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Project Terminal Evaluation Report :

Protect Human Health and the Environment from Unintentional Releases of POPs Originating from Incineration and Open Burning of Healthcare- and Electronic Waste Project in Egypt

GEF Project ID:	4567
Focal Area:	Chemical and Waste
UNDP Project PIMS:	4392
Country:	Egypt.
Region:	Arab States
Executing / Implementing Agency:	Ministry of Environment
	UNDP
Other Partners:	Ministry of Health and Population (MoHP) Ministry of Communication and Information Technology (MCIT)
GEF Strategic Objective Programme:	CHEM1 Phase out POPs and reduce POPs releases; CHEM3 Pilot sound chemicals management and mercury reduction
Evaluation Timeframe:	May - September 2021
Date of Final TE Report	September 2021
TE Team Members	Anna Ortiz (International Consultant)

ii. ACKNOWLEDGEMENTS

I would like to thank the members of the UNDP CO Egypt 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.

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iv. ACRONYMS AND ABBREVIATIONS

AWP	Annual Work Plan
BAT	Best Available Technology
BEP	Best Environmental Practice
CTF	Central Treatment Facility
EEAA	Egyptian Environmental Affairs Agency
GEF	Global Environment Facility
M&E	Monitoring and Evaluation
MCIT	Ministry of Communication and Information Technology
MoE	Ministry of Environment
MoHP	Ministry of Health and Population
MTR	Mid Term Review
NGO	Non-Governmental Organization
NIP	National Implementation Plan
PBDE	Polybrominated diphenyl ether
PIR	Project Implementation Review
POPs	Persistent Organic Pollutants
PPE	Personal Protection Equipment
PCDD/F	Polychlorinated dibenzodioxins/furans (Dioxin/Furan)
ProDoc	Project Document
UNDP	United Nations Development Programme
U-POPs	Unintentional released POPs
USD	United States Dollar
WMRA	Waste Management Regulatory Authority

1. EXECUTIVE SUMMARY

Table 1. Project Information

TITLE: PROTECT HUMAN HEALTH AND THE ENVIRONMENT FROM UNINTENTIONAL RELEASES OF POPS ORIGINATING FROM INCINERATION AND OPEN BURNING OF HEALTHCARE- AND ELECTRONIC WASTE PROJECT IN EGYPT			
UNDP PROJECT ID	4567	**PIF APPROVAL DATE**	Apr 12, 2013
GEF PROJECT ID (PIMS)	4392	**CEO ENDORSMENT DATE**	Nov 19, 2014
ATLAS BUSINESS UNIT, AWARD ID	EGY10 (Egypt) 00083771	**PROJECT DOCUMENT SIGNATURE**	Sep 15, 2015
ATLAS OUTPUT/PROJ. ID	00092079	**PROJECT START**	Sep 15, 2015
COUNTRY	Egypt	**DATE PROJECT MANAGER HIRED**	May 2016
REGION	Arab States	**INCEPTION WORKSHOP DATE**	Nov 26, 2017
FOCAL AREA	POPs	**MIDTERM REVIEW COMPLETION DATE**	Dec 3, 2018
GEF FOCAL AREA STRATEGIC PRIORITIES/OBJECTIVES	CHEM1 Phase out POPs and reduce POPs releases. CHEM3 Pilot sound chemicals management and mercury reduction	**PLANNED OPERATIONAL CLOSSURE DATE**	Sept 15, 2020
TRUST FUND	GEF Trust Fund (GEF-5)	**REVISED OPERATIONAL CLOSURE DATE**	Sept 15, 2021
EXECUTIVE AGENCY / IMPLEMENTING PARTNER	Ministry of Environment		

PROJECT FINANCING	**PPG PHASE**	**AT CEO ENDORSEMENT**	**AT TERMINAL EVALUATION**
PPG	140,000		
[1] GEF FINANCING :		4,100,000 USD	3,181,760 USD
[2] UNDP CONTRIBUTION :		100,000 USD	96,000 USD
[3] GOVERNMENT :		378,000 USD	8,446,000 USD
[4] PRIVATE SECTOR :		8,560,000 USD	8,460,000 USD
[5] OTHER PARTNERS :		17,090,000 USD	3,400,000 USD
[6] TOTAL CO-FINANCING [2 + 3+ 4+5] :		17,568,000 USD	20,402,000 USD
PROJECT TOTAL COSTS [1 + 6] :		**21,668,000 USD**	**23,583,760 USD**

Table 2. Summary of Evaluation Rating Table.

1. Monitoring & Evaluation (M&E)	Rating
M&E design at entry	**S**
M&E Plan implementation	**MS**
Overall Quality of M&E	**MS**
2. Implementing Agency (IA) Implementation & Executing Agency (EA)	
Quality of UNDP Implementation/Oversight	**S**
Quality of Implementing Partner Execution	**S**
Overall quality of Implementation/Execution	**HS**
3. Assessment of Outcomes	
Relevance	**S**
Effectiveness	**S**
Efficiency	**S**
Overall Project Outcome Rating	**S**
4. Sustainability	
Financial Sustainability	**L**
Socio-political Sustainability	**L**
Institutional Framework and Governance Sustainability	**L**
Environmental Sustainability	**L**
Overall Likelihood of Sustainability	**L**

Table 3. Summary of Evaluation Rating Table.

Ratings for Outcomes, Effectiveness, Efficiency, M&E, Implementation/Oversight, Execution, Relevance	Sustainability ratings :
6 = Highly Satisfactory (HS): exceeds expectations and/or no shortcomings 5 = Satisfactory (S): meets expectations and/or no or minor shortcomings 4 = Moderately Satisfactory (MS): more or less meets expectations and/or some shortcomings 3 = Moderately Unsatisfactory (MU): somewhat below expectations and/or significant shortcomings 2 = Unsatisfactory (U): substantially below expectations and/or major shortcomings 1 = Highly Unsatisfactory (HU): severe shortcomings Unable to Assess (U/A): available information does not allow an assessment	4 = Likely (L): negligible risks to sustainability 3 = Moderately Likely (ML): moderate risks to sustainability 2 = Moderately Unlikely (MU): significant risks to sustainability 1 = Unlikely (U): severe risks to sustainability Unable to Assess (U/A): Unable to assess the expected incidence and magnitude of risks to sustainability

Source: Guidance for Conducting Terminal Evaluations of UNDP-Supported GEF-Financed projects. 2020.

Table 4 Recommendations after TE Evaluation

No.	TE Recommendation	Entity Responsible	Time frame
1.	The COVID-19 restrictions will not be removed soon. When planning another project these should be taken into consideration within the timeframe and the possible activities to be undertaken. Unfortunately, this is a reality we must learn to live with in all aspects.	UNDP	N/A
2.	Follow up actions to enhance the use of mercury free medical and dental equipment should be done to strengthen this practice.	UNDP/WMRA	4th quarter 2021.
3.	The project has many positive results that need to be disclose to the public in improvement of healthcare waste facilities and the increase in the number of new E-waste recyclers.	UNDP/WMRA	4th quarter 2021.

PROJECT DESCRIPTION

The project, "Protect human health and the environment from unintentional releases of POPs originating from incineration and open burning of health care and electronic waste" is full size project funded by the Global Environment Facility (GEF) and implemented by UNDP and the Ministry of Environment of Egypt as the Executing Agency/Implementing Partner with the support of Egypt's Ministry of Health and Population (MoHP) and the Ministry of Communication and Information Technology.

The funding for this project comes from GEF funds (USD4,100,000) and a public and private sector counterpart of (USD17,568,000) for a total budget of USD21,668,000.

The project is fully consistent with the GEF-5 Chemicals focal area strategy of Objective 1: Phase-out POPs and reduce POPs releases as well as Objective 3: Pilot sound chemicals management and mercury reduction. The project results contribute to the fulfillment of the following Sustainable Development Goals:

Goal 3. Good health. Target 3.9 By 2030, substantially reduce the number of deaths and illness from hazardous chemicals and air, water and soil pollution and contamination.

Goal 5 Gender Equality. Target 5.5 Ensure women's full land effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life.

Goal 6. Clean Water and Sanitation. Target 6.3 By 2030 improve water quality by reducing pollution, eliminating dumping and minimizing releases of hazardous chemicals and materials.

The initial project duration was 5 years with the official starting date of 15th September 2015 and the expected closure date of the project is 15th September 2020. However, due to Covid-19 pandemic that caused delay and slowdown the implementation of the project activities, therefore, the project has been extended and planned to be closed by 15th September 2021.

The project objective is to prevent and reduce health and environmental risks related to POPs and harmful chemicals through their release reduction achieved by provision of an integrated institutional and regulatory framework covering environmentally sound Health Care Waste and E-waste management. The project will reduce emissions of UPOPs as well as other hazardous releases (e.g., mercury, lead, etc.) resulting from the unsound management, disposal, and recycling of a) Health-Care Waste (HCW), due to substandard incineration practice and open burning of HCW; and b) Electronic Waste (E-Waste) due to the practice of unsound collection and recycling activities and open burning of electronic waste.

The project aims to achieve this by i) determining the baseline for releases of UPOPs and other hazardous substances (e.g. mercury, lead) resulting from unsound HCW and E-waste practices; ii) conducting facility assessments; iii) building capacity among key stakeholders; iv) implementing BEP at selected model hospitals, health-care facilities (HCFs) and a central treatment facility (CTF); v) introducing Best Available Technologies (BAT) and Best Environmental Practices (BEP) to formal and informal E-waste processors; vi) preparing health care facilities for the use/maintenance of non-mercury devices followed by introduction of mercury-free devices; vii) evaluating facilities to ensure that they have successfully implemented BEP; viii) installing and evaluating BAT technologies at one Central Treatment Facility based on a defined evaluation criteria; and, xi) enhancing national HCWM training opportunities to reach out to additional hospitals/HCFs.

To achieve the expected results, the project has been arranged in five components (including Monitoring and Evaluation) as follows:

- **Component 1**. HCWM: Reduction of UPOPs emissions through capacity building, introduction, and demonstration of BEP and BAT and strengthening of the legislative and policy framework.
- **Component 2**. HCWM: Reduction of Mercury emissions through capacity building, demonstration and introduction of mercury-free medical instruments and strengthening of the legislative/policy frameworks (in combination with component 1)
- **Component 3**. E-waste: Reduction of emissions of UPOPs, and POPs through capacity building, introduction, and demonstration of BEP and BAT (refurbishment and end-of-life) and strengthening of the legislative and policy framework Component
- **Component 4**. E-waste: Reduction of emissions of other hazardous substances (mercury, lead, cadmium) through capacity building, introduction and demonstration of BEP and BAT (in combination with Component 3's investments for the end-of-life management) and strengthening of the legislative and policy framework
- **Component 5**. Monitoring, learning, adaptive feedback, outreach, and evaluation.

The project is in line with related national policies (strategies and plans on environment protection, sustainable development, green growth, socio-economic development, clean industrial production, imports and exports, and sustainable production and consumption)

and international commitments that Egypt has participated in as such the National Implementation Plan (NIP) for the implementation of the Stockholm Convention. The results and outcomes of the project will contribute to various levels of outcomes, outputs, indicators and goals of the UNDP CDP, strategy, and SDGs in Egypt.

SUMMARY OF CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED

Main Findings

1. The Project objective and its implementation results are totally in line with national priorities and UNDP and GEF strategic priorities.
2. The stakeholder involvement, particularly the MoE, MoHP and MCIT was slow in its coordination efforts but once the PMU was able to correct this situation, there was a substantial improvement on the part of all.
3. The Waste Management Law 2020 and the corresponding regulations for HCWM and E-waste management are fundamental for the sustainability of the results obtained. This regulatory framework and the WMRA involvement in its monitoring and control of its fulfillment is an important part of this project's results.
4. Adaptive management was used correctly in the strategic change from trying to move the informal E-waste to the formal waste recyclers.
5. Women's empowerment was enhanced in the healthcare sector with the training and awareness raising done with this highly female participate activity.
6. The project committed co-financing (USD 17,568,000.00) and the actual investment made by the stakeholders (USD 20,402,000) is 16.1% above the amount originally indicated. This is the result of the stakeholder's ownership of the project and the results obtained.
7. The projects financial sustainability is well assured through several instruments that were put in practice and that will invite private sector investments in HCWM. Instruments such as a tool for fair tariff for health care waste disposal, Waste Management Law and the corresponding HCW and E-waste management, E-Tadweer application.

Conclusions

1. Considering all the restrictions from the COVID-19 Pandemic the project has been able to continue its work and produce important advances toward the fulfillment of it objective, the reduction of POPs and hazardous releases through the sound environmental management of its HCW and E-waste. The results respond to the objective and the expected results. The PMU should be commended for their efforts to keep the project initiative alive during these difficult working times.
2. The reason why this project has been successful in having results that go beyond their original expectation is that it responds to national priorities and the present-day health problems that the population is experiencing from improper HCWM and E-waste management. The project has contributed to empowering men and women together with the corresponding institutions to contribute to the protection of their health through proper waste management principals.

3. The work done within the WMRA with respect to the enhancement of the HCWM and E-waste regulations for the Waste Management Law and it's monitoring, and control enforcement is a key element in the results sustainability. This along with the fact that the project coordinator has been named Director of WMRA is another advantage to the regulatory and political sustainability.
4. The protective measures to secure the reduction of the impact from improper management of these waste directed in a large percentage to women but men were also benefited from these measures. Women are an important part of the HCF staff and administrative personnel.
5. The way the E-waste collection from households is being undertaken is very good because it takes into consideration people's instinct to preserve their E-waste that it probably has a value. By giving a reward for the handing over of their waste, the population has taken an interest in disposing of their old cell phones and computer waste. This has been a good idea and as a result, it is having good returns.
6. The MTR recommendations were very assertive, and the PMU/UNDP implemented them effectively resulting in highly satisfactory results.

Lessons Learned

1. During the first years of the project if there were different delays that correspond to national institutional requirements the coordination should be done at least during the design phase, in order to have time to recuperate from the delay in the design phase.
2. Gender equality and women's empowerment efforts are not only in the involvement of women in activities; when the project includes issues that are part of their daily lives and produce results that contribute to their welfare and sustainability, the results have a more lasting effect.
3. The project was able to attract the public outside of the realm of the normal stakeholders, with the collection of household E-waste through an attractive approach by changing the mind frame regarding the benefits of saving old cell phones and/or computer equipment. The lesson learned here is this attractive approach made the project more inclusive for the population.
4. An important lesson learned but not always obtainable is the involvement of the project coordinator in the preparation of the regulations that were presented and approved regarding HCWM and E-waste. The lesson learned is that the approval of regulations that are part of the project's results should be done early in the implementation period and have the involvement of the project management unit.

Table 4. Summary of Recommendations

No.	TE Recommendation	Entity Responsible	Time frame
1.	The COVID-19 restrictions will not be removed soon. When planning another project these should be taken into consideration within the timeframe and the possible activities to be undertaken. Unfortunately, this is a reality we must learn to live with in all aspects.	UNDP	N/A
2.	Follow up actions to enhance the use of mercury free medical and dental equipment should be done to strengthen this practice.	UNDP/WMRA	4th quarter 2021.
3.	The project has many positive results that need to be disclose to the public in improvement of healthcare waste facilities and the increase in the number of new E-waste recyclers.	UNDP/WMRA	4th quarter 2021.

2. INTRODUCTION

2.1 Purpose of the Evaluation

This Terminal Evaluation has the main purpose of determining whether the project has achieved the initially planned results and how the Mid-Term Evaluation (MTE) later corrected them. 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 - Egypt. 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 crosscutting imperatives on women's empowerment and human rights support.

2.2 Scope of the Evaluation

This evaluation will focus on determining the relevance, impact, effectiveness, efficiency, and sustainability of UNDP work to adjust and improve contributions to development. The TE is expected to provide input to formulation of the next country programme (2022-2026), in the context of the country's social economic development strategy (2021-2030) and plan (2021-2025), the new One UN Cooperation Framework (2022- 2026) that are undergoing.

The evaluation will cover all activities undertaken in the framework of the project. The time scope of the evaluation is the implementation period of the project from September 2015 up to September 2021. The geographic scope of the evaluation is the whole country of Egypt. The evaluation period is from June 2021 to August 2021.

2.3 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 because of the COVID19 Pandemic, it was not possible to conduct the mission to Egypt to conduct interviews with stakeholders in person. The list of stakeholders to interview was supplied by the PMU/CO. This evaluator used Zoom video conferencing platform conducted all of the interviews. There were a total of 18 persons interviewed of which 14 were men and 4 women.

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 were 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 were 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 conducted, 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.

2.4 Data Collection and Analysis

The collection of information will be carried out in accordance with the following activities:

- Project documentation (POA, studies conducted, interviews, PIR/APR, prodoc, quarterly reports, substantive reviews, and annual reports, among others of the M&E. system).
- Contextual documents (policies and government plans, municipal plans, economic and social studies of the sectors).
- Integration with other activities and policies developed under the Stockholm and Minamata Conventions (similar complementary projects under implementation, UNDP and government policies, municipal plans, budgets of organizations, municipalities, and ministries).
- Baseline and situation information with project (monitoring and control reports, use of tracking tools, interviews).

