





# REDUCTION AND ELIMINATION OF POPS AND OTHER CHEMICAL RELEASES THROUGH IMPLEMENTATION OF ENVIRONMENTALLY SOUND MANAGEMENT OF E-WASTE, HEALTHCARE WASTE AND PRIORITY U-POPS RELEASE SOURCES ASSOCIATED WITH GENERAL WASTE MANAGEMENT ACTIVITIES

# **TERMINAL EVALUATION REPORT**

UNDP PIMS ID: 5667

GEF ID: 9189

Region: Arab States

Country: Jordan

GEF Focal Area: Chemicals and Waste

**GEF Objective:** 2. Reduce the prevalence of harmful chemicals and waste and support the implementation of clean alternative technologies/substances

Programme 3: Reduction and elimination of POPs

**Focal Area Indicator:** Tons of Persistent Organic Pollutants, Mercury and Ozone Depleting Substances and other chemicals of global concern phased out or reduced over the investment or impact of the project

GEF Implementing Agency: UNDP

Implementing Partner (Executing Entity): Ministry of Environment (MoEnv)

TE Evaluator: Dalibor Kysela, International Consultant

TE Timeframe: December 2023 to 31 March 2024

Final TE Report date: March 2024

## Acknowledgement

The author of this report would like to express his appreciation to the staff of the UNDP Country Office in Amman for their guidance and support provided during all phases of the Terminal Evaluation. In particular, their assistance with organisation of the stakeholder interviews and provision of available project-related documentation contributed to the smooth conduct and successful completion of the Terminal Evaluation.

Special thanks are extended to all project stakeholders who participated in the interviews and in the data collection phase for their open views and candid opinions on implementation of the project and achievement of the planned targets.

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# Acronyms and Abbreviations

APR	Annual Progress Report
ASEZA	Aqaba Special Economic Zone Authority
CDR	Combined Delivery Report
CEO	Chief Executive Officer
СО	Country Office
CPD	Country Programme Document
EOP	End-of-Project
EPR	Extended Producer Responsibility
ESM	Environmentally Sound Management
GAM	Greater Amman Municipality
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIZ	(Deutsche) Gesellschaft für Internationale Zusammenarbeit
GoJ	Government of Jordan
HCF	Healthcare Facilities
HCW	Healthcare Waste
HCWM	Healthcare Waste Management
HW	Hazardous Waste
IR	Inception Report
I-RAT	Individualized Rapid Assessment Tool
JUST	Jordan University of Science and Technology
KAP	Knowledge, Attitudes and Practices
MEA	Multilateral Environmental Agreement
MoEnv	Ministry of Environment
MoH	Ministry of Health
MoLA	Ministry of Local Administration
MoPIC	Ministry of Planning and International Cooperation
MSW	Municipal Solid Waste
MSWM	Municipal Solid Waste Management
MTR	Mid-Term Review
M&E	Monitoring & Evaluation
NGO	Non-governmental Organization
NIM	National Implementation Modality
NIP	National Implementation Plan
NSWMS	National Solid Waste Management Strategy
PB	Project Board
PBDE	Polybrominated diphenyl ether
PCBs	Polychlorinated biphenyls
PIF	Project Identification Form

PIR	Project Implementation Report
POPs	Persistent Organic Pollutants
PMU	Project Management Unit
PRF	Project Results Framework
РТС	Project Technical Committee
RDF	Refuse-Derived Fuel
RIA	Regulatory Impact Assessment
RMS	Royal Medical Services
RTA	Regional Technical Advisor
PPG	Project Preparation Grant
SCP	Sustainable Consumption and Production
SESP	Social and Environmental Screening Procedure
SDG	Sustainable Development Goal
TE	Terminal Evaluation
Teq	Toxicity Equivalent
TOC	Theory of Change
ToR	Terms of Reference
ТоТ	Training of Trainers
UNDP	United Nations Development Programme
UNSDF	United Nations Sustainable Development Framework
XRF	X-Ray Fluorescence

Term	Definition		
Baseline data	Data that describe the situation to be addressed by an intervention and serve as the starting point for measuring the performance of the intervention		
Beneficiaries	The specific individuals or organizations for whose benefit an intervention is undertaken		
Capacity development	The process by which individuals, organizations, institutions and societies develop their abilities individually and collectively to perform functions, solve problems and set and achieve objectives		
Conclusion	A reasoned judgement based on a synthesis of empirical findings or factual statements corresponding to a specific circumstance		
Effect	Intended or unintended change due directly or indirectly to an intervention		
Effectiveness	The extent to which the development intervention's objectives were achieved, or are expected to be achieved		
Efficiency	A measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results		
Finding	A factual statement about the programme or project based on empirical evidence gathered through monitoring and evaluation activities		
Impact	Positive and negative, intended and non-intended, directly and indirectly, long term effects produced by a development intervention		
Indicator	Quantitative or qualitative factors that provide a means to measure the changes caused by an intervention		
Lessons learned	Generalizations based on evaluation experiences that abstract from the specific circumstances to broader situations		
Logframe (logical framework approach)	Management tool used to facilitate the planning, implementation and evaluation of an intervention. It involves identifying strategic elements (activities, outputs, outcome, impact) and their causal relationships, indicators, and assumptions that may affect success or failure. Based on RBM (results-based management) principles		
Outcome	The likely or achieved (short-term and/or medium-term) effects of an intervention's outputs		
Output	The product, capital goods and/or service which results from an intervention; may also include a change resulting from the intervention which is relevant to the achievement of an outcome		
Rating	An instrument for forming and validating a judgement on the relevance, performance and success of a programme or project through the use of a scale with numeric, alphabetic and/or descriptive codes		
Recommendation	A proposal for action to be taken in a specific circumstance, including the parties responsible for that action		
Relevance	The extent to which the objectives of an intervention are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donor's policies		
Risk	Factor, normally outside the scope of an intervention, which may affect the achievement of an intervention's objectives		
Sustainability	The continuation of benefits from an intervention, after the development assistance has been completed		
Stakeholders	The specific individuals or organizations that have a role and interest in the objectives and implementation of a programme or project		
Theory of Change	A set of assumptions, risks and external factors that describes how and why an intervention is intended to work.		

# **Glossary of Evaluation-related Terms**

# **EXECUTIVE SUMMARY**

This report summarizes the findings of the independent Terminal Evaluation (TE) of the UNDP-GEF full-size project "Reduction and elimination of POPs and other chemical releases through implementation of environmentally sound management of E-Waste, medical waste and priority U-POPs release sources associated with general waste management activities" that received a US\$ 5,090,000 grant from the Global Environment Facility (GEF).

The project was endorsed by the GEF CEO on 19 April 2016. The signature of the Project Document by the Ministry of Environment on 30 May 2018 officially marked the start of the project implementation. The Inception Workshop for the project was held on 26 September 2018. Following approval of 1-year extension, the revised planned end date of the project is 30 May 2024. The TE timeframe was from 1 December 2023 to 31 March 2024P.

Project Title	Reduction and Elimination of POPs and Other Chemical Releases through			
	Implementation of Environmentally Sound Management of E-Waste, Medical Waste and Priority U-POPs Release Sources Associated with General Waste Management Activities			
UNDP Project ID (PIMS #):	5667	PIF Approval Date	19 April 2016	
GEF Project ID (PMIS #):	9189	CEO Endorsement Date:	19 October 2017	
			20.14 2010	
ATLAS/Quantum Business	100.10	Project Document (ProDoc)	30 May 2018	
Unit: Atlas Award ID:	JOK10 00105127	Signature Date (date project		
Allas Awaru ID: Ouentum Preject ID:	00105157	began):		
Atlas Award ID:	00106383 3			
Allas Awalu ID:	Jordan	Data Project Managar	1 July 2019	
Country (les).	Jordan	Hired:	1 July 2018	
Region:	Arab States	Inception Workshop Date:	26 Sep – 28 Sep 2018	
Focal Area:	Chemicals and Waste	Midterm Review	30 November 2020	
GEF Focal Area Strategic Chemicals and Waste 2.		Planned Closing date:	30 May 2023	
Objective:	Reduce the prevalence of			
	harmful chemicals and waste			
	and support the	Project Extension Date:	22 December 2022	
	implementation of clean		(12 months)	
	alternativete chnologies/subst			
Trust Fund [indicate GEF	GEF TF	If Revised, Proposed	30 May 2024	
TF, LDCF, SCCF, NPIF]:		<b>Operational Closing Date:</b>		
Executing Agency/	Ministry of Environment			
Implementing Partner:				
Project Financing	at approval (US\$M)	<u>At PPG completion (US\$M)</u>		
GEF PPG grants for	150,000	149,999.99		
project preparation				
Co-financing for project	0	0		
preparation				
Project	at CEO endorsement (US\$)	At Terminal Evaluation (US\$)	1	
GEF financing:	5,090,000	4,725,44	.5	
UNDP contribution	150,000	30,000		
Government and private	46,143,617 (in cash)	52,503,260 (§	grants)	
sector	19,005,485 (in kind)	328,604 (in-	kind)	
Total co-financing	65.299.102	52.861.8	54	

## **Project Information Table**

<sup>&</sup>lt;sup>1</sup> As of 31 December 2023.

PROJECT TOTAL COSTS	70,389,102 <sup>2</sup>	57,587,308

## **Purpose and objective of the evaluation**

The purpose of this TE is to provide the project partners, primarily the Government of Jordan (GoJ), UNDP and GEF with an independent assessment of the key achievements of the project as compared to the original Project Document for the implementation period of the project. Specifically, the TE provides assessment of the project design and formulation, relevance, effectiveness, efficiency, sustainability, country ownership, gender equality, and cross cutting issues. It assesses the achieved results and their sustainability through measurements of the changes according to the set indicators and their targets, summarize the experiences gained, identifies lessons learned, and makes recommendations for the future. Furthermore, the TE summarises lessons learned from implementation of the project including best practices in addressing particular issues of relevance, performance, and success. Finally, the TE proposes recommendations for consolidation and reinforcement of the achieved initial benefits from the project, as well as for design and implementation of other interventions in the same thematic area.

## **Project description**

The general objective of the project is to protect human health and the environment through reduction and avoidance of releases of unintended POPs (u-POPs), polybrominated diphenyl ethers (PBDEs), and CO<sub>2</sub>. This is to be achieved through building institutional and technical capacities for environmentally sound management of three different waste streams, namely e-waste, health care waste, and municipal solid waste. contributing at the same time to development of waste circular economy elements based on the 3R (Reduce, Re-use, Recycle) principles.

The project was designed with the following 4 components:

<u>Component/Outcome 1:</u> Development of an environmentally sound management (ESM) system for Ewaste, which has the objective to improve and enforce the E-waste regulation in the country, and to develop capacity for the collection and disposal of POPs contaminated E-waste products and end-of-life articles;

<u>Component Outcome 2</u>: Achievement of environmentally sound healthcare waste management (HCW), which has the objective to build on the existing potential of the country to further improve and extend the current HCW practices, including training, certification, and procurement of HCW waste treatment technology;

<u>Component Outcome 3:</u> Development of waste diversion/resource recovery capacity for reduction in U-POPs emissions, accompanied by GHG related improvements, with the objective to demonstrate minimization in the amount of municipal waste (containing potentially hazardous fractions such as plastic etc) improperly dumped or disposed of through recycling techniques and application of refuse-derived fuel (RDF) principles in modern qualified cement kiln industry, including improved management of hazardous waste through establishing of a public/private partnership.

Component Outcome 4: Knowledge Management and Monitoring & Evaluation (M&E).

 $<sup>^{2}</sup>$  The planned co-financing amount from the private sector at inception was corrected with replacement of the Lafarge/Holcim commitment of US\$ 850,000 with the Al-Manaseer commitment of US\$ 1,188,310.

# **Evaluation Ratings Table**

1.Monitoring & Evaluation (M&E)	TE Rating <sup>3</sup>
M&E plan: design at entry	Satisfactory (S)
M&E plan: implementation	Satisfactory (S)
Overall quality of M&E	Satisfactory (S)
2.Performance of Implementing Agency & Executing Agency	TE Rating
Quality of UNDP Implementation/Oversight	Satisfactory (S)
Quality of Implementing Partner Execution	Satisfactory (S)
Overall quality implementation / execution	Satisfactory (S)
3.Assessment of Outcomes	TE Rating
Relevance	Relevant (R)
Effectiveness	Satisfactory (S)
Efficiency	Satisfactory (S)
Overall Project Outcome	Satisfactory (S)
4.Sustainability	TE Rating
Institutional framework and governance	Likely (L)
Financial	Likely (L)
Socio-political	Moderately Likely (ML)
Environmental	Moderately Likely (ML)
Overall Likelihood of Sustainability	Moderately Likely (ML)

# Concise summary of findings, conclusions and recommendations

### Relevance

The project is aligned with key national policy and strategy documents, namely with the Jordan's 2025 National Vision and Strategy and the related National Action Plan that defines priority actions for the Waste Management Sector, with the first national solid waste management strategy, and with the provisions of the National Implementation Plan under the Stockholm Convention. The project was designed to link to Programmes 1 and 3 under Objective 1 of the GEF-6 Chemicals and Waste Focal Area Strategy.

Furthermore, the project is aligned with relevant provisions of the Jordan's UN Sustainable Development Framework (UNSDF) and UNDP Country Programme Document as well as with a number of UN Sustainable Development Goals, namely SDG #3, SDG #5, SDG #8: SDG #9, SDG #11, and SDG #12.

### **Effectiveness**

Key achievements under the individual project components/outcomes are summarised below.

Component/Outcome 1: Environmentally sound e-waste management system

- Revision and update of the legal framework for environmentally sound management of e-waste;
- E-waste regulation approved and entered into force;

<sup>&</sup>lt;sup>3</sup> TE ratings are explained in Annex 9.

- Regulatory Impact Assessment for development and application of a financial mechanism in the field of e-waste management;
- Draft Extended Producer Responsibility (EPR) instructions submitted to the legislative process;
- Nine main e-waste collection stations established and officially inaugurated in Greater Amman, Irbid, Zarqa, and Aqaba municipalities, and 30 smaller e-waste collection points established at MoEnv directorates, universities, and other governmental buildings, complemented with professional training on e-waste dismantling and recycling;
- Eight companies licensed for collection and dismantling of e-waste;
- National public awareness campaign on e-waste collection and recycling and local campaigns in participating municipalities;

Component/Outcome 2: Environmentally sound healthcare waste management

- Updated Medical Waste Management Instructions submitted into the legislative process;
- Comprehensive training programme on the ESM of healthcare waste for HCW management staff in all hospitals in the country including private hospitals with targeted in-house trainings for staff in the participating hospitals (9 public and 2 military hospitals);
- Eleven autoclave and shredder units installed and operational in the participating hospitals, in as well as PPEs, medical waste segregations bins and freezers for pathological waste provided;
- Two HCW transport vehicles for medical waste transportation provided to the Ministry of Health;
- 43 vehicles for medical and hazardous waste transportation connected to the GPS monitoring and tracking system including 6 MoH vehicles and the 2 vehicles provided by the project;
- Environmental Audit of the incineration facility at the Jordan University of Science and Technology and the incinerator safety and the air and temperature monitoring systems upgraded and the incinerator connected to the MoEnv online monitoring system;

Component/Outcome 3: Developing waste diversion/resource recovery capacity for GHG and U-POPs

- Series of awareness workshops for about 1,500 participants from more than 100 various waste generators from public and private sectors, and local communities;
- 3 XRF machines procured for assessment of e-waste contamination by POPs and about 200 tonnes of e-waste assessed;
- 1,123 tons of recyclables material and 503 tons of RDF materials for production of refusederived fuel (RDF) collected through at source waste collection and sorting in the municipalities of Madaba, Deir Abi Saeed and Bergesh;
- RDF production machinery installed and operational at the Madaba sorting station;
- Solid waste treatment machinery installed and operational at Madaba and Al.Koura sorting stations.
- MoU with the Manaseer cement factory concluded for experimental burning of 500 tonnes of RDF materials;
- Intelligent surveillance system installed at Aqaba landfill;

Component/Outcome 4: Knowledge management and M&E

- Project governance structures established and functional;
- Mid-term Review timely implemented and followed-up with management response;
- Project web-page established and regularly updated;

- Number of awareness materials produced and distributed;
- PIRs and annual reports submitted in a timely manner.

### **Overall conclusions**

The project achieved most of the planned results because it was fully aligned with the national priorities as well relevant to the needs of the existing local waste management systems where it added value through provision of technical expertise for establishment of waste, e-waste and MSW sorting and recycling infrastructures as well as through technology transfer for management of medical waste. Therefore, the project laid the foundation for an effective and environmentally sound waste management both at the regulatory and technical levels. Experience from this project will be important for continuation of work in other sectors approved for the country under the GEF Chemicals and Waste Focal Area, in particular for preparation of a new project on reducing plastics manufacturing and usage in the food and beverage industry under the GEF Integrated Programme Circular Solutions to Plastic Pollution.

Overall, the TE concluded that the project was successful in actively engaging with a considerable number of the government technical staff at the central and state levels for collection of required data and information needed for analysis of the existing institutional arrangements, environmental policies, and legislative instruments. On gender mainstreaming and cross-cutting issues, the project ensured extensive participation of women in training and awareness activities and took care to collect statistics disaggregated by sex but did not attempt to conduct further steps aimed at equity and empowerment of women and other vulnerable groups.

#### Lessons learned

Activities on revision and amendment of the existing regulatory frameworks must begin in the first year of projects on waste management with the aim to ensure approval and enforcement of the updated laws and regulations within the project time frame. A late start to these activities can result in failure to achieve timely approval of updated regulations and causes delays in implementation of technical assistance and technology transfer activities that depend on the existing regulatory frameworks.

Installation of the non-combustion technology (autoclaves) requires proper housing to ensure compliance with safety requirements. Construction of the housing including electricity and water supply connections should be initiated as early as possible, ideally during the initial assessment of the beneficiary health care facilities, in order to provide sufficient time to comply with all local administrative, technical and financial procedures. Also, construction of an interim storage facility for infectious waste must be included in the preparatory works for installation of the autoclave.

Establishment of a long-term agreement with a local servicing company for provision of both operation and maintenance services to the HCW sterilisation devices is considered a good practice because it shortens the time needed for identification and repair of malfunctioning equipment and therefore ensures reliable preventive and corrective maintenance.

Multi-stakeholder engagement in the project design and implementation requires that comparative advantages of different actors are duly considered. Engagement with core stakeholders for clarification of roles and responsibilities before start of the project implementation is a good practice that enables proper consideration of all stakeholders' expectations and ensures building of complementarities and avoidance of overlaps, competition, and wasting of resources.

# **Recommendations Table**

No.	Recommendation	Entity responsible	Time Frame
1.	In the remaining time of the project implementation, the project team should support the efforts the association of waste recyclers in Northern Jordan for registration and integration of informal e-waste collectors under the umbrella of the association.	PMU	Immediately
2.	The project team should encourage the participating municipalities to accelerate work on e-waste collection campaign and focus on targeted e-waste collection in large institutions such as government offices, schools and universities, military facilities, etc.	PMU	Immediately
3.	The project team in cooperation with the Government should consider provision of further support to upgrade of the JUST incinerator facility.	PMU, MoEnv	Immediately
4.	The UNDP CO and the MoEnv should consider to institutionalise the project Technical Committee as a platform for continued engagement and dialogue between all stakeholders relevant for implementation of projects on waste management.	UNDP CO, MoEnv	Immediately
5.	Relevant agencies of the Government (MoEnv, MoH and RMS) should consider establishment of a centralised system for data collection on quantities of medical waste processed in the project beneficiary HCFs and the JUST incinerator for effective assessment of effectiveness of measures taken for reduction or elimination of U-POPs.	MoEnv, MoH, RMS	Immediately
6.	The project management team in cooperation with the Manaseer cement factory and the MoEnv should accelerate implementation of test burning of agreed RDF samples and drafting of RDF instructions to ensure successful completion of these activities by the project operational closure.	PMU	Immediately
7.	The project team should ensure that the project core stakeholders develop an exit strategy for phasing over and transfer of ownership of project outputs and responsibility for their sustainability from the project management team before the operational completion of the project.	PMU	Immediately
8.	For preparation of the GEF-8 project on management of plastic pollution, the UNDP CO in cooperation with relevant agencies of the central government and municipalities should consider the association of waste recyclers as one of the core stakeholders and consult the association during the project preparatory stage.	UNDP CO, GoJ	Immediately
9.	The UNDP CO and relevant authorities at the national and municipality level should seek opportunities for active engagement of the civil society sector in UNDP-implemented waste management projects through identification of relevant community-based organisations and engaging them in future projects on waste management.	UNDP CO, MoLA, municipalities	Immediately
10.	For preparation of future projects on waste management, the UNDP CO in cooperation with MoEnv should ensure involvement of the Ministry of Education for targeted awareness work and waste separation campaigns at schools and educational institutions and for that purpose consider formal inclusion of Ministry of Education in governance structures of future projects.	UNDP CO, MoEnv	Immediately
11.	For preparation of future projects on waste management, the UNDP CO in cooperation with MoEnv should identify an NGO partner for thorough assessment of needs and put more emphasis on planning and implementation of gender-transformative actions that ensure equal access of men and women to benefits of waste management projects.	UNDP CO, MoEnv	Immediately
12.	Future projects on waste management should measure actual uptake of capacity building activities not only at the level of trained individuals but also at the level of their institutions.	UNDP CO, MoEnv	Immediately

# **INTRODUCTION**

This document presents results of the Terminal Evaluation of the full-size UNDP/GEF project "Reduction and elimination of POPs and other chemical releases through implementation of environmentally sound management of E-Waste, healthcare waste and priority U-POPs release sources associated with general waste management activities".

As a standard requirement for all projects financed by GEF, the TE has been initiated by the Lead Implementing Agency, in this case UNDP Country Office (CO) in Jordan. The evaluation was conducted in accordance with the GEF Evaluation Policy<sup>4</sup>, the Guidelines for GEF Agencies in Conducting Terminal Evaluations<sup>5</sup>, and the UNDP Evaluation Guidelines<sup>6</sup>.

## Purpose and objective of the TE

The purpose of this TE is to provide the project partners, primarily the Government of Jordan (GoJ), UNDP and GEF with an independent assessment of the key achievements of the project as compared to the expected results stipulated in the Project Document.

The TE examines the following aspects:

- Relevance of the project *vis-à-vis* national development priorities;
- Effectiveness in terms of the achieved results against what was expected to be achieved;
- Efficiency in terms of the project financial, managerial, and reporting facets;
- Sustainability of the project achievements through assessment of institutional, socio-political, financial, and environmental risks;

The TE also summarises lessons learned from implementation of the project including best practices in addressing particular issues of relevance, performance, and success. Finally, the TE proposes recommendations for consolidation and reinforcement of the achieved initial benefits from the project, as well as for design and implementation of other GEF and UNDP interventions in the same thematic area.

The Terms of Reference (ToR) for the TE is provided as Annex 1.

### **Scope and methodology**

The TE covers all activities undertaken in the framework of the project. The time focus of the TE is the implementation period of the project from its official start on 30 May 2018 throughout 29 February 2024. The geographic focus of the evaluation is the Kingdom of Jordan.

The evaluation uses a participatory and consultative approach to inform and consult with all key stakeholders associated with the project, in particular various agencies of the GoJ (the Ministry of Environment (MoEnv), Ministry of Planning and International Cooperation (MoPIC), Ministry of

<sup>&</sup>lt;sup>4</sup> The GEF Evaluation Policy, Global Environmental Facility, GEF/ME/C.56/02/Rev.01, 2019

<sup>&</sup>lt;sup>5</sup> Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects, GEF, 2017 <u>https://www.gefieo.org/sites/default/files/documents/reports/gef-guidelines-te-fsp-2017.pdf</u>

<sup>&</sup>lt;sup>6</sup>UNDP Evaluation Guidelines, 2021: <u>https://erc.undp.org/pdf/UNDP\_Evaluation\_Guidelines.pdf</u>

Health (MoH), Ministry of Local Administration (MoLA), Royal Medical Services (RMS), Jordan University of Science and Technology (JUST)), the UNDP Country Office, the National Project Team, the UNDP/GEF Regional Technical Adviser, project management team and component leaders, key experts and consultants engaged in implementation, as well as other project stakeholders and ultimate beneficiaries, such as regional self-governments and organisations from the private sector (waste service providers).

The evaluation uses the primary evaluation criteria listed in the Terms of Reference for the evaluation, i.e. relevance, effectiveness, efficiency, sustainability, and progress to impact of interventions.

## **Data collection and analysis**

The TE was conducted in three phases as follows:

### **Preparation**

The evaluator conducted initial screening and desk review of essential documents related to the project design and implementation progress. The signed Project Document (PD) was the starting point for this review for understanding the basics on which the project was designed and funded. Study of the PD was complemented by study of other documents such as the Minutes of the Inception Workshop and the annual Project Implementation Reports (PIRs).

On the basis of the initial review, an Inception Report for the TE was prepared and discussed with the commissioning office. The review also provided grounds for construction of the Evaluation Matrix, provided as Annex 2, that was used as guidance for the data collection phase.

### Data collection

After submission of the TE Inception Report, the evaluator conducted a detailed review and analysis of all available project substantive and financial reports, as well as other documents relevant for the TE, including documents from similar and complementary initiatives, as well as reports on the specific context of the project. This work served as basis for preparation of the evaluation field mission to Jordan. Detailed plan of the mission with schedule of stakeholder interviews and locations of site visits, was prepared upon discussion with the UNDP CO and the project team in order to ensure effective collection of data for this evaluation.

The evaluation mission was conducted on 20-29 January 2024. First-hand information about the project implementation was collected through interviews with a representative selection of the project stakeholders, including the project team, the UNDP CO focal points, relevant agencies of the Government, participating municipalities, as well as other project beneficiaries. The interviews were prepared in a semi-structured format based on the questions in the Evaluation Matrix with the aim to solicit responses for obtaining in-depth information from the project stakeholder.

The interviews used a set of predetermined open-ended questions about the informants' experiences from the project implementation, their attitudes, and preferences, as well as their opinions on the achievement of the planned results. The evaluation criteria and the questions were used as a check list to raise additional and/or more specific questions on the issues discussed. The format of the interviews allowed the respondents to express their perception of the main issues related to the project implementation.

Triangulation of results, i.e. comparing information from different sources, such as documentation and interviews, or interviews on the same subject with different stakeholders, was used to corroborate or

check the reliability of evidence. This approach verified the information obtained in the document review phase, allowed to get some missing data, learn about the opinion of stakeholders and project participants, as well as to interpret the collected information. In case some important stakeholders and/or beneficiaries were not visited during the evaluation mission, their responses were solicited *via* on-line meeting platforms and e-mail communications. In addition to the above, the interviews also served the purpose of collecting some additional documents to support the evidence base of the evaluation.

The schedule of the evaluation mission, the list of people interviewed, and the interview guide are provided as respective Annexes 3, 4 and 5.

### Data analysis

In parallel with preparation and conduct of the evaluation mission, data analysis including detailed review of all project reports, knowledge products budget revisions, national strategic and legal documents. The Evaluator considered perspectives of all relevant stakeholders and gathered information on project performance and results from multiple sources including the project M&E system, tracking tools, field visit, stakeholder interviews, and other independent sources, in order to facilitate triangulation of the data. Contextual information was also gathered to assess the significance and relevance of the observed performance and results. Through this approach, the Evaluator verified the information obtained in the document review phase, got some additional data and was thus able to better interpret the collected information and evidence.

