waste streams augmented. Number of private sector operators, model healthcare facilities and PCTP staff capacitated in best practices related to collection, storage, treatment of Hg containing products and long-term safe storage of elemental Mercury, as well as the use of cost-effective Hg-free or low-Mercury content alternatives (if applicable)	Current “stockpiles” (underestimated) are described in the project’s baseline and on page 8 footnote 932. Some model facilities have waste management committees in place (a few of the HCFs), but most do not. None of the model facilities have Hg management or phase- out plans in place, waste is either improperly stored or disposed of. Cost-effective Hg-free alternatives for medical devices and low Hg content CFLs and tubes are available in the country.	Waste management committees operationalized in each model facility. Hg baseline assessments (procurement, use, management, disposal, storage, etc.) completed for each model facility. Mercury management and phase-out plans developed and implemented at each model facilities. 500 personnel of model facilities trained in LCM of Hg containing wastes and waste products. Study on staff preferences on cost-effective Hg-free alternatives conducted at the model HCFs. Mercury-free alternatives introduced at the project’s model HCFs through adaptation of procurement practices. Collection systems for Hg containing products operational.
	Business models and cost recovery arrangements (CRA) for the collection, transport, temporary storage, and	There are no financial mechanisms in place to cover the costs for the LCM of Hg containing lamps (CFLs and tubes).	Business plan for the collection, transport, temporary storage, and treatment of different types of Hg wastes finalized. Assessment of potential Cost-Recovery Mechanisms including

	treatment of different types of Hg wastes operational and financially sustainable.		recommendations for tax tariffs, tax modalities and channeling of funds, completed (to inform drafting of EPR degree). 30 personnel of private sector entities trained in LCM of Hg containing wastes and waste products. Business operations launched (collection, transportation, interim storage, and treatment).
Component 3: Strengthening technical capacity and infrastructure for the treatment and storage (medium – and long-term) of Mercury containing wastes.	Technology to treat collected Hg containing product waste operational.	In the whole of Uruguay there are no options for the treatment of Mercury containing products.	Technical specifications for the treatment facility, (in-line with Basel Convention guidelines and in compliance with national regulations), developed. International procurement process for technology successfully completed. Operational procedures for the treatment technology developed and implemented. 2 - 3 private sector operators and 30 PCTP staff trained in the safe operation of the treatment facility/technology.
	Intermediate Hg storage options established, and long-term storage options identified.	In the whole of Uruguay there are no safe options for the sound interim storage of Mercury containing products/wastes or the long-term storage of elemental Mercury.	Assessment for short-term, interim, and long- term storage and disposal options completed. Operational procedures developed and implemented for the management of storage facilities/spaces. Safe interim storage spaces for Mercury containing products available/established at model facilities and PCTP and staff trained in the safe management of storage spaces. Safe long-term storage of recovered elemental Mercury established (in-line with BC guidelines and in compliance with national regulations)33.
Component 4: Strengthening national and regional awareness on the Sound Life-Cycle Management of Mercury containing products as well as associated health hazards resulting from mismanagement	National capacity to monitor Mercury levels in populations strengthened	As part of a CIAT/USAID pilot project (2006) bio-monitoring of Mercury levels in healthcare staff was undertaken by CIAT's poison control center at a model facility. PCTP is currently capable of monitoring Hg in environmental media and have at their disposal a Jerome analyzer for air monitoring. The country has no continuous/frequent monitoring system in place for Hg levels.	Technical specifications for PCTP/CIAT bio- monitoring laboratory equipment prepared. International procurement process successfully completed. Protocol for sampling and analysis of Hg in water, soils, air, and biological samples developed and CIAT/PCTP personnel/staff trained in sampling and conducting analysis. "Population-at-risk" study completed (samples analyzed, and results interpreted by CIAT/PCTP) and results published. Continuous environmental and bio-monitoring program developed for project model facilities (treatment facility, storage facilities and maintenance/storage staff) to analyze Hg levels in air, soil, water as well as in biological samples frequently and beyond project duration.

	Awareness on LCM of Mercury containing products increased among project stakeholders, the general public and countries at regional and global level.	BCCC LAC has a website which it uses for information dissemination. BCCC LAC also leads a network of national Basel Convention Centers through which information on hazardous waste management can be disseminated.	Website and Facebook page developed and regularly updated (English and Spanish). Project related documentation (legislation, guidelines, national plans, model facility plans, operational and testing protocols, Hg monitoring studies, etc.) all published on the project website and disseminated among regional and int. partners. Side event organized at a chemicals-related COP (Basel, Minamata) to present project results and lessons-learned.
Component 5: Monitoring, adaptive feedback, outreach, and evaluation.	Number of high-quality monitoring and evaluation	No documents in baseline situation.	1 annual APR/PIR submitted to UNDP each year. 1 Mid-term project review. 1 Final evaluation. MTE and FE must include a lesson learned section and a strategy for dissemination of project results.

2.5. KEY STAKEHOLDERS

During the project design process (PPG), different stakeholders, such as public regulatory institutions, private and public sector users, the academy and its research centers were consulted to ensure a more comprehensive approach due to the complexity of the expected goals.

In the design process, the roles and responsibility of each interested party were agreed during the implementation of the project. The following table defines these roles and responsibilities.