The methodology for collecting and analyzing the information shall be as follows:

- Desk review**:** analysis of the project document, as well as project progress reports and other publications derived from project activities.
- Interviews with main stakeholders**:** interviews will be conducted virtually to obtain the assessment of the different actors on the design, execution, achievements, and sustainability of the results of the project. The following actors make up the list to be interviewed: the project team, the UNDP-Egypt CO, the GEF Focal Point, the GEF/UNDP Regional Technical Advisor (RTA), PMU members, PSC representatives from the MoE, MCIT, MoPH, Cairo University Hospital, substantial international/ national experts working for project among others that can be identified during the review of the documents.

The interviews will be conducted with a participatory and consultative approach to verify and expand the information on the implementation of the project to establish balanced conclusions and as objective as possible to avoid the bias of the informants.

Evaluation report quality assessment criteria will be taken into consideration when formulating the evaluation findings. The data collected will be through desk review of project documents, results framework evaluation and interviews analyzing results, impacts and lessons learned from different perspectives to provide proper triangulation of the information. There will not be a survey undertaken.

- Financial analysis

The financial analysis will be based on the expenditure and co-financing figures provided by the project and by the UNDP ATLAS system. The purpose of this analysis is to highlight important aspects of the budget. The exercise will assess the weight of the expenditure of the project personnel with respect to the total budget, the execution of the expenditure by year and by component or product, among others.

2.5 Ethics

This evaluation will be done with the highest ethical standards. This evaluator has signed the corresponding code of conduct. This evaluation was conducted in accordance with the principles outlined in the United Nations Evaluation Group (UNEG) ' Ethical Guidelines for Evaluations'. It was clarified to all of the stakeholders interviewed that the information they supplied would be kept in the highest confidentiality.

2.6 Limitations

In the case of this initial assessment, in a period of global crisis due to the COVID-19 pandemic, the mission to Egypt will be impossible to conduct by international expert. The personal interviews will have to be done as much as by virtual means, seeking to be the quantity and quality that this exercise deserves. An effort will be made to conduct the interviews, with the support of the project team and national expert, to achieve an exchange of questions and information with as many identified actors as possible.

The information collected during the interviews will be evaluated by this evaluator always seeking to have the greatest objectivity in the analysis.

2.3 Structure of 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, dependable, 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.

3. PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

3.1 Start and Duration of the Project, including Milestones

The initial project duration was 5 years with the official starting date of 15th September 2015 and the expected closure date of the project is 15th September 2020. However, due to Covid-19 pandemic that caused delay and slowdown the implementation of the project activities, therefore, the project has been extended and planned to close by 15th September 2021.

Originally, the project was designed to be completed within 5 years with a total budget of USD$ 21,668,000.00 of which the GEF contribution was USD$ 4,100,100.00 in cash and co-financing of USD$ 17,568,000.00 provided by the government of Egypt and the private sector.

The project implementation modality of implementation is National Implementation Modality (NIM) and was implemented by the Ministry of Environment (MoE) through its Waste Management Regulatory Authority (WMRA) and in close coordination with the Ministry of Health and Population (MoPH) and the Ministry of Communication and Information Technology (MCIT).

3.2 Development context: environmental, socio-economic, institutional, and policy factors relevant to the project objective and scope

There were two important factors that were relevant to the scope of the project. One was institutional because the Ministry of Environment created the Waste Management Regulatory Authority (WMRA) who has the function to monitor and control the new Waste Management Law which regulated HCWM and RAEE waste.

The second important factor was a socio-economic one because of the COVID-19 pandemic and the restrictions that this imposed for the project activities and also the economic repercussion in the population in general. The pandemic also increased the need for environmentally safe management of HCW from the hospitals in the country.

3.3 Problems the project sought to address, threats and barriers targeted

Egypt's 2005 NIP identified open burning of wastes, medical waste incinerators and industrial processes as the three largest emitters of UPOPs (dioxins and furans). The NIP also identified the HCWM and E-waste management as two important contributors to UPOPs emissions.

The project is consistent with the GEF-5 Chemical focal area strategy, Objective 1 Phase-out POPs and reduce POPs releases and Objective 3. Pilot sound chemicals management

and mercury reduction. The project contributes to the GEF's main indicator under this strategic programming area.

This project is aligned with Egypt's (2007-2011) UNDAF Results and Resources Framework Outcome 3. "By 2011, regional human development disparities are reduced, including reducing the gender gap and environmental sustainability improved".

Both the GEF 5 Chemical Focal area strategy and Egypt's (2007-2011) UNDAF Outcome 3 contribute and the project results contribute to the fulfillment of the following Sustainable Development Goals:

Goal 3. Good health. Target 3.9 By 2030, substantially reduce the number of deaths and illness from hazardous chemicals and air, water and soil pollution and contamination.

Goal 5 Gender Equality. Target 5.5 Ensure women's full land effective participatioin and equal opportunities for leadership at all levels of decision making in political, economic and public life.

Goal 6. Clean Water and Sanitation. Target 6.3 By 2030 improve water quality by reducing pollution, eliminating dumping and minimizing releases of hazardous chemicals and materials.

The project has two main areas of implementation: Health Care Waste Management and E-Waste management. The problem sought to address has been divided into these two main categories.

Health Care Waste Management

The current HCWM in Egypt is such that it poses significant threats to human and environmental health in particular to health care personnel, waste handlers and scavengers of such wastes resulting in the spread of infectious diseases such as HIV/AIDs and today Covid-19.

To implement the existing 2010 Health Care Waste Management strategy the project should guarantee that the un-treated and/or inadequately treated HCW will be treated using BEP and BAT to avoid open burning and inadequate incineration. This will result in the reduction of the UPOPs and mercury.

The health care facilities and privately owned HCW transport companies do not have waste tracking systems that will allow for the MoHP to monitor and control the actual waste generation amounts.

Egypt does not have proper guidelines for the HCWM situation, the project will formulate the proper guidelines that define BAT/BEP also applying Stockholm Convention and WHO waste management guidelines.

The HCW staff does not have the proper training to management this type of waste. The project aims to implement training techniques, and other resources for the planning and implementation of sustainable healthcare waste management practices.

By implementing proper BEP/BAT and training of HCW staff the project, through the project is expected to reduce UPOPs emissions by at least 9 g-TEQ/yr. and an additional 40 g-TEQ/yr. UPOPs reduction could be achieved.

An integral part of proper HCWM is the need to reduce the reduction of mercury releases in the health-care sector because of mercury used in medical instruments. The use of mercury containing devices, such as thermometers and sphygmomanometers, result in substantial releases of mercury into the global environment, because of breakages, spills and improper disposal or self-repair.

In the PIF it is estimated that the implementation of proper BEP/BAT a reduction in Mercury emissions of 18.2 kg/yr. can be achieved within the project timeframe.

E-Waste Management

Egypt is a recipient of significant quantities of used electronics from Europe fulling its repair capacity and raw material demand. There are two sectors managing E-waste, the formal and the informal sector. Most of the e-waste is processed by the informal sector. Improper recovering procedures result in emissions of UPOPs and POPs posing a threat to the health of e-waste collectors/processers, local communities and the global environment.

Inadequate e-waste processing results in POPs emission such as PCDD, PCDF, and PCBs resulting from the burning of cables or plastic metal mixes, or printed circuit boards and plastics. The generation of PBDEs from the flame retardants in TV plastics and computer casings, and circuit boards.

The most important emissions to be reduced come from the following activities that must be eliminated and controlled through the project implementation.

- Open burning of e-waste for material recovery (e.g. cables)
- Open burning of e-waste for waste minimization (typically plastic casings and circuit boards).
- Shredding, melting and extrusion of e-waste
- Uncontrolled burning of circuit boards
- Dumping of residual materials

It is expected that the proposed project will be able to reduce the amounts of UPOPs emitted from the improper treatment of E-waste by ~10 g-TEQ/yr. through replication and adoption of BEP and BAT across Egypt at municipality levels and by the informal and formal sector.

A second important generator of heavy metals such as lead, cadmium and mercury in the inadequate processing of electronic products and wastes. These heavy metals impact the environment and human health with multiple serious health effects.

3.4 Immediate and project development objectives and established baselines indicators

The ultimate goal of this project is to reduce the risk for human health and the environment by avoiding the release of POPs in the environment and preventing people's exposure to POPs.

In order to achieve this goal, the project has defined as its objective to prevent and reduce health and environmental risks related to POPs and harmful chemicals through their release reduction achieved by provision of an integrated institutional and regulatory framework covering environmentally sound Health Care Waste and E-waste management

To meet the challenges that prevent achieving this goal, the project must establish policies and legislations related to E-waste management, and revise and strengthen the management of healthcare waste. It is important to ensure investment in future facilities and supporting practices, which meet international standards.

The role of the project to emphasize on the strengthening the regulatory and policy framework, capacity development of relevant institutions, inventory of U-POPs, HCW and E-waste is of major importance.

The project objective and its components seek to strengthen national capacities to improve HCWM and E-waste management without producing POPs, 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.

3.5 Expected Results

At the end of the project, Egypt will have a regulatory system that has been enhanced to improve its enforcement, increased levels of awareness on POPs emissions and impacts, an established capacity for safe management of HWCM and E-waste, and finally improved disposal alternatives for POPs containing waste.

These achievements will be complemented by raising awareness among users the HCWM and E-waste sectors and the general population of the health risks and the environment that POPs emissions exposure produces. In addition, the country will have an analytical capacity to conduct 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 conduct 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 5. Project strategy, indicators, baseline and end of project targets

Long term objective: to reduce risk for the human health and the environment by avoiding the release of POPs in the environment and preventing people's exposure to POPs.			
	Indicator	**Baseline**	**End of project targets**
Project Objective: Protect human- and environmental health by reducing releases of POPs and other hazardous releases resulting from the unsound management of waste, in particular the incineration and open burning of hazardous health care waste and electronic waste by demonstrating and promoting Best Available Techniques (BAT) and Best Environmental Practices (BEP) to soundly manage and dispose of such wastes.	Amount of U-POPs release in the environment from HCW disposal avoided. Amount of PBDE release in the environment from E-waste disposal avoided. Amount of emission of PTS from HCW and E-waste reduced. Existence of a SC compliant regulatory framework on HC waste and E-waste-	U-POPs from HCWM in demonstration facilities: 123 g/TEQ/yr. U-POPs from E-waste sector: U-POPs from E waste: 16gTeq/yr. (2012) c-PBDE from E-waste sector: 472 to 756 kg/yr. from IC E-waste. 6.5 t from CRT monitors.	U-POPs from HCWM in demonstration facilities: Reduction of 63.2 g/TEQ/yr. U- POPs from E-waste sector: The proposed project will be able to reduce the amounts of UPOPs emitted from the improper treatment of E-waste by ~5 g-TEQ Reduction of c-PBDE for an overall amount of 378 kg of c-PBDE from IC EOL equipment, plus 1513 kg c-PBDE from CRT monitors would be prevented during the project life span. U-POPs reduction of 3.36 gTeq /yr. assuming the project would ensure the proper management of 4000 t of
Outcome 1.1 UPOPs emissions reduced through support to HCWM initiatives at health-care facility(ies) level, Central Treatment Facility (CTF) level and training institutions.	UPOPs releases reduced by 50% for Gharbia and by 40% for Sharkia.	UPOPs releases from Sharkia and Gharbia combined total 143 g-TEQ/yr.	UPOPs releases reduced by 63.2 g-TEQ/yr.
Outcome 1.2. Nat. Policy and regulatory framework strengthened/dev eloped with	Number of laws, regulations and guidelines pertaining to HCWM drafted/revised.	In 2010, a HCWM strategy was finalized and adopted (April 2010). The strategy that should also include	Law/regulations and degrees create an enabling regulatory and policy environment for HCFs and CTFs to reduce UPOPs emissions.

respect to HCWM and UPOPs emissions		regulatory analysis update has not implemented yet.	
Outcome 2.1 Mercury emissions in HCWM sector are reduced.	Hg releases reduced by 5 kg/yr. Kg of Mercury waste safely stored/disposed of.	16.2 kg Hg/yr	Hg releases reduced by 5 kg/yr.
Outcome 2.2 Nat. Policy and regulatory framework strengthened / developed with respect to sequestration, phase-out, storage, and disposal of Mercury waste in HCWM sector.	Number of regulations/degrees and guidelines pertaining to Hg-containing medical products drafted/revised.	In 2010, a HCWM strategy was finalized and adopted (April 2010). The strategy that should also include regulatory analysis update has not implemented yet.	Law/regulations and degrees create an enabling regulatory and policy environment for HCFs and CTFs to reduce Hg releases.
Outcome 3.1 Emissions of UPOPs (including new POPs) and POPs reduced through support to e- Waste Management at municipality and national level.	Availability of baseline on POPs – U-POPs release. Availability of awareness campaigns and related feedback. From women and men Amount of E-waste collected Evidence of replication initiatives.	Few data on POPs-U-POPs release from E-waste. Limited awareness on E-waste issue. Most of E-waste still being collected informally with harm to the environment. No replication scheme implemented	Baseline data on U-POPs and POPs released from E-waste management are available. E-waste informal processors mapped. Multi-media awareness campaign concluded. At least 4,000 tons of E-waste collected and management in an environmentally sound way. Prevention of C-PBDE release of around 1,791 kg.
Outcome 3.2 National policy and regulatory framework strengthened with respect E-waste	Availability of an improved E-waste regulatory framework	The E-waste regulatory framework including licensing system for E-waste manager is incomplete.	Reviewed / improved regulatory framework on E-waste fully compliant with Stockholm and Basel Convention
Outcome 4.1 Emissions of other associated hazardous substances (mercury, lead, cadmium) reduced through	Availability of baseline on release of Cd and Hg. Availability of awareness	Few data on Hg and Cd release from E-waste. Limited awareness on E-waste	Baseline data on Cd and Hg released from E-waste management are available.

support to E-waste management at municipality and national level.	campaigns and related feedback from women and men. Amount of E-waste collected	issue. Most of E-waste still being collected informally with harm to the environment.	Multi-media awareness campaign concluded. At least 50 tons of E-waste containing PTS collected and managed in an environmentally sound way.

3.6 Total Resources

The project document indicates that co-financing has been committed from the following sources: Cairo University Hospital, Ministry of Environment, Ministry of Health and Population, the Swiss Development Agency -E waste, Ministry of Communications and Information Technologies and the private sector.

The following table illustrates the total resources identified in the project document. The final co-financing data will confirm this commitment has been completed or even increased in some cases.

Table 6. Total project implementation resources vs actual investments

Resource	GEF contribution	Co-financing	Amount (USD)	Amount (USD) at TE stage
GEF	4 100 000		4 100 000	3 181 760
UNDP		Grant	100 000	96 000
Swiss Development Agency E-Waste		Grant	10 300 000	3 400 000
Government		In-kind/grant	378 000	8 446 000
Hospitals		In-kind/grant	1 190 000	
Private sector		In-kind/grant	5 600 000	8 460 000
Others				
Total 22roject resources			**21 668 000**	**23 583 760**

Source: Project document

3.7 Key Stakeholders

During the project design process (PPG), different stakeholders, such as public regulatory institutions, private and public sector HCF and E-waste formal and informal users, 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 7. Key stakeholders and relevant roles

Government Agencies	Key function and mandate	Relevant Common responsibility and duties
MoE	The Ministry of Environment, Solid Waste Department) is the coordinating and technical regulatory body under MSEA. At the central level, EEAA represents the executive arm of the Ministry.	Formulating environmental policies. Preparing the necessary plans for Environmental protection and Environmental development projects, following up their implementation, and undertaking Pilot Projects. The Agency is the National Authority in charge of promoting environmental relations between Egypt and other States, as well as Regional and International Organizations. In charge of Stockholm Convention and Basel Convention Implementation.
MCIT	(MCIT) is the government body responsible for information and communications technology (ICT) issues of the country.	MCIT is responsible for the planning, implementation and operation of government plans and strategies related to ICT. It signed with EEAA Memorandum of Understanding on the issue of E-waste management.