## **Evaluation ethics**

The evaluation was conducted in accordance with the ethical principles outlined in the UNEG Ethical Guidelines for Evaluations, namely the four guiding ethical principles for evaluation: Integrity, Accountability, Respect, and Beneficence<sup>7</sup>. In particular, the Evaluator paid due attention to protection of the rights and confidentiality of information providers, interviewees, and stakeholders through measures to ensure compliance with relevant codes of conduct governing collection of data and reporting on data. Throughout this process, the Evaluator ensured security of the collected information, anonymity of the informants, as well as confidentiality of sources of information where that was expected. Prior to start of the work, the Evaluator declared absence of any conflict of interest related to this TE.

## **Limitations of the evaluation**

Despite limited number of interviewed beneficiaries and visited project sites, the evaluator considers the TE findings representative for making conclusions about the project implementation and the results achieved. The main limitation of the evaluation was the fact that it is required to complete the TE three months before the project operational closure date. For various reasons explained in the further text, several activities were rescheduled for the remaining period of the project from February to May 2024 hence it was not possible to include results of the postponed activities in the TE report. Otherwise, the TE could access all necessary documentation defined in the TE documents package well ahead of the TE mission and all meetings and site visits planned during the mission were organized as planned.

<sup>&</sup>lt;sup>7</sup>UNEG Ethical Guidelines for Evaluation, 2020

 $https://www.unodc.org/documents/evaluation/Guidelines/UNEG_Ethical_Guidelines_for_Evaluation/Guidelines/UNEG_Ethical_Guidelines_for_Evaluation/Guidelines/UNEG_Ethical_Guidelines_for_Evaluation/Guidelines/UNEG_Ethical_Guidelines_for_Evaluation/Guidelines/UNEG_Ethical_Guidelines_for_Evaluation/Guidelines/UNEG_Ethical_Guidelines_for_Evaluation/Guidelines/UNEG_Ethical_Guidelines_for_Evaluation/Guidelines/UNEG_Ethical_Guidelines_for_Evaluation/Guidelines/UNEG_Ethical_Guidelines_for_Evaluation/Guidelines/UNEG_Ethical_Guidelines_for_Evaluation/Guidelines/UNEG_Ethical_Guidelines_for_Evaluation/Guidelines/UNEG_Ethical_Guidelines_for_Evaluation/Guidelines/UNEG_Ethical_Guidelines_for_Evaluation/Guidelines/UNEG_Ethical_Guidelines/UNEG_Ethicad$ 

#### Structure of the evaluation report

The structure of the TE report follows the Guidelines on Contents for the Terminal Evaluation Report provided as Annex C to the ToR for this assignment.

The Executive Summary is provided at the beginning of the report. The body of the report starts with introduction and development context of the project and continues with a short project description. This is followed by the chapter that sets out the evaluation findings presented as factual statements based on classification and analysis of the collected data. The findings are structured around the five essential evaluation criteria and include assessment of the project performance against the performance indicators and their target values set out in the Project Results Framework. This part further includes assessment of the project management arrangements, financing and co-financing inputs, partnership strategies and the project monitoring and evaluation arrangements.

The final part of the report contains conclusions and recommendations substantiated by the collected evidence and linked to the evaluation findings. While the conclusions provide insights into identification of solutions to important issues pertinent to the project beneficiaries, UNDP and GEF, the recommendations are directed to the intended users in terms of actions to be taken and/or decisions to be made. This part of the report concludes with lessons that can be taken from the TE, including good practices that can provide knowledge gained from the particular project circumstances that are applicable to similar UNDP interventions.

# **PROJECT DESCRIPTION**

# Project start and duration, including milestones

The project was developed as GEF-6 project for duration of 5 years. A Project Preparatory Grant (PPG) was approved by the GEF on 11 April 2016. The project was approved for implementation as a fullsize GEF project on 19 October 2017. The implementation started with the official signature by the GoJ on 30 May 2018. Following approval of 1-year extension in 22 December 2022, the revised planned closing date of the project is 30 May 2024. The key project milestones are summarized in Table 1 below.

## Table 1: Key project milestones

Milestone	Date
PIF submission to GEF	10 August 2015
PPG approval by GEF CEO	11 April 2016
GEF CEO Endorsement	19 October 2017
Project Document signature	30 May2018
Date of Inception Workshop	26 September 2018
Mid-Term Review	September – November 2020
Project Extension	22 December 2022
Terminal Evaluation	December 2023 – March 2024
Operational Closure of the Project (original)	30 May 2023
Operational Closure of the Project (revised)	30 May 2024

The GEF grant approved for the project amounts to US\$ 5,090,000 with parallel financing contribution from UNDP TRAC resources (US\$150,000) and the total co-financing US\$ 64,742,008. With the GEF grant and the co-financing contributions, total resources committed at the project inception amount to US\$ 69,982,008.

# **Development Context**

Among the Middle East developing countries, the Kingdom of Jordan is one of the most advanced with respect to sound environmental management in areas such as solid waste, and wastewater treatment. Waste management is a national important priority with respect to electronic waste (e-waste), health care waste (HCW) and hazardous/chemicals waste management.

In 2018, about 91% of Jordan's population lived in urban areas<sup>8</sup>, a historically high rate of urbanization that reflects the 'typical' challenges associated with rapid and unplanned growth, in addition to the challenges posed by the unique demands placed on services as a result of the Syrian refugee crisis. The waste sector illustrates the challenges and opportunities of shifting toward more resource-efficient urbanization and, ultimately, a more circular economy – chief objectives of the country's green growth agenda as a new strategic approach that integrates principles of inclusive, sustainable economic growth into the existing national context and priorities.

It is well known that the exposure to Persistent Organic Pollutants (POPs) can lead to serious health effects including certain cancers, birth defects, dysfunctional immune and reproductive systems, greater

<sup>&</sup>lt;sup>8</sup> World Urbanization Prospects, United Nations Population Division, 2018 revision.

susceptibility to disease and damages to the central and peripheral nervous systems. The Stockholm Convention (SC) on POPs has been established based on the consideration that, given the long-range transportation of POPs, no one government acting alone can protect its citizens or its environment from POPs.

Jordan has been a proactive participant in international chemicals conventions and multi-lateral initiatives. It ratified the Stockholm Convention on 8 November 2004. Apart from the SC, Jordan is also party to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (since 1992), and to the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (since 2002)<sup>9</sup>.

Article 7 of the Stockholm Convention requires Parties to develop a National Implementation Plan (NIP) to guide national regulation and legislation, decision making and effective actions to address POPs throughout the supply chain and their lifecycle. In response to Article 7 of the Convention, the Government of the Jordan (GoJ) developed its National Implementation Plan (NIP) and submitted to the SC Secretariat in December 2006 and was updated during the period from 2016-2018.

## Problems that the project sought to address

# **Project baseline**<sup>10</sup>

<u>Municipal Solid Waste (MSW)</u>: In 2015, the total MSW generation by the residential population reached 2.6 million tonnes and was expected to reach up to 6.0 million tons by 2039. The existing MSW collection coverage was estimated at about 90% and 70% for urban and rural areas, respectively. The segregation of the plastic, organic and paper components of MSW was poor. While there was limited recycling of paper waste at 6,000 t/year, the collection of plastic waste was significantly down due to a collapse of the recycled plastic's market value associated with the decrease in oil prices.

At the project inception, a majority (about 85%) of the MSW was diverted to landfills and/or dumpsites while 10% was recycled and further 5% disposed of by open dumping. Although the official landfills operating for MSW generally complied with basic sanitary standards, they did not have modern environmental protection features and related operating practices. Fires were common at the landfills and in the open dumping sites. The inventory of u-POPs carried out under the NIP update estimated that around 52 g/TEq are generated yearly from open burning processes, including open burning of MSW.

<u>Hazardous Waste (HW):</u> In 2015, annual generation of hazardous waste in Jordan was reported at 25,600 tonnes. However, the industrial hazardous waste generation, based on records of the MoEnv, was calculated as 45,000 tons annually. The difference between the estimates might result from the fact that the classification of HW categories established by the Basel Convention was not fully implemented in the country, and therefore the basis for the estimates was uncertain. As a result of insufficient enforcement, most of the hazardous waste was not properly collected and managed.

<u>Electronic Waste (e-waste)</u>: As in other developing countries, Jordan is facing challenges to ascertain accurate data regarding e-waste generation, reuse, recycling, and disposal. As e-waste is considered as part of the MSW stream, reliable data concerning e-waste generation in Jordan was extremely limited. Data reported in 2014 estimated total annual generation rate of e-waste at 30,000 t equal to 4.5 kg per capita.

<sup>9</sup> www.pops.int

 $<sup>^{\</sup>rm 10}$  Data in this section taken from the Project Document

<u>Health Care Waste (HCW)</u>: In Jordan, public health care facilities (HCF) are considered to be the largest producers of medical waste compared to their private health care counterparts. In 2014, the total generation of HCW was estimated at around 4,000 tonnes/year. The HCW composition was classified to contain 75-90% of solid waste generated from administrative departments, associated food courts, and good housekeeping (such as plastics, paper, cardboards, etc.) and the remaining 10-25% to be infectious medical waste requiring special treatment.

# Barriers at project inception

During the project formulation, the following barriers to sound chemical and waste management were identified and proposed to be addressed by the project:

<u>Policy integration and implementation barriers:</u> In 2015, the GoJ adopted the National Solid Waste Management Strategy (NSWMS) as an effort to minimize the deficiencies and enhance the incentives for waste minimization and resource recovery from recycling. Although the country had a legislative and regulatory framework for waste management in place, it did not have sufficient capacity for enforcement of the legislation. Lack of capacity for implementation of economic instruments and financial mechanisms was the main reason for absence of market-driven incentives leading to the resource recovery.

<u>Regulatory implementation barriers:</u> Inadequate capacity for characterisation of chemical waste at source prevented waste classification through the entire chain from collection to disposal and effective integration of the informal waste sector into the official SWM system. In particular, lack of operational and technical guidance for waste management and minimum standards did not encourage scaling up of informal waste collection activities.

<u>Financial capacity and business models barriers</u>: A need was perceived to develop a comprehensive, economically viable waste diversion system based on a business model that guarantees financial sustainability of waste collection and processing, and leads to replacement of the existing informal system with an extended producer responsibility scheme.

<u>Technical capacity and infrastructure barriers:</u> There was no sufficient capacity for collection, separation, storage, and disposal of different waste streams (especially hazardous chemicals and POPs-containing products). Official landfills that operated in Jordan for MSW generally met basic sanitary standards but did not have modern environmental protection features and operating practices. Over reliance on the informal sector without environmentally sound management for waste collection, processing, and disposal created potential risks to health from chemicals and POPs releases. Specifically for e-waste management, the informal sector's dominance made the need for enhancement of the technical capacity an even more important issue.

<u>Socio-economic barriers:</u> In the absence of national recycling systems or structures, an informal waste recycling sector consisting of local waste-pickers and scavengers had developed over the last twenty years, especially in poorer regions. Transition from the environmentally inadequate practices based on informal collection of waste fractions of a market value directly from MSW containers in urban areas, or from MSW delivered to official landfill sites, to an environmentally sound system would result in displacement of individuals whose livelihood depends on this activity. Lack of integration of the informal sector with new employment and business opportunities aggravated the negative socio-economic impacts.

<u>Information and awareness barriers</u>: Low level of awareness regarding new environmentally sound waste management approaches was an important barrier preventing behavioural change, particularly in the informal sector in the MSW and e-waste sectors. Although there was some level of awareness of

the need to have proper HCW management in the health care system, lack of trained personnel resulted in insufficient segregation of HCW.

# Immediate and development objectives of the project

The general objective of the project is to protect human health and the environment through reduction and avoidance of releases of unintended POPs (u-POPs), polybrominated diphenyl ethers (PBDEs), and CO<sub>2</sub>. This is to be achieved through building institutional and technical capacities for environmentally sound management of three different waste streams, namely e-waste, health care waste, and municipal solid waste contributing at the same time to development of waste circular economy elements based on the 3R (Reduce, Re-use, Recycle) principles.

The project was designed with the following 4 components:

<u>Component 1:</u> Development of an environmentally sound management (ESM) system for E-waste, which has the objective to improve and enforce the E-waste regulation in the country, and to develop capacity for the collection and disposal of POPs contaminated E-waste products and end-of-life articles;

<u>Component 2</u>: Achievement of environmentally sound healthcare waste management (HCW), which has the objective to build on the existing potential of the country to further improve and extend the current HCW practices, including training, certification, and procurement of HCW waste treatment technology;

<u>Component 3:</u> Development of waste diversion/resource recovery capacity for reduction in U-POPs emissions, accompanied by GHG related improvements, with the objective to demonstrate minimization in the amount of municipal waste (containing potentially hazardous fractions such as plastic etc) improperly dumped or disposed of through recycling techniques and application of reverse-derived fuel (RDF) principles in modern qualified cement kiln industry, including improved management of hazardous waste through establishing of a public/private partnership.

Component 4: Knowledge Management and Monitoring & Evaluation (M&E).

## **Expected results**

Implementation of the project was expected to produce global environmental benefits in terms of reduction in potential releases of c-PBDE from plastics originating from e-waste, prevention of u-POPs releases through implementation of environmentally sound management of HCW, and reduction of u-POPs from demonstration of recycling of municipal waste and demonstration of refuse-derived fuel (RDF) principles. Avoidance of uncontrolled burning of wastes would also result in reduction of CO<sub>2</sub> emissions. The expected environmental benefits are summarised in Table 2 below.

Chemicals	Direct GEB achieved through project implementation	GEB achieved through replication and continuation after project end
c-PBDE releases in the environment prevented through collection and segregation of E- waste	600 tons of plastic from e-waste potentially contaminated by c-PBDE, with an amount of c-PBDE estimated from 276 to 652 kg	Up to 5 t of PBDE through the continuation of policies for collecting and disposing CRT monitors
u-POPs release prevented through implementation of Environmentally Sound Management of Health Care Waste	3 to 11 g/Teq yr as the direct result of project implementation, assuming demonstration will start at the end of the 3 <sup>rd</sup> yr of project implementation the PCDF amount would be in the order of 6 to 22 gTeq	Same amount projected for the entire lifespan of the equipment (as a minimum 10 yrs) multiplied by a replication factor of 2: 120 to 440 gTeq
u-POPs release prevented through avoidance of open burning and demonstration of Refuse Derived Fuel (RDF)	<ul><li>0.3 gTEq as the direct result of demonstration of recycling of municipal waste with diversion from landfills.</li><li>0.7 gTeq as the direct result of the demonstration of RDF (one month collection of RDF)</li></ul>	Recycling of municipal waste may have a very high replication factor if its profitability is demonstrated. Conservatively, a replication factor of 50 is assumed, with a potential avoidance reaching 15 g/Teq in 10 yrs RDF would have as a minimum a replication factor of 12 x 10 (12 months/yr multiplied by the minimum expected lifespan of infrastructure calculated in 10 yrs) therefore the PCDD/F avoidance can reach 88 gTeq
CO <sub>2</sub> release prevented	During the project implementation, the uncontrolled burning of around 4,600 t of municipal waste (1,000 tons from recycling and 3,600 tons from RDF demonstration) will be avoided, with a saving ranging from 3,220 to 5,520 tons of CO <sub>2</sub> (0.7 to 1.2 t of CO <sub>2</sub> for each t of waste burned)	Adopting the same replication factor above, the CO <sub>2</sub> saving projected for 10 yrs after project end could range from 337,500 to 578,400 t of CO <sub>2</sub> avoided

**Table 2:** Environmental benefits expected as a direct result of the project implementation or replication.

On top of the above environmental benefits, the project was also expected to bring about important social protection benefits from implementation of a dedicated gender mainstreaming plan and involvement of local communities in recycling activities as part of circular economy.

## Main project stakeholders and key partners involved

Stakeholder engagement is an inclusive and continuous process between a project and those potentially impacted that encompasses a range of activities and approaches. It is arguably one of the most important ingredients for a successful project delivery and therefore an essential element of the project.

The design of the project was based on multi-stakeholder consultations and engagement to gain a more comprehensive understanding of the challenges and barriers that limit Jordan's ability to move towards environmentally sound management of different waste streams. The signed Project Document identified an array of institutional, industry, academic, international, and civil society stakeholders that had been consulted during the project formulation. It also provides analysis of their potential involvement in the project to be followed up during the project's implementation stage.

The map of the stakeholders and their expected roles and responsibilities in the project are summarized in Annex 6.

# **Theory of Change**

Theory of Change (TOC) provides a basis for evaluation of the project resources, activities, and results. The TE assesses description of the project TOC including description of the project's outputs, outcomes, intended global environmental impacts and related causal pathways, as well as implicit and explicit assumptions.

The project Theory of Change (TOC) for this project summarizes the issues to be addressed, the activities to be implemented, as well as the possible risks involved. The TOC diagram is shown on Figure 1 below.

Figure 1: The project Theory of Change (from the Project Document)



The project is driving change by building on capacity development as an essential component of development effectiveness and alignment with best practices for capacity development while acknowledging that short-term changes in turn lead to long-term improvements.

The Theory of Change diagram includes a clear definition of the problem to be addressed, its root causes, risks and assumptions, as well as the desired outcomes. It is based on an analysis of barriers at the project baseline and consideration how to address barriers, but does not explicitly mention enablers for achieving the outcomes.

The Theory of Change is based on the assumption that learning-by-doing results in increased mobilization of efforts and resources, and that establishing commitment helps the country overcome internal resistance to change and adopt new and more complex modalities of engagement and collaboration, which in turn lead to long-term changes. The project takes a learning-by-doing approach to mainstream and integrate global environmental priorities within targeted policies, as well as monitoring, evaluation, and decision-making processes.

# **FINDINGS**

# **Project Design/Formulation**

The project design was largely based on a participatory approach that is critical to access to information, acceptance of commitments, and development of partnerships. It was based on an institutional analysis and multi-stakeholder consultation processes conducted during formulation of the Project Identification Form (PIF) and the Project Document with the aim to conceptualize a cost-effective model for project implementation.

# Analysis of the project results framework

This section provides a critical assessment of the Project Results Framework (PRF) in terms of clarity, feasibility and sequence of the project outcomes and their links to the Project Objective. It also examines the specific indicators and their target values in terms of the SMART<sup>11</sup> criteria.

The formulation of the project started with preparation of a Project Identification Form (PIF) in July 2015 (approved by GEF Secretariat in April 2016) that served as a basis for formulation of the Project Document (ProDoc), approved for implementation in May 2018. The PIF results framework is composed of 4 components/outcomes and total 13 outputs. The PRF in for the ProDoc was adjusted in line with the guidelines for preparation of GEF-6 projects to comprise 4 components/outcomes listed in the PRF matrix and 11 substantive outputs listed in the text of Section IV of the signed Project Document.

The original PRF comprised 3 substantive components/outcomes and one component/outcome for procedural and administrative issues (non-substantive), as well as total 16 performance indicators and related targets for measurement of achievements of the planned outcomes. As a result of a critical revision during the project Inception Workshop, the original PRF was amended with further 5 indicators and related targets. The amended PRF thus contains total 21 indicators (4 at the level of the Project Objective and 17 at the level of the components/outcomes) and the same number of corresponding targets.

The TE found the overall rationale and project logic sound and realistic in direct response to the barriers identified in the project formulation phase through addressing the existing systemic, institutional, and technical capacity constraints.

The PRF indicators are a mixture of quantitative and qualitative indicators complemented by two respective sets of performance targets for the mid-term and end of the project stages. Detailed analysis of the PRF with the aim to appraise to what extent the indicators and related targets enable assessment of the project performance found few end-of-project (EOP) targets not in line with the SMART criteria, as summarised in Table 3 below.

<sup>&</sup>lt;sup>11</sup> SMART stands for Specific, Measurable, Achievable, Relevant, Time-bound.

Indicator	Mid-term Target	End-of-project Target	TE Assessment
Project Objective			
Indicator 1: Number of new partnership mechanisms with funding for sustainable management solutions of natural resources, ecosystem services, chemicals and waste at national and/or subnational level	Public private partnership designed, including financial analysis and cash-flow Pilot schemes for collection, disposal, and recycling of different waste streams (E-waste, MSW, HW, HCW) designed in detail	Public private partnership implemented, subsidized for the first year and financially sustainable for the subsequent years. Pilot schemes for collection, disposal and recycling of different waste streams (E-waste, MSW, HW, HCW) piloted	There is no match between the indicator and the first target (indicator quantitative, the target qualitative). The second target does not measure achievement of the indicator.
Indicator 3. Amount of POPs, U-POPs and mercury uses and release avoided at project implementation and predicted at replication	Detailed design and completion of the procurement of the interventions envisaged in the sectors of Health Care Waste, E-Waste, Hazardous Waste, Municipal Solid Waste, with the certification of large disposal facilities (incinerators and cement kiln) the replacement of obsolete incinerators in the HC sector, the demonstration of door-to- door collection of MSW and of RDF production	Implementation of the pilot interventions envisaged in the sectors of Health Care Waste, E-Waste, Hazardous Waste, Municipal Solid Waste, with the certification of large disposal facilities (incinerators and cement kiln) the replacement of obsolete incinerators in the HC sector, the demonstration of door-to-door collection of MSW and of RDF production	The target does not measure the achievement specified in the indicator
Component/Outcome 1			
Indicator 7. A number of new partnership mechanisms are initiated for the collection and processing of E-waste	Number of proposals received to start new business on e- waste processing with project support	Project will support one licenced company/ NGO for e-waste processing. Number of partnerships will be established to secure the amount of e-waste for processing	The second target is not specified in quantitative terms.
Indicator 9. Amount of POP (U-POPs, c- PBDE, deca-BDE, PFOS) release prevented through proper collection and disposal of E-waste.	A collection scheme, co-financed by the government, including one or more of the options listed under output 1.1.3, designed in detail including budget planning and cash flow.	A collection scheme, co-financed by the government, is piloted with the collection of at least 600 tons of plastic from E-waste contaminated by PBDE	The target does not measure the achievement specified in the indicator.
Component/Outcome 2			
Indicator 10. ESM Manual is developed based on updated medical waste regulation	Medical waste regulation is updated and amended. ESM manual is developed	Medical waste management in hospitals is improved	The target is vague and does not measure the achievement specified in the indicator.
Indicator 11. Number of relevant staff trained on best environmental practices	Several training sessions on ESM in the 10 pilot hospitals are conducted	Medical waste management in hospitals is improved	The target is vague and does not measure the achievement specified in the indicator.
Indicator 12: Number of HCF successfully implementing the ESM of health care waste.	MoU signed and HCW committees established in all the project HCFs Baseline evaluation conducted by means of I-RAT conducted for all the selected HCFs HCW plan agreed for all the HCFs Technical assistance on ESM of HCW started in all the project HCFs First reassessment of the HCFs by means of I-RAT	Continuation of technical assistance on ESM of HCW started in all the project HCFs. Final reassessment of the HCFs conducted by means of the I- RAT tool conducted. Final evaluation of U-POPs releases prevented through segregation of waste conducted	The first target is vague and the targets does not measure the achievement specified in the indicator.
Component/Outcome 3			
Indicator 15: Level of awareness achieved through project implementation on Hazardous Waste and Municipal Solid Waste, measured by means of KAP (Knowledge, Attitudes and Practices) surveys at baseline and project end	Awareness raising and involvement of the community of with at least 1000 generators involved in the demonstration of waste collection	Not specified	No target set for measurement of the indicator

# **Table 3:** Assessment of PRF indicators and their target values

The above analysis shows that approximately one third of EOP targets is not in line with the SMART criteria. The non-compliant targets include EOP targets for Indicators 7, 10, and 11 that were added during the PRF revision at the project Inception Workshop. Although the targets for Indicator 15 were not specified in the original PRF, it was not set during the revision. The above findings thus suggest that the PRF revision was not sufficiently rigorous to facilitate monitoring of progress towards achievement of the planned results.

#### Assumptions and risks

Identification of risks enables the implementing partners to recognize and address challenges that may limit the ability of the project to achieve the planned performance outcomes.

Annex 4 of the Project Document contains a risk matrix with description of total 14 identified risks rated in terms of probability and impact, as well as proposed mitigation measures as summarised in Table 4 below.

No.	Risk Description	Risk type	Rating*	Risk mitigation measures
1	The process of regulatory improvement too slow or complex to be completed within project timeframe	Regulatory	I = 3 $P = 3$	The project will privilege working on sub-law od official guideline documents which can be drafted and endorsed in a shorter time in comparison with new laws
2	The enforcement of legislation on waste management is not ensured during project implementation	Manageme nt	I = 3 $P = 3$	Specific support on how to conduct inspection and verification of compliance with the existing or new legislation on waste management will be provided by the project, to the staff of the same authorities which will be in charge of inspection a control after project end.
3	Financial mechanisms piloted during the project in the E- waste and hazardous waste sector are not sustained after project end	Financial	I = 4 $P = 3$	A financial analysis of the proposed incentive mechanism, involving the key stakeholders, will be carried out as part of project activity to verify in advance its sustainability after project end.
4	The informal sector business model will dominate the capture of E-waste thus limiting access to E-waste by formal sector	Technical	I = 4 $P = 3$	One of the purposes of the incentive mechanism is exactly to promote the shifting of informal collection to formal collection, and to render less and less competitive the informal collection.
5	Limited amount of POPs contaminated waste identified in the E-waste collected, therefore project target is missed	Technical	I = 2 $P = 3$	The project will mainly focus on the E-waste that, based on the UNEP guidance document, are more likely to be contaminated by POPs (C-PBDE, PFOS). A large variability on the POPs concentration in these waste is expected, and the project will generate information useful for the future management of these waste
6	The procurement of health care waste disinfection systems takes more time than envisaged	Technical	I = 3 $P = 2$	Development of technical specification will be anticipated at early stage of the project implementation. UNDP benefits of a worldwide experience in the procurement of these technologies
7	Healthcare system reverting to more traditional incineration technology for the disposal of HCW due to difficulties found in operating sterilization equipment	Technical	I = 4 $P = 3$	In the course of PPG, it has been understood that some of the steam disinfection equipment were problematic. Through lesson learning and technical assistance, the project will identify existing issues and select the equipment which is not prone to these issues
8	Hospital facilities not completely collaborative in the implementation of BEP procedures	Technical	I = 3 $P = 2$	The training in the hospital will not overlap with day to day activities, but will instead facilitate the waste management activities and allow for financial saving, and reduce infectivity risk. This is generally very well accepted by the participating facilities
9	HTI plants failing to achieve the pollutant emission level required for international certification	Technical	I = 4 $P = 3$	A detailed check of the status of the plants to be tested will be undertaken by international experts to verify that the plants have a significant probability to pass the test. Plant failing the preliminary check will be not selected for testing. Technical specification on how to improve the plants to ensure compliance with the SC BAT will be provided before undertaking the tests
10	Collection of recyclable municipal waste not achieving the target, of recyclable waste collected not completely placed on the market	Technical	I = 2 $P = 2$	There is a specific activity aimed at securing the market of recyclable waste before undertaking the demonstration of door to door collection. Moreover, the integration with RDF demonstration will ensure that in any case, any waste collected can be place in the market
11	Partnerships with disposal service providers (HTI, Recyclers, cement factories, municipality) not effective	Manageme nt	I = 3 $P = 3$	At PPG, extensive discussion with the potential partners have been hold, and their needs have been understood and duly integrated in the project. Continuous exchange with these partners will ensure the success of their participation
12	Gender mainstreaming plan not successfully implemented	Manageme nt	I = 2 $P = 3$	To ensure the success of gender mainstreaming plan, specific activities have been budgeted and a dedicated staff will be in charge of verifying that the gender mainstreaming tasks are properly implemented and understood
13	Low attendance of training activities	Manageme nt	I = 2 $P = 4$	As training activities and awareness raising are a key component of this project, a dedicated staff will be in charge of supervising ad coordinating all the training activities and the implementation of the communication plan as well
14	Climate change effect endanger project activities or infrastructures	Environme ntal	I = 2 $P = 1$	The project will contribute to the mitigation of climate change, through avoidance of CO2 emission achieved through the prevention of uncontrolled burning of waste. The project will not develop new infrastructures, and will rely in infrastructures which are not prone to climate change effects like floods

# Table 4: Summary of project risks and mitigation measures

\*I=impact, P=probability, both rated on a 5-point scale (low to high)

In line with standard UNDP requirements, the highly rated risks (5 in terms of impact or when impact is rated at 4 and probability at 3 or higher) should be flagged as critical risks for further monitoring during the project implementation and reporting on management responses in the annual PIRs.