Table 4. Key Stakeholders

Ministry of Housing, Land Management and Environment (MVOTMA) through the National Environment Directorate (DINAMA)	This institution will assume the associated role in the project implementation. It is the national authority responsible for the development and implementation of environmental policies and regulations.
Ministry of Public Health (MSP)	The Ministry is responsible for the development and implementation of health policies, for the monitoring and implementation of health policies and for the processes of surveillance, control, regulation, and standardization.
State Health Services Administration (ASSE)	Leading public health provider nationwide through the network of health services across the country. It focuses on promotion, prevention, diagnosis, early treatment and rehabilitation. ASSE is the authority responsible for the management of mercury wastes at the centers of its competence.
PCTP (Pando Science and Technology Park)	Joint initiative of the Faculty of Chemistry, University of the U-Republic of the R; the Ministry of Industry, Energy and Mining MIEM, the Canelones Quartermaster and the Chamber of Industries of Uruguay
Basel Convention Coordinating Centre (BCCC) for Latin America and the Caribbean (LAC)	This entity leads a network of National Coordination Centers for the Basel Convention and will provide project information, lessons learned, best practices and results at the regional, national and international levels. Raise awareness of the risks to Mercury exposure, waste and storage initiatives.
Toxicological Information and Advisory Centre (CIAT)	WHO Reference Center has supported the pilot project for phasing out mercury containing devices. It will participate in the biomonitoring of risk population groups.
InitiativeEn.lighten (GEF/UNEP/OSRAM/Philips/NLTC)	Energy-efficient lighting initiative, created to accelerate the global market's transformation into environmentally sustainable lighting technologies
UTE (National Public Service Company)	It is responsible for electricity distribution for all of Uruguay, it is the largest power generator.
LATU (Uruguay Technology Laboratory)	Responsible for providing certifications for imports and exports, it houses the BCCC-LAC and the Legal Directory of Metrology
Uruguayan Dental Association (AOU)	Responsible for developing best practices related to the handling and final disposal of mercury amalgams, as well as informing members of the association of good practices

Private Sector	a. Large institutions that produce mercury-containing waste b. Service providers involved in waste collection, final disposal and treatment c. Distributors and resellers of mercury-containing consumer products d. Analysis and certification labs e. Other

3. FINDINGS

3.1. DESIGN AND FORMULATION OF THE PROJECT

The process of designing and formulating the project was carried out in a participatory manner, in general, with all actors. Indeed, the roles of each were assigned with the formulation of working groups. The integration of all stakeholders was successful because each had its area of linkage as a public institution, NGO, research body, or part of the private sector, and had the opportunity to represent its interests during the process.

The formulation process took into account the experience and lessons learned from the UNEP/BCCC LAC project entitled "Guidelines on Best Industrial Practices in the Chlorine-Soda Sector", which aims to improve the mercury management and operation practices of the national chlorine-soda industry.

The counterparty's resources identified as co-financing were adequate and in line with what is required by the GEF. During the implementation for reasons of the application of adaptive management with respect to the proposed regulations, a large contributor to co-financing, the Pando Science and Technology Park (PCTP) withdrew its participation. Co-financing was not significantly affected at the end of the project because other actors were incorporated, such as Aborgama/Ducelit, S.A.

The risk analysis, and the actions to mitigate these, were correct in their results.

3.1.1. LOGICAL FRAMEWORK ANALYSIS/FRAMEWORK RESULTS

The project objective is clear and was correctly conceptualized, with respect to the large lines of work that it must address to fulfill its task. As for the components and feasibility of meeting the targets, this evaluator, considers that there was a lack of a better approach to the political, regulatory, and economic reality of the country. The possibility of promoting and succeeding in approving a legal initiative for extended producer liability (EPR) that would have to be a law, in order to achieve the task of imposing an import tax, within the framework of a country, not only Uruguay, but any of Latin America, within 3 years is somewhat unrealistic, although from the outset it had the approval of the authorities.

The second observation with respect to components and expected results is that there could have been possibly a little more analysis of national economic reality and the actual market

supply that a population of between 3.5 and 4 million people can generate as waste of mercury-containing products. The Prodoc mentions that the country scale is very small, but an analysis of the technical capacity required for this volume could have changed the perspective of the type of waste manager that would be needed.

As it resulted during implementation, it was necessary to consider a resizing approach to mercury waste management based on the possibility of collecting a tax for this purpose. The PCTP withdrew from the project, redefining the ability of the exclusive mercury waste manager originally visualized to include a manager who have other lines of business in waste management. It is unlikely that a hazardous waste manager can invest effectively in a technology for the decontamination of mercurial wastes with the size of the market represented by Uruguay.

The decision that the project should make the investment in mercury waste treatment technology was successful, again, because the business was not an activity that would be profitable without other complementary lines of waste management.

The logical framework as such is correct in terms of the content of the components, indicators and targets for the end of the project. However, its wording is somewhat complex, and it is difficult to understand or visualize essential indicators and targets easily.

3.1.2. ASSUMPTIONS AND RISKS

The assumptions and risks indicated in the project document, as well as those indicated in the logical framework, are generally well defined.

I would then like to comment on some of the identified risks and that their impact and the probability assessment was not totally accurate in line with their importance in obtaining the expected results.

In Component 1, the defined risk of not having the General Waste Law in time to include an ERP liability scheme, and therefore the collection of a tax was rated quite low. The implementation of an ERP regulation involving the creation of taxes carries a high risk because it is closely linked to the issue of political acceptance at the time of its formulation. Indeed, during implementation, this proved to be a decisive factor in changing the approach of a tax that would generate revenue to achieve mercury waste management to the obligation to submit a Post-Consumer Plan for waste from these products.

The regulation that could originally address the economic sustainability of a mercury-based waste management becomes a challenge to completely change the approach to the problem. Thanks to the successful adaptive management of the associated implementation agency, the Project Coordination and eventually the Project Steering Committee, which confirmed the decisions of change of this approach for the formulation and approval of Decree 15/2019: Regulation for the environmentally adequate management of lamps and other mercury residues is achieved.

Another political risk that in the opinion of this evaluator was assessed very low, specifically with a very low impact and probability, was that of the roles and responsibilities of MVOTMA and the MSP, as well as the waste management of Hg in particular in regard to those coming from the

health wastes with mercury and that could have coordination and decision-making inconveniencies, resulting in a slower implementation of certain project components.

It is considered that the assessment was not in line with the reality of possible disagreements that historically exist between the Ministries of Health and Ministries of Environment in the Latin American region. The mitigation task, reinforcing the communication between the institutions carried out by the coordination of the project, managed to ensure a better commitment and appropriation of these two fundamental institutions for the implementation of this project.

3.1.3. LESSON FROM OTHER RELEVANT PROJECTS (E.G. THE SAME FOCAL AREA) INCORPORATED INTO THE PROJECT DESIGN

Indicators of the financing of activities in other countries with similar economies under the GLOBAL UNDP/WHO/GEF Health Waste Project were used as a reference for the estimation of the costs of the activities proposed in other countries with similar economies under the GLOBAL UNDP/WHO/GEF Health Waste project.