MOH	The Ministry of Health and Population	Policy formulation and the regulation of the health sector (public, non- governmental and private) to achieve those policies. Resource allocation, specifically capital funding, its procurement administration and technology selection for HCWM. Give support to the Minister in Parliament (People's Assembly) through providing professional advice and information to allow the Minister to account for the use of resources and obtain sufficient resources to promote the health and well-being of the population of Egypt
MOFA	Ministry of Foreign Affairs	Member of the Project Board as Government focal point for UNDP development projects.
HCF	Health Care facilities administrations	In charge of administrative aspects of the hospital; usually in charge of operational waste management at hospital level; ensuring adherence to national standards related to the management and treatment of HCW; establishment and monitoring of HCWM and infection control committees; ensure sufficient budget allocations for HCWM; facilitating the development and implementation of HCWM plans at HCF level.
CTF	Centralized Treatment Facilities for the disposal of Health Care Waste (owned by MOHP)	In charge of operational collection and disposal of HCW
Private sector	Mobile operators (Mobilink, Vodafone), ICT companies (Microsoft, Oracle) hardwareproducers (i.e. Nokia, Apple)	Conduct voluntary schemes for the collection and refurbishing of EEE
E-waste recyclers	Recyclobekia, ITG, Spearlink, etc,	Operate in the business of collection and recycling of WEEE,under official license issued / under issuance by EEAA
Informal recyclers or collectors	Groups of waste collectors and recyclers, like the Robabekia, Zabalen, Zarabeen	Collect, recycle and place on the market different waste streams with different modalities (often environmentally unsafe) and fromdifferent sources. In few cases organizes themselves into legal entities.
NGOs	RESALA, SYAES etc.	Collect and place on the market used EEE (Resala); SYAES (garbage collector and recycler, conducting ESM demonstration projects on E-waste)

Source: Project document

This project, "Protect human health and the environment from unintentional releases of POPs originating from incineration and open burning of health care- and electronic waste

(PIMS#4392) is a UNDP supported and GEF financed, full-sized project, which required a Mid Term Review (MTR). The MTR was conducted successfully in December 2018. The recommendations indicated in this MTR will be reviewed and evaluated during the present evaluation process.

3.8 Theory of Change

The objective to Protect human health and the environment from unintentional releases of POPs originating from incineration and open burning of health care- and electronic waste, applies to both HCW and E-waste.

The project document does not contain a Theory of Change but this evaluator will develop the two corresponding theories of change. There are two because both topic HCW and E-waste are separate. It is almost as if there were two projects in one.

Theory of Change for HCW

Components 1 and 2 are directed to the HCW. The issues are similar so they will be analyzed as one unit.

Issues:

- Healthcare rapidly expanding with poor HCW segretation practices
- Increase of emissions of UPOPs and heavy metals from unsound incineration and inadequate disposal with municipal wastes, where there is open burning.
- Releases of mercury from use of equipment using mercury .
- Need to increase capacity building and awareness among HCF and municipalities.
- Legislative policy framework needs to be enhanced.

Solutions /Outcomes

- HCF assessments completed
- BAAT/BEP implemented in HCF and CTF
- Legislative and policy framework enhanced
- HCWM guidelines approved and implemented
- MoE and MHP capacity enhanced to do monitoring and controlling of HCWM facilities
- Hg and UPOPs emissions reduced
- Hg free medical instruments in HCF

Theory of Change for E-waste

Components 3 and 4 are directed to E-waste management. The issues are similar so they will be analyzed as one unit.

Issues

- POPs (PCDD, PCDF and PBDE) emissions from shredding and burning of cabales/plastic metal mixes

- No information on volumens of used electronics imported
- Important release of heavy metals (Hg, lead, cadmium)
- Inventory of 4000 T of E-waste pending disposal/treatment
- Information to mapping of E-waste recyclers/processors limited
- Local capacity of environmentally sound E-waste management limited
- E-waste volume increasing rapidly
- Licensing for E-waste managers is weak
- Informal E-waste recyclers compete with formal E-waste managers for better pricing

Solutions/Outcomes

- E-waste processors informal and formal are mapped
- UPOPs and POPs emissions reduced
- Institutional capacity building improved
- BAT/BEP guidelines demonstrated and implemented
- Enhanced legislative and policy framework
- Emissions of Hg, lead and cadmium reduced
- Informal recyclers make transition to formal sector through licensing

4. FINDINGS

4.1 Project design/Formulation

To make a better evaluation of this project, this evaluator will divide the analysis in two parts: HCWM and E-waste Management.

The HCWM components are part of a strategy that correctly articulates the different outputs necessary to establish a healthcare management system that includes all aspects from production to final disposal. These components also address the need to implement technological changes from incineration to non-combustion technologies and the improvement of existing incineration units. Also, the project design incorporated the coordination of the Swiss project that resulted in added benefits for the development of a sustainable HCWM.

The project is designed to build capacity at national, governorate and HCF level for the introduction of Best Available Technologies (BAT) and Best Environmental Practices (BEP) to improve the management and treatment of HCW wastes. The national capacity was expected to be enhanced through legislative and policy framework improvements for HCWM and Mercury wastes as well as implementing training and awareness raising activities. Gender issues were incorporated during the project implementation and were correctly developed through on hands training with the healthcare sector staff that is made up of men and women in different areas of hospital services.

The E-waste components were directed to EOL ICT equipment. The project proposed to work with the informal and formal E-waste management sectors. Originally it was conceived

that the informal sector would be a part of an incentive system to have the E-waste delivered to the formal sector. The formal sector would be enhanced with the introduction of BAT/BEP procedures that would improve the collection and treatment of E-waste resulting in the reduction of POPs emissions and the generation of hazardous materials.

Unfortunately, the design was not consistent with a social and economic reality within the E-waste market because the informal sector received more waste than the formal sector because of its higher prices. The formal sector found it difficult to compete and the informal sector did not find it necessary to direct their waste to this sector. Due to a correct adaptive management strategy the project was able through awareness raising activities, training, and enhanced legislation to prohibit the selling of E-waste to informal waste managers, and a permitting scheme to direct some of the informal waste managers to become licensed as formal waste managers.

Analysis of Results Framework: project logic and strategy, indicators

In evaluating the Results Framework indicators this evaluator concludes that they were well developed resulting in being specific, relevantly measurable, and correctly targeted.

There was not a Theory of Change incorporate in the project document but along with the PIF the problem to be addressed was correctly determined. The identification of the root causes and the formulation of the components and the outcomes desired were clearly identified. During the implementation process these mentioned aspects proved to be on target with the country's needs.

Assumptions and Risks

After analyzing the different challenges that the project confronted during its implementation and the risk analysis undertaken in the project document, this evaluator can determine that the risk and assumptions were well defined.

To mention a few assertive management responses, it could be notice that the lack of coordination of the relevant institutions and ministries were identified; the early coordination that the management response suggested, resulted in being very effective.

Another important risk identified was the lack of cooperation of relevant stakeholders (informal sectors, waste generators) in the establishment of a sound management of E-waste. The management response proposed again was assertive and the PMU wisely implemented an adaptive management approach introducing an incentive scheme and the improvement of E-waste regulation to redirect the electronic waste being given to the informal waste sector. This again has resulted in an effective response to this risk.

To mention one more risk that is important and were effectively identified is the difficulty of new legislation to be drafted or approved during the project timeframe. The project document identifies the proper law-making process as a mitigation response. The PMU did exactly this by using existing legislation to formulate both HCWM regulations as well as an E-waste regulation.

The effect of COVID-19 restrictions and limitations were not previously identified for obvious reasons, but they were assumed and applied with and important level of efficiency.

In conclusion, the assumptions and risks identified in the results-based framework and in the project document section were consistent with the implementation reality found.

Lessons learned from other relevant projects

The HCWM project funded by the Swiss government (USD 10 300 000 with co financing for this project in USD 3 400 000) was an important contribution because it established two incinerators in the governorate Dakahila that were included in the project design and in the implementation phase it became a reality. The project also contributed to the training of HCFs staff and awareness raising for both the Swiss project and the GEF one.

For the E-waste components the CEDARE and the SRI projects were important contributors to the awareness raising and training of the informal sector.

Planned stakeholder participation

In the PPG phase the most important stakeholders were consulted, and their views were incorporated in the project document. The main stakeholders were MoE, MoHP, MoCIT, EEAA, WMRA, the Swiss Embassy project and CEDARE.

The governorates of Sharkia and Gharbia were important stakeholders identified during the project design phase as these where the locations were pilot hospitals would be established. The CUH was also a relevant stakeholder identified as a possible pilot hospital.

For the E-waste components main stakeholders identified that would contribute to the project development and outcomes that were recognized during the project formulation process were companies that were investing in E-waste management. The companies identified at the project design were Vodafone, Microsoft, and Oracle; respectively, the first one played an important role in the promotion of proper E-waste management.

Linkages between project and other interventions within the sector

In the PIF a list of initiatives that could provide information, lessons learned, and policy/regulatory advice were identified; a total of 9 initiatives names were gather. Of these there were linkages established during the project implementation with the Basel Convention Partnership and Computing Equipment (PACE)-UNDP project on e-waste that takes place primarily in Jordan.

Gender responsive project design

The PIF and the project design did address gender issues but particularly for the HCWM components and not in detail for the E-waste components. In the 2020 PIR, a Gender Analysis was included that clearly outlines the action plan to obtain gender inclusive actions in both HCWM and E-waste activities.

During the implementation, the training and awareness raising activities had male and female participation and this was duly recorded. Gender directed activities were more easily

organized in the HCWM component simply because there is a great deal of diversity in the HCF staff that make female participation more inclusive.

The project mainstreamed gender by ensuring as much as possible that the data collected was gender dis-aggregated in all activities. As a result of this, there was a monitoring of the impact of the activities and the interventions on both men and women. Training and awareness raising activities, were organized to consider occupation/level of knowledge/spheres of influence of women and men. This was complemented with the use language, imagery and dissemination that addressed both men and women.

In general, the project did correctly address the gender issues identified in their 2020 Gender Analysis.

Social and environmental safeguards

The SESP template was completed during the project design phase and there were no expected environmental or social risks that the project would cause at that time. The project did prepare and get approval of the necessary Environmental Impact Assessment studies for the activities that needed this time of acceptance for both HCWM and E-waste facilities.

Another important social risk during the project implementation was the outbreak of the COVID-19 Pandemic. Adaptive management was required to adjust in the project work plans taking into consideration limitations in travel and supply chain disruptions.

To bypass the limitations from Covid-19 the project and the Ministry of Telecommunications implemented an online training course that was very useful to reach the E-waste recyclers effectively.

4.2 Project Implementation (Execution)

4.2.1 Adaptive management

The MTR identified some recommendations that were resolved with adaptive management measures. Table 4 mentions about the resolutions made.

Table 8. Adaptive management resolutions

REC	Recommendation	Action taken
A	**Project Strategy**	
1	**Exit Strategy**: A clear exit strategy needs to be developed so that the mechanisms and structures are created during the project implementation to guarantee the end of funding sustainability.	An exit strategy was not developed as a document, but some strategic activities were planned to ensure that the project results would sustain the end of the project financing. One of these were the regulations that were approved under the new Waste Management Law. The PMU played an important part in the formulating of these regulations.
2	**Project extension:** Based on time delay of the project, the remaining budget and questionable sustainability of the project results, it is recommended that the project is extended without additional budget until September 2022 to have sufficient time frame for substantive testing of pilot centers and for communication of the results and lessons.	The project was extended to September 2021 for the reasons indicated in this recommendation but also because of delays caused by the Covid-19 Pandemic

	Given the long-term efforts needed towards awareness raising and the need to augment the economic and social aspects of recyclers the project may need to have a second phase. However, such a call can be made during the terminal evaluations.	A World Bank initiative is under study to develop a project that could be a partial second phase.
B	**Project activities towards results**	
3	**Legal framework:** Electronic waste (management and Handling) Rules and Policies to be developed for a comprehensive management of E-Waste in Egypt. The enhancement of HCWM legal framework need to be accelerated to the national level in close collaboration with the line ministries.	The new Waste Management Law has for E-Waste a regulation that includes ERP obligations and the requirement to only give E-waste to formal sector authorized recyclers. HCWM legal framework was also enhanced through HCF waste management plans and regulations.
4	**Capacity building**: Insert HCWM training modules into the institutional training of medical staff (nursing schools and medical universities). Further training of inspectors and sanitarians arem needed.	The project did several training and awareness raising sessions with HCF staff. In the case of nursing schools and medical universities the inclusion of HCWM is undergoing review to include this topic in the curricula.
5	**BEP**: The project should play an active role in increasing BEP with focus on the proper segregation of waste – not only in the project hospitals but at least in all HCF of the two target governorates and CUH. The project results of non-incineration technology in comparison to the environmental risks of the incinerators established by the MoHP should be used to advocate investing in alternative environmentally friendly technologies in future.	The 5 pilot hospitals in both of the two target governorates and CUH have included HCWM plans in these facilities. The positive results of the autoclaves that were purchased and the prior shredding of HCW has resulted in an increased acceptance of non-incineration technology over incineration and the environmental and health risks resulting from this treatment.
6	**Asset Management:** Develop a systematic process for the central treatment centers of deploying, operating, maintaining and upgrading their assets like waste equipment, infrastructure and transport vehicles.	An online web page for the collection, quantification, transport, and final disposal of HCW provides a proper tracking of this waste to be used by the HCF officers.
C	**Project Implementation & Adaptive Management**	
7	**Access to project documents:** The evaluators recommend reorganizing the webpage to provide an easier access to project information and to upload useful project materials, such as training materials, specifications of equipment and infrastructure and facility-based healthcare waste management plans in Arabic and English language.	The project has a web page where most of the documents: guidelines, regulations, awareness raising, and training materials are uploaded in Arabic. Some of these documents are also in English.
8	**Social media and networks:** Good project keepsake by share experiences and information with stakeholder, the public and other by frequent use of social networks like facebook and twitter, updating and enhancing of the project	Same as above.

	webpage (or merge web page with other UNDP GEF project with the similar content) and providing of project video with BEP and BAT in the HCW and E-waste sector.	
D	**Sustainability**	
9	**Organizational Structure:** Ensuring that the responsible person for HCWM (HWO) is part of the Infection Control Committee. A clear job description of the HWO (tasks and duties) need to be elaborated and the HWO should be certified as such by an independent certification unit. HCWM training modules to be inserted into the curriculum of medical universities and nursing schools. E-waste management protocol should be included in standard industrial process catalogue and the material on awareness towards sustainable practice of E-waste management should be included in curriculum of Civil Engineering and other professional courses related to waste management.	The CTF Operation Organization Structure was developed along with qualifications and responsibilities proposed for operating staff in this structure, in cooperation with the MoHP representatives during the project's technical committee meetings.
10	**Certification of HWOs:** HWOs need to be trained and certified for their job. Therefore, an independent certification unit / agency needs to be established, which is educating the HWO on basics and updates.	Training and capacity building for WMO officers and HCF managers was completed. A total of 111 WMO were trained and 101 HCF managers were trained.
11	**Awareness raising:** Awareness campaigns on HCWM and E-waste to be conducted in cooperation with Swiss projects, to increase knowledge and sensitize the public on the risks of unsafe waste management.	Awareness raising campaigns were completed for both HCWM and E-waste components with cooperation from the two Swiss funded projects.
12	**Governmental monitoring:** It is important to establishing an independent monitoring authority including monitoring processes and tools / checklists on which the inspectors / sanitarians are trained.	WMRA is working on implementing monitoring and control of the regulations that have been approved or are in the process of being approved under the new Waste Management Law.
13	**Lessons learnt**: Capture lessons-learned and project results. The project results will be highly beneficial not only for the replication of this project's results within the country, but also for other countries in the Region.	The PIRs capture the project results but there is not a specific detail of lessons learned in anyone of these instruments or in reports.

Probably one of the most important adaptive management changes made was in the E-waste strategy with respect to the prodoc. The change from promoting the Informal E-waste sector to use BAT/BEP principles in the activities to closing the pathway of waste to these recyclers through regulation under the new Waste Management Law was an assertive action. It totally strengthens the formal E-waste sector and forced the informal sector to make the necessary changes to become a formal recycler or collector.

4.2.3 Actual stakeholder participation and partnership arrangements

Project management

The project document identified several stakeholders and identified the roles that they could play in the project implementation process. Some of them, were identified during the PIF/PPG phase and others were the result of considerations made of potential stakeholders which would result during the project activities.

Initially the coordination within the MoE and the MoHP was slow at the start but once the project was able to do awareness raising activities and training of HCF staff the ministry became more involved. The formulation of the Waste Management Law in 2020 was an important factor that integrated the MoHP in the project activities. The WMRA played an important role in the preparing of the Waste Management Law and the specific HCWM and E-waste management regulations allowing the PMU to give inputs and insight into needs and requirements.

Participation and country driven processThe governorates of Sharkia and Gharbia as well as the CUH (Cairo) were very important stakeholders that played an important role in the formalizing of the 5 pilot hospitals. The three governorates were active in the planning and formalization of the HCWM changes implemented in the CTFs.

For E-waste the project document originally identified among prospective stakeholders, MCIT, Vodafone, Mobilink, ICT companies, Microsoft, Oracle, formal E-waste recyclers and informal E-waste recyclers.

The MCIT with its SRI project was also an important stakeholder that worked closely with MoE and the PMU in coordination with the Ministry of Industry. Of the private sector companies identified Vodafone played an important role in projecting and promoting the take back system implemented with the E-Tadweer platform.

Participation and public awareness

Vodafone and the E-Tadweer platform helped to enhance the public awareness among the general population. This contributed to the involvement of many non-project stakeholders to participate and be a part of the national effort to have environmentally sound management of the E-waste.