The TE considers the risk identification and rating at the project inception reasonable and sufficiently detailed. However, the risks No. 3,4, 7, and 9 should have been flagged as critical risks in line with the above-mentioned standard risk rating. In particular, the risk No. 4, namely continued domination of the e-waste informal collectors, proved to be fundamental obstacle in the achievement of environmentally sustainable management of e-waste.

### Lessons from other relevant projects incorporated into project design

Prior to the current project, Jordan implemented one GEF project in the area of chemicals and waste, namely a GEF-supported UNDP-implemented project on reduction of PCBs, that was completed in 2015<sup>12</sup>, as well as a project on solid waste management supported by the World Bank<sup>13</sup>. The signed Project Document does not mention any lessons learned from previous projects.

Despite not explicitly mentioned in the Project Document, there were lessons learned from the previously UNDP-implemented regional project on medical waste in Africa<sup>14</sup>. The latter project experienced some inefficiencies because of late delivery of shredding units for autoclaves. This experience has been fully recognised and shredding units were integral part of the autoclave technology supply in the current project.

### Planned stakeholder participation

The project was developed on the basis of consultations with a number of stakeholders at the project formulation phase. Section IV of the Project Document identifies an array of institutional, industry, academic, international, and civil society stakeholders who had been consulted during the project formulation. The project strategy recognises responsibility of the key project stakeholders, namely the ministries and agencies of the GoJ in charge of environment, health, and municipal affairs, as well as regional self-governments, for preparation of relevant sectoral policies, plans, programmes, and related legislation.

Shortly after establishment of the Project Management Unit (PMU) in July 2018, the project team arranged a series of meetings with the key project stakeholders in order to continue the awareness raising dialogue on the project objective and planned outcomes, as well as discuss ways of collaboration in the implementation phase.

The TE found the planned stakeholder participation satisfactory in terms of identification of the stakeholders and justification of their involvement in the project. However, reaching out to a number of stakeholders is very ambitious as the project stakeholder engagement plan does not distinguish between the core (primary) and tangential (secondary) stakeholders.

#### Linkages between the project and other interventions within the sector

Projects in the field of waste management in Jordan are listed in Table 5 below. The current project established direct linkages with other projects implemented by UNDP. Indirect linkages were established with other projects through the respective GoJ counterparts.

<sup>&</sup>lt;sup>12</sup> Implementation of Phase 1 of a Comprehensive Polychlorinated Biphenyl (PCB) Management System, GEF ID 4124, UNDP ID 4094

<sup>&</sup>lt;sup>13</sup> Greater Amman Municipality Solid Waste Management Project, financed by a World Bank loan

<sup>&</sup>lt;sup>14</sup> Reducing UPOPs and Mercury Releases from the Health Sector in Africa, GEF ID 4611, UNDP ID 4865

Project Title	Timeframe	Funding Source	Implementing Partners	Туре
EU Support to the implementation of the National Solid Waste Management Strategy- Informal Sector Integration and Awareness Raising	2018-2023	Germany, EU	GIZ/MoLA	National
Solid Waste Management in Jordan	2021-2026	Germany, EU	GIZ/MoLA, MoEnv, GAM	National
Support to Refugee-Hosting Communities in Waste Management	2017-2021	Germany	GIZ/MoLA	National
Generating Positive Energy from Waste	Positive Energy from 2015-2023 Germany, EU GIZ/MoLA		GIZ/MoLA	National
Climate and Resource Protection through Circular Economy in Jordan	2017-2021	Germany	GIZ/GAM	National
Mediterranean Dialogue for Waste Management Governance	2021-2023	EU	ENI CBC	Regional
Jordan Bottle Recovery	2022-2025	UN Habitat	UN Habitat/MoEnv	National
Enhancing Women's Participation in the Solid Waste Management Sector in Jordan	2020-2023	Canada	UNDP/MoLA	National
Mitigating Climate Change through SWM in Southern Jordan	2022-2025	Canada	UNDP/MoLA	National
Solid Waste Management Development Services – to construct Azraq sanitary landfill	2019-2024	GoJ	UNDP/MoLA	National
ImprovingSolidWasteManagement & Income Creation inHost Communities-Rehabilitationof El Ekaider Landfill	2015-2017	Canada, Finland	UNDP/MoLA	National

Table 5: Projects on waste management in Jordan

### Social and Environmental Safeguards

At the project preparatory phase, assessment of social and environmental risks was conducted according to the standard UNDP Social and Environmental Screening Procedure (SESP). Results of the screening provided as a separate annex to the Project Document. The SESP identified two potential social and environmental risks.

The main social risk was related in relation to marginalized communities relying on their income as waste-pickers due to shifting from informal collection and recycling of waste to a formal waste management activity. The SESP stressed importance of the shift as an opportunity to improve livelihoods of disadvantaged communities.

The environmental risk was related to poor implementation of the high temperature incineration of waste. The SESP emphasized reduction of this risk through testing and certification of disposal facilities and verification of their compliance with the Stockholm and Basel Conventions.

## **Project Implementation**

#### Adaptive management

GEF evaluations assess adaptive management in terms of the ability to direct the project implementation through adapting to changing political, regulatory, environmental, and other conditions outside of control of the project implementing teams. The adaptive approach involves exploring alternative ways to navigate the projects towards meeting the planned objectives using one or more of these alternatives.

Minor adjustments were necessary in reaction to the COVID-19 restrictions that resulted in short breakdown of the international supply chains between April and July 2020. This did not have big impact on supply of autoclaves to selected HCFs as it was completed within the year 2020 as planned.

A major case of adaptive management was related to the work on Component 3. Due to financial difficulties, the largest cement producer Lafarge/Holcim revoked its partnership with the project. The project team launched search of another reputable company with air pollution control system in place and ability to ensure process-related test burns to receive and use the refuse-derived fuel (RDF) as alternative fuel. However, they realised that cement factories were not able to receive RDF due to operational and financial issues and other companies had only limited options for use of alternatives derived from specific types of fuel.

The Ministry of Local Administration (MoLA)<sup>15</sup> that is responsible for municipal waste management recommended to focus Component 3 on an industrial region/park with increased volumes of waste in order to reach the planned targets. Based on continuous consultations with the MoEnv, the project examined another option with the Cementra cement factory for use of RDF based on textile waste. However, results from testing samples derived from synthetic textile proved that this type of RDF was not fit for use at Cementra due to high contents of Volatile Organic Compounds (VOC) that pose a risk of explosion in the factory operational combustion chambers based on the closed burning system.

Therefore, the project engaged in consultations with Al-Manaseer Industrial Complex<sup>16</sup>. The company provided the specifications of RDF that can be used at their factory in terms of calorific value and size and agreed on participation in the project. The MoEnv signed a Memorandum of Understanding with the company for implementation of an RDF burning test, and the project designed the necessary machinery for RDF production and announced a tender for providing RDF production machineries to be operated in cooperation with the Madaba municipality.

Another case of adaptive management was collection of waste at Dair Abi Saeed and Bergesh municipalities to collect additional 100 tons recyclables and 200 tons of RDF materials to support MSW activities at Al Koura sorting station operated by a women association.

The TE rates the adaptive management of the project Satisfactory (S).

### Actual stakeholder participation and partnership arrangements

The list of core stakeholders, identified at the project formulation stage and validated during the project Inception Workshop, did not changed except for the new cement production factory for the RDF activities.

Ministry of Environment (MoEnv), as the national executing agency, played a leading role in the approval of the e-waste instructions and made efforts for implementation of the extended producer responsibility (EPR) approach and development of an economically viable business scheme for this

<sup>&</sup>lt;sup>15</sup> Previously called the Ministry of Municipal Affairs

<sup>&</sup>lt;sup>16</sup> Earlier known as Al-Manaseer Modern Cement and Mining Company

type of waste. Furthermore, the MoEnv provided guidance for identification of a new cement company to partner the project in the southern part of the country, and for identification of realistic approaches to the overall RDF production cycle.

The Ministry of Health (MoH) and the Royal Medical Services (RMS) had a fundamental facilitating role for achievement of the most tangible results of the project, namely installation of 11 autoclaves (9 MoH and 2 RMS) for HCWM, including related training of staff in public, private, and military hospitals, on implementation of the ESM of healthcare waste. It was actively engaged in discussions with the MoEnv for addressing implementation challenges and finding effective approaches towards achievement of the planned project outcomes in the HCW component.

Ministry of Local Administration (MoLA) as the national institutional authority responsible for waste management in Jordan played an important role in identifying new locations for the waste segregation and collection pilot exercise.

There was a number of partnerships between the agencies of the central government and regional/local government as well as the private sector entities.

Greater Amman Municipality (GAM) has been involved in implementing project activities, mainly ewaste management activities including training/awareness-raising activities. GAM is an important player in E-waste management.

Aqaba Special Economic Zone Authority (ASEZA) was an important player in the e-waste and MSW management components in southern Jordan. ASEZA also played an important role in the Technical Committee of the project.

Al-Manaseer Cement Factory became involved at a later stage of the project as it replaced the originally identified partner for the RDF activities. It provided technical input into various activities under Component 3, in particular for specification of machinery types needed, identification of transportation and test burn requirements, as well as for quality assurance.

The evaluator found the actual participation of the core stakeholders in line with the original stakeholder engagement plan.

Based on the above summary, the actual stakeholder participation is rated Satisfactory (S).

## Project finance and co-finance

Analysis of the project financial aspects is based on the information sourced from the annual UNDP Combined Delivery Reports (CDRs) for the years 2019 - 2023. This analysis aims at assessment of project financial delivery by years and by products, and the share of the project management budget line in the total budget.

The GEF grant for this project was approved at US\$ 5,090,000 and together with expected co-financing of US\$ 64,817,007 the total cost of the project at inception was US\$ 69,982,008. Table 6 below displays the breakdown of expenditures from the GEF grant by the years of the project implementation period.

Project Component	Years of Implementation						
	2018	2019	2020	2021	2022	2023	2018-2023
Outcome 1	46,689.78	97,603.19	93,849.76	224,105.59	269,088.10	296,363.69	1,027,700.11
Outcome 2	27,368.10	683,953.80	986,025.70	279,084.99	208,424.79	96,848.45	2,281,705.83
Outcome 3	11,111.00	62,367.24	66,344.43	142,723.41	483,328.27	649,423.70	1,281,803.36
Outcome 4	-	-	10,024.45	6,073.39	94.11	4,067.37	20,259.32
Project Management	4,115.46	37,408.75	29,540.76	29,458.38	35,528.03	35,062.97	171,114.31
Total	89,284.34	881,332.98	1,185,785.10	681,445.76	996,463.30	949,538.44	4,782,582.97
Percentage	1.75%	17.31%	23.30%	13.39%	19.58%	18.65%	93.96%

**Table 6:** Actual expenditures from the GEF grant by years of implementation (as of 31 December 2023)

Data in Table 6 shows that the total realised expenditure at the TE was US\$ 4,782,582.97 that is 94% of the total GEF grant. Almost one quarter of the total grant was realised during the single year 2020 due to procurement of non-combustion equipment for the HCW component. With the exception of the year 2021, the above data shows relatively balanced spending over the entire project implementation period.

Table 7 below provides comparison of the planned and actual expenditures by the project components.

**Table 7:** Planned and actual disbursement of the GEF grant by project components (as of 31 December 2023)

Project Component	Budget (US\$)	Expenditures (US\$)	%	
Outcome 1	1,000,000	1,027,700.11	102.77%	
Outcome 2	2,300,000	2,281,705.83	99.20%	
Outcome 3	1,400,000	1,281,803.36	91.56%	
Outcome 4	150,000	20,259.32	13.51%	
Project Management	240,000	171,114.35	71.30%	
Total	5,090,000	4,782,582.97	93.96%	

Percentage of the total project budget allocated for project management serves as an indicator of the project cost-effectiveness. The GEF budget allocation on the project management was less than 5 % of the GEF grant that is in line with the relevant policy on budgeting for GEF-funded projects. Actual expenditures from the GEF grant on project management reached 71.3% of the planned amount (3.4% of the GEF grant).

The project was designed to attract co-financing from several stakeholders. Therefore, the figures from Section IX of the Project Document are taken further for analysis of the co-financing. Table 8 below compares the planned co-financing at the project inception with the actually realized co-financing at the completion of the project.

Government (US\$		t (US\$)	Partner Agency (US\$)		Private Sector (US\$)		Total(US\$)	
Support type	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grants	36,567,231	52,503,260	150,000	30,000	9,094,291	0	45,811,522	52,533,260
In-kind support	12,299,434	328,604	0	0	6,706,051	0	19,005,485	328,604
Total	48,866,665	52,831,864	150,000	30,000	15,800,342	15,800,342	64,817,007	52,861,864

**Table 8:** Comparison of planned and actual co-financing by source (US\$)<sup>17</sup>

Summary of the actual co-financing by name of and type is provide as separate Annex 14.

The co-financing information was available for the TE proving that the project partners tracked and updated the co-financing contributions during the project implementation.

As of end 2023, the MoEnv, MoLA, RMS, and Jordan University of Science and Technology provided more than 100% of their pledged co-financing, while the MoH contribution reached around 88 % of the pledged amount. Lafarge cement company co-financing at inception (850,000 US\$) was replaced with Al Manaseer cement factory co-financing with amount (1,188,310 \$) however, the actual co-financing at mount from the private sector was not available for the TE. However, the actual co-financing at TE was provided by the agencies of the Government only.

Financial audit of the project expenditures declared for the calendar year 2020 was conducted by a renowned audit company. It resulted with a qualified opinion declaring full compliance with relevant accounting policies.

Overall, the above findings prove that a well-established financial management and control system was in place and relevant financial management and reporting procedures and regulations were followed during the entire period of the project implementation.

In conclusion, the financing/co-financing of the project is rated Satisfactory (S).

## Monitoring and evaluation: design at entry and implementation

For the assessment of the M&E framework, the evaluator reviewed the project documentation related to monitoring and reporting, in particular relevant parts of the signed Project Document, the annual PIRs, and minutes of various meetings organised by the project.

## M&E design at project entry

The Monitoring & Evaluation (M&E) plan for the project is described in Section VII of the Project Document. The Plan, designed in compliance with the UNDP requirements outlined in the UNDP Programme and Operations Policies and Procedures POPP) and the UNDP Evaluation Policy, defines basic M&E oversight and monitoring responsibilities of the Project Manager and the project Implementing Partners.

Additional GEF mandatory monitoring and reporting requirements for the M&E Plan include elements such as the Inception Workshop (IW) and Report, annual GEF Project Implementation Reports (PIRs), GEF Focal Area Tracking Tools, as well as the independent Mid-Term Review and Terminal Evaluation. The M&E plan in the Project Document did not specify the ways to inform the GEF Operational Focal Point about the project progress. However, this is implicitly addressed in the format of the annual GEF PIRs that requires assessment and rating of the project progress from the GEF OFP.

<sup>&</sup>lt;sup>17</sup> The co-financing data are as of 31 December 2023. The planned amount from the private sector at inception was corrected with replacement of the Lafarge/Holcim commitment of US\$ 850,000 with the Al-Manaseer commitment of US\$ 1,188,310.

The TE found the roles and responsibilities in the M&E plan clearly defined. The total indicative cost of the M&E plan (excluding the project team staff time and UNDP staff time and travel expenses), namely US\$ 150,000 covered entirely from the GEF grant, constitutes 2,95% of the GEF grant allocated to the project.

The TE considers the design of the project M&E plan well-articulated and in line with the standard M&E design for GEF projects and sufficiently budgeted for a project of this size and complexity. The evaluator also found the M&E design adequate for monitoring the project results and tracking the progress toward achievement of the project outcomes.

Based on the above, the M&E design is rated Satisfactory (S).

## M&E at implementation

The main subject of the discussion here is the implementation of the originally planned components of the M&E plan.

## Project Management Unit (PMU)

The Project Manager was recruited by UNDP as of 1 July 2018. The PMU was established at the MoEnv premises and comprised also of a Project Assistant and two technical officers, one based at the MoEnv and the other at the MoH. The MoEnv also nominated the Director of Hazardous Substances and Waste Management Directorate as the focal point to oversee implementation of the project.

The original Project Manager retired shortly after the MTR (end of 2020). Through effective recruitment the project implementing partners quickly found a successor. In the last year of the project implementation, one of the technical officers left for another job opportunity and successor was also found. The changes did not cause any delays in the project implementation.

### Inception Workshop and Report

The Project Document stipulated that a project Inception Workshop (IW) should be held within 2 months of the project start to discuss any changes in the overall context that influence project implementation, confirm the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms, review the PRF and finalize the indicators, means of verification and monitoring plan, approve the project's first Annual Work Plan (AWP), as well as to elaborate on the financial reporting procedures and obligations.

Prior to the IW, a Technical Committee (TC) comprised of representatives of project stakeholders and technical experts was established and the 1<sup>st</sup> meeting of the TC held on 13 September 2018 at the MoEnv premises to discuss the TC members' roles and responsibilities, as well as mechanisms of their cooperation for effective implementation of the project.

The IW was held on 26 September 2018 as part of the launching ceremony for the project with participation of about 70 representatives of governmental institutions, private sector, academia, research institutions, and media. The participants discussed several technical issues for amendment and validation of the PRF.

The delay reflected the fact that the PMU was established as of 1 July 2018 and the initial work was devoted to bilateral meetings of the project team with key project stakeholders to discuss and confirm the roles of the project stakeholders and target groups.

## Project Board (PB)

The PB was established at the project inception to provide strategic guidance to the project implementation as well as an oversight function in relation to achievement of the project outcomes and

use of the project resources. The PB is composed of the senior representatives of the MoEnv, UNDP and the Ministry of Planning and International Cooperation (MoPIC) as the GEF Focal Point Representatives of the MoH, RMS and MoLA are invited to PB meetings for discussion and decision making of relevant issues within their mandates.

According to standard practice of GEF projects, the IW is also considered the 1<sup>st</sup> meeting of the Project Board (PB) or the IW and the 1<sup>st</sup> PB meetings are organised back-to-back. In this case, an intensive meeting with the TC was held on 27 September 2018 to discuss and agree on a road map and specific details for implementation of the project components.

Total 4 meetings of the PB convened during the project implementation as summarised in Box 1 below. The meeting originally scheduled for February 2024 was postponed.

Box 1: Dates of the PB meetings

No.	Meeting date
1	27 September 2018
2	15 July 2019
3	27 July 2020
4	29 September 2022

For the TE, minutes of the 2019 and 2022 meetings were available in English and minutes of the 2020 meeting in Arabic with English summary of the meeting decisions.

In addition to the PB meetings, the TC convened 4 times in 2018, 2 times in 2019, 3 times in 2020, once in 2021 and twice in 2023 to discuss the project progress, challenges, and stakeholders' sustainability plans.

## Project Implementation Reports

For GEF-funded projects, the GEF Project Implementation Reports<sup>18</sup> (PIRs) constitute the primary tool in the monitoring process. The GEF PIRs are prepared regularly with annual periodicity at the end of each GEF fiscal year (1 July to 30 June).

The evaluator reviewed the 5 PIRs prepared throughout the duration of the project and found all PIRs elaborated in a standard uniform structure and with sufficiently detailed reporting on progress towards performance targets for Components/Outcomes 2 and 3. However, reporting on Component/Outcome 1 in all PIRs as it was merged with reporting on the Project Objective using only indicators 1-4 from the Project Objective level without reference to indicators 5-9 for Component/Outcome 1. Such disparity made the reporting inconsistent with the PRF indicators and disabled quick assessment of progress made on Component 1.

The annual PIRs did not report on management of critical risks identified during the project formulation despite the fact that 4 of the originally identified risks should have been flagged as critical and subject to monitoring. Only the 2021 PIR mentions Covid-19 restrictions as a new critical risk to smooth implementation of the project.

In line with the GEF standard reporting format, the PIRs are supposed to contain assessment and ratings of the development objective progress and implementation progress by the PM, UNDP CO, UNDP RTA, as well as assessment of implementation progress by the Implementing Partner and the GEF OFP. All PIRs provide assessment and rating of progress by the PM, the UNDP CO. The RTA assessment

<sup>&</sup>lt;sup>18</sup> Previously known as the Project Implementation Reviews

and rating was also provided with the exception of the 2020 PIR that contains only RTA's ratings of progress without further assessment. The RTA rating was consistent with the ratings given by the PM and the UNDP CO. However, none of the PIRs provide rating by the GoJ Implementing Partner(s) and the GEF OFP.

In addition to the PIRs, the UNDP-implemented projects also produce Annual Progress Reports (APRs) for each calendar year of the implementation. The evaluator reviewed the APRs for 2018-2022. All APRs were found in line with the standard format prescribed by UNDP. They contain useful information about addressing implementation challenges, adaptive management, stakeholder engagement, gender issues, as well as management of the SESP risks. However, reporting on progress towards planned results under Section 2 (Results Framework) in all APRs referred to original performance indicators and targets from the signed Project Document and did not reflect additional indicators/targets agreed during the project Inception Workshop. Moreover, although the 2021 and 2022 APRs were prepared after completion of the MTR, Section 2 reflected only mid-term targets instead of end-of-project targets.

## Mid-Term Review (MTR)

According to the Project Document, an independent mid-term review process was expected to begin after submission of the  $2^{nd}$  PIR to the GEF, and the MTR report to be submitted in the same year as the  $3^{rd}$  PIR.

The MTR was conducted by a single international consultant in the period September - November 2020. Due to Covid-19 restrictions to international travel, the MTR was carried out in a virtual (remote) modality with stakeholder interviews performed through on-line meeting platforms. The MTR report was completed in December 2020.

The Mid-Term Review (MTR) produced 14 recommendations. The evaluator found the formulation of the MTR recommendations in line with the common practice and relevant UNEG guidance<sup>19</sup>. Overall, the MTR highlighted the areas with implementation insufficiencies and identified activities in delay and outputs with slow progress. All MTR recommendations were accepted. A summary of MTR conclusions and recommendations was shared with the PB members at the PB meeting in September 2022.

In line with the standard procedures, UNDP as the GEF implementing agency prepared a management response to the MTR in the form of a comprehensive action plan that contained total 39 actions to address the MTR recommendations.

According to the status update at the UNDP Evaluation Resource Centre (ERC) website, almost 50% (18) of the actions were declared as completed at the time of the TE with the remaining actions still under implementation.

### Terminal Evaluation (TE)

The Project Document required the TE to take place upon completion of all major project outputs and activities and the TE process to begin three months before operational closure of the project.

The TE was commissioned by the UNDP CO in November 2023 and conducted from December 2023 to March 2024.

Based on the above, the evaluator assigned ratings for the M&E plan as shown in Table 9 below.

<sup>&</sup>lt;sup>19</sup> Improved Quality of Evaluation Recommendations Checklist, United Nations Evaluation Group (UNEG), 2018
**Table 9:** TE ratings of the M&E plan

Monitoring & Evaluation	TE Rating
M&E design at entry	Satisfactory (S)
M&E plan at implementation	Satisfactory (S)
Overall quality of M&E	Satisfactory (S)

### UNDP and implementing partner implementation / execution

The general legal framework for implementation of the project is the Standard Basic Assistance Agreement between the Government of Jordan and UNDP. Specifically, the project was designed for the National Implementation Modality (NIM) with the UNDP CO support according to valid UNDP policy<sup>20</sup>. In line with the agreement between UNDP and the Government<sup>21</sup>, the UNDP CO may provide, at the request of the designated institution, the following support services for the activities of the project<sup>22</sup>:

- (a) Services related to recruitment of project personnel;
- (b) Services related to procurement;
- (c) Services related to finance;

#### Performance of the Executing Agency (MoEnv)

A senior officer of the MoEnv was designated as the National Project Director (NPD) for the project. The NPD provided overall guidance to the project management and ensured coordination with other entities of the GoJ and UNDP.

The day-to-day management of the project was ensured by the Project Management Unit (PMU) with a full-time Project Manager (PM) supported by an Administrative Assistant and two technical officers, one each from the MoEnv and MoH, ensured adequate technical capacity within the PMU to guide and evaluate the inputs by the consultants. Technical aspects of the project were also supported by the Technical Committee (TC), comprised of technical experts drawn from the participating institutions. The TC members also promoted the project in their respective institutions.

#### Performance of the GEF Implementing Agency (UNDP)

In reality, the UNDP CO provided implementation support for recruitment of international and local consultants, procurement of equipment, as well as maintained the oversight and management of the overall project budget, preparation of obligatory reports to GEF, and for organising the mandatory MTR and TE. Moreover, it played an active role in the project monitoring through participation in field visits, consultations, and review meetings with various project stakeholders. Last but not least, the UNDP CO also provided quality assurance function for the project to ensure required quality of the project deliverables and adherence to the UN SDGs and UNDP strategic priorities.

In addition to the above, UNDP also rendered services of a Regional Technical Advisor located in the UNDP Istanbul Regional Hub (IRH) who provided technical advisory to the project. The RTA support was provided mainly through remote oversight of the project, supervisory missions to the country and project sites, and technical quality assurance for inputs into project reports including the PIRs.

<sup>&</sup>lt;sup>20</sup>UNDP Programme and Operations Policies and Procedures: UNDP Support Services to National Implementation (NIM), 2015

<sup>&</sup>lt;sup>21</sup> Standard Letter of Agreement between UNDP and the Government for the provision of support services, Annex 7 to the Project Document <sup>22</sup> Description of UNDP country office support services, Annex 8 to the Project Document

There was a change of the RTA in the last year of the project implementation due to departure of the original RTA from UNDP IRH in September 2023 and the UNDP management decided to assign the technical backstopping to another IRH-based RTA.

Overall, the evaluator concludes that both the MoEnv and UNDP ensured good project implementation and execution.

The rating for the UNDP/IP execution is given in Table 10 below.

Table 10: TE rating of the UNDP Implementation/Oversight & Implementing Partner Execution

UNDP Implementation/Oversight & IP Execution	TE Rating
Quality of Implementing Partner Execution	Satisfactory (S)
Quality of UNDP Implementation/Oversight	Satisfactory (S)
Overall quality of Implementation/Oversight and Execution	Satisfactory (S)

#### **Risk management and SESP**

According to the initial SESP, the project was assigned low risk rating for social and environmental risks. Therefore, no specific plan for management of social and environmental risks was developed.

There is no information available on update of the SESP during the project implementation.

### **Project Results**

This part of the TE report contains an assessment of results as measured by broader aspects such as: relevance, effectiveness, efficiency, country ownership, gender equality and other cross-cutting issues, sustainability, catalytic role, and progress to impact.

#### Progress towards objective and expected outcomes

The information presented in this section was sourced from the available project implementation reports (PIRs and APRs) and verified with information collected through interviews with key project stakeholders. Additional sources of information were various studies and technical reports produced by the project. The list of documents consulted is provided as Annex 7 to this report.