3.1.4. PLANNED STAKEHOLDER PARTICIPATION

With regard to participation and involvement in the stakeholder process, it is considered to have been consistent and in line with the roles and responsibilities indicated in the project document. In some cases, participation and the degree of commitment to the project was fundamental to the achievement of the results obtained.

The work done by the Project Coordination to open channels of communication and trust between different institutions, particularly public institutions, yielded favorable results for a greater union of stakeholders.

The only stakeholder in the original planning that was withdrew was the Pando Science and Technology Park (PCTP). Its removal was due to justifiable reasons as a result of the necessary change of approach for a possible alternative to storing, pre-treatment and final disposal of waste from lamps and other mercury-containing products.

3.1.5. REPLICABILITY APPROACH

The project design indicates that replicability is visualized in three aspects of the project: (i) expand the types of mercury-containing products that can be collected/treated/decontaminated; (ii) expand services beyond model institutions; (iii) replicate best practices beyond model institutions.

By analyzing the project's achievements with the forms of replicability indicated in the project design, it can be concluded that it is possible to replicate the three aspects in institutions of other public and private sectors and general public. The Decree 15/2019 has a range that includes fluorescent lamps of various types, thermometers and sphygmomanometers and the manager was hired to treat these types of products. In addition, the equipment that the project

purchases are for this type of mercury products. The range of products containing mercury included in the decree could be expanded but would involve a reform of the decree. The mercury containing product management service is open to any user beyond model institutions, such as importers and marketers.

As indicated in the project document, UNDP with its regional scope and as an interested part of the project allowed the challenges, achievements and lessons learned in the implementation of this project to be shared with similar initiatives in Ecuador and Argentina within the framework of South-South Cooperation. Also, at COP3 of the Minamata Convention in November 2019, the project's experiences were shared with other countries.

The project has served as a benchmark for the countries of the region, an example to admire and replicate in other countries with high impact achievements, such as the Population Study: "Average mercury level in pregnant women and newborns, Uruguay 2016-2018".

3.1.6. UNDP COMPARATIVE ADVANTAGE

In Uruguay, UNDP has extensive experience in implementing environmental sustainability-related projects and programs in partnership with public and private stakeholders. The agency has worked with projects involving the management of hazardous wastes of Persistent Organic Pollutants such as PCBs, improving solid waste management, as well as reducing Mercury contamination of tanneries.

UNDP's work as an implementing agency was praised and recognized as efficient in interviews with stakeholders during this evaluation process.

3.1.7. LINKS BETWEEN THE PROJECT AND OTHER INTERVENTIONS WITHIN THE SECTOR

The PIF links this project to the UNDP/WHO/HCWH project: "Demonstration and promotion of the best techniques and practices for reducing health waste to prevent environmental releases of dioxins and mercury", a global UNDP/WHO/GEF health waste project.

3.1.8. MANAGEMENT PROVISIONS

Project management was as planned in the project document and illustrated in the following table.

The Project Steering Committee, which was made up of representatives of DINAMA/MVOTMA (Chairman), UNDP Uruguay, AUCI and MSP met at least twice a year and made the necessary decisions in a timely manner.

Progress workshops were held periodically with the participation of: DINAMA, UNDP, AUCI, MSP, ASSE, CIAT, UTE, MIEM, PCTP, the Faculty of Chemistry, LATU, BCCC LAC, CIU, AOU (Uruguay Dental Association), Faculty of Dentistry, RAPAL (NGO) strengthening the participation of institutions and achieving positive results.

The project strategy had major changes, such as instead of having a technical advisory group, it was organized into working groups by topic among the institutions involved. In this way, the directly interested/necessary participated and the progress was shared in the workshops mentioned above.

It is important to note that coordination was successful in making a change in the structure of the work team from what was indicated in the outline of the project document. The reasoning used was that instead of contracting consultants to carry out individual products it was better and more efficient to hire specialists in areas such as legal, biostatistics, toxicology, among others, who could contribute transversally in the execution of the activities of the components and work closely with the stakeholders, thus ensuring the success of the initiatives carried out. This evaluator considers that it was a decision that resulted in greater efficiency and effectiveness of the work.

Originally the Mid-Term Evaluation (MTE) was scheduled according to the prodoc for 2015, but when the project was extended for 24 months the date was changed to 2018. Recommendations that resulted from EMT are given in the following table.

Table 5. Recommendations indicated by the Mid Term evaluator

Recommendation	Action taken
The extension of project closure for an additional 12 months.	The Implementing Partner considered it appropriate that the extension would be requested for 18 months. The deadline was approved by UNDP.
The hiring of a consultant to support the MSP in the clinical study of mercury thermometers and sphygmomanometers and thus provide guidance for conducting clinical studies of digital thermometers.	It was determined that the MSP consultant's request was more responsive to the management of the institution's staff. Eventually it was considered the possibility of hiring a consultant to expand the clinical study originally carried out, but for the contractual process involved plus the development of the study exceeded the project deadlines.
Contract a professional for the elaboration and implementation of management plans in model institutions.	It was effectively resolved with the participation of one of the specialists of the coordination team.
The transfer of the Hg analyzer from the MSP to the MVOTMA within no more than 2 months.	The transfer is made, not in the recommended time of 2 months, but is finally located in the MVOTMA facility.
Support the UTE in its lamp collection program with collection sites.	UTE was supported in environmental mercury measurement days and accompanied in the follow-up to the program.

The need to manage mercury product waste stored in the LATU and the Faculty of Dentistry (UDLR).	The managing of these waste inventories was subject to the establishing of a treatment center and the defining of an authorized waste manager. When the contract is formalized with Aborgama/Ducelit, S. A. this issue is expected to be resolved in the remaining project time.
Develop an exit strategy, a document on lessons learned, a gender strategy and replication strategy.	A consultancy on Gender assessment for environmentally Sound Lifecycle Management of Mercury containing waste. The consultancy proposed actions needed for a proper gender approach, as well as training proposals with key stakeholders.