The telephone companies and distribuitors of electronic equipment were very much interested in the long-term success and sustainability of the project outcomes regarding regulatory reforms and proper E-waste management.

Extent of stakeholder interaction

The prodoc does not include a Stakeholder Engagement plan, but the roles and responsibilities outlined were completed accordingly. Additional to the original arrangements there interactions that facilitated the results obtained. Such arrangements were:

- A MoU between MoE, MHP, and CUH. This initative was the main component so that the GoE and the World Bank now have opened a 200 M USD credit line for the funding of the private sector and government to implement autoclave systems.
- A MoU between E-Tadweer (which was not an original stakeholder), MoE and the environmental Commitment Office of the Federation of Egyptian Industries to implement this important application.
- GEF-UNDP Small Grants Programs (SGP) gave workshops to promote the involvement of NGOs in E-waste management project proposals. Two of these proposals were presented.
- Another stakeholder was Enactus (NGO) that developed a platform and collected 4 tons of E-waste to direct to the formal sector recyclers/processors.
- A new start up company was also integrated to work with MoE and the Federation of Egyptian Industries to collect and store E-waste to send to formalized E-waste recyclers. This initative included Vodafone and Raya.

Gender

The project document does not container a gender action plan but a Gender Analysis was completed. The Gender Analysis determined established baselines so that the data collected during the project would be gender disaggregated. The capacity building and awareness raising activities would be organized to take into account different circumstances/occupation/levl of knowledge of women and men. It was proposed to develop synergies with UN Women and NCW's training ofparliamentarians. This evaluator was not able to verify that this was done.

What the project set out in its Gender Analysis and was able to complete was to build awareness between waste management and public health with the direct health implications to female workers, pregnant women and children.

With regard to E-waste the proper collection and processing of E-waste brought benefits to local communities (women, men and children) that would have been exposed to chemicals from improper burning of waste.

4.2.3 Project Finance and Co-finance

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

The implementation of the budget, provided by the 2021 PIR and the PMU, indicates that 77.59% of the budget was executed.

T**able 8 Project budget vs actual disbursement**

Year	% prodoc budget	% expected budget	Total accummulative disbursement
2017	3.85	6.02	157,654
2018	8.76	11.00	359,272
2019	20.00	20.00	820,067
2020	45.8	45.8	1,877,884
2021	77.00	77.00	3,181,760

Source: PIR 2017-2021

The first two years of the project, compared to the work plan of the ProDoc, the execution was low because of some challenges, already identified previously. However, once the different components of adaptive management were applied, the project management increased in efficiency and effectiveness.

Co-financing commitments were met above the initial amounts indicated in the ProDoc. As can be seen in Table 6 below there was a 16.1% increase in the original amount committed.

This was mainly due to private sector and government institutional investments made during the project. This is increase in investment is a result of the country ownership of the project.

Table 9. Project co-financing summary

Co financing (type/source)	UNDP Financing (US$m)		Government (US$m)		Bilateral (US$m)		Private Sector (US$m)		Total (US$m)	
	Planned	Actual	Planned	Actual	Planned	Acutal	Planned	Actual	Planned	Actual
Grants	0,050	0,046	1,568	7,718	10,300	3,400	5,600	8,460	17,518	19,624
Loans/Conessions									0,000	0,000
In-kind support	0,050	0,050		0,728					0,050	0,778
Others									0,000	0,000
Total	0,100	0,096	1,568	8,446	10,300	3,400	5,600	8,460	17,568	20,402
									17,568	20,402

Source: PMU

Table 10. Cofinancing at TE Stage

Sources of Co-Financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount (US$)
GEF Agency	UNDP	Grant	Investment Mobilized	46 000
GEF Agency	UNDP	In-Kind	Investment Mobilized	50 000
Donor Agency	Swiss Development Agency E-Waste	Grant	Investment Mobilized	3 400 000
Recipient Country Government	Ministry of Environment	In-kind	Investment Mobilized	150 000
Recipient Country Government	Ministry of Environment	Grant	Investment Mobilized	242 500
Recipient Country Government	Ports Authority	In-kind	Investment Mobilized	100 000
Recipient Country Government	Ministry of Health	Grant	Investment Mobilized	100 000
Recipient Country Government	Ministry of Health	In-kind	Investment Mobilized	200 000
Private sector	ITG	Grant	Investment Mobilized	5 600 000
Private sector	Formalized E-waste companies	Grant	Investment Mobilized	2 350 000

Recipient Country Government	Ministry of Communication and Information Technology (MCIT)	In-kind	Investment Mobilized	278 000
Recipient Country Government	Ministry of Environment	Grant(E-tadweer)	Investment Mobilized	1 375 000
Private sector	E-tadweer	Grant	Investment Mobilized	187 500
Private sector	Vodafone Egypt	Grant(E-tadweer)	Investment Mobilized	312 500
Private sector	RAYA, BOGO plus, AMS	Grant(E-tadweer)	Investment Mobilized	10 000
Recipient Country Government	Ministry of Health	Grant	Investment Mobilized	5 000 000
Donor Agency	Swiss Development Agency Medical Waste Project	Grant	Investment Mobilized	1 000 000
Recipient Country Government	Cairo University Hospital	Grant	Investment Mobilized	1 000 000
Total, Co-Financing				**20 401 500**

Source: PMU and CO

4.2.4 Monitoring and evaluation: design at entry, implementation and overall assessment of M&E

At the project design stage, the Monitoring and Evaluation Plan indicated in the project document details several mandatory instruments. These instruments are:

- Inception Workshop Report
- AWP
- APR/PIR GEF
- Quarterly Progress Reports
- GEF Tracking Tools
- Mid Term Evaluation
- Annual Portfolio Indicators
- Audit Report
- Terminal Evaluation
- Visits to Field Sites

The coordination of this project has presented most of the instruments indicated efficiently and meeting the deadlines established. The quarterly progress reports were not presented to this evaluator.

The indicators that were established in the Logical Framework were difficult to follow at times because they were combined with similar components. This was the case with HCWM and components 1 and 2 and E-waste management in Component 3 and 4.

M&E design at entry

The M&E budget proposed in was well prepared and corresponds to an accurate estimation of the expenditure associated to these exercises.

The M&E plan did not include a baseline SMART indicators and data analysis system or evaluation studies to assess results.

M&E implementation

During implementation the stage the M&E plan was sufficiently budgeted according to the budget presented in the project document. The APR/PIR reports for each year well prepared efficiently and risk management, social and environmental risks were analyzed were identified using the UNDP SESP, gender analysis were covered accordingly in different yearly PIR reports.

This evaluator was not able to confirm the use of the GEF/ÑDCF/SCCF Tracking Tooks/Core indicators since this information was not included in the documents for review package, although it was requested several times.

Financial audits were done during all the project years with the exception of 2021 but progress reports were not completed.

There was not a Theory of Change included in the project design. The PIR ratings are verifiable with the results of the MTR results. The recommendations made by the MTR evaluator were incorporated in the work plans and these were addressed accordingly by the PMU and UNDP.

Unfortunately, the Project Board Meeting Minutes were available but in Arabe not in English at the time of this evaluation.

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

Table 11. Ratings

Monitoring and Evaluation (M&E)	Rating
M&E design at entry	S
M&E Plan Implementation	MS
Overall Quality of M&E	MS

UNDP Implementation/oversight, Implementing Partner execution and overall assessment of implementation/oversight and execution.

UNDP involvement in the implementation was verified through the interviews. All the stakeholders, beyond the PMU, have expressed their positive evaluation regarding the UNDP CO intervention in the project and its activities.

The UNDP CO has been responsive to the different challenges that the PMU faced regarding different adaptive management changes that needed to be applied not only because of the MTR but also because of the daily work tasks.

The MoE and WMRA as implementing partner was committed to the project objectives and played an important role in the obtaining of key results, like the regulations that apply to the Waste Management Law regarding E-waste and HCWM. Table 8 refers to the ratings given:

Table 12. Ratings

UNDP Implementation/oversight & Implementing partner Execution	Rating
Quality of UNDP Implementation/Oversight	S
Quality of Implementing Partner/Execution	S
Overall quality of Implementation/Oversight and Execution	HS

4.2.5 Risk Management

In the Project document a total of 15 risks were identified. Below is a summarize table of these risks.

Table 13. Risks identified at project design

No	Description	Type	Impact (L, M. H) & Probability (L, M, H)
1	Lack of coordination of the relevant institutions and ministries	Institutional	M/M
2	New legislation compliant with the SC or amendment of the current legislation cannot be drafted and adopted within project timeframe due to length of the lawmaking process	Institutional	M/H
3	Lack of cooperation of relevant stakeholders (informal collectors, waste generators) to cooperate in the establishment of a sound management of E-waste.	Management	M/H
4	Difficulties related to the gathering of information on informal / Illegal management of E-waste.	Management	L/M
5	Raising awareness activities on E-waste not effective or do not reach the proper target	Management	L/M
6	Limited willingness of EOL equipment owner to have it disposed by formal collectors	Management	M/M

7	Disposal / segregationtechnology ineffective	Technical	M/M
8	Issues in the procurement of non-incineration technologies through UNDP-PSO Health and procurement of HCWMsupplied	Management / Technical	M/L
9	PFs not willing to enter into contracts with the CTFs for treatment of the HCW.	Institutional	L/L
10	Ministry of Health andnational medical training institutions unwilling to revise thenational training modules by on international best practices in HCWM training.	Institutional	L/L
11	Government of Egyptunwilling to considermaking necessary changes to the Environmental Law (4/1994) as well as other regulations and plans pertaining to HCWM.	Institutional	L/L
12	Government of Egypt would not support the gradual phase-out of Mercury containing medical devices and isnot willing to review, approve and adopt guidelines/regulationsand degrees in supportof the phase-down.	Institutional	L/L
13	Project HCFs are unwilling to participatein baseline assessments and are not open to sharing information related to their current HCWM practices.	Management	M/L
14	PFs do not allocate adequate space for interim Hg waste storage, and staff time to participate in the staffpreference study and training on the use of Hg-free alternatives.	Technical	M/L
15	Issues with the procurement of Mercury-free medicaldevices	Technical	L/L

The risks identified and the mitigation measures proposed proved to be adequate in most of the cases. The suggested measures were the solutions with the corresponding adaptative management that were successful.

In the 2018 PIR an Operation Risk was identified. This risk was that the EOL owners of equipment would not be willing to dispose of their E-waste through the formal collectors. The mitigation measure proposed was the implementing of a reward system which along with the prohibition to give E-waste to informal recyclers turned out to be a sound idea.

The Vodafone and the E-Tadweer plataform was one of the solutions to this risk that proved to be very effective and efficient.

In the 2020 PIR a Social and environmental risk was identified because of the COVID-19 Pandemic. The solutions proposed included flexible working-from-home options for the project staff. Online meetings with the stakeholders, when necessary, phone and e-mail communications were utilized. Many of the activities that needed to have people present were postponed to late 2020 and some even to early 2021. The medical personnel were trained virtually which was an effective solution.

Social and environmental standards

The SESP template was completed during the project design phase. In this template two environmental and social risks were identified under the category of pollution. One of the identified risks was the potential of the release in the environment of hazardous materials resulting from the production, transportation, handling, storage and use of project activities. The second risk identified was regarding the possible generation of waste from the project activities that could not be recovered, reused, or disposed of in an environmentally and social sound manner.

The 2018 PIR reported that there were no expected environmental or social risks that would be caused by the project since the project interventions were meant to reduce environmental risks, instead, and specifically in current project sites where harmful emissions of U-POPs continued occurring (e-waste and medical waste open burning). The project did not manage solid or liquid POPs waste and gave proposes solutions for the reduction of open-burning practices.

The project prepared Environmental Impact Assessment studies for the medical waste treatment facility in Bassioun in 2020 as required by the national laws for supported E-Waste recycling facilities and healthcare waste treatment facilities.

The breakout of the COVID-19 pandemic in late 2019 and through 2021 has resulted in serious environmental and social risks and impacts that the project has had to work around and with to complete its activities.

The environmental and social safeguards identified in the SESP template during project design were correct. The presentation of the corresponding EIA was completed as necessary.

4.3 Project results and impacts

4.3.1 Progress towards objective and expected outcomes.

The project overall progress towards the fulfillment of the proposed objective and the expected outcomes is rated by this evaluator as highly satisfactory. In the logical framework analysis below the different components were evaluated and given a rating individually.

It was difficult to match the results of components 1 and 2 as well as for 3 and 4 due to the similarity in activities and indicators for the two main topics: HCWM and E-waste.

Table 14 summarizes the ratings given for the overall objective and the components.

Table 14. Summary of logical framework evaluation

Objective/Component	Rating
Objective	**HS**
Component 1	**HS**
Component 2	**HS**
Component 3	**S**

This evaluator gives the total project progress towards objective and expected outcomes a highly satisfactory rating due to these individual scores. The logical framework analysis below gives a justification indicating the results obtained in each one of components using the indicators and the PIR results as sources of verification.

Table 15. Logical framework objective and expected outcomes analysis and rating.				
	Indicator	**Targets End of Project**	**Rating**	**Justification**
Project Objective: Protect human- and environmental health by reducing releases of POPs and other hazardous releases resulting from the unsound management of waste, in particular the incineration and open burning of hazardous health care waste and electronic waste by demonstrating and promoting Best Available Techniques (BAT) and Best Environmental Practices (BEP) to soundly manage and dispose of such wastes.	Amount of U-POPs release in the environment from HCW disposal avoided. Amount of PBDE release in the environment from E-waste disposal avoided. Amount of emission of PTS from HCW and E- waste reduced. Existence of a SC compliant regulatory framework on HC waste and E-waste-	U-POPs from HCWM in demonstration facilities: **Reduction of 63.2 g/TEQ/yr** U-POPs from E-Waste sector: **The proposed project will be able to reduce the amounts of UPOPs emitted from the improper treatment of E-waste by ~5 g-TEQ** **Reduction of c-PBDE for an overall amount of 378 kg of c-PBDE from IC EOL equipment, plus 1513 kg c-PBDE from CRT monitors would be prevented during the project life span.** **U-POPs reduction of 3.36 gTeq /yr assuming the project would ensure the proper management of 4000 t of E-waste**	**HS**	A CTF was opened in the governorate of Gharbia. U-POPs reduction to 45 g/TEQ/yr resulting from Gharbia and Sadat city autoclaves and incinerators. 74% reduction of end of project target. Total of 13591.23 T of E-waste was safely disposed by exportation for treatment, reducing 1284.4 kg of c-PBDE equivalent to 339.8% of the end of project g-TEQ results to date of this evaluation 11.4 g-TEQ equal to 228% of project target.
Outcome 1.1 UPOPs emissions reduced through support to HCWM initiatives at health-care facility(ies) level, Central Treatment Facility (CTF) level and training institutions.	UPOPs releases reduced by 50% for Gharbia and by 40% for Sharkia.	**UPOPs releases reduced by 63.2 g-TEQ/yr**	**HS**	MoU signed with EEAA, MoE, CUH and MoHP. CTF established and in operation.
1.1.1: Facility assessments conducted and UPOPs baseline determined.	Baseline assessments conducted for all project facilities	I-RATs conducted for each of the project HCFs. UPOPs (and Hg) releases before and after project determined for each project facility (PF).		Baseline assessment of U-POPs and Hg was completed for 5 model HCFs using I-RATs.

1.1.2 BEP implemented at project facilities (followed by evaluation).	All project HCFs (5) thatwill be serviced by a project CTF have introduced BEP in a satisfactory manner. 250 HCF staff trained inBEP.	▪ Memoranda of Understanding (MoUs) signed with Project Facilities. ▪ HCWM committees established in each PF. ▪ Facility specific HCWM policies, procedures and plans developed and implemented ateach PF. ▪ PF staff trained in best HCWM practices. ▪ Each PF evaluated to verify introduction of BEP practices.	**HS**	CTF established in Gharbia governorate. CFT incorporated BAT/BEP to be replicated by MoHP
1.1.3 Identification of technology requirements, competitive procurement, selection, and installation of BAT non-incineration and incineration technology at the respective CTFs. incineration technology at the respective CTFs.	Number of non- incineration technologies that are operational at CTF I and Cairo UniversityHospitals. % Of HCFs in each governorate served by a CTF.	▪ Technical specifications for HCW treatment technologies for CTF I and II drafted. ▪ Non-incineration technologies procured, installed, and evaluated atCTF I. ▪ Procurement of an initial set of HCWM related supplies for the project HCFs. ▪ Staff trained in the operation and maintenance of the new technologies.		Fair pricing tool established for HCW treatment and transportation. 2 autoclaves were installed in two hospitals in Gharbia governorate.
1.1.4 National HCWM training opportunities enhanced to disseminate best practices to additional hospitals/HCFs.	Number of institutions that offer HCWM training/certificate courses.	▪ Assessment of existing HCWM training opportunities conducted. ▪ National training infrastructure for HCWM established/improved.		WMOs and managers trained in Gharbia, Sharkia and Dakahlia governorates. 118 WMO trained. (80% females-21% males) 101 HCF managers trained. Awareness raising materials distributed. HCWM training materials developed in Arabic. 2 TOT training sessions total of 115 trainees (53% female-47% males) for 15 governorates. Training materials developed in Arabic.