The principal questions discussed in this section are whether and how the project outcomes as well as the Project Objective have been achieved. In the series of tables below, the project results are summarized and compared against the end-of-project target indicators in the PRF.

Eventually, the further text also highlights positive and negative changes and effects induced by the project interventions.

Tables 11– 14 contain the last column a summary of the actually delivered project results in a bullet point format. The tabular summary is followed by a short narrative text with additional insight and details on how and why the results have or have not been achieved. By this token, the text following each table summarizes some important facts and issues related to the project results that could not be captured in the tables but were considered important for the justification of the rating of the project outcomes. At the end, the narrative also explains the basis for rating of individual project outcomes.

Outcome 1.1 Environmentally sound E-waste collection, processing and residuals management capability developed.				Rat
Indicator	Mid-Term Target	EOP Target	Status at TE	ing
<b>Indicator 5:</b> Level of awareness achieved through project implementation on E- waste, measured by means of KAP (Knowledge, Attitudes and Practices) surveys at baseline and project end.	<ul> <li>10 high level meetings including roundtable and discussions on E-waste among policy makers and stakeholders within project midterm;</li> <li>One regional meeting on E-waste within project midterm among policy makers and stakeholders</li> <li>Baseline KAP questionnaire survey completed;</li> <li>4 awareness raising activities with NGOs support conducted;</li> </ul>	Further 10 high level meeting and 2 regional meeting on E-waste by project end Further 4 awareness raising activities on E-waste with NGOs support conducted; Raising awareness workshops with E- waste formal and informal operators conducted; Terminal KAP questionnaire survey completed	<ul> <li>10 discussion meetings in participating communities</li> <li>4 training sessions (2 each) in Irbid and Zarqa</li> <li>Mobile application for support collection of e-waste from households</li> <li>Baseline KAP questionnaire survey completed in 2019, the terminal KAP planned for the 1Q 2024.</li> <li>E-waste dismantling and recycling training conducted targeting e-waste recycling sector and municipalities.</li> <li>More than 14 awareness sessions on e-waste covering all governorates conducted.</li> </ul>	S
<b>Indicator 6:</b> Number of e-waste collection centers and points established and are in operation.	12 collection centres will be established within MoEnv, MoMA and GAM directorates.	24 collection points in Stores and exhibitions will be known to the public	<ul> <li>9 e-waste collection centres inaugurated (3 Irbid, 2 Zarqa, 2 Amman, 2 Aqaba) (October 2022)</li> <li>30 indoor e-waste collection bins have been manufactured and installed in public offices across the kingdom in addition to several universities.</li> </ul>	MS
<b>Indicator 7:</b> A number of new partnership mechanisms are initiated for the collection and processing of E-waste.	Number of proposals received to start new business on e-waste processing with project support	Project will support one licenced company/ NGO for e-waste processing. Number of partnerships will be established to secure the amount of e- waste for processing.	8 private companies licensed for collection and dismantling of e- waste in accordance to the-waste management instructions that was issued with project support.	HS
<b>Indicator 8:</b> Availability of legislation, or official guidance, on POPs and E-waste, published and enacted.	The Jordan E-waste management policy, which includes requirements on POPs, upgraded with the involvement of key public and private stakeholders. A set of financial mechanisms and incentives designed as part of the E- waste management policy.	The Jordan E-waste management policy, which includes requirements on POPs, approved and enacted. At least one incentive scheme (anticipated disposal fee; EPR collection incentives) demonstrated by the end of the project.	Stakeholder workshop (October 2019) E-waste management instructions published and entered into force (2021) Regulatory Impact Assessment for EPR (2021) Consultation workshop on RIA (January 2022) Draft EPR instructions submitted to MoEnv (2023)	S
<b>Indicator 9:</b> Amount of POP (U-POPs, c-PBDE, deca-BDE, PFOS) release prevented through proper collection and disposal of E-waste.	A collection scheme, co-financed by the government, including one or more of the options listed under output 1.1.3, designed in detail including budget planning and cash flow.	A collection scheme, co-financed by the government, is piloted with the collection of at least 600 tons of plastic from E-waste contaminated by PBDE.	<ul> <li>100 tons of e-waste contaminated with POPs at Swaqa Site was labelled and stored for future treatment.</li> <li>Tender to pilot the collection of plastics potentially contaminated with POPs</li> <li>4516 pieces, approximately 1,909 kg of e-waste collected (October 2022 to May 2023) through the mobile application.</li> </ul>	S

 Table 11: Deliverables for Component 1 - Development of ESM E-waste management system

#### E-waste policy and regulatory control

Draft regulation on management of e-waste was reviewed by a special technical committee and discussed at a stakeholder workshop on 9-10 October 2019 for total 36 participants (including 13 women). The regulation was published in the Official Gazette on 16 February 2021<sup>23</sup>, entered into force 30 days later, and was officially launched at a workshop in June 2021.

The regulation stipulates that e-waste and its accessories, components, and sub-parts needs to be disposed of at designated sites and cannot be disposed of as part of household waste. It also outlines the conditions necessary for the transport of e-waste and lists the requirements for obtaining a permit for establishment of e-waste treatment facilities.

#### Financial mechanism supporting e-waste management

The project has supported a national consultant for conducting a Regulatory Impact Assessment (RIA) for development and application of a financial mechanism in the field of e-waste management. The output from this assignment was a study that assessed economic, social, and environmental aspects of three different scenarios and recommended application of the principle of extended producer responsibility (EPR) in the field of e-waste. The RIA study was validated through a consultation workshop.

In August 2020, under Article (7), paragraph (c) of the Frame-work Law on Waste Management No. 16 of 2020, the Jordanian Ministry of Environment introduced the notion of the EPR system in this general waste regulation. Following the endorsement of the RIA study, the project supported preparation of specific instructions for the application of the EPR principle to e-waste.

Draft EPR instructions were submitted to the MoEnv in 2023. However, there was no further progress towards adoption of the instructions because of financial implications that will be imposed on the producers and importers of electrical and electronic equipment, given the current difficult economic situation in the country. Despite continued discussion of the MoEnv with the Chamber of Industry and Chamber of Commerce, no concrete results were achieved at the time of the TE.

### E-waste collection and primary processing

An e-waste collection scheme was developed with co-financing from the GoJ. In 2020, the MoEnv licensed 8 private companies for collection and dismantling of e-waste. Initially, 5 e-waste collection locations were selected and agreed on with the Greater Amman Municipality and the MoLA. The original number of selected locations was extended to the following 9 sites officially inaugurated on 4 October 2022 under the patronage of the Minister of Environment:

- In Amman: Martyrs Park in Abdoon Al-Shmali and Princess Rahma Park in Umm Al-Summaq;
- In Irbid: Al-Istiklal Park, King Abdullah Park, Tariq bin Ziyad Park;
- In Zarqa: Hashemite Hall Park and Sharif Hussein Park;
- In Aqaba: Petra Street and Arish Street (containers designated for this purpose)

The licensed private sector companies played an important role in designing and establishing the above sites through provision of required bins and other tools for handling of e-waste.

The official inauguration of the e-waste collection sites was organised not only for announcement to the public but also for introduction of a mobile application that was developed for helping the public with disposal of e-waste from households in an environmentally sound manner.

<sup>&</sup>lt;sup>23</sup> Executive Instructions for the Management of Electrical and Electronic Waste, Ministry of Environment, 2021

Additional 30 collection points were selected and provided with smaller indoor e-waste collection bins and awareness sessions were conducted on purpose of the bins and coordination with the licensed private sector companies for handover of the collected e-waste.

### Capacity building and public awareness

In mid-2021, an international consultant delivered workshops on international practices of e-waste dismantling and recycling of all e-waste categories as well as labelling and safeguarding of e-waste contaminated with POPs targeting municipalities and the licensed private sector companies, In 2023, additional 4-day training programme on e-waste collection processing, best environmental practices, technologies, and safe workplace environment was conducted for the private sector and Zarqa and Irbid municipalities.

In November 2021, a national public awareness campaign was launched on e-waste. Several radio interviews were broadcasted on various e-waste management issues and on announcement of e-waste collection sites. The campaign also included distribution of 30 e-waste collection bins, with 15 bins distributed to all directorates of the MoEnv in 12 different governorates and 7 bins to 7 different universities to raise awareness among students about electrical and electronic waste and 8 bins to a number of government offices, cultural centers and foundations.

At the time of the TE mission, local campaigns on e-waste collection and recycling were still under preparation in the three participating municipalities.

The project supported design and printing of several e-waste awareness and informational materials that were used in awareness campaigns targeting schools, academia, and the public at large.

### **Overall Assessment of Component 1:**

The main deliverable under this component is establishment of a legal framework with technical guidance documents to ensure environmentally sound management of e-waste which was accomplished with project support and in coordination with the related directorate in the Ministry of Environment. The process of preparation of the legislation faced delays due to the Covid-19 lockdown.

Although the project created a mechanism for e-waste collection and disposal through establishment of collection centres and introduction of the smart application, further progress with e-waste collection remains slow due to several factors.

The participating municipalities were not able to assign the required technical personnel and sufficient financial resources necessary for work in the residential areas surrounding the designated collection sites. Some e-waste collection sites were subject to abuse as items from the collection bins were stolen by waste pickers.

Instead of bringing the e-waste to the collection centres the residents prefer either long-term storage or disposal of the e-waste through informal street waste collectors for convenience in handling and transportation. Lack of financial incentives for e-waste collection thus remains to be a particular barrier hindering further progress.

Integration of informal e-waste collectors in the official collection schemes is hindered by the fact that the informal sector has a comparative advantage over the companies in the formal sector the informal sector is not obligated for sound environmental management of the e-waste. Legislative measures on e-waste management thus limit the collection potential of the formal e-waste collectors that could be handed over to the formal sector.

The project assisted the MoEnv for building the necessary institutional and human resource capacities for implementation of duties as the central supervisory authority for the registration and oversight of

the EPR system. Apart from the complexity of the legislation approval process, there seems to be some resistance from the private sector industries mainly because of the post-Covid economic slowdown. Although another legislative package for an EPR system on packaging was prepared under a parallel EU/GIZ project, it has not yet been implemented either. Therefore, there is an external factor that is beyond control of the project.

Although the development of the EPR system did not reach the approval and launching stage, the work conducted under the project created a solid foundation for further steps towards standardised sustainable e-waste management and a shift towards circular economy.

Further progress towards adoption of the EPR system on e-waste will require work with the Jordan Chamber of Industry as a Producer Responsibility Organization designated to implement the EPR system for building operational and administrative capacities necessary for assuming full responsibility for the statutory tasks defined in the legislation.

Based on the above, the achievement of Outcome 1 is rated Satisfactory (S).

Outcome 2.1 BAT/BEP h	Outcome 2.1 BAT/BEP healthcare waste management practice				
Indicator	Mid-Term Target	EOP Target	Status at TE	ing	
Indicator 10: ESM Manual is developed based on updated medical waste regulation.	Medical waste regulation is updated and amended; ESM manual is developed	Medical waste management in hospitals is improved	ESM manual on HCW delivered to 11 hospitals Report on analysis of the Medical Waste Management Instructions Consultation workshop on update of HCWM instructions (Apr 2022) Revised HCWM instructions submitted to MoH (2023)	s	
Indicator 11. Number of relevant staff trained on best environmental practices.	Several trainings on ESM in the 10 pilot hospitals is conducted	Medical waste management in Hospitals is improved	Training of Trainers (ToT) on HCW for MoH private and RMS hospitals (June 2019) with participation of 149 healthcare staff (77 women and 72 men) Training on ESM of HCW in the pilot 11 hospitals (October 2019( with participation of 143 participants in 11 hospitals HCW segregation training in MoH with 45 staff Two trainings in Zarqa and Jerash Hospitals with 132 participants from hospitals, clinics, Laboratories in each area. Total of 469 healthcare workers trained (as of end 2023) 2 visits to Ankara to check the specification of the tendered autoclaves (2019) and to learn the Turkish experience for new RMS and MoH employees (2022),	s	
Indicator 12: Number of HCF successfully implementing the ESM of health care waste.	Memorandum of Understanding signed and HCW committees established in all the project HCF. Baseline evaluation conducted by means of I-RAT conducted for all the selected HCFs. HCW plan agreed for all the HCFs. Technical assistance on ESM of HCW started in all the project HCFs. First reassessment of the HCFs conducted by means of the I-RAT tool	Continuation of technical assistance on ESM of HCW started in all the project HCFs. Final reassessment of the HCFs conducted by means of the I-RAT tool conducted. Final evaluation of U-POPs releases prevented through segregation of waste conducted.	Baseline I-RAT assessment for 10 pilot HCFs (/8 public and 2 military) HCWM committees established in all target HCFs Personal Protective Equipment (PPE) sets provided to 14 hospitals HCWM plans at hospital level formulated and discussed 2 HCW transport vehicles procured incl. GPS tracking system for medical and hazardous waste transportation vehicles 8 HCW transport vehicles from MoH included in monitoring by GPS (including the two provided by the project)	s	
Indicator 13: Number of high-capacity incineration or co- incineration successfully certified for the disposal of hazardous waste and POPs containing waste.	Detailed plan for Proof of Performance test for at least 2 incinerators or cement kiln agreed and approved. Inspections of candidate plants and need assessment carried out. Support for the upgrade of the candidate plant to fulfil SC BAT/BET ensured to 2 plants.	Proof of Performance test for at least 2 incinerators or cement kiln carried out with a range of different HCW, E-waste and HW carried out. Successful plants certified and permitted	Preliminary assessment of 2 incineration facilities (JUST Irbid and Clean City near Al-Ghabawi landfill) Environmental audit report on certification/licensing of the JUST facility (2021) Audit recommendations implemented (2022)	s	
Indicator 14. Amount of U-POP release prevented through enhanced management of healthcare waste.	Modality of replacement of substandard incinerators in the selected HCF (replacement with non-combustion equipment or with centralized services) agreed for all the project HCFs. Baseline release of U-POPs reassessed. TORs for the new equipment drafted and advertised. Procurement of non-combustion facilities or external waste disposal services started.	Procurement of non-combustion equipment for replacing sub-standard incinerators completed and new equipment installed and tested. External waste disposal services with certified disposal facilities contracted At least 90% of the baseline U-POPs release permanently avoided through adoption of non- combustion equipment or disposal in certified plants	11 shredding and autoclave sterilization units installed and operational PPP for providing HCW management services (autoclaves) Trainings for autoclave operators LTA contracts for autoclave maintenance Reduction of 37.8 g TEQ of POPs emissions as a direct result of the environmentally sound HCWM	HS	

## Table 12: Deliverables for Component 2: Achieving environmentally sound healthcare waste management

### Development of HCWM regulatory and technical guidance

The work under this component started with development of a manual on environmentally sound management (ESM) of the HCW that was based on a set of internationally accepted rules from the WHO handbook on HCWM. The manual was delivered to all hospitals through the TOT training in June 2019 and a series of follow-up trainings for the 11 participating pilot hospitals from 15 October to 5 November 2019.

The work on update of the Medical Waste Management Instructions No. 1/2001 was delayed due to Covid-19 and changes of the personnel in the MoH. A 2-day workshop was held on 31 March - 1 April 2022, with participation of 22 relevant direct stakeholders (including 7 women) that resulted in a draft amended version of the instructions.

However, the complexity of instructions and involvement of multiple parties required further consultations with various directorates of the MoH. Consequently, another 2-day workshop was then held on 28 February -1 March 2023 with extended participation of 43 stakeholders including the Customs Department, the Aqaba Special Economic Zone Authority, service providers, the Jordan Standards and Metrology Institution, the Ministries of Agriculture and Local Administration, as well as representatives of academia and waste treatment facilities.

The latter workshop recommended to include all technical guidelines and standards related to HCWM as annexes to the updated instructions instead of developing a separate ESM manual. The updated instructions thus address the ESM of medical waste from its generation, classification until final disposal, where each article is linked to a specific annex with detailed technical procedures.

There was a delay on agreement between all key stakeholders on the final draft of the MWM instructions and balancing their needs, views, influence and each stakeholder's requirements. At the time of the TE, the revised instructions were in the final stages of the legislative approval process and promulgation was expected in February 2024.

As the initial rapid assessment (I-RAT) tool used in the appraisal of the pilot HCFs showed insufficiencies in terms of waste segregation, sorting, and treatment, the project stimulated creation of HCWM committees at the level of individual hospitals charged with responsibility for setting out action plans on transition to non-combustion technology and modes of operation. In coordination with the Environment Health Directorate of the MoH, the participating hospitals also formulated HCWM plans. Furthermore, the project provided technical assistance to the responsible HCWM staff in each HCF to verify and monitor the status of the HCWM, and to propose solutions to address the identified challenges.

At the start of 2024, the project recruited international expert to conduct the end-of-project appraisal of the beneficiary HCFs though the I-RAT tool.

### Training and formal certification of in-hospital waste management personnel

From 10 to 19 June 2019, a Training of Trainers (ToT) was conducted for 149 healthcare workers (including 77 women) in public, private and military hospitals. The ToT was facilitated by a renowned international expert with experience from similar GEF-funded projects. Between 15 October and 5 November 2019, the training was cascaded to 143 HC workers from the project beneficiary HCFs.

2021: 389 healthcare workers were trained, out of which 230 were female participants.

March 2023: One more training was carried out on the medical waste segregation at the Ministry of Health on 9/3/2023, the training was attended by 22 women out of 45.

July 2023: Two more trainings in Zarqa and Jerash Hospitals conducted with 132 participants from Hospitals staff, clinics, Laboratories in each area.

As of end 2023, total of 469 healthcare workers were trained under the project.

A training visit was arranged and held from 16-19 November 2022 to Ankara for training on medical waste management and the operation and maintenance of medical waste treatment devices (autoclaves), in addition to exploring best environmental practices in the fields of healthcare waste, for 2 representatives each from the MoEnv MoH and RMS.

#### Transfer of non-combustion technology

The signed Project Document required provision of non-combustion HCW sterilisation to 10 selected hospitals. Upon request of the official request from the MoH, the number of target HCFs was increased to 11 with addition of the public hospital in Zarqa. This increase was approved by the 2019 PB meeting.

Before the start of the project implementation, the target hospitals used different technologies for HCW treatment. A majority (6 HCFs) used small incinerators with uncontrolled batch combustion without air pollution control systems (APCS), others either used incinerators with minimal APCS (3 HCFs) or used centralized facilities with autoclave technology treatment (2 HCFs).

Through communication with the MoH, the project team found that some of the beneficiary HCFs did not have the necessary infrastructure for hosting the autoclave technology. Several meetings at different MoH levels were needed to initiate necessary actions, including on-site construction adjustments, for installation of the autoclave devices in all selected HCFs.

Although the technical consultant proposed 3 sizes of autoclaves, it was decided to procure sterilization and shredding units with capacity of 150 kg per 8-hour working day for all participating HCFs. Three autoclaves including shredding units were successfully delivered and installed by the end of 2019, and the remaining eight autoclave/shredding units delivered and installed as planned by the end of 2020. This is remarkable given the fact that due to Covid-19 the international supply chains were disrupted in the first half of 2020. Additional challenge was to obtain the custom clearance for import tax exemption. After the installation that included on the job training to the operators of autoclaves in the beneficiary hospitals, the project provided continuous support to ensure the effective management and operation of the new technology. Initially, training sessions were conducted to train the autoclave operators on the operation procedures, safety measures, as well as on preventive and corrective maintenance delivered by the suppliers' local agent for total 68 trainees (7 trainees in each of the 9 public hospitals and 5 trainees in the RMS hospitals). More recently, the project facilitated signature of a contract between the MoH and the local representative agent of the autoclave supplier for provision of operation and maintenance services in the government HCFs.

A study visit of the autoclave supplier in Ankara, Turkey, was arranged on 16-19 November 2022 for 6 representatives of the GoJ stakeholders (2 each from the MoEnv, MoH and RMS). The participants learned about operation and maintenance of medical waste treatment devices, as well as on best environmental practices in HCWM.

During the mission at the end of January 2024, the evaluator was able to make a spot check of the autoclaves in 3 HCFs, including 2 in Amman and 1 in Zarqa. Each visited HCF had one trained person assigned with responsibility for HCWM as well as a comprehensive system in place for entry level and refresher training on HCWM.

Each of the 3 visited HCFs had a HCWM committee established and a written HCWM plan integrating all aspects from HCW minimization, through segregation and containment, safe handling and storage, to treatment and disposal. According to the information given, the relevant department of the MoH

periodically revises the plans at the HCF level to ensure proper updating in line with the relevant national instructions.

Due to time limitations, the evaluator could not make detailed assessment of the existing arrangements for collection, segregation, storage and transport of HCW in the visited facilities. This assessment will be conducted by a specialised expert already contracted for conducting I-RAT assessment of all beneficiary HCFs in mid-February 2024.

The HCW treatment devices (autoclave, shredder, and auxiliary equipment) were found operational and working for all infectious and sharp waste generated in the visited facilities. Upon instruction from the MoH, the Tutanji public hospital in Amman, on top of sterilisation of its own HCW, it also takes biweekly supply of infectious HCW from the Princess Salma hospital in Madaba. Final disposal of autoclaved waste was ensured through contracts with a waste collection entity (municipality or private company).

In the two public HCFs belonging to the MoH, operation as well as maintenance of the autoclaves was outsourced through a framework contract between the MoH and a local servicing company, while in the RMS hospital the operation was ensured through a trained employee of the HCF. On the day of the evaluator's visit, the RMS hospital autoclave experienced problem with a steam generator and the servicing technician was already fixing the problem on the same day.

In addition to the autoclaves, the project also procured sets of personal protective equipment (including face masks, gloves, safety shoes, overalls) along with color-coded bins and bags for HCW collection and transportation.

In order to further enhance effectiveness of the HCW management, the project purchased two refrigerated vehicles for transportation of HCW between the public hospitals to the final treatment facility. In addition to contracting waste service providers to implement a comprehensive management of HCW from generation until the final disposal, the project supported design and installation of a GPS tracking system for medical waste transportation vehicles that incorporates sensors to measure weight and temperature inside the transport vehicle compartment. Upon completion of required training, the Directorate of Hazardous Substances and Waste Management at the MoEnv was assigned the responsibility for operation and controlling the tracking system, that includes total 43 HCW transport vehicles (8 vehicles owned by the MoH, and 35 vehicles from private sector hospitals.

Replacement of small sub-standard incineration facilities

Environmental Audit to the incineration facility at the Jordan University of Science and Technology (JUST) in Irbid was announced in March 2020 and completed by a national consultancy company.

The JUST incineration facility is located outside the JUST campus and comprises 3 incinerators that have been serving for incineration of medical waste from 9 public hospitals in the Northern Region and from 37 private hospitals, laboratories and medical centers.

The environmental audit of the facility covered the incinerator chambers as well as all supporting units, the receipt of waste, storage, and disposal of final burned products, fuel tanks, water, and other utilities. The audit report recommended several interventions, including installation of surveillance cameras, modernisation of the lighting, ventilation, and fire alarm systems, as well as upgrade of the incinerator air and temperature monitoring systems and their connection to the MoEnv online monitoring system. Since the facility does not have a specific analyser for continuous measurement of u-POPs releases and because of the high cost of such measurement, the MoEnv requested to procure a temperature monitoring system for the primary and secondary combustion chambers as well as the exhaust gases temperature monitoring and control.

#### Prevention of U-POPs releases

The expected annual reduction of PCDD/F emissions by the project interventions in the 11 beneficiary HCFs calculated in the Project Document were 10g Teq/annum (assuming that all the waste generated by the hospitals was either incinerated or openly burnt). The calculation of achieved PCDD/F emission reductions was conducted using the UNEP "Toolkit for Identification and Quantification of Releases of Dioxins, Furans, and Other Unintentional POPs" with consideration of releases by incineration to air as well as in the form of bottom ash.

The calculation was done for 8 HCFs that, at the project inception, had either used uncontrolled batch combustion with no air pollution control system (APCS) (6 HCFs) or controlled batch combustion with no or minimal APCS (2 HCFs) During the period 2021-2023, the total amount of reduced PCDD/F emissions in the 8 target HCFs was calculated at 37.8 g Teq (9.64 g in 2021, 16.5 b Teq in 2022 and 11.6 g Teq in 2023). Therefore, the actually achieved emission reduction exceeded the target.

The project recruited an international expert for conducting I-RAT assessment of the participating HCFs and assess the amounts of U-POP release prevented through the enhanced HCWM. The mission of the expert was scheduled for mid-February 2024 hence the results were not available at the time of drafting of the TE final report.

### **Overall Assessment of Outcome 2:**

The project supported the transition from incineration to autoclaving through procurement of 11 autoclaves and has built the institutional and staff capacity for proper management and separation of HCW, including gender mainstreaming activities, in addition providing transport means for HCW, equipment, tracking system to control HW and HCW transport, and provided one incineration facility with the required equipment for proper monitoring and control of the operations.

The relatively fast supply and installation of the autoclave devices enabled the beneficiary HCFs to respond to the sudden increase of the HW volume generated during the peak of the COVID-19 pandemic. The main reported challenge among the 3 visited HCFs was insufficient capacity of the autoclaves for treatment of all generated HCW. For the two public hospitals, additional challenge was a recurring need for renewal of the framework contract for operation and maintenance of the autoclave devices.

Planned expansions in the HCFs, continued growth of patients' numbers resulting from migration, as well as the fact that the HCW volumes did not return to the pre-Covid levels raise questions to which extent the former two factors were considered in the initial procurement planning to avoid a rapid autoclaves' capacity overload. The processing capacity of the autoclaves was examined by the I-RAT assessment consultant in February 2024.

As for the GPS tracking system, there were some challenges in setting up this system in line with the project goals and the existing servers and relevant infrastructure, and the commitment of transporters to facilitate the installation of the relevant equipment. Nevertheless, provision of the temperature and weight sensors for HCW transport vehicles caused reduction of abuses and illegal practices by hazardous and medical waste transporter agents with positive impact on public health and the environment.

The biggest challenge for this component was to find the most appropriate mechanism for autoclave maintenance and operate them in a proper manner to ensure their sustainability.

Based on the above, the achievement of Outcome 2 is rated Satisfactory (S)

**Table 13:** Deliverables for Component 3: Developing waste diversion/resource recovery capacity for GHG and U-POPs reduction.