At the time of this evaluation, there was not a Sustainability Strategy or a Project Final Report that included a compendium of lessons learned, but there are Annual Reports that had these assessments and includes actions to be taken for the sustainability of results. The 2020 planning includes the preparation of this Final Project Report and indicates that it includes in its work plan the development of sustainability documents and lessons learned. At the time of this evaluation exercise, the Final Project Report and other planning tasks of 2020 were put on hold due to the Covid 19 Pandemic measures. There are a number of really small activities that the project has to complete. It is for this reason that it is recommend that there be an extension for a few more months to end these specific issues.

3.2. PROJECT EXECUTION

3.2.1. GESTION ADAPTATIVA (CAMBIOS EN EL DISEÑO DEL PROYECTO) Y RESULTADOS DEL PROYECTO DURANTE LA EJECUCIÓN

During the implementation of the project it was necessary to exercise adaptive management at three important moments.

a. The change of a law where a tax was established under an existing waste management law to waste management decree, accompanying the legal development scheme in environmental management, which is partitioned. Once this approach change took place, activities on the issue of regulation and coordination with the ministries involved moved forward.
b. The second change or adaptive management measure was with the business model that best applied to mercury waste management in a small market such as the Uruguayan and the cost of purchasing a technology that might not prove economically viable. The decision to acquire the technology and change the expectations of the type of waste management were correct to finally achieve an authorized waste manager and a technology for your treatment center.
c. The third adjustment in management was the definition of the scope of the population biomonitoring study. The population study has had a national and international impact.

3.2.2. ASSOCIATION AGREEMENTS (WITH RELEVANT STAKEHOLDERS INVOLVED IN THE COUNTRY OR THE REGION)

The project managed to do a successful work in partnership with the MSP, LATU, CIAT, ASSE, UTE, PCTP, RAPAL, the Association of Dentistry of Uruguay, with the Faculty of Dentistry (U of the R) and AUCI. Recently, appropriate work was also done with the National Directorate of Customs and the Single Window for Foreign Trade on the import ban on mercury products and in the private sector with the SEMM, which is a private health institution. Also, training was given in conjunction with Universidad del Trabajo de Uruguay (UTU), in 14 schools.

3.2.3. FEEDBACK OF M AND E ACTIVITIES IMPLEMENTED FOR ADAPTIVE MANAGEMENT

The annual PIRs in addition to the Monthly and Annual Reports were very important in noting that the progress of project implementation and compliance with the expected results required adaptive management in the topics indicated above.

3.2.4. PROJECT FINANCES

Financial management was carried out with the project coordination unit and with the approval of the Project Management, always under UNDP budgetary protocols.

The implementation of the budget, provided by the project Technical Assistant, indicates that 93.79% of the budget was executed.

By analyzing Table 6 it can be concluded that in the first two years of the project, compared to the work plan of the Prodoc, the execution was low as a result of some challenges, already identified previously. However, once the different components of adaptive management were applied, the project management increased in efficiency and effectiveness.

The result of a relatively high execution percentage is the result of efficient project management.

Table 6. Yearly execution of the total budget

Year	Amount executed USD$	Cumulative execution per year	Budget %
2014	11 094,14	11 094,14	0,90
2015	194 313,91	205 408,05	16,59
2016	144 706,43	350 114,48	28,29
2017	175 650,35	525 764,83	42,48
2018	200 176,72	725 941,55	58,65
2019	140 572,88	866 514,43	70,00
2020	294 370,95	1 160 885,38	**93,79**
Total	**1 160 885,38**		

	Total budget		**1 237 800,00**	**93,79**

Source: Evaluator with supplied documents.

Table 7. Cofinancing analysis Prodoc vs Actual Cofinancing

Cofinanciamiento	UNDP		Government		GEF		Stakeholders		Total	
Type	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
	USD$	USD$	USD$	USD$	USD$	USD$	USD$	USD$	USD$	USD$
Subsidies	0	0	0	0	0	0	0	0	0	0
In Kind	175 000	12 953	505 000	368 481	0	0	511 560	428684	1 191 560	810 118
Cash	0	0	155 000	319 611	1 237 800	1 160 885	1 601 200	523 316	2 994 000	2 003 812
Total	**175 000**	**12 953**	**660 000**	**688 092**	**1 237 800**	**1 160 885**	**2 112 760**	**952 000**	**4 185 560**	**2 813 930**

Source: Evaluator with project documents

The Project Coordination Unit kept an excellent accounting of the cofinancing with an evaluation of each of the parties that had been committed. This detailed and systematic work is what allowed this analysis exercise to be carried out.
The end result is that the actual counterpart was significantly less than planned in the project document because the withdrawal of the Pando Science and Technological Park (PCTP). The actual co-financing amount was $1,653,045.00 and the planned amount was $2,947,760.00, representing 56% of the total cofinancing.
It is important to explain that at the moment of this evaluation exercise the cofinancing accounting had taken into consideration the Pregnant Women and New Born study and the new waste management company, Aborgam/Ducelit, whose contribution would replace the one originally committed by PCTP.

3.2.5. MONITORING AND EVALUATION: DESIGN AT ENTRY AND IMPLEMENTATION

The Monitoring and Evaluation Plan indicated in the project document details several mandatory instruments. These instruments are as follows:

- PIR/APR GEF
- Annual Reports
- GEF Tracking tools
- Verified combined expense reports
- Monthly Reports
- Confinancing reports and controls
- Audit Report

The coordination of this project has presented all the instruments indicated efficiently and meeting the deadlines established.

In conclusion, monitoring and evaluation management is valued as satisfactory and very useful in decision-making, in particular when implementing adaptive management.

3.2.6. COORDINATION OF IMPLEMENTATION/EXECUTION AND THE IMPLEMENTING PARTNER, AND OPERATIONAL ISSUES

UNDP as an implementing agency in implementation can be assessed as a "satisfactory" management. This agency has consistently accompanied the Associate in the Implementation and Coordination of the Project and has provided technical and administrative support whenever necessary. The support of UNDP procurement specialist, and in particular the Program Officer, was an important asset for the implementation of the project.