			HS	E learning platform established for Covid conditions.
Outcome 1.2. Nat. Policy and regulatory framework strengthened/developed with respect to HCWM and UPOPs emissions	Number of laws, regulations and guidelines pertaining to HCWM drafted/revised.	▪ Law/regulations and degrees create an enabling regulatory and policy environment for HCFs and CTFs to reduce UPOPs emissions.		
1.2.1 Nat. HCW policies, regulations and plans reviewed and enhanced.	Number of laws, regulations, and guidelines drafted/revised. No of environment and health inspectors/ women and men trained on revised regulations and guidelines.	▪ Assessment of the national policy, regulatory framework, and national plan governing HCWM conducted (incl. Act. 2.2.1) ▪ Guidelines, standards, and technical regulations on HCWM revised/developed following the recommendations from the national policy and regulatory assessment. Environment and health inspectors trained on revised regulations and guidelines.	**HS**	Executive Regulation for new Waste Management Law was completed. The PMU played an important part as contributor to this process. General HCWM Policy developed. Guidelines for HCWM and general policy produced and included in flyers.
Outcome 2.1 Mercury emissions in HCWM sector are reduced.	Hg releases reduced by 5 kg/yr. Kg of Mercury waste safely stored/disposed of.	Hg releases reduced by 5 kg/yr	**HS**	The new equipment supply processes for implementation of HCWM action plans in the five model HCFs, including disposal of mercury containing devices
2.1.1 Mercury assessments conducted, and Hg baseline determined (*in combination with Act. 1.1.1*)	Hg Baseline assessments conducted for all project facilities	▪ I-RATs conducted for each of the project HCFs. ▪ Hg emissions before and after project determined for each project facility (PF).	**HS**	Baseline assessment for U-POPs and Hg baseline releases completed for the five model HCFs.
2.1.2 BEP related to the safe management, storage, phase-out and disposal of Mercury containing devices and wastes implemented at project facilities	BEP related to the life- cycle management of Mercury containing medicals devices and wastes introduced in 5 PFs.	▪ Assessment on potential Hg disposal/storage sites conducted. ▪ A Mercury management and phase-out plan prepared and implemented for each project facility. ▪ Temporary storage sites for		EIA for CTF completed to identify actions to reduce mercury emissions from incineration.

		Mercury containing wastes established at PF level. ▪ HCFs staff trained in the clean- up, storage and safe management (incl. transport) of Mercury wastes. ▪ Staff preference study for selection of Hg and PVC-free alternatives conducted in a limited number of PFs.		
2.1.3 Mercury free device specifications determined, devices procured and introduced	Number of Hg free devices procured and distributed. Project model facilities are Mercury-free. Kg of recovered/ phased-out Mercury waste safely stored.	▪ Technical specifications for Hg-free devices drawn-up. ▪ Mercury-free devices procured for project facilities (and a number of departments of CUH). ▪ PF staff and maintenance technicians trained in the use and maintenance of Hg-free devices. ▪ Mercury-free devices used in the project facilities. ▪ Spent Hg-devices/waste collected and temporarily stored.		Green supply specifications were set for the replacement of mercury-containing devices with alternative mercury-free devices. New equipment supply processes for implementation of HCWM action plans in the five model HCFs, including disposal of mercury containing devices implemented. Mercury free medical devices were procured.
Outcome 2.2 Nat. Policy and regulatory framework strengthened / developed with respect to sequestration, phase-out, storage, and disposal of Mercury waste in HCWM sector.	Number of regulations/degrees and guidelines pertaining to Hg-containing medical products drafted/revised.	▪ Law/regulations and degrees create an enabling regulatory and policy environment for HCFs and CTFs to reduce Hg releases.	**HS**	Executive Regulation HCWM for the Waste Management Law 2020.
2.2.1 Policies/guidelines on sequestration, phase-out, and management of mercury waste from HCFs developed.	No. of regulations/degrees and guidelines pertaining to Hg-containing medical products drafted/revised. No. of environment and health inspectors women and men trained on revised regulations and guidelines.	▪ Assessment of the national policy, regulatory framework, and national plan governing Mercury conducted (in coordination with Act. 1.2.1). ▪ Guidelines, standards, and technical regulations on Mercury management revised/developed following the recommendations		The general policy for the HCWM at the level of health directorates included disposal of Hg and replacement of devices containing mercury

Outcome 3.1 Emissions of UPOPs (including new POPs) and POPs reduced through support to e- Waste Management at municipality and national level	Availability of baseline on POPs – U-POPs release. Availability of awareness campaigns and related feedback. From women and men Amount of E-waste collected Evidence of replication initiatives	Baseline data on U-POPs and POPs released from E-waste management are available. E-waste informal processors mapped. Multi-media awareness campaign concluded. At least 4,000 tons of E-waste collected and management in an environmentally sound way. Prevention of C-PBDE release of around 1,791 kg.	**HS**	Baseline assessments were completed for POPs and UPOPS and associated hazardous releases (Hg, lead, cadmium) from E-waste processing. 2 multimedia awareness campaign done with E-waste exhibition. 7705.79 tons of E-waste disposed. 502 T of CRT monitors disposed. The project supported a private sector initiative for an online application for the collection of E-waste from households called E-Tadweer. 12k downloads of the application have been registered.
3.1.1. National mapping of E-waste processors and refurbishers and applied practices completed and baseline on POPs and UPOPs releases from E-waste processing determined.	Availability of a completed national level study of informal WEEE processing sector Availability of a detailed baseline of POPs and UPOPs from the E-waste management releases with trends	A national level characterization study of informal WEEE processing sector completed. A detailed baseline of POPs and UPOPs from the E-waste management releases with trends completed.	**HS**	Baseline assessment was completed in 2017, covering current and projected mass flows, identification of the key stakeholders.
3.1.2 Capacity/ awareness among key among key stakeholders at national and municipal level built.	Number of operators women and men successfully trained on E-waste management, with specific reference to segregation of PBDE contaminated waste. Availability of recordings of campaign broadcasted on relevant media on ICT equipment and CRT.	Specific training for the operator on the issue of POPs brominated flame retardants in waste and electronic equipment. At least 50 professionals from the public and private sector trained. A campaign aimed at creating awareness on E-waste launched on different media (internet, TV, newspapers), providing reference and	**HS**	The project organized and participated in 12 workshops/awareness sessions 2 multimedia awareness campaign done with E-waste exhibition. Participants 889. The project organized 13 capacity building /training programs. The scope of the training programs was polices/

	Availability of a website on the above Availability of awareness raising materials. Number of people reached by the campaign	contact numbers. (Establishment of a toll-free line)		legislation and BAT/BEP that achieve the sustainable management of E-waste. Total number of participants t 550 trainees from different targeted groups (public sector, private sector, and informal sector).
3.1.3 Introduction of BEP/BAT to priority municipalities, selected formal and informal E-waste processors/refurbishers.	Number of municipalities where a collection scheme was implemented. Availability of E-waste collection system and infrastructures Amount of E-waste collected. Availability of a rapid screening technology for PBDE in E-waste. Effectiveness of the rapid screening technology (% of success	Pilot projects on collection scheme implemented in 2 municipalities (Cairo and Alexandria). At least 6,000 t of WEEE of which 2,000 tons of CRT monitors will be collected during the project. Technology for the rapid screening of PBDE in E-waste demonstrated. At least 1,000 t of hazardous E-waste component disposed of in compliance with the Stockholm Convention	**S**	Technical report completed on "Identification and assessment of BAT/BEP for recycling and disposal of hazardous fractions containing POPs and U-POPs in Egypt and worldwide".
3.1.4 Replication of project results at international, regional, national and municipality level	Availability of national and international workshop proceedings. Availability of a replication plan.	A plan for the replication of the methodologies in other Egyptian municipalities / provinces, including financial plan, timeframe, technology selection and targets developed. With the support of Basel Convention Regional Center for Arab States (BCRC), the project will seek the collaboration of other countries to extend the replication plan to other African countries.	**HS**	8 informal companies were supported with technical assistance to formalize their operations to become formal recyclers. All have had their permits issued. Field visits done to 7 E-waste nd battery recycling facilities. E-Tadweer platform was established for household E-waste collection.

				Vodafone Egypt and Raya Holding support the E-Tadweer application. Workshop organized by GEF-UNDP SGP for NGOs for E-waste management proposals to be prepared.
Outcome 3.2 National policy and regulatory framework strengthened with respect to E-waste	Availability of an improved E-waste regulatory framework	Reviewed / improved regulatory framework on E-waste fully compliant with Stockholm and Basel Convention		
3.2.1 National policy and regulatory framework (incl rules and regulations) on E-waste management reviewed, revised, and improved (pertaining to processing, refurbishing, storage, disposal, illegal trade etc.) and fully integrated into the national policy and regulatory framework for waste management.	Availability of a reviewed or strengthened policy and regulatory framework on: - E-waste manifest. - Licensing system for E-waste managers. - Rules on the import of secondhand equipment. - Concentration limit for POPs in EEE and E-waste	Reviewed / strengthened policy and regulatory framework, in compliance with the Stockholm Convention, on: • E-waste manifest. • Licensing system for E-waste managers. • Rules on the import of secondhand equipment. Concentration limit for POPs in EEE and E-waste	**S**	E-waste management regulation prohibits the sale of E-waste to informal recyclers. Al informal recyclers must complete licensing process to become formal recyclers to work. Vodafone Egypt developed campaign to collect and reward E-waste collection. A total of 150 K reward vouchers were issued.
Outcome 4.1 Emissions of other associated hazardous substances (mercury, lead, cadmium) reduced through support to E-waste management at municipality and national level.	Availability of baseline on release of Cd and Hg. Availability of awareness campaigns and related feedback from women and men. Amount of E-waste collected	Baseline data on Cd and Hg released from E-waste management are available. Multi-media awareness campaign concluded. At least 50 tons of E-waste containing PTS collected and managed in an environmentally sound way.	**HS**	Baseline assessments were completed for POPs and UPOPS and associated hazardous releases (Hg, lead, cadmium) from E-waste processing. Public awareness documentary and 4 animated infographics were completed and presented. Promotional awareness raising materials developed. 52 reports and articles developed for E-waste management practices.

				20 awareness raising workshops organized total participants 2729. 40 Workshops for school and university students. E-waste collected: 12661.23 tons to formal recyclers. 5866.18 tons of lead acid batteries from ICT sector were disposed. 7705.79 tons of E-waste disposed. Disposal of 930 tons of CRTs. Total % of project target completed is 339.8%
4.1.1. Baseline on associated hazardous releases (mercury, lead, cadmium) from E- waste processing determined (as part and parcel of Component 3).	Availability of a detailed baseline of hazardous release from the E-waste management releases with trends, including batteries for electric/electronic devices.	A detailed baseline with expected trend of release of hazardous substances deriving from the E-waste management including batteries completed.	**S**	Technical report on "Identification and assessment of disposal of hazardous fractions containing heavy metals mercury, lead and cadmium in Egypt"
4.1.2 Introduction of BEP/BAT to formal and informal E-waste processors. (as part and parcel of Component 3).	Number of municipalities where a collection scheme was implemented. Availability of E-waste collection system and infrastructures Amount of E-waste collected. Number of professional women and men successfully trained.	A pilot project for collection scheme E-waste containing PTS (i.e. mercury, lead, or cadmium), built on the experience of similar projects (i.e. the Waste Mobile Battery Collection and Recycling (2005- 2006) implemented, resulting in the collection of at least 10 t of E-waste. Training (at least 50 professionals) on classification, segregation, dismantling of EOL equipment with specific reference to component containing heavy metals.	**S**	**E-waste collected:** 12661.23 tons to formal recyclers. 5866.18 tons of lead acid batteries from ICT sector were disposed. 7705.79 tons of E-waste disposed.

	Amount of battery safely collected. Amount of E-waste containing hazardous material segregated and channelled to safe disposal.	Demonstration on BAT/BEP technologies for the dismantling of WEEE and the segregation of hazardous component containing heavy metals (i.e. segregation of lead containing glass from CRT monitors) Demonstration of Environmental Safe Disposal of E-waste containing hazardous material.		Disposal of 930 tons of CRTs.
4.1.3 Capacity/ awareness among key stakeholders built (as part and parcel of Component 3).	Number of professional and operators successfully trained on E-waste management, with special reference to E- waste containing toxic metals. Availability of recordings of campaign broadcasted on relevant media on EOL batteries and CRT. Availability of a website on the above. Availability of gender sensitive awareness raising materials. Number of people reached by the campaign	Specific training for the operator on the issue of toxic metals in EOL batteries and CRT. At least 50 professionals from the public and private sector trained. A campaign aimed at creating awareness on E-waste launched on different media (internet, TV, newspapers), providing reference and contact numbers.	**HS**	Guidelines for segregation, sorting, pretreatment, and storage of E-waste components containing heavy metals. Tool kit developed to calculate POPs and U-POPS and associated hazardous releases (mercury, lead, and cadmium) from E-waste processing.
4.2 National policy and regulatory framework on associated hazardous releases from E-waste processing strengthened.	Availability of an improved E-waste regulatory framework	Reviewed / improved regulatory framework on E-waste including concentration limit of toxic metals in EEE and E-waste	**HS**	E-waste regulation was approved because of the Waste Management Law of 2020.
4.2.1 National policy and regulatory framework on E-waste management and recycling with respect to associated hazardous releases (mercury, lead,	Availability of a reviewed or strengthened policy and regulatory framework on - E-waste manifest. -Licensing system for E-waste	In addition to what is envisaged under outcome 3.2, concentration limit for toxic metal in EEE and E- waste will be established		E-waste management regulation prohibits the sale of E-waste to informal recyclers. Al informal recyclers must complete licensing process to

cadmium) reviewed/ improved (as part and parcel of Component 3).	managers. - Rules on the importof secondhand equipment. - Concentration limitfor toxic metals in EEE and E-waste		**S**	become formal recyclers in order to work.

Relevance Analysis

The project objective is definetly in line with several national development policies such as the 2005 NIP that identified open burning of waste, medical waste incinerators and industrial processes as the main sources of UPOPs emissions. The priorities established in this NIP are represented in the project objective as it concerns the reducion of POPs and other hazardous releases that result from incineration and unsound management of HCW.

The components 1 and 2 that are directed to the improvement of HCWM are relevant to the national HCWM Strategy of 2010. The project results improve this strategy and enhanced the HCWM in 5 important hospitals in the country.The E-waste components 3 and 4 and their results are directly relevant to national priorities also identified in the NIP to reduce UPOPs emissions and hazardous waste produced from improper E-waste management.

This project is also relevant to the GEF 5 strategic objectives 1) Phaes out POPs and reduce POPs releases and 3) pilot sound chemicals management and mercury reduction.

The project is aligned with Egypt's (2007-2011) UNDAF Outcome 3 contribute and the project results contribute to the fulfillment of the following Sustainable Development Goals (SDG):

Goal 3. Good health. Target 3.9 By 2030, substantially reduce the number of deaths and illness from hazardous chemicals and air, water and soil pollution and contamination.

Goal 5 Gender Equality. Target 5.5 Ensure women's full land effective participatioin and equal opportunities for leadership at all levels of decision making in political, economic and public life.

Goal 6. Clean Water and Sanitation. Target 6.3 By 2030 improve water quality by reducing pollution, eliminating dumping and minimizing releases of hazardous chemicals and materials.

The main stakeholders MoE, MoHP, MCIT, WMRA, EEAA and the CUH participated fully in the project implementation process. Initially the coordination among ministries was a bit slow but once the mid-term evaluation pointed out some shortcomings this was improved and the particpation of the stakeholders improved.

This evaluator would rate the relevance of this project results as **satisfactory (S).**

Effectiveness analysis

The project contributed to the national expectations for the reduction of UPOPs emissions and alternative mercury free medical equipment. In general, the results obtained were well in line with what was expected and, in some cases, surpassed the project target established.

In the HCWM components the results are very good and there is a good deal of country capacity developed in strategy and regulatory framework to make insure the sustainability of the positive outcomes.

The planned outcomes and outputs resulted to be in align with what actually resulted. The expected reduction in UPOPs emissions from HCWM was achieved with the targeted CTFs. The amount of PBDE release reduction in outcome 1 was above the expected amount by 339.8%.

The proposed revision of laws and regulations was completed with the new Waste Management Law and the corresponding Regulations for HCWM and E-waste management.

For the reduction of mercury inventories there was a significant reduction, and a baseline evaluation was completed along with training and awareness raising activities on the importance of non-mercury medical equipment.