Outcome 3.1 Effective waste diversion/resource recovery capacity from HW and SW streams developed with associated GHG and U-POPs release reduction achieved				Rat
Indicator	Mid-Term Target	EOP Target	Status at TE	ing
<b>Indicator 15:</b> Level of awareness achieved through project implementation on Hazardous Waste and Municipal Solid Waste, measured by means of KAP (Knowledge, Attitudes, and Practices) surveys at baseline and project end.	Awareness raising and involvement of the community of with at least 1000 generators involved in the demonstration of waste collection		<ul> <li>KAP study finalized, and results disseminated.</li> <li>More than 1,000 waste generators targeted in the awareness and capacity building activities in the targeted areas (Madaba, Dair abi Saeed and Bergesh).</li> <li>An awareness campaign launched in Madaba under the patronage of the MoEnv Secretary general, the Greater Madaba municipality mayor, and the presence of the local community with 85 participants (48 women).</li> <li>On job trainings on MSW categorization, collection and segregation targeting the municipalities staff, informal and formal sectors were conducted in the targeted municipalities (173 participants).</li> </ul>	S
<ul> <li>Indicator 16: 100 Generator of hazardous waste trained on the minimization and ESM of waste potentially contaminated by POPs.</li> <li>Indicator 17: 300 ton of E-waste stored at Swaqa and other POPs waste inventoried, labelled, and safeguarded for future disposal in coordination with bilateral initiatives.</li> </ul>	At least 100 generators of hazardous waste trained on Stockholm and Basel convention on hazardous waste, as well as on the minimization of hazardous waste generation and their ESM	At least 300 tons of E-waste potentially contaminated by POPs and other POPs waste identified, labelled and safeguarded for future disposal in certified facilities	<ul> <li>Training workshops on HW classification and handling more than 100 waste generators.</li> <li>Training workshop on labelling and safeguarding e-waste</li> <li>4-day training programme on HW handling and storage</li> <li>3 XRF machines procured for assessment of e-waste contamination by POPs</li> <li>At the time of the evaluation mission; 20 tonnes of potentially POP-contaminated plastic from e-waste collected</li> <li>200 tonnes of e-waste at Swaga landfill assessed</li> </ul>	S
<b>Indicator 18:</b> Amount of U-POP release prevented through the diversion of municipal waste, through recycling and RDF in certified facilities.	Pilot door to door collection designed and contract with potential recyclers agreed. Procurement of materials for waste minimization, collection and recycling completed. Surveillance system to prevent burning at selected landfills designed and implemented.	Implementation of the pilot collection and recycling scheme as detailed in output 3.1.1, with an estimated reduction of at least 0.3g Teq / year of PCDD/F through waste diversion and open burning prevention.	About 1,123 tons of recyclables material and 503 tons of RDF materials collected through at source waste collection and sorting in the municipalities of Madaba, Deir Abi Saeed and Bergesh municipalities for processing at AlKoura sorting facility MoU with Al Manaseer Cement Factory RDF production machinery installed at Madaba MSW processing machinery installed at Madaba facility to increase the quality of recyclable materials and increase their market value Experimental burning of 500 tonnes of RDF materials National consultant recruited to develop RDF standards and regulatory framework for the use of RDF in cement factories Intelligent surveillance system installed at Aqaba landfill as an early warning system in case of fire incidents.	S

#### Awareness of hazardous waste and solid waste management

In 2019, knowledge, attitudes, and practices (KAP) surveys were conducted in the project target communities in the selected municipalities (Irbid, Ramtha, Zarqa, Amman, Madaba) as well as in the communities in vicinity of the project pilot HCFs.

A study produced as a summary of the KAP process showed significant infrastructure and capacity deficits that limit the effectiveness of waste management efforts despite the fact that in general Jordan had developed a basic legislative and regulatory framework for waste management. However, the study did not cover the target area for Component/Outcome 3 of the project as the area had not yet been selected at the time of the study completion. The KAP study was disseminated through a Zoom meeting with the Ministry of Environment, Ministry of Health, and Ministry of Local Administration.

In 2022-2023, more than 1,000 waste generators originating from the public and private sectors, local communities, CBO, NGOs were targeted in the awareness and capacity building activities in Madaba, Dair abi Saeed and Bergesh municipalities. Training workshops were conducted on HW classification and handling for more than 100 waste generators. Additional training workshop was conducted on labelling and safeguarding e-waste and a 4-day training programme on HW handling and storage Each training session included an introduction to HW and relevant international conventions, as well as tips for minimization of HW generation and their environmentally sound management. On top of that, more than 1,240 people were reached indirectly through media, advertising, and interviews.

#### E-waste collection, storage and recycling

Upon finalisation of the e-waste instructions in 2020, the project recruited international consultant to conduct training on ESM of different type of hazardous waste (HW), assess the waste stored at the Swaqa landfill, and propose measures for labelling and disposal of the stored waste. Due to Covid-19 outbreak, the consultant's mission had to be postponed and was actually realised in mid-2021.

At the end of July 2021, the consultant facilitated two 1-day workshops, one on HW classification and handling (for 29 participants including 12 women) and another one on international practices for labelling and safeguarding of e-waste (for 59 participants including 22 women). On 2-5 August 2021 in cooperation with the vocational training centre in Amman, the consultant delivered a 4-day training programme on HW identification, safe handling, labelling, storage, packaging and transportation, and methods for final treatment. Special attention was paid to HW potentially contaminated with POPs. About 21 trainees from 8 private licensed e-waste dismantling and recycling companies as well as interested municipalities participated in the training.

Apart from facilitation of the training, the consultant assessed the e-waste quantities stored in the Swaqa landfill and estimated the e-waste quantities at 116 tonnes. In line with the e-waste instructions developed under Outcome 1, the MoEnv no longer receives e-waste and encouraged the private sector to invest in this field and get permits for dismantling and recycling. The result of this assessment suggested that the relatively small amount of stored e-waste did not justify installation of a tracking and labelling systems for the stored e-waste.

Later in 2021, the project procured 3 x-ray fluorescence (XRF) detectors for rapid determination of brominated and chlorinated compounds in e-waste plastic components for the quantities stored at Swaqa site .

The amounts of e-waste stored in the Swaqa e-waste storage hangar were estimated at around 200 tonnes, with the landfill at a distance from residential or commercial areas and the storage hangar

sufficiently safeguarded and it is under management of the MoEnv. By the end of 2023, the project assessed about 160 tonnes of e-waste stored at Swaqa with these instruments.

A qualified private sector consultant was contracted to inspect, sort and rearrange the e-waste stored at Swaqa landfill to label and safeguard that potentially contaminated with POPs for future disposal. The expert assessed about 160 tonnes of e-waste.

A scheme for pilot collection of potentially POP-contaminated plastic from e-waste was launched during the 4<sup>th</sup> quarter of 2023 with the aim to imitate an incentive take-back mechanism or cover the costs of collection as would be in case of applying an EPR. By the end of 2023, about 20 tonnes of e-waste plastics was collected and transported to the Swaqa HCW centre for future treatment. The activity continues until the completion of the project.

E-waste dismantling tools were provided to the Irbid and Zarqa municipalities to support preparation for activities on e-waste recycling, including awareness activities. At the time of the TE mission, the campaign for collection of plastic potentially contaminated with POPs in both municipalities was still under preparation.

In reality, the project could not find sufficient quantities of e-waste for recycling by officially licensed companies due to slow progress in organisation of the official collection campaigns and the fact that the largest part of the e-waste collection is the hands of informal sector waste pickers. This continues to be a challenge to collect the planned quantities of plastics as per the Project Document. The project requested the official e-waste collection service providers to develop a mechanism for integration of the informal sector, in addition to developing an incentive mechanism for collecting electrical and electronic waste from its generators.

### Municipal waste collection and recycling

In May 2022, the project team launched a tender for at-source collection of MSW from residential areas in Madaba for sorting and processing at a Madaba municipality-owned MSW sorting station that had been established with support from the GIZ in  $2019^{24}$ . The station separates recyclables from organic + non-recyclable materials. The recycled materials (carboard + paper) separated from organic and plastic fractions are transformed into blocks with use of baler machines and sold to private companies through an auction process. In 2022, the municipality financed procurement of cardboard recycling machinery that allow to recycle the cupboard fraction into usable products such as paper packaging.

Towards the end of 2022, the project launched pilot recyclables and RDF material collection campaign in Madaba. By the end of 2023, the campaign yielded about 1,023 tonnes of recyclables that were processed at the sorting station and put up for sale for the benefit of the municipality, as well as about 305 tonnes of materials for RDF production.

In 2023, the above campaign was replicated in the Dair Abi Saeed and Bergesh municipalities in northern Jordan. The municipalities conducted a survey that identified about 30 waste generators with the highest waste quantities. Since August 2023, they collected about 100 tonnes of recyclables for processing at Al-Koura sorting facility that is operated by a women association. The Bergesh municipality made agreement with Al-Koura station for supply and sorting of collected MSW. As a financial incentive to waste generators for at-source collection, the municipality provides 50% discount from the standard waste collection fees. Furthermore, the two municipalities collected about 200 tonnes of waste materials for RDF production currently prepared for transfer to the Madaba RDF production facility.

<sup>&</sup>lt;sup>24</sup> Waste to (positive) energy project, GIZ, 2015-2025

At the time of TE, the Madaba municipality was preparing a public-private-partnership scheme for the sorting facility to be operated by a private company under management by the municipality.

In 2023, an intelligent surveillance system for the Aqaba landfill was procured in coordination with the MoLA, MoEnv, ASEZA and the Aqaba Joint Services Council. The system is based on continuous monitoring of the landfill areas with high-quality infrared thermal surveillance cameras. In case of finding the hottest spots, the system provides early warning for prevention of accidental burning of waste and includes procedures for early intervention.

### Production of refuse-derived fuel (RDF)

the project faced challenges to find a strong and reliable partner for implementation of the RDF subcomponent. The originally designated partner - Lafarge/Holcim cement factory – decided to terminate participation in the project due to financial insolvency. This caused a considerable delay in implementation of the sub-component.

In order to achieve the planned targets for Component/Output 3, the Ministry of Local Administration advised that the project should focus on an industrial region/park with substantial volumes of packaging materials and textiles to be used for RDF production.

In 2021, the project team explored potential partnership with the Cementra plant located in the Mafraq Governorate. At the same time, the project team considered the possibility of targeting Al-Hasan Industrial Estate located in the Irbid Governorate. With the aim to use the waste from textile factories in the production of RDF as an alternative fuel for cement kilns, the project team engaged in technical discussions for identification of acceptable level of RDF composition, calorific values, and suitable packaging. However, results of initial tests conducted in 2022 suggested that the textile waste was not a suitable source of RDF for the Cementra factory due to low density, excessive contents of volatile organic compounds and the need for sorting/separation of textiles to fit the existing fuel feeding system of the factory.

In order to advance the RDF sub-component, the project facilitated establishment of an RDF processing facility through procurement of a two-shaft shredder machine and a flat pellet mill machine. The function of the machinery is to change the physical attributes of collected waste fractions with high calorific value (fabric, plastics of all types, paper, cardboard, used oil) for further use as RDF in cement factories based on its physical and chemical characteristics. The machinery was installed at the Madaba sorting station. Since commissioning in fall 2023, about 305 tonnes of RDF materials (textile, plastics, paper and used oil) have been collected and transferred to the facility for production of RDF.

Consequently, the project team engaged discussions with Al-Manaseer Industrial Complex and reached agreement to implement a pilot on use of RDF as alternative fuel for the company's cement factory located near Al-Qatrana, about 60 km from Madaba. The partnership between the MoEnv and Al-Manaseer was formalised through a Memorandum of Understanding (MoU) signed on 22 February 2023. The MoU outlines the roles and responsibilities of each party, namely the MoEnv with assistance of the project to provide machinery for production of RDF material and the factory to conduct QA and QC procedures including laboratory tests for implementation of a burning experiment with 500 tonnes of RDF materials.

The experiment is based on characterisation of combustible fractions of MSW through preparing 5 samples of different composition and finding a mixture with the highest calorific value. At the time of the TE, the first batch of 50 tonnes of processed RDF material was prepared for transfer to the cement factory according to an agreed schedule of the experiment.

Towards the end of 2023, the project launched tender for drafting a guidance on the RDF lifecycle management, composition, and operations with definition of the regulatory framework and technical standards (including RDF composition) for utilization of RDF in qualified cement kilns. At the time of the TE, recruitment of a team composed of international and national technical and legal experts was completed. The output of this activity will be a draft RDF instruction for submission to the MoEnv.

### **Overall assessment of Outcome 3:**

The main achievements under this component comprise completion of a pilot at-source collection of recyclables from MSW and RDF source materials in three municipalities, establishment of an RDF processing facility, installation of one landfill monitoring system for fire hazard, as well as related awareness campaigns and gender mainstreaming activities.

The results in the MSW sub-component were achieved owing to multiple party collaborative models involving agencies of the central and sub-national government, municipalities, as well as private sector (production companies and waste management service providers). Such cooperation is highly desirable for establishing a sustainable framework for further work beyond the project completion.

Despite the project support under Outcome 1 resulted in preparation and adoption of primary legislation for e-waste management, implementation of the e-waste sub-component of Outcome 3 was less successful and did not yield the collected quantities as planned in the Project Document due to the following two factors.

The first factor is absence of specific practical policies applicable to e-waste management. Although assessment of available policy options and identification of an EPR scheme as the most suitable e-waste management policy were completed under Component 1, this work did not translate into adoption and practical implementation of the EPR due to economic concerns of the respective industry and commerce sectors. This had negative effect on collection of planned e-waste quantities.

Despite the GoJ officially licensed private sector companies for e-waste collection and recycling, the continued domination of the e-waste sector by informal waste collectors was the second factor that hindered collection and channelling of substantive quantities of e-waste through the formally licensed companies. Although the project has committed to integration of the informal waste pickers into the formal infrastructures, this effort was not successful as currently there is no legislative support to such formalization. This is mainly due to the absence of legal recognition of waste picking as an occupation or profession with licenses and a representative body.

Previous studies have found that most waste pickers in Jordan want to work under the umbrella of an organization<sup>25</sup>. While the 2015 National Municipal Solid Waste Management Strategy proposes cooperatives as a path to integration and formalisation of waste pickers, no legislative steps have been taken towards establishing such bodies ever since.

Implementation of planned activities in the RDF demonstration sub-component faced delays due to complexity of decision-making processes at the national level, the need to harmonise preferences of the participating ministries, as well as challenges related to finding a technically competent and financially stable partner for conduct of the demonstration of RDF as alternative fuel to pet coke used in cement factories.

Despite the recent progress with establishment of the RDF processing facility, the project will not achieve the planned quantities of RDF for demonstration of the collection, pre-treatment and burning

<sup>&</sup>lt;sup>25</sup> Recycling Activity in Jordan: Waste Picker Certificate Completion Report, USAID (2021)

equivalent to at least one month of operation of the selected cement kiln factory (estimated at 3,600 tonnes) as per the target set in the Project Document.

Nevertheless, the results that will be achieved by the project completion date in May 2024 constitute a solid foundation for further progress with towards use of RDF as alternative fuel for cement kilns. Under the GIZ assistance, the GAM plans construction of a Mechanical Biological Treatment plant (MBT) with special emphasis on the production of compost and RDF. The expected capacity of the MBT plant is about 45 tonnes RDF/day. Coupled with expected production ramp up at the Madaba RDF facility, this could be seen as a move towards establishment of sufficiently large and stable RDF production base that, together with regulation of the RDF market through approval of the RDF instruction, constitute a pre-requisite for convincing the cement factories to invest in upgrade of the feeding equipment required for handling RDF.

Despite the e-waste collection and RDF demonstration sub-components did not achieve the planned targets, this was mainly caused by the negative impact of external factors beyond the control of the project team.

Based on the above findings, the overall achievement of Outcome 3 is rated Satisfactory (S).

Component/ Outcome 4: Knowledge Management and M&E				Rat
Indicator	Mid-Term Target	EOP Target	Status at TE	ing
<b>Indicator 19:</b> Number and quality of project monitoring and planning reports drafted and submitted with reference to the M&E plan.	Inception activities carried out, project management structure implemented Project reporting and planning established and implemented	Project reporting and planning continued until project end	Inception workshop held Project Steering Committee and the Technical Committee established Technical Committee meetings Steering committee meetings	s
<b>Indicator 20:</b> Number and quality of project audit and evaluation reports drafted and submitted with reference to the M&E plan.	Mid Term Evaluation and auditing activities carried ou	Terminal Evaluation and auditing activities carried out	MTR finalized in December 2020 TE implemented (December 2023 – March 2024)	S
<b>Indicator 21:</b> Presence of a knowledge management system established and sustained	KM system including project website established (to be completed in the 1st year of project implementation out.	Terminal reporting completed and submitted to GoJ, UNDP and GEF	Project web-page established	S

 Table 14: Deliverables for Component 4: Knowledge Management and M&E

As described in earlier sections of this report, the project was successfully launched through organisation of the Inception Workshop and established its governance and management structure.

The planning of the project implementation followed standard procedures for UNDP-implemented projects through preparation of annual workplans in a tabular format with listed outputs and activities, indicative implementation timeframe, and allocation of funding at the level of outputs. All GEF PIRs and UNDP APRs were prepared in prescribed format in a timely manner.

The MTR was completed according to the plan and a management response for implementation of the MTR recommendations was prepared and duly implemented with updates published at the UNDP Evaluation Resource Centre webpage. Terminal Evaluation was implemented from 1 December 2023 until 31 March 2024.

The project webpage was established and is being updated regularly with information on the progress achieved. Documents are available in both languages English and Arabic to be available for all users including locals and internationals. All knowledge products form the project have been shared with the Ministry of Environment.

The most important events within the project were announced via various media channels, such as press releases in the local newspapers and numerous postings on social media channels. The announcements included the launching of the WEEE instructions, inauguration of the electronic and electrical waste collection sites, signing of a memorandum of understanding with the Manaseer Industrial Complex, launching of sorting activities at source in Madaba Municipality, as well as posting of videos of installed autoclaves at HCFs and publication of information on update of the HCWM instructions.

#### **Overall assessment of Outcome 4:**

The project organised a considerable number and variety of awareness-raising and training events targeted primarily at officials from the governmental stakeholder institutions. Besides the public officials, the project also strengthened awareness and understanding of the public at large hence implementation of this component/outcome was important for ensuring institutional sustainability of the project results.

Based on the above findings, implementation of Outcome 4 is rated Satisfactory (S).

#### Relevance

The questions discussed under this section are to what extent is the project linked to Jordan's national development priorities, its international commitments under the relevant MEAs, the relevant GEF Operational Programme, the strategic priorities of UNDP in Jordan and the UN Sustainable Development Goals.

Firstly, the project is aligned with Jordan's 2025 National Vision and Strategy and the related Sustainable Consumption and Production (SCP) National Strategy and Action Plan that defines priority actions for the Waste Management Sector<sup>26</sup>:

Strategic Objective 3: Engage key national stakeholders in developing, practising, and evaluating Sustainable Consumption and Production models and circular economy measures leading to high resource efficiency and preservation, reduced pollution, and decoupling the economic development process from environmental degradation and promoting sustainable lifestyles.

Furthermore, the project is in line with the first national solid waste management strategy<sup>27</sup>, in particular with its main objective to identify the most cost effective, efficient, affordable, and environmentally and socially sound MSWM framework in Jordan through improvements to institutional, operational, financial, socio-economic, and legal aspects incorporating the best waste management practices.

The project also supports provisions of the National Implementation Plan under the Stockholm Convention and its 2018 update that stipulates the commitment to improve Jordan's compliance with the Stockholm Convention, particularly with regard to dioxins and furans.

The project has a direct link to the following objectives of the GEF-6 Chemicals and Waste Focal Area Strategy:

*Objective 1: Develop the enabling conditions, tools, and environment for the sound management of harmful chemicals and wastes:* 

Programme 1: Develop and demonstrate new tools and regulatory along with economic approaches for managing harmful chemicals and waste in a sound manner,

<sup>&</sup>lt;sup>26</sup> National Strategy and Action Plan for Sustainable Consumption and Production in Jordan 2016 - 2025

<sup>&</sup>lt;sup>27</sup> National Strategy to Improve the Municipal Solid Waste Management Sector in the Hashemite Kingdom of Jordan, September 2015

*Objective 2: Reduce the prevalence of harmful chemicals and waste and support the implementation of clean alternative technologies/substances.* 

#### Programme 3: Reduction and elimination of POPs

The project is linked to a number of UN Sustainable Development Goals (SDGs), namely SDG #3: Good health and well-being; SDG #5: Gender equality; SDG #8: Decent work and economic growth; SDG #9: Industry, innovation, and infrastructure; SDG #11: Sustainable Cities and Communities, and SDG #12: Responsible consumption and production.

The project is also linked to the following provisions of the UNDP global Strategic Plan under which since 2004 UNDP has been assisting more than 80 developing countries and countries with economies in transition in their efforts to sustainably manage the use, disposal, and destruction of POPs:

*Outcome 1: Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded* 

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

Output 2.5: Legal and regulatory frameworks, policies and institutions enabled to ensure the conservation, sustainable use, and access and benefit sharing of natural resources, biodiversity and ecosystems, in line with international conventions and national legislation

In relation to the United Nations Sustainable Development Framework (UNSDF) for 2018-2022, the project contributes to the following outcome:

*Outcome 3: Enhanced opportunities for inclusive engagement of all people living in Jordan within the social, economic, environmental, and political spheres* 

The project also contributes to implementation of the UNDP Country Programme Document for Jordan 2018-2022, namely to:

Outcome 5: Government and national institutions have operationalized mechanisms to develop and implement strategies and plans targeting key cultural, environmental and disaster risk reduction issues (including a transition to a green economy) at national and sub-national levels

Based on the above, the relevance of the Project for the recipient country, as well as the donor and implementing agencies is rated **Relevant (R)**.

#### **Effectiveness**

Given the project's relevance discussed above, the project contributed to the national development priorities, the GEF-6 strategic priorities, the UNDP Strategic Plan, as well as to several UN SDGs.

The details on extent to which the project contributed to the achieving or not achieving the planned outcomes is discussed in the previous section on 'Progress towards objective and expected outcomes'.

The project has achieved a majority of measurable targets while few activities were still on-going at the time of the TE. Areas where not all targets were achieved was approval of some legislation, in particular the incentive mechanism for collection of e-waste and instructions for RDF. Although endorsing of the new legislation is beyond control of the project, it remains a priority of the institutional stakeholders. Effectiveness of the project was impacted by Covid-19 restrictions, challenges to identify and recruit technically sound expertise, and difficulties to reconcile priorities of multiple stakeholders in a way respectful to all stakeholders' mandates, roles and responsibilities.

The overall effectiveness of the project is rated Satisfactory (S).

## **Efficiency**

The main issues examined in relation to efficiency were the length of the project implementation period and to what extent the results have been achieved with the least costly GEF and other resources possible.

The project was approved for implementation by the GEF CEO on 19 October 2017 for a period of 60 months. The signature of the Project Document by the Ministry of Planning and International Cooperation on 30 May 2018 officially marked the start of the project implementation.

In December 2022, the project was granted 12-month extension order to compensate for the time lost during the Covid-19 lockdown. The planned project completion date is thus 30 May 2024.

The TE consultant found the resource allocation to the individual project components reasonable and well balanced. The evaluator did not find any serious inefficiencies in the use of the allocated funds and therefore consider the use of the project funds cost-effective.

Based on the above findings, the efficiency in terms of the project timeline and use of resources is rated **Satisfactory (S).** 

#### **Overall** outcome

The status of delivery for the overall project outcome is summarised in Table 15 below.

# Table 15: Status of the overall project outcome

Project Objective: Protection of human health and the environment through reduction and elimination of POPs, and other chemicals through implementation of environmentally sound management (ESM) for e-waste, healthcare waste and priority U-POPs release sources associated with general waste management activities				
Indicators	End of Project Targets	Status at TE	Rating	
<b>Mandatory Indicator 1:</b> Number of new partnership mechanisms with funding for sustainable management solutions of natural resources, ecosystem services, chemicals and waste at national and/or subnational level	Public private partnership implemented, subsidized for the first year and financially sustainable for the subsequent years Pilot schemes for collection, disposal and recycling of different waste streams (E waste MSW HW HCW)	Partnerships with Manaseer cement factory established Pilot schemes on e- waste collection of in Amman, Irbid, Zarqa and Aqaba municipalities (9 collection centres) Pilot schemes on MSW collection in Madaba, Deir Abi Saeed and Bergesh municipalities	s	
	piloted	inducipanties		
<b>Mandatory Indicator 2:</b> Extent to which legal or policy or institutional frameworks are in place for conservation, sustainable use, and access and benefit sharing of natural resources, biodiversity, and ecosystems	Amendment of existing regulation, policies and strategies, or new regulation when needed, fulfilling the requirement of the Stockholm Convention approved and enacted	E-waste Management Instructions approved. EPR Instructions drafted and submitted for approval Medical Waste Management Instructions revised and submitted for approval Work on RDF Instructions initiated	S	
<b>Mandatory Indicator 3:</b> Amounts of POPs, U-POPs and mercury uses and release avoided at project implementation and predicted at replication	Implementation of the pilot interventions envisaged in the sectors of Health Care Waste, E-Waste, Hazardous Waste, Municipal Solid Waste, with the certification of large disposal facilities (incinerators and cement kiln) the replacement of obsolete incinerators in the HC sector, the demonstration of door to door collection of MSW and of RDF production.	POPs reduction 37.8 g Teq from HCW 0.045 g Teq from MSW 0.02 gT eq from RD	S	
<b>Mandatory Indicator 4:</b> Evidence that gender mainstreaming and equal opportunities have been ensured for job opportunities and access to knowledge and training	Recruitment of project staff, awareness raising, pilot activities and training conducted in compliance with the gender mainstreaming plan developed	<ul> <li>TWG established to support gender mainstreaming activities in the participating municipalities</li> <li>Participation of women in training and awareness activities (details under Components 1-3)</li> <li>One gender sensitization seminar on gender issues in WM</li> <li>Gender-sensitive awareness-raising material about the project, WM, prepared and disseminated in the target areas</li> <li>Two 4-day trainings (one in Koura and one in Madaba) for women on alternative livelihood opportunities using recyclable materials for home use conducted</li> <li>Support for the trained women to connect with women-led NGOs to market their products</li> <li>10 E-waste discussion meetings with local communities (50% women) conducted</li> </ul>	S	

Based on the above, the overall achievement of the Project Objective is rated Satisfactory (S).

### Overall project outcome rating

The overall project outcome rating is based on the ratings for relevance, effectiveness, and efficiency, of which relevance and effectiveness are critical. The ratings are summarized in Table 16 below.

Table 16: TE ratings for the overall project outcome

Assessment of outcomes	TE rating
Relevance	Relevant (R)
Effectiveness	Satisfactory (S)
Efficiency	Satisfactory (S)
Overall project outcome rating	Satisfactory (S)

An important qualitative achievement of the project includes building experience and capacities at different levels for work in new technical areas with and array of direct beneficiaries that is invaluable for institutional, socio-economic, and financial sustainability of the project results.

### Country ownership

To examine the country ownership, GEF evaluations are required to find evidence that the project fits within stated sector development priorities, and that the planned results were developed with involvement from the governmental officials and adopted into national strategies, policies and legislative codes.

The project was designed upon extensive consultations with an array of public stakeholders, including key agencies of the GoJ with mandated responsibilities for environment, health, and local administration. A high level of country ownership of the project was one of the key assumptions made during the project design phase.

Strong ownership by the GoJ stakeholders was sustained throughout the project implementation and proved to be one of the critical drivers of progress towards the planned results under all project components. The ownership was demonstrated by active participation and engagement of relevant institutions through the Project Board and the Technical Committee. It can be therefore concluded that the strong project ownership resulted not only from the significant relevance of the project to the national priorities, but also from the proactive interest the GoJ stakeholders have taken in the project.

Awareness activities targeting core stakeholders from the national and sub-national governments, as well as tangential stakeholders from academia, media, civil society and the private sector the public service announcements on radio and television have popularized the project objective for generation of support for implementation of the project. The importance of focus on meeting national and global environmental obligations under the Stockholm Convention were also emphasized by all stakeholder interviewed during the data collection phase of the TE.

It can be therefore concluded that the strong project ownership by all stakeholders does not originate only from strong alignment of the project to relevant national priorities and action plans, but it also results from the proactive stakeholder participation in the project implementation and in targeted awareness activities.

#### Gender equality and women's empowerment

The focus of this section is to discuss to what extent the project mainstreamed the UNDP and GEF corporate cross-cutting priorities of women's empowerment, i.e. whether gender issues had been considered in project design and implementation and in what way has the project contributed to greater consideration of gender aspects in the area of management of various waste streams and reduction of POPs.