Además, el apoyo del PNUD fue más allá del apoyo normal a las preocupaciones administrativas y financieras, y también más allá del acompañamiento del Oficial del Programa, pero constituyó un apoyo integral de los vínculos con los proyectos, facilitando el acceso a los conocimientos especializados, los vínculos entre los proyectos y el desarrollo de sinergias. Un ejemplo claro de esto fue la participación en talleres sobre el tema en Colombia y Ecuador.

MVOTMA/DINAMA with the exception of some human resources restrictions served in its management as an agency associated with the implementation satisfactorily according to the consideration of this evaluator. DINAMA was a partner with which there was total coordination, which allowed the acceleration of the internal technical-policy issues to be resolved in order to achieve the products obtained. The accompaniment and commitment of the Ministry of Public Health was very important and decisive in the results achieved. This management is also valued as satisfactory.

3.2.7. PROJECT RESULTS

3.2.7.1. GENERAL RESULTS (ACHIVEVEMENT OF OBJECTIVES)

The main results of the project were as follows:

a) Increased analytical capacity with the purchase of 2 measuring equipment for Hg analysis in human and environmental biological samples, Milestone DMA 80, in operation.

b) Customs entity inclusion of tariff headings for products of interest in the project.
c) Enactment of Decree 15/2019.
d) Population Study: "Average Mercury Level in Pregnant and Newborn Women, Uruguay 2016-2017".
e) Acquisition of technology for recycling fluorescent lamps.
f) Import control with the National Customs Directorate and the VUCE to control the entry of mercury-containing equipment.
g) Mass media events.
h) Production of documents (guides and technical guidelines) and communication.
i) Training
j) The formulation and implementation of management plans in model institutions.
k) Ensure the disposal of 330 kg of mercury (historical) wastes according to the target set out in the Prodoc before project completion.

The evaluation of the results in its entirety is considered satisfactory and the effort and leadership played by the Project Coordinator to achieve the linkage of all parties through the development of trust and tenacity in the work of her team is recognized.

The following is detailed in Table 8 on the evaluation of the expected results of the project according to the logical framework with the overall valuation for each component.

Table 8. Evaluation of expected project results according to Prodoc's results framework.

Long-term objective: Protect human health and the environment from mercury releases caused by the intentional use of mercury in different products, their inadequate management and final disposal				
Indicator	**End of Project Targets**	**Source of verification**	**Rating**	**Justification for the rating**
No. of Hg-containing medical devices and energy saving light sources decontaminated and disposed of within the project period (2014 – 2017).	330 kilos de mercurio recuperado y modificación de las prácticas para una reducción de mercurio en aproximadamente 72.5 kg Hg/año	With decree 15/2019 the following inventories were reported and in the process of being processed: LATU 230 000 thermometers equivalent to 230 kg. UTE and Board the lamps recovered 65,000 lamps which is equivalent to 325 grs. Faculty of Dentistry report 2 kg. During 2018-2019, the import of 885000 lamps (4,425 kg), 96000 thermometers (96 kg) has been avoided.	**S**	The assessment of satisfactory is because although the target of 330 kilos of recovered mercury was not achieved in its entirety, but the conditions are given with decree 15/2019 to achieve it soon. Mercury reduction target was completed and exceeded by a significant amount.
Quantity (kg) of elemental Hg safeguarded which has been recovered from the decontamination process.	Elemental Hg recovered from treatment/decontamination has been safely stored (at the Chlor-Alkali facility), exported to a long-term storage facility or immobilized using appropriate technologies.	The Aborgama manager is technically able to decontaminate mercury waste.		Finally, this waste manager has been defined and is a reference for the required post-consumer plans.
Safe decontamination options for Mercury containing products established.	Treatment facility constructed (in-line with Basel Convention guidelines and in compliance with national regulations).	The awarded waste manager has facilities at the Waste Transfer Centre belonging to the Chamber of Industries.		
Safe interim storage (to serve decontamination facility) for Mercury	Interim storage facility establish/upgraded to serve the	N/A		

containing products established.	decontamination facility for storage of Hg-containing wastes prior to treatment (in- line with BC guidelines and in compliance with national regulations).			
Environmental and bio- monitoring program developed.	Environmental and bio-monitoring program in place to monitor Hg levels in air, soil, water as well as in biological samples (in the decontamination facility, interim storage, final storage of elemental Mercury as well as in the immediate surroundings)	Population Study Average Mercury level in pregnant and newborn women, Uruguay 2016-2018 has been concluded and published.		This study was actually very positive, and a webinar was recently conducted that allowed the dissemination of the results a greater audience.
Outcome 1 Strengthen the regulatory and policy framework to allow for life-cycle management of mercury containing products and their wastes. (Equivalent to activity in ATLAS)				
Indicator	**End of Project Targets**	**Source of verification**	**Rating**	**Justification for the rating**
National Extended Producer Responsibility (EPR) policy and regulations for mercury containing products adopted and introduced.	EPR for Hg-containing lamps established as a tool to provide for the financial resources necessary to cover operational costs of the collection, interim storage, decontamination, and disposal of Hg-containing lamps costs.	Decree 15/2019 approved and in the process of implementation. It makes it obligatory to present a Post Consumption Plan of Mercury Waste Management and prohibits the importation of mercury-containing thermometers and sphygmomanometers.	**S**	This component is rated as satisfactory mainly because most of the expected goals were met although there are pending guidelines. They have been included in the planning for 2020 but due to the delays that Covid 19 has produced in the work plan is not sure that
Strengthened policy and regulatory framework to enable the phase-out/down of mercury containing products and encourage Hg-free or lower level Hg products	National plan(s) on the LCM of mercury containing products (CFLs/tubes; medical devices; dental amalgam) developed.	Document completed by consultant in 2015		
	National workshop held to present the national action plans on LCM of Hg containing products.	Storage guide was elaborated and published. The other guidelines are pending, but included in the 2020 planning,		