During implementation there were socio-economic factors that were constraining in the achieving of the transition of informal E-waste recyclers to formal sector E-waste managers. The informal sector had a pricing advantage over the formal sectors because there was no regulation to obligate them to have sound environmental management of the waste. The Regulation on E-waste management brough to the compliance table restrictions and obligations that would need to be fulfilled by this manner limiting the E-waste that could be handed over to the informal sector. This strategy was very effective in obtaining the desired results.

Regarding gender equality the empowerment of women was not totally equal in the HCWM components as in the E-waste components. In the HCWM components the female population of the health care sector was empowered with the training and awareness raising results and the HCWM regulation from the Waste Management Law.

For the E-waste components the empowerment of women was not developed in the same manner as the recycling process does not involve many women. There was a gender equality benefit in the positive results in the reduction of UPOPs emissions and heavy metals managed in an environmentally sound manner.

It is this evaluator's rating for the project effectiveness as **satisfactory.**

Efficiency analysis

The budget invested in project activities and the resulting outcomes were well balanced and there was an efficient use of the funds. The total project expenditures only total 77.6% of the original GEF grant of USD4.100.000. Although the total GEF grant was not used the positive results obtained were the product of an efficient use of the funds and the important stakeholder participation in fulfilling their committed co-financing. All project activities were completed in most cases above and beyond the expected results.

There was a project extension approved but it was not requested because of implementation inadequacies but because of the COVID-19 Pandemic restrictions that made it almost impossible to conduct activities during the year 2020.The project was able to finish the planned activities and achieve the expected outputs and outcomes in the timeframe planned, including the time extension. The global and environmental objectives were achieved in a timely and cost effective manner. The total budget was not used and still the outputs and outcomes were achieved above what was expected.

The achievement of the expected results was completed but the budgeted project expenditures were not met and a 77.6% of the total expenditures were met. Although there was a project extension granted the COVID-19 pandemic restrictions did cause limitations to the realization of more activities.

In general the project management was effective and efficient considering the existing restraints.

This evaluator would rate the efficiency for this project as **satisfactory.**

Overall Project Outcome

The overall project outcome considers the ratings given to relevance, effectiveness, and efficiency analysis. After having analyzed in detail the different aspects of these evaluation factors it is coherent to also rate the overall project outcome with a **Satisfactory** also.

Table 16. Assessment of Outcomes

Assesstment of Outcomes	Rating
Relevance	**S**
Effectiveness	**S**
Efficiency	**S**
Overall Project Outcome Rating	**S**

Sustainability: financial, socio-political, institutional framework and governance, environmental, and overall likelihood.

Financial sustainability

HCWM

The project was able to present to the MoHP a HCW treatment tariff which increased the existing one. This initiative is expected to open large opportunities for private sector investment and the establishing of more HCW treatment facilities.

The new Waste Management Law (2020) allows for the product of treated HCW as a non-hazardous product that be used as RDF which will encourage private sector investment in HCW treatment facilities.

A tool for establishing a fair price for HCW treatment and transportation which uses a comprehensive system to integrate operation expenses, the waste quantity, the size and type of treatment and reinvestment in technological infrastructure.

E-waste

The project supported the formalization of eight informal companies with technical assistance and the complete permitting process. These companies are now able to receive E-waste from all generators. Two operational facilities have also received their operational licenses.

The E-Tadweer online application was implemented for the collection of household E-waste. In this case the owner of the waste will receive a discount voucher for use with Vodafone and Raya for the purchase of new mobile phones or white goods, AMS fashion retailers and Bogo plus.

The above initiatives all contribute the likelihood of financial sustainability of the project results obtained to date; therefore, this evaluator would rate the financial sustainability as **likely (L).**

Social -political sustainability

There are not really any social-political risks that could affect the sustainability of the project results once the funding has ended. The stakeholders MoE, MoHP, MCIT, E-Tadweer, Vodafone, Raya, formal E-waste recycler sector, and HCF to mention just a few are committed to the continuity of the positive advances that they have achieved.

All these stakeholders understand it is in their best interest to give the positive results obtained continuity in the future as well as their enhanced improvement.

The active institutional stakeholders, MoE, MCIT, MHP, CUH and the governorates of Gharbia, Sharkia and Dakahlia are well aware of the importance that the results obtained and the regulatory framework approved has continuity to fulfill the project long-term objectives and make sustainable changes in their country. The private sector stakeholders, Vodafone, Raya, E-Tadweer and private HCF are also more than aware that in order to be able to be competitive and also comply with the environmental standards set out in the HCWM and E-waste management regulations along with their CSR they must comply.

It is difficult to determine if lessons learned were documented by the Project Team on a continual basis since this evaluator was not able to find any lessons learned in the PIR or in any other reports presented.

With respect to the gender results obtained they could be considered to be long term as they have been incorporated in the everyday activities of all the stakeholders during this project implementation.

This evaluator would rate the social-political sustainability with a **likely (L).**

Institutional framework and governance sustainability

To guarantee the institutional and governance sustainability the government of Egypt in coordination with the MoE and the MoHP have put into place the Waste Management Law. This law has specific regulations for the E-waste management and for HCW management. The WMRA also has a new Director, who was also the project coordinator, and has promoted with his institution this project and the necessary monitoring and controls necessary to contribute to its sustainability. The new director is a champion that the project identified as he was also the national coordinator for the project. There is no better person to lead this important organization like WMRA than someone who has been involved with the project from the beginning.

The training and certification of WMOs is another instrument to guarantee that the positive results in the reduction of emissions from the environmental sound management of HCW is another asset that contributes to the results sustainability.

The MoE and the MHP have developed institutional capacity to be able to monitor and control the compliance of the approved HCWM and E-Waste management regulations as well as the Law on Waste Management recently approved. This institutional capacity is what has pushed the CTF to implement BAT/BEP in their HCWM activities and for the E-waste what has forced the informal sector to take actions to become part of formal sector.

During the implementation period gender equality and women's empowerment actions were stressed in all of the activities undertaken and in the contracts for consultations, so it would be expected that these changes would be conducive to continue being enforced.

This evaluator gives this aspect a **likely (L)** rating.

Environmental sustainability

HCWM and E-waste do not have any environmental aspects that could undermine in some way the project results. Instead, the positive results are important contributions to the reduction of U-POPs emission and the hazardous waste generation of mercury, lead, cadmium among others. This evaluator based on the above gives the environmental sustainability a rating of **likely (L).**

Table 17 summarizes the sustainability ratings

Table 17. Sustainability Ratings

Sustainability	Rating
Financial resources	**L**
Social-political	**L**
Institutional framework and governance	**L**
Environmental	**L**
Overall Likelihood of Sustainability	**L**

Country Ownership

Egypt has established national priorities regarding management of UPOPs emitters from open burning of wastes, medical waste incinerators and industrial processes since their NIP 2005 was completed. The government passed the Waste Management Law in 2020 and the corresponding regulations for E-Waste management and HCW management will be put into effect shortly.

A great deal of effort was done on the part of the MoE, MoHP and the MCIT to establish the CTF, modernize the HCW in 5 hospital and the promoting of guidelines for the incorporation of the HCWM principles within the public and private health sector.

For E-waste the MCIT has played an important role in the establishing of guidelines and IT platforms for the environmental sound management of this waste.

The project had an additional plus during its implementation that is enhanced now that it is about to end. The project coordinator has been named as director of the WMRA that is vital to all waste regulations. The results sustainability is strengthened with this important political and institutional asset.

These are just a few reasons why this evaluator considers that Egypt has shown ownership of their country responsibilities and committed multiple resources to the success of this project.

The cofinancing from the government has been above the originally committed and it will continue with the funds the funds that are directed to public entities like CUH, and the public HCFs. Also the government is subsidizing in some manner the E-Tadweer platform.

It is difficult for this evaluator to determine who other than MoE, MHP and MCIT participated in the project board since the meeting minutes were in Arabe and could not be read.

Gender equality and women's empowerment

The project was largely effective regarding its contribution to gender equality and women's empowerment particularly around training and capacity building activities.

The project emphasized on building awareness of the links between waste management and public health (including occupational exposures), regarding the health implications of exposure to dioxins and Mercury for vulnerable populations, such as female workers, pregnant women, and children. Women were identified early in the project as the key stakeholders and beneficiaries of women's empowerment in HCF staff, administration as well in university hospitals.

A positive project result was the creation of a national training and capacity building system on sound management of healthcare waste that always considered gender issues. The project made important efforts towards building capacity and awareness on managing persistent organic pollutants and mercury. Women have the potential to deliver chemicals accumulated in their body to children, these issues were given special attention during training sessions and seminars.

The gender ratio of the HCWM activities attendees was about 53% females and 47% males. A total of 598 trainees (70% females, 30% males) were trained from the five model HCF.

In the E-waste related activities, the awareness raising, and capacity building activities were focused on the school students at different stages of primary, preparatory, and secondary level. The number of attendees reached 1,600 students and the gender ratio of attendees was 55% females and 45% males.

It was identified that the level of exposure to POPs and the resulting impacts on human health are determined by social/occupational as well as biological factors, meaning that gender considerations are critical to the effectiveness of policy making and to the sustainability of programming efforts in promotion of sound management practices.

On the side of E-waste, women and children are often among the most exposed to the chemicals contained in E-waste, either during their collection – which very often is undertaken by them – or during their unsafe processing. By reducing improper collection and processing of E-waste, the project contributed to the reduction of the environmental and health impacts in the local communities and women population.

It is this evaluator's opinion that if the Gender Results Effectiveness Scale (GRES) is applied to this project's results regarding the quality of gender-related results, the classification would be in the **Gender Responsive category**. The reason for this is that the project results have addressed the needs of men and women to protect their health from the negative impacts of UPOPs emissions and hazardous waste produced in the HCWM and E-waste management activities.

Cross cutting issues

This project has produced positive effects in the local populations of men and women involved in healthcare facilities and the surrounding communities that would otherwise be impacted by the improper management of HCW by open burning or inadequate disposal.

This effect is also replicated in the communities that surround informal E-waste recyclers whose environmentally inadequate management of POPs emissions and collateral waste produces important impacts to the health of the families living in the surrounding communities.

The project objective is to protect human-and environmental health by reducing releases of POPs and other hazardous releases because of the unsound management of waste, in particular the incineration and open burning of hazardous healthcare waste and electronic waste by demonstrating and promoting BAT/BEP to soundly manage and dispose of such waste. As such this project is totally in line with (2007 - 2011) UNDAF Results and Resources Framework Outcome 3: "By 2011, regional human development disparities are reduced, including reducing the gender gap, and environmental sustainability improved".

The results produced confirm that environmental sustainability obtained through the reduction of POPs emissions and hazardous releases and the gender responsive actions taken with male and female populations to protect their health are totally in line with the UNDAP framework.

The project outcomes have contributed to the mitigation of the potential risk of POPs releases and contamination that effects the environment and directly human health.

Women and marginalized groups in low income communities that are close to landfills, HCFs and E-waste recyclers benefited directly as a result of the reduction of mercury contamination, POPs releases and in general contamination from open burning activities and indequate incineration of HCW. The new regulations for both types of waste determine the appropriate distance from the HCF and the implementing of autoclaves instead of incinerators and the proper management of E-waste. The project definitely contributed to the improvement of the livelihood of disfavored communities.

GEF Additionality

The six areas of GEF's additionality will be used as a guideline to evaluate this section.

The outcomes achieved are related to the incremental reasoning indicated in the PIF since if there were not the GEF contribution it would have been difficult to obtain reformed and new regulations, reduction of emissions of POPs and mercury waste and proper safe HCWM management at the HCFs with authorized incineration and the use of autoclave systems.

The originally conceived outcomes and outputs are aligned with what was proposed as the result of the GEF contribution with the additional effect of private sector and government agencies.

As indicated in the section of this evaluation on sustainability it is evident that the environmental outcomes such as reduction of POPs emissions and mercury waste disposal are totally sustainable. With respect to human health positive impacts there is evidence that the changes achieved in the HCFs and the incinerators, and autoclaves under the umbrella of a new HCWM regulation will also be sustainable once the project ends.

Of the six areas of GEF's additionality this project fulfills the following:

- Specific Environmental Additionality. The GEF investment did provided value added interventions in the environmental protection measures included in the reduction of hazardous waste emissions and the reduction of mercury inventories.
- Legal/Regulatory Additionallity. The actions taken promoted among the institutional stakeholders to make the necessary changes in the regulatory framework, such as the adoption of the new Waste Management Law and the HCWM and E-waste management regulations. Without the actions undertaken by the project this enhancement of the legal framework could not have occurred.

- Insitutional Additionality/Governance additionality. The regulating institutions MoE, MHP were able to strengthen their capacities with the positive results that the project was able to obtain in the areas of regulatory reforms and adaptation of environmentally sound practices in HCWM and E-waste management. The MoE has created a specific department for waste management.

Catalytic/ Replication Effect

In assessing the catalytic role of this project, it is important to bring to the attention that the HCWM and E-waste management approaches are being applied in other neighboring countries, in some cases because of experiences shared and lessons learned in this project. This would mean that the catalytic role can be defined as scaling up along with other projects such as the two Swiss healthcare waste and e-waste initiatives along with the CEDARE project.

Also, a replication effect that in other Arab countries are similar projects that have been undertaken; in Jordan, HCWM and E-waste management initiatives are very similar to the ones that have been undertaken in Egypt.

To demonstrate the positive results of the HCWM system it has been implemented in five model HCF and the CUH. Public awareness has been made on the reduction of emission from these waste management efforts and how this can positively affect the environment and human health throughout the country.

There was not an official exit strategy but within the results produced during the project implementation the necessary actions were taken to provide for the sustainability of goals obtained. The legal framework was enhanced not only with the Waste Management Law but also with the E-waste management regulation and the HCWM regulation that are to be official before the official project end. The training activities and the public awareness activities done in both E-waste and HCW sectors are important factors to guarantee that the results obtained up until now will form part of the daily life requirements for the Egyptian population.

To enhance the already effective scaling up of this project it is necessary to continue with efforts to find new sources of project funding to give continuity with other relevant projects in both areas of interest.

Progress to impact

The GEF/LDCF/SCCF Core indicators and Tracking tools were not presented in the project documents requested but the progress to impact analysis will be done based on the project results obtained.

A long-term impact related to the environmental stress reduction of the number of POPs and hazardous releases for this project was well reached with averages of 40%-74% of UPOPs emissions reduced with the HCWM components. For the E-waste management components there was a reduction of 1284.4 kg of c-PBDE from the non-use of open burning of this type of waste.

There was a 339.8% of completion of the project objective indicator: amount of U-POPs release in the environment from HCW and E-waste disposal avoided. The proper HCWM management and E-waste management guidelines and regulations in place are a guarantee of the positive long-term impact.

An important contribution to change can be established through the regulatory head way made with the Waste Management Law and the corresponding HCWM and E-waste management regulations approved is an important contribution to the long-term impact that this legal framework provides. This along with the strong awareness raising activities and training of both HCF staff members and the informal and formal E-waste

recyclers has resulted in changes in people's mind set regarding what can be done to prevent the impacts of these practices in the environment and health in their workplace and communities.

5. MAIN FINDINGS, CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED

Main Findings

1. The Project objective and its implementation results are totally in line with national priorities and UNDP and GEF strategic priorities.

2. The stakeholder involvement, particularly the MoE, MoHP and MCIT was slow in its coordination efforts but once the PMU was able to correct this situation, there was a substantial improvement on the part of all. This has resulted in an important country ownership of the project in the health care and E-waste sectors that also provided useful synergies.

3. The Waste Management Law 2020 and the corresponding regulations for HCWM and E-waste management are fundamental for the sustainability of the results obtained. This regulatory framework and the WMRA involvement in its monitoring and control of its fulfillment is an important part of this project's results.

4. The project design and the level of consistency in its implementation was well achieved.

5. The logical framework was well done using SMART principals in its definition of indicators, but there was at times a duplicity between the two HCW components and the E-waste components. It was difficult to follow the results obtained in each outcome because some were repeated in its other corresponding component.

6. Adaptive management was used correctly in the strategic change from trying to move the informal E-waste to the formal waste recyclers. The implementation of the E-waste management regulation and the operational restrictions imposed on the informal sector resulted in eight informal companies making the transition to the formal sector. An important change in strategy.

7. Women's empowerment was enhanced in the healthcare sector with the training and awareness raising done with this highly female participate activity. The protective measures to insecure the reduction of the impact from improper management of these waste directed in a large percentage to women but men were also benefited from these measures.

8. The involvement of stakeholders not directly involved in the project, such as is the case of Vodafone and the developer of the E-Tadweer application has been an asset for the dissemination of the project objective of reduction of improper management of E-waste. These initiatives have been able incorporate a large part of the population in efforts to improve the management of all E-waste.

9. The project committed co-financing (USD 17,568,000.00) and the actual investment made by the stakeholders (USD 20,402,000) is 116% above the amount original indicated. This is the result of the stakeholder's ownership of the project and the results obtained.