The project received gender marker rating  $2^{28}$  which means that although gender equality is not the main objective of the project, but it promotes gender equality in a significant and consistent way. For this reason, a Gender Mainstreaming Action Plan (GMAP) was developed during the project formulation and included as Annex 6 to the Project Document. The plan contains total 14 indicators and related targets. A majority of the indicators are related to equal representation and participation of women in project activities, such as stakeholder consultation meetings, technical committees, and training events.

Table 17 below provides summary of participation of women in various project activities.

Activity name/location	Date(s)	Female/Total Participants	%
General stakeholder meetings			
Initial meetings with project stakeholders/Amman	16/7 -2/8/2018	1/14	7.1
Inception Workshop/Amman	26-27/9/2018	18/68	26.5
Consultation workshop on implementing RIA/Amman	24/1/2022	10/24	41.7
Technical Committee meeting/Amman	23/5/2023	5/13	38.5
E-waste component			
E-waste instructions consultation workshop/Amman	9-10/10/2019	13/36	36.1
E-waste instructions launching event/Amman	14/6/2021	12/29	41.4
Workshop on international practices of e-waste labelling and safeguarding/Dead Sea	30/7/2021	4/6	66.7
Training on e-waste collection processing and BEP/Amman	2-5/8/2021	1/21	4.7
E-waste awareness campaign (several locations)	8-23/8/2022	208/208 and more than 300 school students	100
Inauguration of e-waste collection sites/Amman	4/10/2022	10/31	32.3
"Clean up the world" campaign including training workshop on e-waste safe dismantling/Aqaba	29-30/9/2021	2/17	11.8
HCW component			
TOT on healthcare waste management for MoH hospitals/Amman	10-19/6/2019	77/149	51.7
Training on ESM of healthcare waste/participating HCFs	15/10 - 5/11/2019	not calculated/133	N.A.
Updating the HCW instructions workshop/Dead Sea	31/3-1/4/2022	7/22	31.8
Updating the HCW instructions workshop/Amman	28/2 - 1/3/2023	16/43	37.2
MSW component			
Workshop on HW classification and handling/Amman	29/7/2021	22/59	37.3
"Sort with us" campaign inauguration event/Madaba	23/11/2022	48/85	56.5
HCW segregation training	9/3/2023	22/45	48.2
Awareness meetings			
Awareness workshop in Mu'tah University	26/11/2018	30/68	44.1
Awareness workshop in Aqaba for ASEZA	25-26/2020	4/22	18.2

Table 17: Involvement of women in the project activities

The project was designed with interventions aiming at building institutional capacities for strengthening the voice of women, increasing their representation at the national, sub-national and community levels, as well as empowering women economically.

<sup>&</sup>lt;sup>28</sup> Coding Definitions for Gender Equality Markers: Guidance Note, UN CEB, 2018

A technical working group (TWG) was established and operationalized to support gender mainstreaming activities in the target municipalities. The TWG comprises 7 women: the Gender Focal Point from the MoEnv, the Joint Services Council of Irbid and Madaba municipality, Women's Economic Empowerment Units/Local Development Units at Madaba, Dair Abi Saeed, and Bergesh municipalities). The TWG convened for the first time on 6 June 2023. On 19 June 2023, a gender sensitization and awareness-raising seminar was conducted for the TWG members and MoEnv focal points at Zarqa and Irbid environment directorates and for responsible staff working in different directorates at the MoEnv.

It follows from Table 17 that the women participation in the e-waste and MSW components was typically 30-48% while in the HCW component the women participation in the ToT on HCWM was above 50% (unfortunately no sex disaggregated data were collected for HCWM trainings in October-November 2019). The higher involvement of women in Component 2 reflects the fact that women represent a large portion of workers employed in the healthcare service and positions women as important target group for the project. Experience from the Global Healthcare Waste project<sup>29</sup> proved that encouragement of emergence of 'champions' of better HCWM practices as a value-based effort can reinforce women empowerment within the staff and administration of HCFs.

With exception of Indicator 4, all other indicators in the PRF for monitoring progress to the planned results are not gender sensitive. Consequently, the project M&E plan does not have provisions for gender specific monitoring. However, data in the above table indicate that the project did make effort on systematic collection of sex-disaggregated data. Unfortunately, data on participation of women in various stakeholder consultations, training workshops and awareness raising activities were collected just *per se* without further analysis of the collected data.

More detailed analysis of women participation in activities related to Components 1 and 3 would be desirable for learning about root causes of underrepresentation of women in e-waste and municipal solid waste management sectors. Available studies suggest that participation of women in these two sectors is constrained by cultural norms and gender roles that deter women from working in male-dominated sectors. Specifically, in sectors perceived to be unsafe such as waste management women are typically restricted to office-related work. Such gendered roles and perceptions limit opportunities for professional advancement of women, especially in technical positions, and particularly limit the opportunity to earn greater income.<sup>30</sup>

Apart from quantitative indicators on participation of women, the GMAP also contains respective qualitative indicators on creation of conditions for equal employment opportunities with emphasis on equal pay, on promotion of women into supervisors in MSW activities, and on setting favourable facilities for women at MSW sites. In this regard, the project attempted to incorporate conditions for equal employment opportunities the implementation of sorting at source activities with an emphasis on women equal pay.

The evaluator concluded that women were involved to the extent possible in the project activities. Nevertheless, there is a room for improvement towards inclusion of gender-sensitive indicators and more thorough tracking and analysis of related data in the monitoring and reporting frameworks in future projects.

<sup>&</sup>lt;sup>29</sup> Global Project on Demonstrating and Promoting Best Techniques and Practices for Reducing Health-Care Waste to Avoid Environmental Releases of Dioxins and Mercury, GEF ID 1802

<sup>&</sup>lt;sup>30</sup> Recycling in Jordan Activity: Gender Analysis, USAID 2O21

#### Other cross-cutting issues

Cross-cutting issues other than gender equality, such as human rights, poverty alleviation, governance, inclusive societies etc., were not central to the formulation of the project and with exception of poverty not explicitly mentioned in the Project Document. However, the project design indirectly addresses some cross-cutting dimensions in terms of improvement of living conditions of disadvantaged marginalized groups of population.

On informal collection and sorting of e-waste and hazardous waste, marginalised population often among the most exposed to the chemicals contained in various waste streams, either during their collection or due to use of unsafe sorting, handling, and recycling practices. The project contributed to reducing improper collection of e-waste and unsafe handling of hazardous waste, as well as to reduction of air pollution through replacement of HCW incineration with environmentally sound treatment. Through promotion of inclusive waste management strategies and practices the project contributed to reduction of negative environmental and health impacts on local communities in the project target areas.

#### Social and environmental standards

The relevant GEF policy<sup>31</sup> requires agencies to provide information on the implementation of relevant environmental and social management measures at project mid-term, if applicable, and at project completion.

At the design phase, the project was subject to the standard Social and Environmental Screening Procedure (SESP) in line with the UNDP Social and Environmental Standards. Annex E of the Project Document that contains summary of the SESP with attached Social and Environmental Screening Checklist concludes that two risks were found, namely social risk to economic livelihoods of marginalized population dependent on informal waste collection and risk to environmental health from improper implementation of waste management technologies. Both risks were rated of low probability and therefore no specific management plans to mitigate the risks were required to be developed during the project implementation.

According to the information from the project team, project risks were regularly updated in the system. However, the project progress reports did not provide update on monitoring of the above identified risks and there was no assessment of the two risks in the MTR report either.

#### **GEF** additionality

The traditional concept of additionality in the GEF projects as based on the incremental cost approach to ensure that GEF funds do not substitute for existing development finance but provide additional resources to produce global environmental benefits. This concept presents the additionality as a narrow focus on specific environmental benefits from the GEF funding but does not recognize other objectives that support the achievement of the global environmental benefits over a longer term.

The special environmental benefits from this project are examined under the assessment of the Project Objective and the environmental sustainability. In line with recent developments of evaluation methodology of GEF projects, the GEF additionality is examined in terms of changes in the attainment of direct project outcomes at project completion that can be attributed to GEF's interventions<sup>32</sup>.

The project provided a legal/regulatory additionality through its support for development of instructions for e-waste management, for HCW management and for EPR. However, the legislative process was

<sup>&</sup>lt;sup>31</sup> Policy on Environmental and Social Safeguards, GEF GEF/C.55/07/Rev.01

 $<sup>^{\</sup>rm 32}$  An Evaluative Approach to Assessing GEF's Additionality, GEF/ME/C.55/inf. 01

completed only in the field of e-waste management. At the TE, the latter two instructions were still subject to consideration of the draft instructions by relevant ministries.

Institutional and governance additionality of the project is attributed to strengthening of the individual ministries (MoEnv, MoH and MoLA) as well as creation of effective partnerships with the affected governorates and municipalities for adoption of environmentally sound management of e-waste, HCW and MSW.

The project did not result in any tangible socio-economic additionality in terms of improvements of living standard of affected population groups.

### Catalytic/Replication effect

The highest chance of replication is in the area of HCWM where the replication would be based on practices and technologies proved successful in many other projects and countries, and officially adopted and standardized by WHO. The technologies, including non-combustion treatment and safe incineration, are largely commercially available. However, the replication is heavily dependent of availability of investment for the autoclave sterilization devices.

Replication and upscaling of the project results in this area could be achieved through additional training and dissemination of the training materials beyond the scope of the project. The necessary measures could include the following:

- conduct refresher training for hospitals identified as underperforming in terms of HCW segregation;
- use the existing trainers to expand training in non-project hospitals; and
- distribution of training materials to non-project hospitals

Although the project has built a strong foundation for replication of the e-waste and municipal waste components, the main obstacle to replication to other locations in the country are the concerns that communities involved in informal waste collection could lose their source of income. Although there was an intention to focus on the social and market approaches to ensure the success of the project activities and their wider replication, due to various implementation challenges there were no elements for replication established. As explained under Components 1 and 3, the replication potential is dependent on integration of informal waste collectors into formal collection schemes that will increase economic viability of recycling activities and at the same time will not damage the livelihoods of the informal waste pickers.

For sharing experience from implementation, the project used several communication channels including, Facebook and national printed and electronic media to raise awareness about environmentally sound e-waste, HCW and MSW management practices.

A key factor in the replication of sustainable management practices is the high level of investment needed that is beyond the financial possibilities of the governorates and municipalities. Financing of replication should come from private sector investors. The project made an important first step when it facilitated identification of sound environmental technologies and practices and provided guidance to the regional and local administration for preparation of contracts with investors and for monitoring the service delivery under eventual contracts.

### **Progress to impact**

It is often too early to assess the long-term impacts of a project at the point of its completion as many results, particularly environmental benefits, can take several years to manifest. Nonetheless, reviewing

progress to impacts at project completion helps to determine the extent to which long-term results are likely.

The progress towards impacts will require several drivers, including continued political will, sensitization of policy and decision makers, enactment, and enforcement of legislation, as well as continued institutional strengthening.

Despite delays and implementation challenges in certain components, the progress to impact observed so far is summarized as follows:

### Institutional and Regulatory:

- Upon official adoption of the draft instructions on medical waste management and on EPR, the respective institutional mandates of the MoEnv and MoH for enforcement of the legislation will be strengthened;
- The amended and improved legislation will also provide for an enforcement mechanism that will further serve to ensure compliance and contribute to overall reduction of negative health and environmental impacts associated with poor waste management;
- Increased interest by an array of actors (governments, private sector, NGOs) on sustainable waste management is leading to design of new projects and search for funding for addressing several issues of waste management.

### Health Care Waste Component

- HCWM becomes a priority across all health care facilities;
- The project HCFs (and several others outside the project) undertake HCW segregation at source;
- The project HCFs have HCWM committees in place and updated HCWM plans;

### E-waste and MSW Components

- The government is putting in place legislation on sustainable waste management with key aspects including prohibition of open burning of waste, and promotion of a circular economy approach to waste management;
- There is now an understanding of linking solid waste management to economic benefits, material conservation and job creation;
- The improved legislation foster a behavioral shift from mixed waste disposal at household level to sorting of waste at source, and recognition that waste recoverable streams are key elements in the realization of sustainable waste management;
- Waste recyclers are recognized by law, and waste management is recognized as an economic activity;
- Citizens are also key stakeholders to monitor compliance and reporting illegal waste dumping;
- Based on improved knowledge on need for sustainable waste management especially for waste streams such as plastics and paper, governorates and municipalities recognize importance of material recovery facilities and pursue partnerships with private sector for waste management interventions.

Overall, the impact of the project is the gradual shift of the view of various MSW streams as a resource for recycling and reuse rather than as a nuisance for disposal. Such a shift brought new players (e.g. private sector recycling and energy actors) in the area previously occupied exclusively by state/county authorities and informal waste collection actors and therefore calls for improved level of coordination in the MSWM sector.

#### **Sustainability**

Sustainability of the project is judged by the commitment of various stakeholders in the beneficiary country to continue and replicate the project activities beyond the project completion date. The evaluation identifies key risks to sustainability and explains how these risks may affect continuation of the project benefits after the project closes. The sustainability assessment covers financial, institutional/governance, socio-economic, and environmental risks.

#### Financial sustainability:

The financial sustainability is judged by the commitment of the project stakeholders for continued support for sustaining the already realized project benefits and their replication to new additional locations.

With the involvement of private sector through the licensed companies for e-waste recycling, industryled initiatives targeting waste recycling and circular economy have emerged. These initiatives are slowly unlocking and mobilising resources from the private sector and industries towards sustainable waste management and reduction of u-POPs.

The institutional and policy frameworks for e-waste, HCW and MSW improved with the assistance of the project provide solid grounds for enforcement of waste management regulations, for financings of waste management interventions from public funds, and for introduction of financial incentives to private sector.

Based on the above, financial sustainability is rated Likely (L).

#### Socio-economic sustainability

The project helped to improve engagement with the issue of management of e-waste, HCW and MSW streams. Extensive stakeholder consultations, awareness raising events, and knowledge products delivered by the project have contributed to increased awareness and understanding of need for POPs reduction within the institutional, private sector and community stakeholders. Furthermore, the project has contributed to making the waste management more inclusive of the local communities and private sector businesses. All the above are positive factors of social sustainability.

The empowerment of local communities through awareness raising and supporting circular economy with income generating activities is an important element of behavioural change. The project has created a supportive enabling environment that can ensure a wide support base for more active involvement of stakeholders.

The project facilitated registration and licensing of e-waste collection and dismantling companies and made some effort on integration of informal e-waste collectors in existing formal collection schemes. Due to lack of governmental policies in this area it did not succeed to change the baseline situation that the informal sector still holds the main share of the relevant market. Continued absence of officially approved financial incentives for e-waste collection and processing as well as lack of economic incentives and infrastructure for recycling of MSW pose a risk to socio-economic sustainability of the project results. The risk could be reduced through completion of the legislative process for the EPR instructions that would pave the way towards enforcement of environmentally sound management of e-waste.

Based on the above socio-economic sustainability is rated Moderately Likely (ML).

#### Institutional framework and governance:

At the time of the TE there is a good expectation that institutional framework and governance gains derived from the Project can be sustained. This not only due to the institutional strengthening at the national level, but also due to the technical assistance to and capacity building of authorities at subnational levels.

The core institutional framework of the project comprised of the GoJ (the MoEnv, MoH and MoLA) with officials at the level of participating governorates and municipalities forming an extended arm of the institutional framework for the management the target waste streams. The essential institutional governance structure had been in place before the project start.

The institutional and human resources and capacities, improved during the project implementation, will be available in the immediate future, hence the risk to institutional and governance sustainability tends to be low. However, this assumption is valid only if various stakeholders can retain the current human resources. Also, the complexity of legislative process and changing priorities of the GoJ could constitute a moderate risk to project sustainability.

While the project was successful in building institutional and individual capacities of an array of institutional stakeholders, there is no measure of uptake of the training activities by the capacitated individuals and the extent to which they will be able to use the acquired knowledge in future work. Knowledge management products and training modules have been developed, but no concrete plans were developed to ensure that relevant institutions will continue the trainings after the project closure.

Based on the above, the institutional framework and governance sustainability is rated Likely (L).

#### Environmental sustainability:

The project has achieved tangible results on reduction of the environmental risks related to U-POPs generation from HCW and MSW. Despite some achievements related to e-waste management, there are persisting environmental and health risks due to ineffective infrastructures e-waste management and continued dominance of the informal waste collectors and recyclers. Recycling by the informal sector workers includes labour intensive processes in substandard facilities with the aim to achieve swift separation of different materials without appropriate safeguards to human health and environment.

In particular, potential effects of creation of hazardous chemicals are ignored e.g. when printed circuit boards are heated to recover chips and plastics are melted and burned to isolate metals. Such procedures release dioxins and other toxic gases and cause local air pollution and risk to human health. Moreover, uncontrolled dumping of parts of low value in landfills allows for releases of remaining heavy metals to cause risk to environment. As discussed under achievements of Component 3, there is no quick solution to the continued dominance of the informal sector e-waste recyclers, hence the above risk should be considered.

Based on the above, the evaluator rates the environmental sustainability as Moderately Likely (ML).

#### Overall likelihood of sustainability

According to the UNDP/GEF guidelines, all risk dimensions of sustainability are critical and the overall rating for sustainability cannot be higher than its lowest rated dimension. Therefore, Table 18 below summarizes the ratings for individual sustainability aspects and justifies the overall rating of sustainability as **Moderately Likely (ML)**.

 Table 18: Summary assessment of sustainability

Sustainability aspect	TE rating
Institutional framework and governance	Likely (L)
Financial resources	Likely L)
Socio-political	Moderately Likely (ML)
Environmental	Moderately Likely (ML)
Overall Likelihood of Sustainability	Moderately Likely (ML)

The summary of ratings of the mandatory evaluation criteria is in the Table 19 below.

Table 19	: Overall	Project	Rating
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1.Monitoring & Evaluation (M&E)	TE Rating
M&E plan: design at entry	Satisfactory (S)
M&E plan: implementation	Satisfactory (S)
Overall quality of M&E	Satisfactory (S)
2.Performance of Implementing Agency & Executing Agency	TE Rating
Quality of UNDP Implementation/Oversight	Satisfactory (S)
Quality of Implementing Partner Execution	Satisfactory (S)
Overall quality implementation / execution	Satisfactory (S)
3.Assessment of Outcomes	TE Rating
Relevance	Relevant (R)
Effectiveness	Satisfactory (S)
Efficiency	Satisfactory (S)
Overall Project Outcome	Satisfactory (S)
4.Sustainability	TE Rating
Institutional framework and governance	Likely (L)
Financial	Likely (L)
Socio-political	Moderately Likely (ML)
Environmental	Moderately Likely (ML)
Overall Likelihood of Sustainability	Moderately Likely (ML)

# MAIN FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This section contains a short summary of main findings from the previous chapters as a basis for conclusions followed by recommendations as corrective actions proposed to be taken by relevant project stakeholders to address the deficiencies identified in the findings and conclusions.

### **Main findings**

The project was found relevant for national development priorities as well as for UNDP and GEF strategic priorities. The country ownership of the project has been strong due to multi-stakeholder participation from different levels of the government and the private sector.

The project logical framework was sound and well prepared with few inconsistencies in definition of indicators and targets according to the SMART criteria. Adaptive management was properly used throughout the project, in particular to replace the original partner for the RDF sub-component. Women's empowerment was enhanced particularly in the healthcare sector where the training and awareness raising had the highest participation of women.

The TE found the project's most visible achievements under Component 2 due to strong commitment to management of HCW by the involved agencies of the GoJ and their sustained ownership of this project component. The project has enhanced the institutional and staff capacity for proper management and separation of HCW and successfully supported transition of HCW treatment from incineration to autoclaving through the procurement of 11 autoclaves for selected HCFs. In addition to providing transport vehicles for HCW and equipment for GPS tracking system to control hazardous and HCW transport, it also equipped one incineration facility with the required equipment for proper monitoring and control of operations.

Achievements under Component 1 were also notable and included updated e-waste instructions, draft legislation on extended producer responsibility (EPR), as well as an innovative mobile application for collection of e-waste. The project facilitated registration and licensing of e-waste collection and dismantling companies and made some effort on integration of informal e-waste collectors in existing formal collection schemes. Due to lack of governmental policies in this area it did not succeed to change the baseline situation that the informal sector holds the main share of the relevant market. Another factor is absence of officially approved financial incentives for e-waste collection and processing. Due to economic decline after Covid-19, the MoEnv is not able to complete stakeholder consultations on the draft EPR legislation and launch the legislative approval that would pave the way towards inclusion of increased quantities of e-waste processed through the officially licensed recyclers and thus lead to environmentally sound management of e-waste.

Component 3 on municipal solid waste management (MSWM), the main underlying factors were implementation delays due the institutional complexity of MSWM. The latter typically depends on a number of actors, including agencies of the central and county governments, private sector, and CBOs. Another delaying factor was declaration of financial insolvency of a key stakeholder in RDF use and the time needed to find another cement producer company with ability, technical competence, and financial solvency for experiments with burning of RDF materials.

### **Conclusions**

The project achieved most of the planned results because it was fully aligned with the national priorities as well relevant to the needs of the existing local waste management systems where it added value through provision of technical expertise for establishment of waste, e-waste and MSW sorting and recycling infrastructures as well as through technology transfer for management of medical waste. Therefore, the project laid the foundation for an effective and environmentally sound waste management both at the regulatory and technical levels.

On gender mainstreaming and cross-cutting issues, the project ensured extensive participation of women in training and awareness activities and took care to collect statistics disaggregated by sex, but did not attempt to conduct further steps aimed at equity and empowerment of women and other vulnerable groups.

#### Specific conclusions and recommendations

This Terminal Evaluation makes two types of specific recommendations. The first type is provided for consideration of the national project partners in order to ensure the project results are consolidated and sustained by relevant project stakeholders. These recommendations are suggested for implementation as soon as possible before the project completion using the existing institutional capacities and frameworks that have been created by the current project. The second type of recommendations is provided for consideration of UNDP and the government to improve the design and monitoring of future projects in the area of waste management.

Recommendations to follow-up and/or reinforce initial benefits from the project:

<u>Conclusion 1:</u> The project supported development of the EPR instructions on e-waste as an incentive for the shift from informal to formal e-waste collection through reducing competitiveness of the informal e-waste collectors. However, this approach would have negative socio-economic impact on livelihoods of informal waste collectors and would thus not be in line with the UNDP corporate priority of leaving no one behind. The project has shown a better strategy of enabling voice and meaningful participation of informal waste collectors through their integration in the formal e-waste collection networks.

<u>Recommendation 1:</u> In the remaining time of the project implementation, the project team should support the efforts the association of waste recyclers in Northern Jordan for registration and integration of informal e-waste collectors under the umbrella of the association.

<u>Conclusion 2:</u> Despite the support to establishment of nine e-waste collection points and licensing of eight e-waste recycling companies, collection of e-waste in the project target municipalities has not reached the planned e-waste quantities. A targeted approach towards the biggest e-waste generators in the project beneficiary municipalities could bring increased e-waste collection quantities before the end of the project.

<u>Recommendation 2:</u> The project team should encourage the participating municipalities to accelerate work on e-waste collection campaign and focus on targeted e-waste collection in large institutions such as government offices, schools and universities, military facilities, etc.

<u>Conclusion 3:</u> Implementation of recommendations from the environmental audit at the JUST incinerator facility has improved the control and monitoring in terms of production of U-POPs and generation of climate-relevant emissions. The JUST incinerator continues to be critically important for incineration of HCW from a number of public and private hospitals, laboratories and medical centres in the northern governorates. Currently one of the older incinerator chambers is under reconstruction and needs to be put in use to serve as back-up and eventually increase the capacity for treatment of increased quantities of HCW.

<u>Recommendation 3:</u> The project team in cooperation with the Government should consider provision of further support to upgrade of the JUST incinerator facility

<u>Conclusion 4:</u> The Technical Committee established under the project facilitated effective coordination and cooperation of relevant stakeholders at the national, governorate and municipality level in relation to MSW generation and recycling. With the new GEF-8 project on plastic pollution currently under preparation, formalisation of the established inter-institutional mechanism beyond the project completion will ensure continued stakeholders' communication and dialogue for reduction of overlaps with other initiatives financed from other sources of development assistance and avoidance of duplication of efforts.

<u>Recommendation 4:</u> The UNDP CO and the MoEnv should consider to institutionalise the project Technical Committee as a platform for continued engagement and dialogue between all stakeholders relevant for implementation of projects on waste management.

<u>Conclusion 5:</u> The non-combustion (autoclave) facilities established under the project have effectively treated substantive quantities of HCW by sterilisation and therefore avoided production of U-POPs in previously used local incinerators. However, there is separate reporting on HCW quantities treated by MoH and RMS hospitals equipped with autoclave sterilisation technology. Establishment of centralised collection of data about quantities of HCW processed at all HCFs will streamline reporting on reduction of releases of POPs from unintentional production.

<u>Recommendation 5:</u> Relevant agencies of the Government (MoEnv, MoH and RMS) should consider establishment of a centralised system for data collection on quantities of medical waste processed in the project beneficiary HCFs and the JUST incinerator for effective assessment of effectiveness of measures taken for reduction or elimination of U-POPs.

<u>Conclusion 6:</u> Through effective adaptive management interventions, the project team managed to overcome initial delays in implementation of the project sub-component on the RDF demonstration. Successful conclusion of burning experiment with different RDF samples and development of draft RDF instructions are essential for identification of legislative and technological challenges related to future use of RDF as alternative to pet coal fuel in cement kilns.

<u>Recommendation 6:</u> The project management team in cooperation with the Manaseer cement factory and the MoEnv should accelerate implementation of test burning of agreed RDF samples and drafting of RDF instructions to ensure successful completion of these activities by the project operational closure.

<u>Conclusion 7:</u> An exit strategy is a key element in demonstrating sustainability of the project which should clearly describe how the achieved project outputs and outcomes will be sustained by the key project beneficiaries after the project closure.

<u>Recommendation 7:</u> The project team should ensure that the project core stakeholders develop an exit strategy for phasing over and transfer of ownership of project outputs and responsibility for their sustainability from the project management team before the operational completion of the project.

Recommendations to improve the design and monitoring of future projects on waste management

Conclusion 8: Continued efforts for integration of informal waste pickers is a critical step ensuring effectiveness of future e-waste and municipal solid waste projects.

<u>Recommendation 8:</u> For preparation of the GEF-8 project on management of plastic pollution, the UNDP CO in cooperation with relevant agencies of the central government and municipalities should consider the association of waste recyclers as one of the core stakeholders and consult the association during the project preparatory stage.

<u>Conclusion 9:</u> The current project successfully engaged governments at all levels and the private sector with limited participation of target communities. Stronger engagement of civic sector organisations in project target communities will enhance the capacity of local self-governments to effectively respond to needs of their communities, including marginalised groups, and increase inclusiveness of future projects.

<u>Recommendation 9:</u> The UNDP CO and relevant authorities at the national and municipality level should seek opportunities for active engagement of the civil society sector in UNDP-implemented waste management projects through identification of relevant community-based organisations and engaging them in future projects on waste management.

<u>Conclusion 10:</u> Awareness of waste separation at source by students at primary and secondary educational institutions and their waste separation behaviour is one of the crucial elements of the long-term successful implementation of MSW separation campaigns. A targeted work at schools could identify the factors that may influence and encourage students to become important drivers of change and improve effectiveness of waste collection and separation campaigns.

<u>Recommendation 10:</u> For preparation of future projects on waste management, the UNDP CO in cooperation with MoEnv should ensure involvement of the Ministry of Education for targeted awareness work and waste separation campaigns at schools and educational institutions and for that purpose consider formal inclusion of Ministry of Education in governance structures of future projects.