		and the national workshop to present the guidelines document has not been done.		they will completed.
	Guidelines for the management, storage and disposal of mercury containing products developed for large public and private entities developed.	Decree 15/2019		
	EU RoHS directives for lighting products transposed into national regulations through a degree (restricting importation of high Hg content lamps).	Decree 15/2019		
	MSP degree prescribing a phased approach/total phase-out for the use of Hg- containing devices at Health-care facility level developed.	Decree 15/2019		
Improved adherence to the sound collection, (temp.) storage and treatment of products containing mercury (in particular project partners and model facilities	Guidelines and legal provisions with respect to the sound collection, (temp.) storage and treatment of products containing mercury (and the storage of elemental mercury), will be reviewed based on int. best practices (Basel Convention) and revised/developed if necessary.	Decree 15/2019		
Outcome 2 Development of environmentally sound schemes and business models for the collection, treatment and disposal of mercury wastes				
Indicator	**End of Project Targets**	**Source of verification**	**Rating**	**Justification for the rating**
Mercury releases from priority sectors reduced and segregated Hg	Waste management committees operationalized in	Documentation of the formation of only 3 Management		The project achieved a large

containing waste streams augmented.	each model facility.	Committees in the model institutions.		number of the most concrete goals in this component: training, the implementation of a business plan that will achieve the definition of mercury waste manager. There is still pending an increase in the number of Management Committees in model institutions that are consolidated or in the process. Currently there are only 3 of these committees in the model institutions. At the time of this evaluation, the waste management company Aborgama/Ducelit still had environmental permits pending. It is for this reason that it was valued as satisfactory.
	Hg baseline assessments (procurement, use, management, disposal, storage, etc.) completed for each model facility.	Progress Report: Survey of The Model Institutions and Baseline Definition.	**S**	
Number of private sector operators, model healthcare facilities and PCTP staff capacitated in best practices related to collection, storage, treatment of Hg containing products and long-term safe storage of elemental Mercury, as well as the use of cost- effective Hg-free or low- Mercury content alternatives (if applicable)	Mercury management and phase-out plans developed and implemented at each model facilities.	3 of the model institutions have a Mercury Management Plan and its phase-out. Progress has been made in the other model institutions with the enactment of Decree 15/2019		
	500 personnel of model facilities trained in LCM of Hg containing wastes and waste products.	Training records indicate that a total of 615 people was trained on the subject.		
	Study on staff preferences on cost-effective Hg-free alternatives conducted at the model HCFs.	Document: Study of temperature determination with digital thermometer with Citizen Cta. 303.		
	Mercury-free alternatives introduced at the project's model HCFs through adaptation of procurement practices.	Pending. There is a document with norms and guidelines.		
	Collection systems for Hg containing products operational.	Definition of Aborgama/ Ducelit, S.A./Ducelit, S.A. as a provider of mercury waste management services. Contract between MVOTMA and Aborgama/ Ducelit, S.A./Ducelit, S.A. in the process of signing.		
Business models and cost recovery arrangements (CRA) for the collection, transport, temporary storage and treatment of different types of Hg	Business plan for the collection, transport, temporary storage and treatment of different types of Hg wastes finalized.	Proposal for Business Plans made within the framework of the proposed legal framework and finally enacted: Decree 15/2019		

wastes operational and financially sustainable.				
	Assessment of potential Cost-Recovery Mechanisms including recommendations for tax tariffs, tax modalities and channeling of funds, completed (to inform drafting of EPR degree).	N/A		
	30 personnel of private sector entities trained in LCM of Hg containing wastes and waste products.	Registration documents of trainings consulted.		
	Bidding process for private sector operators completed.	Tender and award documents to Aborgama/ Ducelit, S.A./Ducelit, S.A. as mercury waste manager.		
	Business operations launched (collection, transportation, interim storage and treatment).	It is pending that Aborgama/ Ducelit, S.A./Ducelit, S.A. receives approval of environmental permits, although contract is already signed.		
Component 3: Strengthening technical capacity and infrastructure for the treatment and storage (medium – and long- term) of Mercury containing wastes.				
Indicator	**End of Project Targets**	**Source of verification**	**Rating**	**Justification for the rating**
Technology to treat collected Hg containing product waste operational.	Technical specifications for the treatment facility, (in-line with Basel Convention guidelines and in compliance with national regulations), developed.	. International consulting conducted by a specialist in mercury treatment technologies.	**MS**	this component the purchase of the equipment was made and the manager Aborgama/Ducelit was awarded the tender, at the time of this evaluation it was not working as such to provide the service to users. It will most likely be
	International procurement process for technology successfully completed.	Verification with purchase invoice of BALCAN branded equipment and B/L documents.		
	Operational procedures for the treatment technology developed and implemented.	It is pending at the time of this evaluation that Aborgama/ Ducelit, S.A./Ducelit, S.A. starts operations, but this and other actions with the company are		

		included in project planning for 2020.		achieved, but in the remainder of 2020. This is the reason for it being rated as moderately satisfactory.
	2 - 3 private sector operators and 30 PCTP staff trained in the safe operation of the treatment facility/technology.	Pending		
	Operation of decontamination facility officially launched.	Official launching of operations of Aborgama/ Ducelit, S.A./Ducelit by MVOTMA planned for 2020.		
Intermediate Hg storage options established, and long-term storage options identified.	Assessment for short-term, interim and long- term storage and disposal options completed.	N/A		
	Operational procedures developed and implemented for the management of storage facilities/spaces.	N/A		
	Safe interim storage spaces for Mercury containing products available/established at model facilities and PCTP and staff trained in the safe management of storage spaces.	N/A		
	Safe long-term storage of recovered elemental Mercury established (in-line with BC guidelines and in compliance with national regulations)33.	The tender requirements for the procurement of manager Aborgama/ Ducelit, S.A. included these requirements.		
Component 4: Strengthening national and regional awareness on the Sound Life-Cycle Management of Mercury containing products as well as associated health hazards resulting from mismanagement				
Indicator	**End of Project Targets**	**Source of verification**	**Rating**	**Justification for the rating**
National capacity to monitor Mercury levels in populations strengthened	Technical specifications for PCTP/CIAT bio- monitoring laboratory equipment prepared.	Protocol documents to be used in the LATU lab and MVOTMA.		The mercury analyzer equipment went a year practically without being put