10. The projects financial sustainability is well assured through several instruments that were put in practice and that will invite private sector investments in HCWM. Instruments such as a tool for fair tariff for health care waste disposal, Waste Management Law and the corresponding HCW and E-waste management, E-Tadweer application.

Conclusions

7. Considering all the restrictions from the COVID-19 Pandemic the project has been able to continue its work and produce important advances toward the fulfillment of its objective, the reduction of POPs and hazardous releases through the sound environmental management of its HCW and E-waste. The results respond to the objective and the expected results. The PMU should be commended for their efforts to keep the project initiative alive during these difficult working times.

8. The reason why this project has been successful in having results that go beyond their original expectation is that it responds to national priorities and the present-day health problems that the population is experiencing from improper HCWM and E-waste management. The project has contributed to empowering men and women together with the corresponding institutions to contribute to the protection of their health through proper waste management principals.

9. The synergies obtained through Egypt's ownership of the project and the PMU working along with the other projects (CEDARE, Swiss HCW and E-waste) have proven to be beneficial in expanding the benefits obtained not only for the country but also for other similar initiatives in the region.

10. The work done within the WMRA with respect to the enhancement of the HCWM and E-waste regulations for the Waste Management Law and it's monitoring, and control enforcement is a key element in the results sustainability. This along with the fact that the project coordinator has been named Director of WMRA is another advantage to the regulatory and political sustainability.

11. The change in strategy for the implementation of the E-waste management regulation and the operational restrictions imposed on the informal sector resulted in eight informal companies making the transition to the formal sector. This transition of these informal companies again contributes to the economic sustainability of the project results.

12. The protective measures to secure the reduction of the impact from improper management of these waste directed in a large percentage to women but men were also benefited from these measures. Women are an important part of the HCF staff and administrative personnel. The reduction of the POPs and hazardous releases through the utilization of alternative waste disposal with shredding, autoclave and proper final disposal makes for healthier living and working conditions for all the Egyptian population. The possibility to treat locally this waste precisely because the emissions are controlled avoids sending it to inadequate incineration units or to open pit burning locations and contributes to improved health conditions.

13. The way the E-waste collection from households is being undertaken is very good because it takes into consideration people's instinct to preserve their E-waste that it probably has a value. By giving a reward for the handing over of their waste, the population has taken an interest in disposing of their old cell phones and computer waste. This has been a good idea and as a result, it is having good returns.

14. The combination of the E-Tadweer application and the Vodafone and other companies' initiative to reward with discounts or products is a perfect way to make it a popular alternative that interest most of the population. The results are apparent in the increased number of vouchers and application downloads that have been reported in such a short period.

15. The MTR recommendations were very assertive, and the PMU/UNDP implemented them effectively resulting in highly satisfactory results.

Recommendations

Table 18. Recommendations emitted after the evaluation

No.	TE Recommendation	Entity Responsible	Time frame
1.	The COVID-19 restrictions will not be removed soon. When planning another project these should be taken into consideration within the timeframe and the possible activities to be undertaken. Unfortunately, this is a reality we must learn to live with in all aspects.	UNDP	N/A
2.	Follow up actions to enhance the use of mercury free medical and dental equipment should be done to strengthen this practice.	UNDP/WMRA	4th quarter 2021.
3.	The project has many positive results that need to be disclose to the public in improvement of healthcare waste facilities and the increase in the number of new E-waste recyclers.	UNDP/WMRA	4th quarter 2021.

Lessons Learned

1. During the first years of the project if there were different delays that correspond to national institutional requirements the coordination should be done at least during the design phase, in order to have time to recuperate from the delay in the design phase.

2. Gender equality and women's empowerment efforts are not only in the involvement of women in activities; when the project includes issues that are part of their daily lives and produce results that contribute to their welfare and sustainability, the results have a more lasting effect.

3. The project was able to attract the public outside of the realm of the normal stakeholders, with the collection of household E-waste through an attractive approach by changing the mind frame regarding the benefits of saving old cell phones and/or computer equipment. The lesson learned here is this attractive approach made the project more inclusive for the population.

4. An important lesson learned but not always obtainable is the involvement of the project coordinator in the preparation of the regulations that were presented and approved regarding HCWM and E-waste. The lesson learned is that the approval of regulations that are part of the project's results should be done early in the implementation period and have the involvement of the project management unit.

6. ANNEXES

A. TE Terms of reference
B. List of persons interviewed
C. List of documents reviewed
D. Evaluation question matrix (evaluation criteria with key questions, indicators, sources of data, and methodology)
E. TE Rating scales
F. Signed evaluation consultant Agreement and UNEG Code of Conduct form
G. Signed TE Report clearance form

ANNEX A. TERMS OF REFERENCE

TERMINAL EVALUATION TERMS OF REFERENCE

INTRODUCTION

In accordance with UNDP and GEF M&E policies and procedures, all full and medium-sized UNDP support GEF financed projects are required to undergo a terminal evaluation upon completion of implementation. These terms of reference (TOR) sets out the expectations for a Terminal Evaluation (TE) of the **Protect human health and the environment from unintentional releases of POPs originating from incineration andopen burning of health care- and electronic waste. (PIMS #4567)**

The essentials of the project to be evaluated are as follows:

PROJECT SUMMARY TABLE

Project Title:	Protect human health and the environment from unintentional releases of POPs originating from incineration and open burning of health care- and electronic waste.			
GEF Project ID:	4567		*at endorsement (Million US$)*	*at completion (Million US$)*
UNDP Project Atlas Award ID: Atlas Output ID:	00083771 00092079	GEF financing:	US$ 4,100,000	US$ 4,100,000
Country:	Egypt	Other: UNDP	US$ 50,000	US$ 50,000
Region:	Arab States	Private/bilateral (Parallel)	US$ 17,090,000	US$ 17,090,000
Focal Area:	BD	Government in-kind	US$ 378,000	US$ 378,000
FA Objectives, (OP/SP):		Other: UNDP in-kind US$	US$ 50,000	US$ 50,000
Executin gAgency:	Egyptian Environmental Affairs Agency	Total Project Cost including Co-finance:	US$ 21,668,000	US$ 21,668,000
Other Partners involved:		ProDoc Signature (date project began):		15 September 2015
		(Operational) Closing Date:	Proposed:	Actual: 15 September 2021

OBJECTIVE AND SCOPE

The project was designed to prevent and reduce health and environmental risks related to persistentorganic pollutants (POPs) and harmful chemicals through their release reduction achieved by provision of an integrated institutional and regulatory framework covering environmentally sound Health Care Waste and E-waste management. The project will reduce emissions of unintentional persistent organic pollutants (UPOPs) as well as other hazardous releases (e.g. mercury, lead, etc.) resulting from the unsound management, disposal and recycling of a) Health-Care Waste (HCW), in particular due to substandardincineration practice and open burning of HCW; and, b) Electronic Waste, in particular due to the practice of unsound collection and recycling activities and open burning of electronic waste. The project will achievethis by i) determining the baseline for releases of UPOPs and other hazardous substances (e.g. mercury,lead) resulting from unsound HCW and E-waste practices; ii) conducting facility assessments; iii) building capacity among key stakeholders; iv) implementing BEP at selected model hospitals, health-care facilities (HCFs) and a central treatment facility (CTF); v) introducing BAT and BEP to formal and informal E-waste processors; vi) preparing health care facilities for the use/maintenance of non-mercury devices followed by introduction of mercury-free devices; vii) evaluating facilities to ensure that they have successfully implemented BEP; viii) installing and evaluating BAT technology(ies) at one Central Treatment Facility based on a defined evaluation criteria; and, xi) enhancing national HCWM training opportunities to reach out to additional hospitals/HCFs.

The project is implemented by the Ministry of Environment in collaboration with the Ministry of Health for the health care waste management component and the Ministry of Communication and Information Technology for E-Waste management component. The total budget of the GEF contribution is USD 4.1 million.

The objectives of the evaluation are to assess the achievement of project results, and to draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming.

DETAILED SCOPE OF THE TE

The TE will assess project performance against expectations set out in the project's Logical Framework/Results Framework (see ToR Annex A). The TE will assess results according to the criteriaoutlined in the Guidance for TEs of UNDP-supported GEF-financed Projects.

The Findings section of the TE report will cover the topics listed below. A full outline of the TE report's content is provided in ToR Annex C.

The asterisk "(*)" indicates criteria for which a rating is required.

Findings

i. *Project Design/Formulation*

- National priorities and country driven-ness
- Theory of Change

- Gender equality and women's empowerment
- Social and Environmental Standards (Safeguards)
- Analysis of Results Framework: project logic and strategy, indicators
- Assumptions and Risks
- Lessons from other relevant projects (e.g. same focal area) incorporated into project design
- Planned stakeholder participation
- Linkages between project and other interventions within the sector
- Management arrangements

ii. *Project Implementation*

Adaptive management (changes to the project design and project outputs during implementation)
Actual stakeholder participation and partnership arrangements
Project Finance and Co-finance
Monitoring & Evaluation: design at entry (*), implementation (*), and overall assessment of M&E (*)
Implementing Agency (UNDP) (*) and Executing Agency (*), overall project oversight/implementationand execution (*)
Risk Management, including Social and Environmental Standards (Safeguards)

iii. *Project Results*

Assess the achievement of outcomes against indicators by reporting on the level of progress for each objective and outcome indicator at the time of the TE and noting final achievements
Relevance (*), Effectiveness (*), Efficiency (*) and overall project outcome (*)
Sustainability: financial (*), socio-political (*), institutional framework and governance (*),environmental (*), overall likelihood of sustainability (*)
Country ownership
Gender equality and women's empowerment
Cross-cutting issues (poverty alleviation, improved governance, climate change mitigation and adaptation, disaster prevention and recovery, human rights, capacity development, South-South cooperation, knowledge management, volunteerism, etc., as relevant)
GEF Additionality
Catalytic Role / Replication
EffectProgress to impact

iv. *Main Findings, Conclusions, Recommendations and Lessons Learned*

- The TE evaluator will include a summary of the main findings of the TE report. Findings should be presented as statements of fact that are based on analysis of the data.

- The section on conclusions will be written in light of the findings. Conclusions should be comprehensive and balanced statements that are well substantiated by evidence and logically connected to the TE findings. They should highlight the strengths, weaknesses and results of the project, respond to key evaluation questions and provide insights into the identification of and/or solutions to important problems or issues pertinent to project beneficiaries, UNDP and the GEF, including issues in relation to gender equalityand women's empowerment.

- Recommendations should provide concrete, practical, feasible and targeted recommendations directed to the intended users of the evaluation about what actions to take and decisions to make. The recommendations should be specifically supported by the evidence and linked to the findings and conclusions around key questions addressed by the evaluation.

- The TE report should also include lessons that can be taken from the evaluation, including best practices in addressing issues relating to relevance, performance and success that can provide knowledge gained from the particular circumstance (programmatic and evaluation methods used, partnerships, financial leveraging, etc.) that are applicable to other GEF and UNDP interventions. When possible, the TE evaluator should include examples of good practices in project design and implementation.

- It is important for the conclusions, recommendations and lessons learned of the TE report to incorporate gender equality and empowerment of women.

EVALUATION APPROACH AND METHOD

An overall approach and method[1] for conducting project terminal evaluations of UNDP supported GEF financed projects has developed over time. The evaluator is expected to frame the evaluation effort using the criteria of **relevance, effectiveness, efficiency, sustainability, and impact,** as defined and explained in the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects. A set of questions covering each of these criteria have been drafted and are included with this TOR (*Annex C*) The evaluator is expected to amend, complete and submit this matrix as part of an evaluation inception report, and shall include it as an annex to the final report.

The evaluation must provide evidence-based information that is credible, dependable and useful. The evaluator is expected to follow a participatory and consultative approach ensuring close engagement with government counterparts, in particular the GEF operational focal point, UNDP Country Office, project team, UNDP GEF Technical Adviser based in the region and key stakeholders. The TE evaluator is expected to follow a participatory and consultative approach ensuring close engagement with the Project Evaluator, government counterparts (the GEF Operational Focal Point), Implementing Partners, the UNDP Country Office the Regional Technical Advisor, direct beneficiaries and other stakeholders.

Engagement of stakeholders is vital to a successful TE. Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to; Ministry of Environment/Egyptian Environmental Affairs Agency/National Waste Management Agency, Ministry of Health, Ministry of Communication and Information Technology, CEDARE, Cairo University Hospital, Additionally, the evaluator is expected to conduct field missions within Egypt, if possible, including the following project sites in selected hospital facilities in Sharkia and Gharbia.

[1] For additional information on methods, see the Handbook on Planning, Monitoring and Evaluating for Development Results, Chapter 7, pg. 163

The specific design and methodology for the TE should emerge from consultations between the TE evaluator and the above-mentioned parties regarding what is appropriate and feasible for meeting the TE purpose and objectives and answering the evaluation questions, given limitations of budget, time and data. The TE evaluator must use gender-responsive methodologies and tools and ensure that gender equality and women'sempowerment, as well as other cross-cutting issues and SDGs are incorporated into the TE report.

The final methodological approach including interview schedule, field visits and data to be used in the evaluation must be clearly outlined in the TE Inception Report and be fully discussed and agreed between UNDP, stakeholders and the TE evaluator.

The final report must describe the full TE approach taken and the rationale for the approach making explicit the underlying assumptions, challenges, strengths and weaknesses about the methods and approach of the evaluation.

EVALUATION CRITERIA & RATINGS

An assessment of project performance will be carried out, based against expectations set out in the Project Logical Framework/Results Framework (see Annex A), which provides performance and impact indicators for project implementation along with their corresponding means of verification. The evaluation will at a minimum cover the criteria of: **relevance, effectiveness, efficiency, sustainability and impact.** Ratings must be provided on the following performance criteria. The completed table must be included in the evaluation executive summary. The obligatory rating scales are included in Annex D.

Evaluation Ratings:			
1. Monitoring and Evaluation	***rating***	**2. IA& EA Execution**	***rating***
M&E design at entry		Quality of UNDP Implementation	
M&E Plan Implementation		Quality of Execution - Executing Agency	
Overall quality of M&E		Overall quality of Implementation / Execution	
3. Assessment of Outcomes	**rating**	**4. Sustainability**	**rating**
Relevance		Financial resources:	
Effectiveness		Socio-political:	
Efficiency		Institutional framework and governance:	
Overall Project Outcome Rating		Environmental:	
		Overall likelihood of sustainability:	

PROJECT FINANCE / COFINANCE

The Evaluation will assess the key financial aspects of the project, including the extent of co-financing planned and realized. Project cost and funding data will be required, including annual expenditures.

Variances between planned and actual expenditures will need to be assessed and explained. Results from recent financial audits, as available, should be taken into consideration. The evaluator(s) will receive assistance from the Country Office (CO) and Project Team to obtain financial data in order to complete the co-financing table below, which will be included in the terminal evaluation report.

Co-financing (type/source)	UNDP own financing (mill. US$)		Government (mill. US$)		Partner Agency (mill. US$)		Total (mill. US$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Actual	Actual
Grants								
Loans/Concessions								
• In-kind support								
• Other								
Totals								

MAINSTREAMING

UNDP supported GEF financed projects are key components in UNDP country programming, as well as regional and global programmes. The evaluation will assess the extent to which the project was successfully mainstreamed with other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and gender.

IMPACT

The evaluators will assess the extent to which the project is achieving impacts or progressing towards the achievement of impacts. Key findings that should be brought out in the evaluations include whether the project has demonstrated: a) verifiable improvements in ecological status, b) verifiable reductions in stress on ecological systems, and/or c) demonstrated progress towards these impact achievements.[2]

CONCLUSIONS, RECOMMENDATIONS & LESSONS

The evaluation report must include a chapter providing a set of **conclusions**, **recommendations,** and

lessons.

IMPLEMENTATION ARRANGEMENTS

The principal responsibility for managing this evaluation resides with the UNDP CO in **Egypt**. The UNDP CO will contract the evaluators and ensure the timely provision of per diems and travel arrangements within thecountry for the evaluation team. The Project

Team will be responsible for liaising with the Evaluators team to set up stakeholder interviews, arrange field visits, coordinate with the Government etc.