Conclusion 11: Collection of sex-aggregated data from participation in training and awareness-raising activities is an important element of gender mainstreaming in projects on waste management. However, these statistics are not sufficient for empowerment of women and improvement of well-being of marginalised groups.

<u>Recommendation 11:</u> For preparation of future projects on waste management, the UNDP CO in cooperation with MoEnv should identify an NGO partner for thorough assessment of needs and put more emphasis on planning and implementation of gender-transformative actions that ensure equal access of men and women to benefits of waste management projects.

<u>Conclusion 12:</u> The training and capacity building activities are important part of development assistance projects. While there is well established assessment of uptake of the capacity building at the level of trained individuals, there is no system in place to measure impact of the capacity building activities for strengthening of recipient institutions.

<u>Recommendation 12:</u> Future projects on waste management should measure actual uptake of capacity building activities not only at the level of trained individuals but also at the level of their institutions.

## Lessons learned and good practices

Activities on revision and amendment of the existing regulatory frameworks must begin in the first year of projects on waste management with the aim to ensure approval and enforcement of the updated laws

and regulations within the project time frame. A late start to these activities can result in failure to achieve timely approval of updated regulations and causes delays in implementation of technical assistance and technology transfer activities that depend on the existing regulatory frameworks.

Installation of the non-combustion technology (autoclaves) requires proper housing to shelter the equipment from negative weather impacts and to ensure compliance with safety requirements. Further requirements include supply of high voltage (3-phase) stable power of high capacity and the continued supply of water. The demand for electricity cables with sufficient capacity proved to be a challenge and in one HCF delayed installation of the autoclave technology by several months. Therefore, construction of housing including electricity and water supply connections should be initiated as early as possible, ideally during the initial assessment of the HCFs, in order to provide sufficient time to comply with all local administrative, technical and financial procedures.

The autoclaves in the three visited HCFs were found in good condition and fully operational. Due to constantly increasing load of HCW for sterilisation, the autoclaves are running near the edge of their operational capacity. Interruptions for maintenance caused accumulation of HCW that needs to be properly stored. Therefore, construction of an interim storage facility for infectious waste must be included in the preparatory works for installation of the autoclave.

In the initial period of operation of the autoclaves, some HCFs faced challenges in preventive and corrective maintenance of the autoclaves due to turnover of the originally trained autoclave operators and lack of training for their successors. This was later mitigated through establishment of a long-term agreement with a local servicing company for provision of both operation and maintenance services. This is considered a good practice because it shortens the time needed for identification and repair of malfunctioning equipment and therefore ensures reliable preventive and corrective maintenance.

Multi-stakeholder engagement in the project design and implementation requires that comparative advantages of different actors are duly considered. Engagement with core stakeholders for clarification of roles and responsibilities before start of the project implementation is a good practice that enables proper consideration of all stakeholders' expectations and ensures building of complementarities and avoidance of overlaps, competition, and wasting of resources.

## **Annex 1: Evaluation Terms of Reference**

Post Title:	International consultant- to conduct a Terminal Evaluation (TE) of the FSP UNDP-
	supported GEF-financed project
Starting Date:	Dec. 1 <sup>st</sup> ,2023
Duration:	Three months
Location:	Home-based with one mission to Jordan
	Reduction and elimination of POPs and other chemical releases through implementation
Project:	of environmentally sound management of E-Waste, healthcare waste and priority U-
	POPs release sources associated with general waste management activities.

#### **Country: Jordan**

#### 1. 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 at the end of the project. This term of reference (TOR) sets out the expectations for the TE of the full-sized project titled "Reduction and elimination of POPs and other chemical releases through implementation of environmentally sound management of E-Waste, healthcare waste and priority U-POPs release sources associated with general waste management activities" (PIMS 5667), implemented through the Jordan's Ministry of Environment. The project started on the 30 May 2018 and is in its 6th year of implementation. The TE process must follow the guidance outlined in the document 'Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects' (https://erc.undp.org/pdf/TE\_GuidanceforUNDP-supportedGEF-financedProjects.pdf).

The project was designed to reduce the releases of unintentionally produced U-POPs and other potential GHG into the environment by implementing ESM of E-waste, promoting sound healthcare waste management in Jordan and priority U-POPs release sources associated with general waste management activities to assist the country in implementing its relevant obligations under the Stockholm Convention.

#### 2. Project Background and Context

The project, through the implementation of a highly sustainable and replicable approach for the integrated and sound management of electronic (e-waste), hazardous, healthcare, and municipal solid waste categories, will achieve the avoidance of releases of U-POPs, PBDEs and CO2, contributing at the same time to the development of the waste circular economy elements based on the 3R (Reduce, Re-use, Recycle) approach principles. The project is designed with the three (3) components:

• <u>Project Component 1</u>: Development of an environmentally sound management (ESM) system for E-waste, which has the objective to improve and enforce the E-waste regulation in the country, and to develop capacity for the collection and disposal of POPs contaminated E-waste products and end-of-life articles.

• <u>Project Component 2</u>: Achievement of environmentally sound healthcare waste management (HCW), which has the objective to build on the existing potential of the country to further improve and extend the current HCW practices, including training, certification, and procurement of HCW waste treatment technology.

• <u>Project Component 3</u>: Development of waste diversion/resource recovery capacity for reduction in U-POPs emissions, accompanied by GHG related improvements, with the objective to demonstrate minimization in the amount of municipal waste (containing potentially hazardous fractions such as plastic etc) improperly dumped or disposed of through recycling techniques and application of reverse-derived fuel (RDF) principles in modern qualified cement kiln industry, including improved management of hazardous waste through establishing of a public/private partnership.

The project brings not only environmental benefits, but also substantial social protection benefits through the implementation of a dedicated gender mainstreaming plan and involvement of local communities in the activities related to the circular recycling economy.

The project budget from the GEF Trust Fund is 5,090,000 USD, UNDP TRAC resources are 150,000 USD and total co-financing is 5,240,000 USD.

The World Health Organization (WHO) confirmed 773,657 total cases of COVID-19 and 10,071 deaths in Jordan, as of August 4, 2021, out of a total population of some 10.2 million people. As of July 26, vaccination clinics and centers administered 4.9 million vaccine doses.

During 2020 and 2021 Covid-19 pandemic influenced implementation of the project. Specifically, the lockdowns enforced during 2020 and beginning of 2021 interfered the work planned for the three components under the project and delayed the work on the sorting and RDF activities. Additionally, scheduled training sessions on e-waste dismantling and recycling, sorting and RDF activities had to be re-schedules to these pandemic-related disruptions.
DocuSign Envelope ID: FC12B770-E1DD-4E39-9596-445E3B2249C3 -19 resulted with the no-cost extension being granted for one additional year.

# 3. TE Purpose

The TE will assess the achievement of project results against what was expected to be achieved and draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming. The TE report promotes accountability and transparency and assesses the extent of project accomplishments.

The evaluation will cover all the activities undertaken by the project. In scoping and during the implementation of the evaluation, key stakeholders of the project will be involved, such as the members of the project steering committee including representatives from the government institutions (Ministry of Environment (MoEnv), Ministry of Planning and International Cooperation (MoPIC), Ministry of Health (MoH), Royal Medical Services (RMS), senior officials and task team/ component leaders, key experts and consultants in the subject area, project stakeholders, and private sector (waste service providers). It also examines the efficiency and effectiveness of the project in terms of achieving expected results and evaluates the relevance and sustainability of achievements. The main responsibility of the evaluator is to examine the following elements: the project design, the objectives established and results achieved; different aspects of the project such as sustainability, monitoring and evaluation, and efficiency; the project strategy and development; the relationship among the different actors and their specific roles; the attainment of the results, objective and impacts of the project; the effectiveness of the strategy undertaken by the project; the financial, administrative and managerial aspects of the project; the project 's compliance with the rules and procedures of the project's administrative, financial and reporting system, verify that all is in accordance with the rules and regulations of UNDP and GEF.

## 4. TE Approach and Methodology

The TE must provide evidence-based information that is credible, reliable, and useful.

The evaluator will review all relevant sources of information including documents prepared during the preparation phase (i.e. PIF, UNDP Initiation Plan, UNDP Social and Environmental Screening Procedure/SESP) the project document, project reports – including Annual APR/PIR, project budget revisions, progress reports, GEF focal area tracking tools, project files, national strategic and legal documents, and any other materials that the evaluator considers useful for this evidence-based assessment. A list of documents that the project team will provide to the evaluator for review is included in Annex A of this Terms of Reference.

The evaluator is expected to follow a participatory and consultative approach ensuring close engagement with government counterparts, the GEF operational focal point, UNDP Country Office, project team, UNDP GEF Technical Adviser based in the region and key 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 (list); executing agencies, senior officials and task team/component leaders, key experts and consultants in the subject area, Project Board, project beneficiaries, academia, local government and CSOs, etc. Additionally, the TE consultant is expected to conduct field mission to Jordan, including the following project sites (Amman, Irbid, Zarqa, Madaba, Aqaba).

The specific design and methodology for the TE should emerge from consultations between the TE consultant 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 consultant must use gender-responsive methodologies and tools and ensure that gender equality and women's empowerment, 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 and stakeholders.

The final TE 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.

# 5. 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 B). The TE will assess results according to the criteria outlined in the Guidance for TEs of UNDP-supported GEF-financed Projects (<u>https://erc.undp.org/pdf/TE GuidanceforUNDP-supportedGEF-financedProjects.pdf</u>). 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.

## 5.1 Findings

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- 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 arrangement
- 5.1.2 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/implementation and execution (\*)
- Risk Management, including Social and Environmental Standards (Safeguards)
- 5.1.3 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 Effect
- Progress to impact

5.2 Main Findings, Conclusions, Recommendations and Lessons Learned

• The TE consultant 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 equality and 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 consultant 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.

The TE report will include an Evaluation Ratings Table, as shown below.

Monitoring & Evaluation (M&E)	Rating <sup>1</sup>
M&E design at entry	
M&E Plan Implementation	
Overall Quality of M&E	
Implementation & Execution	Rating
Quality of UNDP Implementation/Oversight	
Quality of Implementing Partner Execution	
Overall quality of Implementation/Execution	
Assessment of Outcomes	
Relevance	
Effectiveness	
Efficiency	
Overall Project Outcome Rating	
Sustainability	Rating
Financial resources	
Socio-political/economic	
Institutional framework and governance	
Environmental	
Overall Likelihood of Sustainability	

## ToR Table 2: Evaluation Ratings Table for (Reduction and Elimination of POPs)

<sup>1</sup> Outcomes, Effectiveness, Efficiency, M&E, I&E Execution, Relevance are rated on a 6-point rating scale: 6 = Highly Satisfactory (HS), 5 = Satisfactory (S), 4 = Moderately Satisfactory (MS), 3 = Moderately Unsatisfactory (MU), 2 = Unsatisfactory (U), 1 = Highly Unsatisfactory (HU). Sustainability is rated on a 4-point scale: 4 = Likely (L), 3 = Moderately Likely (ML), 2 = Moderately Unlikely (MU), 1 = Unlikely (U)

#### 6. Timeframe

The total duration of the TE will be 25 working days over the period of 12 weeks starting Dec. 1<sup>st</sup>, 2023. The tentative TE timeframe is as follows:

Timeframe	Activity
15 October 2023	Application closes
15 November, 2023	Selection of TE team
1 December 2023	Preparation period for TE team (handover of documentation)
8 December 3023	Document review and preparation of TE Inception Report
(3 WD)	
15 December 2023	Finalization and Validation of TE Inception Report; latest start of TE
(1 WD)	mission
By 30 December 2023	TE mission: stakeholder meetings, interviews, field visits, etc.
(10 WD)	
30 December 2023	Mission wrap-up meeting & presentation of initial findings; earliest end
(1 WD)	of TE mission
21 January 2024	Preparation of draft TE report
(7 WD)	
30 January 2024	Circulation of draft TE report for comments
13 February 2024	Incorporation of comments on draft TE report into Audit Trail &
(3 WD)	finalization of TE report
15 February 2024	Preparation and Issuance of Management Response
19 February 2024	Concluding Stakeholder Workshop (optional)
24 February 2024	Expected date of full TE completion

Content	Timing	Responsibilities
Evaluator provides	No later than 2 weeks	Evaluator submits to UNDP CO
clarifications on timing	before the evaluation	
and method	mission: due: 15 Dec. 2023	
Initial Findings	End of evaluation mission:	To project management, UNDP
	due: 30 Dec. 2023	со
Full report (using	Within 3 weeks of the	Sent to CO, reviewed by RTA,
guidelines on content	evaluation mission: due:	PCU, GEF OFPs
outlined in Annex C)	30 January 2024	
with annexes		
Revised report with	Within 2 weeks of	Sent to CO for uploading to
audit trail detailing how	receiving UNDP comments	UNDP ERC.
all received comments	on draft: due: 13 Feb 2024	
have (and have not) been		
addressed in the final		
	Content Evaluator provides clarifications on timing and method Initial Findings Full report (using guidelines on content outlined in Annex C) with annexes Revised report with audit trail detailing how all received comments have (and have not) been addressed in the final report	ContentTimingEvaluator providesNo later than 2 weeksclarifications on timingbefore the evaluationand methodmission: due: 15 Dec. 2023Initial FindingsEnd of evaluation mission: due: 30 Dec. 2023Full report (using guidelines on content outlined in Annex C)Within 3 weeks of the evaluation mission: due: 30 January 2024Revised report with audit trail detailing how all received comments have (and have not) been addressed in the final reportWithin 2 weeks of receiving UNDP comments on draft: due: 13 Feb 2024

# 7. TE Deliverables

\*The final TE report must be in English. If applicable, the Commissioning Unit may choose to arrange for a translation of the report into a language more widely shared by national stakeholders.

## 8. TE Arrangements

The principal responsibility for managing this TE resides with the UNDP Jordan Country Office, The CO will contract the consultant and provide an updated stakeholder list with contact details (phone and email), and ensure the timely provision of per diems and travel arrangements within the country. The consultant is expected to work with project management unit with a full guidance and supervision from the UNDP Team leader of the Environment, climate change and DRR portfolio.

The Project team will be responsible for liaising with the TE consultant to provide all relevant documents, set up stakeholder interviews, and arrange field visits.

## 9. Duty Station

## Home-based with one mission to Jordan

The consultant is expected to carry out one mission to Jordan including trips to project's location in different governorates including (Amman, Irbid, Zarqa, Madaba and Aqaba).

## 10. Required skills and experience

The International Evaluator will be responsible for preparation of the entire TE review and respective TE deliverables mentioned above in line with this ToR, with inputs from the project. The evaluator cannot have participated in the project preparation, formulation and/or implementation (including the writing of the project documents), must not have conducted this project's Mid-Term Review and should not have a conflict of interest with the project's related activities.

## **Education**

• Master's degree in chemistry, environmental sustainability, waste management or other closely related field.

## Experience

- Relevant experience with result-based management evaluation methodologies.
- Experience applying SMART indicators and reconstructing or validating baseline scenarios.
- Competence in adaptive management, as applied to Chemicals and Waste focal area.
- Recognized expertise in the management of chemicals and hazardous waste for at least 10 years.

- Experience working with international organizations like UNDP and/or GEF or GEF-evaluations.
- Experience working in Arab region.
- Demonstrated understanding of issues related to Chemicals and Waste focal area.
- Experience in gender sensitive evaluation and analysis.
- Excellent communication and demonstrable analytical skills.
- Project evaluation/review experiences within United Nations system will be considered an asset.
- Experience with implementing evaluations remotely will be considered an asset.

#### Language

Full proficiency in English both written and verbal including ability to review, draft guidelines and edit required project documentation.

#### **11. Evaluators Ethics**

This TE will be conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluation. The TE consultant must safeguard the rights and confidentiality of information providers, interviewees, and stakeholders through measures to ensure compliance with legal and other relevant codes governing collection of data and reporting on data. The TE consultant must also ensure security of collected information before and after the TE and protocols to ensure anonymity and confidentiality of sources of information where that is expected. The information, knowledge and data gathered in the TE process must also be solely used for the TE and not for other uses without the express authorization of UNDP and partners.

## **12. Payment Schedule**

- 20% payment upon satisfactory delivery of the TE Inception Report and approval by the Commissioning Unit
- 40% payment upon satisfactory delivery of the draft TE report to the Commissioning Unit
- 40% payment upon satisfactory delivery of the final TE report and approval by the Commissioning

Unit and RTA (via signatures on the TE Report Clearance Form) and delivery of completed TE Audit Trail. Criteria for issuing the final payment of 40%

- The final TE report includes all requirements outlined in the TE TOR and is in accordance with the TE guidance.
- The final TE report is clearly written, logically organized, and is specific for this project (i.e. text has not been cut & pasted from other MTR reports).
- The Audit Trail includes responses to and justification for each comment listed.

## **13. Application process2**

## **Recommended Presentation of Proposal:**

a) CV

**b)** Brief description of approach to work/technical proposal of why the individual considers him/herself as the most suitable for the assignment, and a proposed methodology on how they will approach and complete the assignment; (max 1 page)

c) Financial Proposal that indicates the all-inclusive fixed total contract price and all other travel related costs (such as flight ticket, per diem, etc), supported by a breakdown of costs, as per template attached to the Letter of Confirmation of Interest template. If an applicant is employed by an organization/company/institution, and he/she expects his/her employer to charge a management fee in the process of releasing him/her to UNDP under Reimbursable Loan Agreement (RLA), the applicant must indicate at this point, and ensure that all such costs are duly incorporated in the financial proposal submitted to UNDP.

## **14. Evaluation Procedure:**

Initially, individual consultants shall be short-listed on the following minimum qualification criteria:

• Master's degree in chemistry, environmental sustainability, waste management or other closely related field (20 points)

- Recognized expertise in the management of chemicals and hazardous waste for at least 10 years (20 points)
- Experience working with international organizations like UNDP and/or GEF or GEF-evaluations (40 points)
- Experience in gender sensitive evaluation and analysis (20 points)

<sup>2</sup> Engagement of the consultants should be done in line with guidelines for hiring consultants in the POPP: https://info.undp.org/global/popp/Pages/default.aspx

The shortlisted candidates will be further evaluated based on the following methodology - cumulative analysis: when using this weighted scoring method, the award of the contract should be made to the individual consultant whose offer has been evaluated and determined as:

- Responsive/compliant/acceptable, and suggesting the lowest price
- "Compliant/acceptable" can be determined as fully corresponding to the ToR.

Only those applications which are responsive and compliant will be evaluated. Offers will be evaluated according to the Combined Scoring method – where the educational background and experience on similar assignments will be weighted at 70% and the price proposal will weigh as 30% of the total scoring. The applicant receiving the Highest Combined Score that has also accepted UNDP's General Terms and Conditions will be awarded the contract.

# **Annex 2: Evaluation Matrix**

Evaluative Criteria Questions	Indicators	Sources	Methodology
Relevance: How does the project relate to the main objectives of	f the GEF focal area, and to the environment and develop	pment priorities at the local, r	egional and national levels?
• Does the project integrate the MEAs' provisions within the relevant national policy, legislative, and regulatory frameworks?	<ul> <li>The project includes the relevant GEF outcomes, outputs and indicators</li> <li>The project makes explicit links with global environmental action goals</li> </ul>	<ul> <li>Project Document</li> <li>GEF 6 Strategy for Chemicals and Waste</li> </ul>	• Desk Review of Documents
• Is the project aligned to strengthening of national consultative and management structures and mechanisms?	• The project design includes explicit links (indicators, outputs, outcomes) to the national development and environmental policies and action plans	<ul> <li>Project Document</li> <li>National development strategies and action plans, etc.</li> </ul>	<ul> <li>Desk Review of Documents</li> <li>Interviews of the project stakeholders</li> </ul>
• Is the project's Theory of Change relevant to addressing the development challenge(s) identified?	• The Theory of Change clearly indicates how project interventions and projected results will contribute to the reduction of the major barriers identified at the project inception	<ul><li> Project Document</li><li> PIF</li></ul>	Desk Review of     Documents
• Does the project directly and adequately address the needs of beneficiaries at local and regional levels?	• The Theory of Change clearly identifies beneficiary groups and defines how their capabilities will be enhanced by the project	<ul><li> Project Document</li><li> PIF</li></ul>	Desk Review of     Documents
• Is the project's results framework relevant to the development challenges have the planned results been achieved?	<ul> <li>The project indicators are SMART</li> <li>Indicator baselines are clearly defined and populated and milestones and targets are defined</li> <li>The results framework is comprehensive and demonstrates systematic links to the ToC</li> </ul>	<ul><li> Project Document</li><li> PIF</li></ul>	<ul> <li>Desk Review of Documents</li> <li>Interviews of the project stakeholders</li> </ul>
• Have the relevant stakeholders been adequately identified and have their views, needs and rights been considered during design and implementation?	• The stakeholder mapping and associated engagement plan includes all relevant stakeholders and appropriate modalities for engagement.	<ul><li> Project Document</li><li> Inception report</li></ul>	<ul><li>Desk Review of Documents</li><li>Stakeholder Interviews</li></ul>

	Planning and implementation have been participatory and inclusive	<ul> <li>Stakeholder mapping/engagement plan and reporting</li> <li>Quarterly Reports</li> <li>Annual Reports (APR)</li> </ul>	
• Have the interventions of the project been adequately considered in the context of other development activities being undertaken in the same or related thematic area?	• A partnership framework has been developed that incorporates parallel initiatives, key partners and identifies complementarities	<ul> <li>Project Document</li> <li>Quarterly Reports</li> <li>Annual Reports (APR)</li> <li>Stakeholder mapping/engagement plan and reporting</li> </ul>	<ul> <li>Desk Review of Documents</li> <li>Stakeholder Interviews</li> </ul>
• Did the project design adequately identify, assess and design appropriate mitigation actions for the potential social and environmental risks posed by its interventions?	• The SES checklist was completed appropriately and all reasonable risks were identified with appropriate impact and probability ratings and risk mitigation measures specified	<ul><li> Project Document</li><li> SES Annex</li></ul>	Desk Review of Documents
Effectiveness: To what extent have the expected outcomes and o	objectives of the project been achieved?		
• Has the project achieved its output and outcome level targets?	• The project has met or exceeded the output and outcome indicator end-of-project targets	<ul> <li>Quarterly Reports</li> <li>Annual Reports (APR)</li> <li>Site visit/field reports</li> </ul>	<ul> <li>Desk Review of Documents</li> <li>Interviews with project staff, stakeholders and beneficiaries</li> </ul>
• Have lessons learned been captured and integrated into	Lessons learned have been captured periodically	Validation Workshop	Desk Review of
project planning and implementation?	and/or at project end	<ul> <li>Minutes (<i>if available</i>)</li> <li>Quarterly Reports</li> <li>Annual Reports (APR)</li> </ul>	<ul> <li>Documents</li> <li>Interviews with project staff, stakeholders and beneficiaries</li> </ul>

	<ul> <li>The logical framework was used during implementation as a management and M&amp;E tool</li> <li>Compliance with the financial and narrative reporting requirements (timeliness and quality)</li> <li>Monitoring and reporting at the activity and results levels</li> </ul>	<ul> <li>FACE forms</li> <li>Quarterly Narrative Reports</li> <li>Site visit reports</li> </ul>	• Interviews with project staff and government stakeholders
• Were relevant counterparts from the Government and civil society involved in project implementation, including as part of the Project Steering Committee?	• The Project Board participation included representatives from key project stakeholders	• PSC meeting Minutes	• Interviews with project staff, stakeholders and beneficiaries
• How effective were the partnership arrangements under the project and to what extend did they contribute to achievements of the project results?	• A partnership framework has been developed that ensured coordination of parallel initiatives, involvement of key partners and identification of complementarities	<ul><li>Annual Reports (APR)</li><li>Quarterly reports</li></ul>	<ul> <li>Desk Review of Documents</li> <li>Interviews with project staff, stakeholders and other donors</li> </ul>
• How well were risks (including those identified in the Social and Environmental Screening (SES) Checklist), assumptions and impact drivers being managed?	• A clearly defined risk identification, categorization and mitigation strategy (updated risk log in ATLAS)	<ul> <li>UNDP ATLAS Risk Log</li> <li>M&amp;E Reports</li> </ul>	<ul> <li>Desk Review of Documents</li> <li>Interviews with project staff, stakeholders and beneficiaries</li> </ul>
• Efficiency: Was the project implemented efficiently, in-line v	with international and national norms and standards?		
• Did the project adjust dynamically to reflect changing national priorities/external evaluations during implementation to ensure it remained relevant?	<ul> <li>The project demonstrated adaptive management and changes were integrated into project planning and implementation through adjustments to annual work plans, budgets and activities</li> <li>Changes to AWP/Budget were made based on mid-term or other external evaluation</li> <li>Any changes to the project's planned activities were approved by the PSC</li> <li>Any substantive changes (outcome-level changes) approved by the PSC and donor, as required</li> </ul>	<ul> <li>Annual Work Plans</li> <li>Validation Workshop Minutes</li> <li>Quarterly Reports</li> <li>Annual Reports (APR)</li> <li>PSC meeting minutes (<i>if available</i>)</li> </ul>	<ul> <li>Desk Review of Documents</li> <li>Interviews with project staff, stakeholders and beneficiaries</li> </ul>

• Was the process of achieving results efficient? Did the actual or expected results (outputs and outcomes) justify the costs incurred? Were the resources effectively utilized?	<ul> <li>The project achieved the planned results in an efficient manner</li> <li>Funds used for project implementation were utilized affectively and contributed to achievement of project results</li> </ul>	<ul><li>Annual Workplans</li><li>Quarterly Reports</li><li>Project document</li></ul>	<ul> <li>Desk Review of Documents</li> <li>Interviews with project staff, stakeholders, beneficiaries</li> </ul>
• What were the strengths and weaknesses of the implementation modality?	• The project implementation followed the division of responsibilities between the project implementing partners in an efficient manner	<ul><li>Annual Reports ()</li><li>Quarterly reports</li></ul>	<ul> <li>Desk Review of Documents</li> <li>Interviews with project staff, stakeholders, beneficiaries</li> </ul>
• Was co-financing adequately estimated during project design (sources, type, value, relevance), tracked during implementation and what were the reasons for any differences between expected and realised co-financing?	<ul> <li>Co-financing was realized in keeping with original estimates</li> <li>Co-financing was tracked continuously throughout the project lifecycle and deviations identified and alternative sources identified</li> <li>Co-financiers were actively engaged throughout project implementation</li> </ul>	<ul> <li>Annual Work Plans (AWPs)</li> <li>Validation Workshop Minutes (<i>if available</i>)</li> <li>Quarterly Reports, including financial reports</li> <li>Annual Reports (APR)</li> </ul>	<ul> <li>Desk Review of Documents</li> <li>Interviews with project staff, stakeholders, other donors and beneficiaries</li> </ul>
• Was the level of implementation support provided by UNDP adequate and in keeping with the implementation modality and any related agreements?	<ul> <li>Technical support to the Executing Agency and project team were timely and of acceptable quality.</li> <li>Management inputs and processes, including budgeting and procurement, were adequate</li> </ul>	<ul> <li>UNDP project support documents (emails, procurement/ recruitment documents)</li> <li>Quarterly Reports</li> <li>Annual Reports (APR)</li> </ul>	<ul> <li>Desk Review of Documents</li> <li>Interviews with project staff, UNDP personnel</li> </ul>
• Were financial audit/spot check findings adequately addressed and relevant changes made to improve financial management?	<ul> <li>Appropriate management responses and associated actions were taken in response to audit/spot check findings.</li> <li>Successive audits demonstrated improvements in financial management practices</li> </ul>	Project Audit Reports	Desk Review of Documents