	International procurement process successfully completed.	Acquisition documents for two mercury analyzer equipment. MILESTONE-DMA-80 samples.	**MS**	to work in the MSP and it is not until very recently that it is moved over to the MVOTMA. The population study has been a well-done and contributes greatly to the issue of raising awareness about the impact of mercury on human health, but the definition of an environmental program for biomonitoring is pending, which is ultimately one of the main reasons for the purchase of the equipment. It is for this reason fundamentally that it is valued as moderately satisfactory.
	Protocol for sampling and analysis of Hg in water, soils, air and biological samples developed and CIAT/PCTP personnel/staff trained in sampling and conducting analysis.	Population Study Average Mercury level in pregnant and newborn women, Uruguay 2016-2018 has been concluded and published. The publication of this in a medical journal as a research work is pending.		
	"Population-at-risk" study completed (samples analyzed, and results interpreted by CIAT/PCTP) and results published. Continuous environmental and bio-monitoring program developed for project model facilities (treatment facility, storage facilities and maintenance/storage staff) to analyze Hg levels in air, soil, water as well as in biological samples frequently and beyond project duration.	Pending definition of biomonitoring needs.		
Awareness on LCM of Mercury containing products increased among project stakeholders, the general public and countries at regional and global level.	Website and Facebook page developed and regularly updated (English and Spanish).	The documents produced (studies, guidelines, guides among others) are available on the MVOTMA and UNDP Uruguay website		
Project related documentation (legislation, guidelines, national plans, model facility plans, operational and testing protocols, Hg monitoring studies, etc.) all published on the	The documents produced (studies, guidelines, guides among others) are available on the MVOTMA and UNDP Uruguay website			

project website and disseminated among regional and int. partners.				
Side event organized at a chemicals-related COP (Basel, Minamata) to present project results and lessons-learned.	The project participated in a side event at COP 3 of the Minamata Convention to present the Population Study carried out.			
Video on the LCM of Mercury management produced at the end of project implementation to share lessons learned.	There are 3 videos available.1) Your Hair Talks about You, 2) Exchanges: Practices with Environmental Value, 3) Presentation of project achievements and national importance under the Minamata Convention.			
Component 5: Monitoring, adaptive feedback, outreach and evaluation				
Indicator	**End of Project Targets**	**Source of verification**	**Rating**	**Justification for the rating**
Number of high-quality monitoring and evaluation documents prepared during project implementation	4 Quarterly Operational Reports submitted to UNDP each year 1 annual APR/PIR submitted to UNDP each year. 1 Mid-term project review. 1 Final evaluation.	Documentation reviewed: PIR/APR, Annual Reports, Monthly Reports, and the Mid-Term Evaluation Report.	**S**	All the documents in the monitoring and control plan were fully complied with.
	MTE and FE must include a lesson learned section and a strategy for dissemination of project results.			

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

3.2.7.2. RELEVANCE ANALYSIS

The project itself is in direct relevance with Uruguay's efforts to address the sound environmental management of mercury-containing products and their wastes.

The expected results of the project were correctly defined in the design process and the country's expectations to strengthen its institutions, its analytical capacity, the definition of a waste treatment alternative, a reduction in emissions, the enactment of a regulation aimed at meeting the objective of protecting human health and the environment from mercury releases were met. The results achieved also enable the country to meet its obligations to the Minamata Convention. This evaluator qualifies this project as relevant.

3.2.7.3. EFECTIVINESS AND EFFICIENCY

The expected project results have been accomplished as a result of the effective work undertaken by the Project Coordination Team and its ability to promote the project ownership among a large number of stakeholders, in particular with the MSP, ASSE and CIAT. The efficiency rating is very satisfactory.

The project was designed to reduce the health and environmental risks associated with mercury emissions as a consequence of intentional uses of mercury in different products. Through the project achievements, in particular Decree 15/2019, the definition of a mercury waste manager and the use of environmentally appropriate technology, as well as the population study carried out, among others, qualifies as highly satisfactory what refers to the efficiency of project management.

3.2.7.4. COUNTRY APPROPRIATION

The Government of Uruguay has been a strong defender of the Minamata Agreement and has participated in the process since its formulation. The promulgation of a Decree that regulates the importation of mercury-containing products, raising awareness of the population about the use of alternatives in medical equipment, and finally having achieved an alternative treatment for the waste generated is evidence that the country is fully committed and appropriate to the issue in the environmentally sound management of mercury.

3.2.7.5. INTEGRATION

The project has successfully created the conditions to benefit dental and health workers (such as doctors, dentists, nurses, and hospital cleaning staff), as well as their patients, by gradually eliminating mercury-containing devices and improving Mercury containing waste handling practices, thus protecting waste handlers, collectors and recyclers who face dangerous working conditions when in contact with waste containing this substance.

With regard to the vulnerability of pregnant women and children, the project has succeeded with the population study in raising awareness of the need to avoid exposure to mercury.

3.2.7.6. SUSTAINABILITY

The sustainability of this project after the end of the GEF financing will depend on the following aspects that have been evaluated:

• Financial: inventories of mercury products will be reduced because of the implementation of Decree 15/2019, so the profitability of the treatment center could be affected. The contracted waste manager will provide mercury waste owners with a means of treatment and storage. As the supply of these wastes with mercury decreases, the sustainability of mercury waste management will be reinforced with the other waste management sources that allow its existence. In addition, with project contributing with the investment of the technology, the manager's financial and economic risk is reduced and in this way the sustainability of the service is guaranteed for a time.

• Sociopolitical: The efforts that the country has made in its support for the Minamata Convention and now with the dissemination of the project results achieved and the awareness of the potential health impacts that mercury draws attention and the country's ownership of these issues is rather strengthened even when the intervention ends.

• Institutional and governance framework: The enactment of Decree 15/2019 and the signing of the contract between MVOTMA and Aborgama / Ducelit S.A. is a guarantee that the waste management services will be provided in addition to the fact that the regulation makes it mandatory to have a Post-Consumption Plan. The National Customs Directorate with control of the application of Decree 15/2019, regarding the control of imports of products with mercury and the monitoring that the VUCE will carry out will allow the governance of the mercury issue to continue.