EVALUATION TIMEFRAME

[2] A useful tool for gauging progress to impact is the Review of Outcomes to Impacts (ROtI) method developed by the GEF EvaluationOffice: ROTI Handbook 2009

The total duration of the TE will be approximately ***30 working days*** over a time period of *3 months* starting on *1 June 2021*. The tentative TE timeframe is as follows:

Activity	Timing	Completion Date
Preparation	4 days	*14 May 2021*
Draft Evaluation Report	*9* days	*1st week-June 2021*
Final Report	2 days	*End of July 2021*

EVALUATION DELIVERABLES

The evaluation team is expected to deliver the following:

Deliverable	Content	Timing	Responsibilities
TE Inception Report	TE evaluator clarifies objectives, methodology and timing of the TE	No later than *27 May 2021*	TE evaluator submits Inception Report to Commissioning Unit and project management
Presentation	Initial Findings	*14 June 2021*	TE evaluator presents to Commissioning Unit andproject management
Draft Final Report	Full draft report (using guidelines on report content in ToR Annex C) with annexes	Within 3 weeks of the evaluation assignment *1st week-July 2021*	TE evaluator submits to Commissioning Unit; reviewedby RTA, Project Coordinating Unit, GEF OFP
Final TE Report* + Audit Trail	Revised final report and TE Audit trail in which the TE details how all received comments have (and have not) been addressed in the final TE report (See template in ToR Annex H)	Within 1 week of receiving UNDP comments on draft *End of July 2021*	TE evaluator submits both documents to the Commissioning Unit

***All final TE reports will be quality assessed by the UNDP Independent Evaluation Office (IEO). Details of the IEO's quality assessment of decentralized evaluations can be found in Section 6 of the UNDP Evaluation Guidelines.[3]

TE ARRANGEMENTS

The principal responsibility for managing the TE resides with the Commissioning Unit. The Commissioning Unit for this project's TE is the UNDP Egypt. The Commissioning Unit will contract the evaluators and ensure the timely provision of per diems and travel arrangements within the country for the TE evaluator. The Project Evaluator will be responsible for liaising with the TE evaluator to provideall relevant documents, set up stakeholder interviews, and arrange field visits.

TEAM COMPOSITION

The evaluation team will be composed of one international evaluator. The consultant shall have prior experience in evaluating similar biodiversity projects. Experience with GEF financed projects is an advantage. The evaluator selected should not have participated in the project preparation and/or implementation and should not have conflict of interest with project related activities.

The Team members must present the following qualifications:

- Master's degree in Environmental Management/Engineering, or other closely related field
- Work experience in hazardous waste management for at least 10 years
- Relevant experience with results-based management evaluation methodologies
- Experience applying SMART indicators and reconstructing or validating baseline scenarios
- Competence in adaptive management, as applied to POPs
- Experience in evaluating projects
- Experience in relevant technical areas for at least 5 years
- Demonstrated understanding of issues related to gender and POPs; experience in gender responsiveevaluation and analysis
- Excellent communication skills
- Project evaluation/review experience within United Nations system will be considered an asset

EVALUATOR ETHICS

Evaluation consultants will be held to the highest ethical standards and are required to sign a Code of Conduct (Annex E) upon acceptance of the assignment. UNDP evaluations are conducted in accordance withthe principles outlined in the UNEG 'Ethical Guidelines for

Evaluations'

LIST OF DOCUMENTS TO BE REVIEWED BY THE EVALUATORS

- ToR Annex A: Project Logical/Results Framework
- ToR Annex B: Project Information Package to be reviewed by TE evaluator
- ToR Annex C: Content of the TE report
- ToR Annex D: Evaluation Criteria Matrix template
- ToR Annex E: UNEG Code of Conduct for Evaluators
- ToR Annex F: TE Rating Scales
- ToR Annex G: TE Report Clearance Form
- ToR Annex H: TE Audit Trail

ANNEX B. LIST OF MEWM PROJECT TERMINAL EVALUATION INTERVIEWS

Commented [YO1]: What about PMU, UNDP Regional Hub and/or substantial technical experts?

Component	Day	The Entity	The Entity Representative	Topics Covered
General	Sunday 11/7	**The Ministry of Environment Officials** 4:00-5:00 pm	**Dr. Tarek El-Araby** WMRA CEO **Dr. Ehab Tarek** MOE Legal Consultant	Sustainability of project activities and Waste Management Law
		UNDP Egypt 5:00-6:00 pm	**Mr Sylvain Merlen** Deputy Resident Representative, **Ms Amira Abdel Latif** RBM Officer **Dr. Mohamed Bayoumi** Climate Change Team Leader **Ms Karma El-Rawas** Environnent Programme Assistant	
Medical Waste	Monday 12/7	**Representative of one the model facility HCWM** 1:00-1:45 pm	**Dr. Amal Elsaid** (Cairo University Hospitals) Deputy Manager of Cairo University Hospitals for Environmental affairs	Cairo University experience in HCWM in particular the shift from incineration to autoclaving
		Ministry of Health and Population focal point 2:00-2:45 pm	**Dr. Hend Salem** Director of Hazardous Healthcare Waste Department (May need translation)	1. View of Ministry of Health on the innovative approaches to HCWM introduced by the project. 2. Future plan for autoclaves in Egypt in light of the project experience
		Gharbia Health Directorate (MoHP) 3:00-3:45 pm	**Mr. Hitham Ibrahim** Responsible entity for the CTF established by the project (Needs translation)	1. The impact of the CTF operation on the HCW management in Gharbia 2. Feedback on the capacity building and training programme on the implementation of the HCWM plans
	Tuesday 13/7	**Private sector in HCWM** 3:00-3:45 pm	**Dr. Nahed Youssef** Representative of one of autoclave dealers in Egypt (May need translation)	Investment opportunities in medical waste treatment in Egypt
		Swiss Embassy 4:00-4:45	**Mrs. Iman Radwan** Environment Officer	Collaboration between the UNDP-GEF project with the two Swiss funded projects.
E-Waste	Wednesday 14/7	**Ministry of Industry** 1:00-1:45 pm	**Dr. Walid Darwish** Environmental Advisor to the Minister	The coordination and collaboration between MCIT and MTI for enabling and developing a sustainable management system for E-waste in Egypt
		E-waste recycling company 2:00-2:45 pm	**Mr. Ahmed Salem** CEO (Need translation)	1. Case study of formalizng the informal 2. The E-waste market in Egypt before and after the project
		Ministry of Communication and Information Technology (MCIT) Focal Point	**Dr. Mahmoud Fakhr** MCIT **Dr. Hossam Allam** CEDARE	The coordination and collaboration between MCIT, MOE and Swiss funded project for enabling and developing a sustainable management

		CEDARE/SRI initiative 3:00-3:45 pm		system for E-waste in Egypt.
	Thursday 15/7	**E-Tadweer** 3:00-3:30	**Mr. Karim Dabbous** Owner	Overview on E-Tadweer and how it could help in collecting waste produced by the household and channel it to formal recyclers and project support to E-Tadweer initiation
		Vodafone 3:30-4:15 pm	**Ms. May Yassin**	1. Partnership in E-Tadweer 2. The change happened in Vodafone polices regarding addressing their waste to formal recyclers (contract with Green core)
		NGO 4:15- 5:00 pm	**Egyptian Youth for Development & Environment**	Pilot project of collection of safe disposal of E-waste funded by GEF SGP

ANNEX C. LIST OF DOCUMENTS REVIEWED

- Project Audit reports 2017-2020
- PIR 2017-2021
- E-waste presentation end of project
- E-waste inception workshop report
- Final general plan English
- Final HCWM policy English
- HC Inception report
- HCWM Guidelines English
- MEWM HCWM Achievements final 2021
- Mid Term review
- PIF
- Prodoc
- Steering Committee minutes 1-5 (in Arabe not translated)

ANNEX D. EVALUATION QUESTION MATRIX

Evaluative Criteria Questions	Indicators	Sources	Methodology
Relevance: How does the project relate to the main objectives of the GEF Focal area, and to the environment and development priorities a the local, regional, and national level?			
- How does the project support the strategic priorities of UNDP and GEF?	- There is a clear relationship between the project objectives and strategic priorities of UNDP and GEF.	- Project documents - UNDP and GEF strategies and documents.	- Document analysis. - Interviews with UNDP staff and the project team.
- How does the project support environmental and development priorities at the national level? - What has been the level of stakeholder involvement in the design of the project? - Does the project consider national, political, and national realities in both its design and implementation? - What has been the level of ownership of the main stakeholders in the implementation of the project?	- The extent to which the project supports national environmental policies. - Assessment of key stakeholders regarding the level of adequacy of project design and implementation to existing national realities and capacities. - Coherence between the needs expressed by national stakeholders and UNDP-GEF approach. - Level of involvement of government officials and other partners in the project design process.	- Project documents - Assessment of key partners and stakeholders of the project.	- Document analysis. - Interviews with MoE, MCIT, MoHP staff, project partners, UNDP, and the project team.
- Are there logical links between the expected results of the project and the design of the project (in terms of project components, choice of partners, structure, implementation mechanisms, scope, budget, resource use, among others)? - Was the duration of the project set out in the prodoc sufficient to achieve the proposed results? - How does the theory of change expressed in	- Level of consistency between the results and the design of the internal logic of the project. - Level of consistency between the design of the project and its implementation approach. - Level of correspondence of the theory of change, with the structure and composition of the project, the context, and	- Project documents. - Assessment of MoE/WMRA, project partners and project team.	- Document analysis. - Interviews with MoE,MCIT, MoHP staff, project partners, UNDP, and the project team.

PRODOC hold correspondence with the structure and composition of the project, the context, and the needs of the country?	the needs of the country?		
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?			
- It has been the effective project in achieving the expected results?	- Analysis of indicators in the strategic results framework/logical framework of the project, in relation to resources and time spent.	- Project documents. - Quarterly and annual progress reports. - Assessment of MoE/WMRA, project partners and project team.	- Document analysis. - Interviews with MoE,MCIT, MoHP staff, project partners, UNDP, and the project team
- How were the risks and assumptions of the project handled? - What has been the quality of the mitigation strategies developed? - How has adaptive management contributed to the achievement of results and the scaling up of expected outputs?	- Integrity of the identification of risks and assumptions during the planning and design of the project. - Quality of the information systems established to identify emerging risks.	- Project documents. - Quarterly and annual progress reports. - Assessment of MoE/WMRA, project partners and project team.	- Document analysis. - Interviews with MoE,MCIT, MoHP staff, project partners, UNDP and the project team
- What changes could have been made (if possible) to the project design to improve the achievement of the expected results?	- Changes that improve the achievement of project results.	- Data collected during interviews and evaluation of documentation.	- Analysis of relevant documentation and data.
- Were the partnerships established with the stakeholders an important element in achieving effective final results?	- Coordination among stakeholders and PMU that provide synergies.	Data collected during interviews and evaluation of documentation.	Analysis of relevant documentation and data.
Efficiency: Was the project implemented efficiently, in line with international and national norms and standards?			
- How has adaptive management contributed to the achievement of results and the expansion of expected outputs?	- Adaptive management was used to ensure efficient use of resources.	- Project documents. - Quarterly and annual progress reports.	- Document analysis. - Interviews with MoE, MCIT, MoHP staff, project partners,

-Have they been used as management tools during the implementation of the project, the logical framework, the work plans, or any changes made to them? - Have the financial and accounting systems been adequate for project management and for producing accurate and timely financial information? -Were the progress reports accurate and timely? Do they respond to the reporting requirements? Do they include adaptive management changes? - Has the execution of the project been as effective as it was originally proposed (planned vs. current)? - Has the co-financing been in line with plan? - Have financial resources been used efficiently? - Have the acquisitions been made in a way that makes efficient use of the project's resources? -How has the results-based management approach been used during the implementation of the project? - Where the M&E objectives fulfilled in an efficient manner providing valuable information regarding project progress and fundamental implementation needs.	- Availability and quality of financial and progress reports. - Timeliness and adequacy of the reports delivered. - Level of discrepancy between planned and actual expenditure. - Co-financing planned vs. the current received. - Cost based on results achieved compared to the costs of similar projects in other organizations. - How appropriate the options selected by the project have been based on context, infrastructure, and cost. - Quality of the results-based management report (progress reports, monitoring and evaluation). - There were and with what occurrence changes in the project design or implementation approach when they have been necessary to improve the efficiency of the project. - Cost associated with the delivery mechanism and management structure, compared to other alternatives. PIR, Annual reports, Quarterly and Annual Reports reflective of the project progress and identified challenges properly.	- Assessment of MoE/WMRA, project partners and project team.	UNDP, and the project team.

Sustainability: To what extent are there financial, institutional, socio-political, and/or environmental risks to sustaining long-term project results?			
- Have sustainability aspects been integrated into the design and implementation of the project?	- Evidence/quality of sustainability strategy. - Evidence/quality of actions taken to ensure sustainability.	- Project documents. - Assessment of MoE/WMRA, project partners and project team.	- Document analysis. - Interviews with MoE, MCIT, MoHP staff, project partners, UNDP, and the project team
- Does the project adequately address the aspects of financial and economic sustainability?	- Level and source of financial support to be provided in the future to relevant sectors and activities after the end of the project. - Evidence of commitment from international partners, governments, and other stakeholders to financially support relevant sectors/activities after project completion.	- Project documents. - Assessment of MoE/WMRA, project partners and project team.	- Document analysis. - Interviews with MoE, MCIT, MoHP staff, project partners, UNDP, and the project team
- Is there evidence that project partners will continue activities beyond the completion of the project? - What is the degree of political commitment to continue working on the results of the project? - What are the main challenges that can hinder the sustainability of efforts? - Have they been addressed during project management? - What potential measures could contribute to the sustainability of the project's successful efforts?	- Degree to which project activities and results have been taken over by counterparts. - Level of financial support to be provided by the government once the project is finished. - Changes that could mean challenges to the project. - Formulated exit strategy approved by MoE and UNDP.	- Project documents. - Assessment of MoE/WMRA, project partners and project team.	- Document analysis. - Interviews with MoE, MCIT, MoHP staff, project partners, UNDP, and the project team

-Was an exit strategy established formally or is it a conjunction of results¨?			
Impact: Are there indications that the project has contributed to, or enabled progress toward reduced environmental stress and/or improved ecological status?			
- Is the project expected to achieve its objective of protecting human health and the environment by the reduction of the use and release of POPs/harmful chemicals? - Will it fulfill its responsibility to implement the Stockholm because of the project's achievements in the areas of: strengthening national capacities to improve reduce the release of POPs into the environment and affect human health?	- Egypt's institutional capacity for the environmentally sound management of POPs from open burning of health care and e-waste was strengthened. - Environmentally sound schemes and business models were developed for the generation of POPs emissions. - National technical capacity and infrastructure the reduction in the use and release of POPs emissions were strengthened. - Awareness was raised at the national and regional levels about the POPs emissions and the impact on health and environment.	- Project documents. - Assessment of MoE/WMRA, project partners and project team.	- Document analysis. - Interviews with MoE, MCIT, MoHP staff, project partners, UNDP, and the project team
Gender equality and women's empowerment: How did the project contribute to gender equality and women's empowerment?			
How appropriate and adaptive was the gender action plan in facilitating gender mainstreaming objectives?	How were women's groups, NGOs, civil society organizations consulted and involved in the project design?	- Project documents. - Assessment of MoE/WMRA, project partners and project team.	- Document analysis. - Interviews with MoE, MCIT, MoHP staff, project partners, UNDP, and the project team
During implementation what systematic and appropriate efforts were made to include a diverse group of people?	For stakeholder workshops what was the	- Project documents.	- Document analysis.

Due to the type of technical project people with disabilities will not be included although this does not exclude them from participating in certain activities.	relationship men/women?	- Assessment of MoE/WMRA, project partners and project team.	- Interviews with MoE, MCIT, MoHP staff, project partners, UNDP, and the project team

During the training and awareness for HCWM how balanced was the female and male participation? Where women empowered as a result of these actions?	Relationship men to women in training workshops.
For the E-waste components and activities developed were gender Issues considered?	Document analysis and Interview

ANNEX E. RATING SCALES

Ratings for Outcomes, Effectiveness,Efficiency, M&E, I&E Execution	***Sustainability ratings:***	***Relevance ratings***
6: Highly Satisfactory (HS): no shortcomings 5: Satisfactory (S): minor shortcomings 4: Moderately Satisfactory (MS) 3. Moderately Unsatisfactory (MU): significant shortcomings 2. Unsatisfactory (U): major problems 1. Highly Unsatisfactory (HU): severe problems	4. Likely (L): negligible risks to sustainability 3. Moderately Likely (ML): moderate risks 2. Moderately Unlikely (MU): significant risks 1. Unlikely (U): severe risks	2. Relevant (R) 1.. Not relevant (NR) ***Impact Ratings:*** 3. Significant (S) 2. Minimal (M) 1. Negligible (N)
Additional ratings where relevant: Not Applicable (N/A) Unable to Assess (U/A		

ANNEX F. EVALUATION CONSULTANT CODE OF CONDUCT AND AGREEMENT FORM

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the

interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.

6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.

7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form[7]

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: **Anna Ortiz**

Name of Consultancy Organization (where relevant)**:**

I confirm that I have received and understood and will abide by the United Nations Code of Conduct forEvaluation.

Signed at *San José, Costa Rica on August*

Signature: __

ANNEX G. TE REPORT CLEARANCE FORM

Terminal Evaluation Report for *(Project Title & UNDP PIMS ID*) **Reviewed and Cleared By:**
Commissioning Unit (M&E Focal Point)

Name: _____

Signature: _____ Date: _____

Regional Technical Advisor (Nature, Climate and Energy)

Name: _____

Signature: _____ Date: _____

(to be completed by CO and UNDP GEF Technical Adviser based in the region and included in the final document)