• Environmental: The environmental benefits of reducing mercury emissions as a result of the final phase-out of the use of lamps, medical implements and dental amalgams will produce positive effects even when the project has ended.

3.2.7.7. IMPACT

During the interview process, a series of positive impacts resulting from the project were listed. It is important to make note of some of these:

• The positive impact generated in the lives of the Uruguayan population and in terms of the quality of their environment.

• Awareness that produces better health for pregnant mothers and children.

• A real alternative to eliminate waste and thus reduce contamination of the population with the use of medical and dental equipment with mercury.

• A regulation that prohibits importation and that, therefore, will eventually lead to Uruguay being potentially free of mercury and complying with the Minamata Convention.

4. CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED

4.1. CONCLUSIONS

A. The project design was elaborated based on premises that were not totally adjusted to the reality of the Latin American countries. Such is the case of achieving the approval of a law and therefore the imposition of a tax, at a time when the countries of the region have socio-political claims against the creation of more taxes.

B. The results of the project are in line with the GEF-V Strategy and the capacities necessary for the country to fulfill its obligations under the Minamata Convention.

C. The project was successful to the extent that it achieved the objective of strengthening the legal framework, increasing analytical and technical capacity, and provided an alternative for the storage and treatment of waste from mercury products.

D. The Project Coordination Unit has carried out an efficient and effective work, complying with all the guidelines of the UNDP projects and using the monitoring and evaluation instruments accordingly. It is concluded that the project management has been satisfactory; all expected results and products have been completed cost-effectively.

E. The project was complex due to all the different types of expected results that were related to waste management with mercury. The formation of the Project Management Unit with four technical experts was an efficient decision; each of these people coordinated all activities within their area of expertise. This way of working has been effective for actual and intended results.

F. This evaluator has rated the general management of the project as satisfactory; the project suffered many challenges as a result of the focus on its design that made the progress of the project compromised at certain times. The Project Management Unit has worked efficiently as an independent entity with the normal participation of UNDP as the implementing agency. The application of successful adaptive management allowed the project to advance more firmly and with more achievable results.

G. The recommendations of the Midterm Evaluation were well focused and reflected an objective analysis of the required changes. The GEF executing agency (UNDP) and the implementation partner (DINAMA) with the support of the Project Management Unit implemented the recommendations efficiently and effectively.

H. Having carried out the Population Study: “Average level of mercury in pregnant women and newborns, Uruguay 2016-2018” and the socialization of the results at the national and international level is a success of this project because it links a threat real to human health. It is an important point that contributes to the awareness of the impacts that the inappropriate use of mercury products is a highly relevant issue.

4.2. RECOMMENDATIONS

A. The COVID19 Pandemic has resulted in practically a told stop of all activities in the world. Uruguay is no exception and although the project is practically finished, there are still some activities that were not completed at the time of the national shutdown order. Some of these are listed in the 2020 work plan and included in the Planning Report presented to the Project Steering Committee. It is the recommendation of this evaluator that if possible, a temporary extension of about 3 or 4 months be approved so that certain important activities can be completed.

B. In the future, when designing projects that involve the need for the promulgation of regulations, the appropriate deadlines for the development of regulations should be considered and, if possible, try to start the processes from the beginning. In this particular case, the change of focus from law to decree was quite time consuming and when Decree 15/2019 was finally enacted the project was one year from completion.

C. When proposing business models and particularly for activities such as waste management, it is important to have greater clarity on the volume to be generated given the size of the population and the investment necessary to achieve its economic feasibility. It is common to think that because an activity is necessary that it can be sustainable without taking into account a cost-benefit analysis of what the operation implies with first-rate environmental management standards.

D. It is often the case that, due to differences in focus on similar issues, such as the case of human health and the environment, there may be distances between institutions that ultimately have a common interest, protecting human health and the environment from their country. When a project involves more than one institution and more if the issues are binding, it is necessary that they be incorporated in the initial phase of the project design, from the formulation of the PIF, so that the approval has included the expectations of the institutions involved.

4.3. LESSONS LEARNED

A. The promoting of the participation of the Institutions from the project design and the expected results in the different consultancies, generates involvement and commitment to achieve these objectives.

B. Project deadlines, subject to administrative processes and institutional structures, tend to be longer, forcing new strategies to be developed.

C. Counterpart accounting must be carried out from the beginning of the project in a systematic way with each of the parties that have committed funds. This Project Management Unit did it this way and during the project it was easy to identify which were counterparts that had not been reported or whose commitment was not going to be met. Early accounting of counterparts cofinancing strengthens the commitment of the Institutions.

D. Having follow-up committees by topic (and not just one with all the institutions), involving the corresponding institutions, allow legitimizing the process and the results obtained.

E. The institutions' representatives involved do not always turn out to be the ideal ones. The direct involvement of personnel with management capacity and / or commitment to respond in a timely manner for implementation should be requested.

F. The priorities and times of the Project are not always on the national agenda in the same way and may imply a misuse of Project initiatives.

G. Identifying in the first instance what each institution of the Project expected, allowed to concentrate efforts and achieve involvement.

H. The interests of the institutions may vary, which requires that the inter-institutional link be promoted and the use of appropriate channels for management.

I. Dialogue between institutions does not always take place as necessary. Project participation was generated and fostered an environment for this to happen and to legitimize the progress.

J. Institutional strengthening through the acquisition of equipment is not always accompanied by adequate policies. In this sense, it is important to create mechanisms or instances that allow institutions to be committed prior to acquisitions.

K. Due to unexpected socio and political changes; Agility and flexibility are required to move forward to have project continuity.

L. In case of discrepancy between institutions, it is preferable for the Project to intervene and eventually receive claims, justifiable or not, then have the institutions advance on their own.

5. ANNEXES

5.1. TERMS OF REFERENCE

5.2. LIST OF PERSONS INTERVIEWED

5.3. LIST OF DOCUMENTS REVIEWED

5.4. MATRIX OF EVALUATION QUESTIONS

5.5. EVALUATION CONSULTANT AGREEMENT