• Are there political, social or financial risks that may jeopardize the sustainability of project outcomes?	• The exit strategy includes explicit interventions to ensure sustainability of relevant activities	<ul><li> Program Framework Document</li><li> Risk Log</li></ul>	Desk Review of     Documents
• What are the factors that will require attention in order to improve prospects of sustainability and potential for replication?	• The exit strategy includes explicit interventions to ensure sustainability of relevant activities and identifies relevant factors requiring attention in the future	<ul> <li>Program Framework Document</li> </ul>	Desk Review of     Documents
• Do the legal frameworks, policies, and governance structures and processes within which the project operates pose risks that may jeopardize sustainability of project benefits?	• The exit strategy identifies relevant socio-political risks and includes explicit interventions to mitigate same	<ul><li>Program Framework Document</li><li>Risk Log</li></ul>	Desk Review of     Documents
• Have key stakeholders identified their interest in project benefits beyond project-end and accepted responsibility for ensuring that project benefits continue to flow?	• Key stakeholders are assigned specific, agreed roles and responsibilities outlined in the exit strategy	<ul> <li>Program Framework Document</li> <li>Risk Log</li> </ul>	• Desk Review of Documents
• Are there ongoing activities that may pose an environmental threat to the sustainability of project outcomes?	• The exit strategy identifies relevant environmental risks and includes explicit interventions to mitigate same	<ul><li> Program Framework Document</li><li> Risk Log</li></ul>	• Desk Review of Documents
Impact: Are there indications that the project has contribu	ted to, or enabled progress toward, reduced environn	nental stress and/or improve	ed ecological status?
• Are there verifiable improvements in data and information management and improved reporting that can be linked directly to project interventions?	• The project has facilitated implementation of MEAsor could do so in the future	<ul><li> Quarterly Reports</li><li> Annual Reports (APR)</li></ul>	Desk Review of Documents

# Annex 3: Evaluation Mission Itinerary

Date	Institution/Place	Activity
Saturday 20 January	Arrival at Amman	
	UNDP Country Office, Amman	Meeting with the project management team
Sunday 21 January	Ministry of Environment, Amman	Meeting with senior officials from the Hazardous Substances and Waste Management Directorate
	Ministry of Health, Amman	Meeting with senior officials from the Environmental Health Directorate
Monday 22 January	UNDP Country Office, Amman	Focus group meeting with representatives of Madaba, Dair Abi Saeed and Bergesh municipalities
	Royal Medical Services, Amman	Meeting with senior officials of the Food and Services Department
Tuesday 23 January	Princess Rahma Park, Amman	Visit of e-waste collection station
Tuesday 23 January	UNDP Country Office, Amman	Focus group meeting with representatives of GAM, Irbid and Zarqa municipalities
Wednesday 24 January	Madaba SWM sorting station	Meeting with managers of the SWM station
	Al-Manaseer cement factory	Meeting with the Production Manager
Thursday 25 Japuary	Latrun Military Hospital	Meeting with managers of the HCWM Department
Thursday 25 January	Dr. Tutanji Government Hospital	Focus group meeting with officials from the Public Health Division
Friday 26 January	Day off	
Saturday 27 January	Zarqa Government Hospital	Focus group meeting with officials from the Health Control Department
	Zarqa municipality	Visit of e-waste collection station
	Ministry of Local Administration, Amman	Meeting with officials from the SWM Directorate
Sunday 29 January	JUST Incinerator, Irbid	Meeting with officials from the O&M Department and tour of incinerator facility
Sunday 28 January		Visit of the e-waste collection station
	Irbid Municipality	Meeting with representatives of Irbid municipality and association of private sector recyclers
		Tour of recycling facilities
Monday 29 January	UNDP CO, Amman	Debriefing of UNDP DRR
<b>D</b>		On-line meeting with UNDP DRR
Departure to Vienna		

# Annex 4: List of People Interviewed

Institution	Name	Position/Role in the Project
UNDP Country Office	Majida Al-Assaf	Deputy Resident Representative
	Nedal Al-Ouran	Head, Environment, Climate Change and DRR
	Rana Saleh	Programme Analyst, Environment, Climate Change and DRR
	Lina Al-Nsour	Project Officer, Chemicals and Waste
UNDP NCE	Selimcan Azizoglu	Regional Technical Advisor (current) – on-line
	Maksim Surkov	Regional Technical Advisor (original) – on-line
Project Management Team	Murad Alshishani	Project Manager/Coordinator
	Botros Hijazeen	Environmental Engineering and Construction Specialist
Ministry of Environment		
-	Reema Mostafa	Head, Hazardous Substances Management Div.
	Mahmood Al-Zboon	Head, Hazardous Waste Management Division
	Heba Zabalawi	Head, Solid Waste Management Division
Ministry of Health	Ahmad Barmawi	Director, Environment Health Directorate, TC member
	Bayan Awwad	Head, Environmental Monitoring Division
Ministry of Local Administration	Raeda Al-Oran	Director, SWM Department, TC member
Royal Medical Services	Khalid Hawatmeh Loura Jaafreh	Head, Division of Public Service and Nutrition Head, Dept. of Nutrition and Medical Waste, TC member
Greater Amman Municipality	Yazan Al Refaie	, TC member
Zarqa Municipality	Ayman Alomari	Director, Environment Department, TC member
Irbid Municipality	Mohammad Qudah	Manager, Planning Department, TC member
	Hazem Abu-Mukh	Director, E-waste sorting station
Madaba Municipality	Ahmad Rawajeeh	Director of Sorting Station, TC member
Dair Abi Saeed Muicipality	Yousef Al-Zubi	Director, MSW Directorate
Bergesh Municipality	Salah Abu Abbas	Director, MSW Directorate
	Mohannd Rababah	District Manager
Jordan University of Science and	Mohammad Jawarneh	Head, Operation & Maintenance Department, TC
Technology (JUST)	Saleh	member
		Manager, Incinerator facility
Al-Manaseer Industrial Complex	Jiahd Al-Shuhban	Production Manager
Dr. Jameel Al Totanji Hospital	Areefa Al-Jbour	Head, Public Health Division
	Riyad Ahmar	Technician, Public Health Division
	Nemer Al-Khadir	Head, Maintenance Division
	Mohammad Al-Jbour	Head, Infection Control Unit
	Khalid Al-Nasaleeth	Chair, HCW Management Committee
Latrun Military Hospital	Abdulkareem Al-Shboul	Manager of the Hospital
Zarqa Governmental Hospital	Mahmood Douleh	Manager of the Hospital
	Molt Bihan	Head, Health Control Unit
	Saleh	Head, PR Unit

# Annex 5: Interview Guide

# Relevance (the project and its strategy)

- How are you connected with the project?
- How important is your project for your country?
- What do you think about the design of the project? Are there enough resources? Missing important events? What would you advise to adjust?
- What other similar projects is your agency involved in?

# Project results

- What have been the main important achievements so far and why do you think so?
- What were the main challenges for achieving the planned results?
- As far as you know, the project will most likely achieve all planned results on time? If not, what would be your recommendations?
- In what areas can the project be expanded if positive results have already been achieved?
- How can the project remove barriers to achieving results?
- Has the project led to increased capacity of local specialists? What could have been done differently?

# Management arrangements

- How would you rate the role of UNDP? What could have been done better?
- Was due consideration given to the results?
- What external factors influenced the project's completion on time?
- Is the composition of the Project Board and the staffing of the project adequate, as well as the level of involvement of experts?

# Planning, monitoring and reporting

• How do you rate project management? Is the PM responding well enough to emerging challenges? What could have been done better?

- How would you rate the work planning for the project? What should be improved?
- Is your agency engaged in monitoring? Is there anything that needs to be done differently?
- Have you seen the project reports? Do you have any suggestions for improvement?

# Finance and co-finance

- Does your agency oblige co-financing to the project? If so, will it be implemented? If not, why not? Stakeholder Engagement
- What do you think about the project's interaction with national organizations and experts? What could have been done differently?
- How has the current level of stakeholder engagement influenced the results and national ownership? Communication
- Is the communication regular and effective? What could have been done differently?
- Do you think the project is noticeable enough? What could have been done differently? Sustainability

# <u>Sustainability</u>

- Will the project achievements be sustained? Why do you think so?
- What is the likelihood that financial and economic resources will be available after the end of GEF assistance to sustain project results? Why do you think so?
- Are there any social or political risks that could jeopardize the sustainability of the project results?
- What is the risk that stakeholder ownership will not be sufficient to sustain the results of the project?
- Is there sufficient public / stakeholder awareness to support the project objectives?
- Are the successful aspects of the project communicated to the appropriate parties?

# Other

- What should the project focus on in the remaining period?
- Do you have any other comments that were not covered in the interview?

Stakeholder	Role
Institutional Stakeholders	
Ministry of Environment (MoEnv)	<b>Project:</b> National Executing Agency of the project, coordinates action among partners and ensures the smooth implementation of the entire project in JORDAN. It should also ensure the smooth coordination with the other project funded by the GIZ to rehabilitate SWAGA. MoEnv should involve rangers in training activities (output 1.1.4) <b>Other:</b> Stockholm/Basel/Rotterdam/Minamata Conventions' as well as ICCM focal points, national policy and project implementation coordination, regulation development, licensing and enforcement applicable to hazardous substances and waste management as well operator of national HW facilities.
Ministry of Health (MoH)	<ul> <li>Project: Key partner in the implementation of Component 2, ensures the coordination among hospitals and regulatory framework/standard operating procedures for HCWM.</li> <li>Other: Monitoring of impacts of chemical pollutants on public health nationally and at a local level.</li> <li>Regulatory responsibility for HCW facilities in cooperation with MoEnv</li> <li>Supervision, technical oversight and financing for operating HCW facilities in the public sector.</li> </ul>
Ministry of Planning and International Cooperation	<ul> <li>Project: It ensures the communication among Ministries involved in the project, key partner in Component 1, especially Outputs 1.1.1 and 1.1.2</li> <li>Other: Responsible for overall policy planning in the country</li> <li>Policy level approvals of international projects and national co-financing obligations</li> <li>GEF Focal Point</li> </ul>
Customs Department	<ul> <li>Project: Key partner to be trained on best practices regarding hazardous waste management, importation/exportation (POPs, mercury, etc.) in particular in the sector of e-waste (output 1.1.4) to reduce open-burning practices</li> <li>Other: Controlling goods' movements and transportation across national borders in conformity with the current regulations in force.</li> <li>Front line enforcement in relation to border control of hazardous, poisonous, dangerous, and banned materials/chemicals in collaboration with MoEnv and MoIT.</li> <li>Contribution in controlling the commercial activities to prohibit illegal businesses under the current regulations in force.</li> </ul>
Royal Medical Services	<b>Project</b> . The Royal Medical Services will be involved in the implementation of project activities related to Component 2 of the project. The RMC will insure the coordination of relevant project activities among military hospitals. <b>Other:</b> Supervision, technical oversight and financing for operating HCW facilities in the hospitals in Military sector
Private Hospital association	<b>Project.</b> The Private Hospitals' association will be involved in the implementation of project activities related to Component 2 of the project. Private hospitals' staff will also take part in project and knowledge sharing activities related to the segregation of HCW and the use of non-combustion plant for their treatment. The Private Hospital association will ensure the coordination of relevant project activities among private hospitals.
Jordanian association of engineers	<b>Project.</b> This offers technical expertise on the implementation of project activities dealing with waste segregation and disposal with specific reference to Component 1 (E-waste) and Component 3 (recycling of MSW). The association will also support the project in disseminating the knowledge on best practice and technologies through the mobilisation of their thematic committees.
Ministry of Municipal Affaires	<b>Project:</b> Key partner who should lead Output 3.1.1 related to open-burning assessment and who should be involved in Outputs 1.1.1 (E-waste) and 3.1.1 <b>Other:</b> Provide the municipalities and common services council with finance including MSW. Regulate and monitor municipal affaires.
Local Municipal Governments including Greater Amman Municipality (GAM)	<ul> <li>Project: Involved in all implementation parts of the project and in training/awareness raising activities.</li> <li>GAM is an important player in E-waste management</li> <li>Other: Operational responsibility role in the provision of delivering of MSW services including collection, waste diversion and landfill disposal, applying restrictions on the acceptance of targeted waste and hazardous processing residuals at landfills, and supporting disposal of non-hazardous waste residuals.</li> </ul>
Aqaba Special Economic Zone Authority (ASEZA)	<ul> <li>Project: Key player in the implementation of activities related to Components 1 and 2 in the region, offers analytical and advisory services for food and environment through internationally accredited Physical, Chemical and Microbiological Laboratories of BEN HAYYAN, operating under two interdependent units; the food laboratory and the environment laboratory</li> <li>Other: Monitoring and controlling, e-waste and HCW in Aqaba region.</li> <li>Licensing new facilities for e-waste.</li> </ul>
Principle Industrial/Private Secto	or Stakeholders
Producers/Distributors/Retailers/ consumers of EEE	<b>Project:</b> implement policies and regulation related to the management of e-waste and support the e-waste financial mechanisms. The possibility to establish collection capacity and primary processing for e-waste <b>Other:</b> Financial support for E-waste management activities as mandated under national policy.

# Annex 6: Project Stakeholder Map

Stakeholder	Role
Formal sector E- waste private sector service providers (GAM	<b>Project:</b> Key partner for the implementation of Component 1 (especially outputs 1.1.2 and 1.1.3), need to be trained (output 1.1.4), JoCycle could conduct some trainings
and JoCycle)	<b>Other:</b> Provision of licensed facilities and technical capability for the collection, transportation, handling, storage, processing, and residuals disposal.
Informal E-waste sector service providers	<b>Project:</b> Key partner for the implementation of Component 1 (especially outputs 1.1.2 and 1.1.3), need to be trained (output 1.1.4)
	Other: Currently the principal E-waste management service providers and future human resource base for the formal sector
Private sector HW and HCW	Project: Key partner for the implementation of Component 2 (especially 2.1.4)
service providers	Other: Providers of contracted out HCW collection and disposal
Amman Chamber of Industry and other Chambers	<b>Project:</b> Key partner for the implementation of Component 1 (especially outputs 1.1.2 and 1.1.3) and 3 (3.1.2)
	Other: Representation of business sector related waste management issues
Jordan Association of Cement	Project: Key partner for the implementation of Component 3 (output 3.1.4)
Producers	Other: Development of use of waste as replacement fuel
Academic Institutions	
Jordan University of Science & Technology (JUST)	<b>Project:</b> Key partner for the implementation of Component 2 (Output 2.1.2). It could also be involved in the conduction of training activities (Outputs 1.1.4 and 2.1.3)
	Other: Active involvement in regional HCW and environmental monitoring service provision
Jordan University	<b>Project: potential</b> partner for the implementation of Component 2 (Output 2.1.2). It could also be involved in the conduction of training activities (Outputs 1.1.4 and 2.1.3)
	<b>Other:</b> Educate students and staff, develop technological methods and encourage research and post graduate studies in the field of e-waste and HCW
International Organizations	
WHO	The project will coordinate with WHO on all the aspects related to the protection of human health, and the management of healthcare waste with specific reference to the implementation of specific guidance developed by WHO on the matter.
	Recognizing the important role WHO has on the health matters related to the refugee crisis, the project will also coordinate with WHO on the matter.
UNEP	As UNEP developed a number of guidance documents on the management and inventory of POPs, with specific reference to new POPs in E-waste, the project will coordinate with UNEP on all the matter related to the use of that guidance in project implementation and training.
GIZ	<b>Project:</b> Key partner for the implementation of component 3 (3.1.2 and 3.1.3)
	Other: Potential bi-lateral donor supporting SW practice upgrading
Canadian Embassy	Bilateral donor supporting SW practice upgrading
Civil Society and NGOS.	
Royal Scientific Society (RSS)	Research and technological studies institute
	Analysis of emissions and waste streams
	Inspection of electrical and electronic devise entered to Jordan

# **Annex 7: List of Documents Consulted**

- 1. Project Identification Form, UNDP (2016)
- 2. Project Document, UNDP/GEF (2018)
- 3. Project Initiation Plan (2018)
- 4. Social and Environmental Screening Report, UNDP (2018)
- 5. Project Inception Workshop Report, UNDP/MoEnv (2018)
- 6. Project Implementation Reports (PIRs), UNDP/MoEnv (2019-2023)
- 7. Annual Project Reports (APRs), UNDP, 2018-2023
- 8. Combined Delivery Reports (CDRs), UNDP, 2019-2023
- 9. Minutes of the Project Board Meetings, MoEnv, 2019-2023
- 10. List of Training and Awareness Sessions (2018- June/2023), PMU (2023)
- 11. Mid-Term Review Report, UNDP (2020)
- 12. Audit Report, Pwc (2020)
- 13. National Implementation Plan for the Stockholm Convention on POPs, MoEnv (2006)
- 14. National Strategy to Improve the MSWM in Jordan, MoEnv (2015)
- 15. Waste Sector Green Growth National Action Plan 2021-2025, (MoEnv (2020)
- 16. 2050 Electrical and Electronic Waste Outlook in West Asia, UN Environment (2023)
- 17. Jordan Country Profile: Health Care Waste Management (HCWM), UNDP (2020)
- 18. Solid Waste Value Chain Analysis Irbid and Mafraq Jordan, UNDO (2015)
- 19. Waste Picker Certificate Completion Report, USAID (2021)
- 20. GEF Evaluation Policy, GEF IEO, 2019
- 21. UNDP Revised Evaluation Policy, UNDP, 2019
- 22. Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects, GEF, 2017
- 23. UNDP Evaluation Guidelines, Independent Evaluation Office of UNDP, 2019
- 24. Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects, UNDP IEO, 2020
- 25. Outcome-Level Evaluations, A Companion Guide, UNDP, 2011
- 26. Glossary of Key Terms in Evaluation and Results Based Management, OECD, 2010
- 27. Ethical Guidelines for Evaluations, UNEG, 2018

# Annex 8: Project Results Framework (revised after the project Inception Workshop)

This project will contribute to the following Sustainable Development Goal (s): SDG1: End poverty in all form everywhere. SDG3: Good health and well-being. SDG 9: Industry, innovation and infrastructure. SDG 12: Responsible consumption and production SDG5: Achieve gender equality and empower all women and girls; SDG13: Climate Action, SDG9: Industry, Innovation and Infrastructure, SDG11: Make cities inclusive, safe, resilient and sustainable

This project will contribute to the following country outcome included in the UNDAF/Country Programme Document5) Government and national institutions have operationalized mechanisms to develop and implement strategies and plans targeting key cultural, environmental and disaster risk reduction issues (including a transition to a green economy) at national and sub-national levels

This project will be linked to the following output of the UNDP Strategic Plan:

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

Output 2.5: Legal and regulatory frameworks, policies and institutions enabled to ensure the conservation, sustainable use, and access and benefit sharing of natural resources, biodiversity and ecosystems, in line with international conventions and national legislation.

Component/Result	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
Project Objective: Protection of human health and the environment through reduction and elimination of POPs, and other chemicals through implementation of environmentally sound management (ESM) for e- waste, healthcare waste and priority U-POPs release	Indicator 1: Number of new partnership mechanisms with funding for sustainable management solutions of natural resources, ecosystem services, chemicals and waste at national and/or subnational level.	Public – private partnership in the management of hazardous and municipal waste, initiative are needed and the government is moving in this direction. Technical and financial support to achieve this objective is needed.	Public private partnership designed, including financial analysis and cash-flow. Pilot schemes for collection, disposal and recycling of different waste streams (E- waste, MSW, HW, HCW) designed in detail.	Public private partnership implemented, subsidized for the first year and financially sustainable for the subsequent years. Pilot schemes for collection, disposal and recycling of different waste streams (E- waste, MSW, HW, HCW) piloted	The government is strongly committed on the implementation of a more sustainable management of waste, including the shifting from the status of public operators to the status of control authority, supervisor and regulators.
sources associated with general waste management activities	Indicator 2 Extent to which legal or policy or institutional frameworks are in place for conservation, sustainable use, and access and benefit sharing of natural resources, biodiversity and ecosystems.	Policies and regulation on E- Waste are missing. Policies and regulation on HW, MSW and HCW need substantial improvement and enforcement	Amendment of existing regulation, policies and strategies, or new regulation when needed, fulfilling the requirement of the Stockholm Convention will be drafted and submitted to the government and key stakeholders for approval.	Amendment of existing regulation, policies and strategies, or new regulation when needed, fulfilling the requirement of the Stockholm Convention approved and enacted.	There is a strong commitment from the Government on the development of a more comprehensive and coherent legislation on waste management. This is also in consideration of the benefit that this can bring to the society in term of reduced health impact and creation of jobs.
	Indicator 3. Amount of POPs, U-POPs and mercury uses and release avoided at project implementation and predicted at replication	There are very limited actions in place to reduce the release of U-POPs and mercury associated to the open burning or incineration of waste. Currently, U-POPs from HW incineration and from uncontrolled burning of waste	Detailed design and completion of the procurement of the interventions envisaged in the sectors of Health Care Waste, E-Waste, Hazardous Waste, Municipal Solid Waste, with the certification of large disposal facilities (incinerators and cement kiln) the	Implementation of the pilot interventions envisaged in the sectors of Health Care Waste, E-Waste, Hazardous Waste, Municipal Solid Waste, with the certification of large disposal facilities (incinerators and cement kiln) the replacement of	All the main stakeholders involved in the management of the different waste streams (Health Care Waste, E-Waste, Hazardous Waste) are committed to the design and pilot of more sustainable waste management schemes, aware that this could bring benefit in term of development and wealth.

Component/Result	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
		are by far the two largest sources of U-POPs	replacement of obsolete incinerators in the HC sector, the demonstration of door to door collection of MSW and of RDF production.	obsolete incinerators in the HC sector, the demonstration of door to door collection of MSW and of RDF production.	
	Indicator 4. Evidence that gender mainstreaming and equal opportunities have been ensured for job opportunities and access to knowledge and training	Because of the very strong gender division of labour in this sector along with cultural carriers, far more men than women get jobs in waste management in Jordan	Women encouraged to take part in all project activities. Criteria and indicators for gender mainstreaming adopted in all project activities (awareness raising, staff recruitment, training). Participation to project activities disaggregated by gender	Recruitment of project staff, awareness raising, pilot activities and training conducted in compliance with the gender mainstreaming plan developed.	The resource allocated for gender mainstreaming will allow a higher and more sustainable efficiency of project core actions aimed at implementing ESM of waste management and reducing POPs.
Component 1: Development of ESM E-waste management system         Outcome 1.1 Environmentally sound E-waste collection, processing and residuals management capability developed	Indicator 5: Level of awareness achieved through project implementation on E-waste, measured by means of KAP (Knowledge, Attitudes and Practices) surveys at baseline and project end.	Only limited awareness raising initiatives carried through limited demonstrative E-waste collection campaigns	10 high level meetings including roundtable and discussions on E-waste among policy makers and stakeholders within project midterm. One regional meeting on E- waste within project midterm among policy makers and stakeholders Baseline KAP questionnaire survey completed. 4 awareness raising activities with NGOs support conducted.	Further 10 high level meeting and 2 regional meeting on E-waste by project end. Further 4 awareness raising activities on E-waste with NGOs support conducted. Raising awareness workshops with E-waste formal and informal operators conducted. Terminal KAP questionnaire survey completed	Awareness of E-waste issues is a key driver in ensuring the sustainability of E-waste management at all level
	Indicator 6. Number of e-waste collection centres and points established and are in operation	E-waste is collected only in Swaqa hazardous waste Center	12 collection centres will be established within MoEnv, MoMA and GAM directorates.	24 collection points in Stores and exhibitions will be known to the public	Awareness of E-waste issues is a key driver in ensuring proper collection
	Indicator 7. A number of new partnership mechanisms are initiated for the collection and processing of E-waste	Only one -not licenced- private company is working on e-waste processing	Number of proposals received to start new business on e- waste processing with project support	Project will support one licenced company/ NGO for e-waste processing. Number of partnerships will be established to secure the amount of e-waste for processing.	Training and building capacity activities will ensure safe handling and processing of e-waste.
	Indicator 8: Availability of a legislation or an official guidance on POPs and E-waste published and enacted.	A draft of the "Electronic and electrical waste management instructions (last update 2014)", prepared by the Government is not yet approved and needs substantial improvement, including clear reference to POPs in E-waste.	The Jordan E-waste management policy, which includes requirements on POPs, upgraded with the involvement of key public and private stakeholders. A set of financial mechanisms and incentives designed as part	The Jordan E-waste management policy, which includes requirements on POPs, approved and enacted. At least one incentive scheme (anticipated disposal fee; EPR, collection	Legislation sustainability may be ensured through sound financial design and stakeholder's involvement

Component/Result	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
			of the E-waste management policy.	incentives) demonstrated by the end of the project.	
	Indicator 9. Amount of POP (U-POPs, c- PBDE, deca-BDE, PFOS) release prevented through proper collection and disposal of E-waste.	Currently there is no organized collection of E-waste whatsoever and hence no care about possible POP-containing E-waste. A theoretical amount of c-PBDE in the order of around 2.5 to 7.3 tons calculated at PPG stage.	A collection scheme, co- financed by the government, including one or more of the options listed under output 1.1.3, designed in detail including budget planning and cash flow.	A collection scheme, co- financed by the government, is piloted with the collection of at least 600 tons of plastic from E-waste contaminated by PBDE.	Collection and recycling sustainability can be ensured by increased value of waste, enforcement of legislation, awareness raising and PPP initiatives
Component 2 Achieving environmentally sound healthcare waste	Indicator 10. ESM Manual is developed based on updated medical waste regulation	ESM Manual is not available	Medical waste regulation is updated and amended; ESM manual is developed	Medical waste management in hospitals is improved	Awareness on the amended regulations and the new developed ESM
management <i>Outcome 2.1 BAT/BEP</i>	Indicator 11. number of relevant staff trained on best environmental practices	ESM Manual and training material is not available	Several trainings on ESM in the 10 pilot hospitals is conducted	Medical waste management in hospitals is improved	Training on ESM
healthcare waste management practice and technology implemented nationally	Indicator 12: number of HCF successfully implementing the ESM of health care waste.	Segregation of HCW is practiced in many hospital but not effectively controlled or sustained. Presence of small incinerators at several HCFs is a disincentive for the segregation of HCW.	Memorandum of Understanding signed and HCW committees established in all the project HCF. Baseline evaluation conducted by means of I-RAT conducted for all the selected HCFs. HCW plan agreed for all the HCFs. Technical assistance on ESM of HCW started in all the project HCFs. First reassessment of the HCFs conducted by means of the I- RAT tool	Continuation of technical assistance on ESM of HCW started in all the project HCFs. Final reassessment of the HCFs conducted by means of the I-RAT tool conducted. Final evaluation of U-POPs releases prevented through segregation of waste conducted.	Effectiveness of training can be ensured through ToT of staff and continuous availability of trained staff at HCF Sustainability of HCWM may be ensured through increasing of waste value chain, reduction of disposal cost at HCF, enforcement of legislation proper selection of demo HCs
	Indicator 13: number of high capacity incineration or co-incineration successfully certified for the disposal of hazardous waste and POPs containing waste.	At least 2 medium size incinerators potentially compliant with SC BAT requirements, plus cement kilns facilities, needing testing and certification.	Detailed plan for Proof of Performance test for at least 2 incinerators or cement kiln agreed and approved. Inspections of candidate plants and need assessment carried out. Support for the upgrade of the candidate plant to fulfil SC BAT/BET ensured to 2 plants.	Proof of Performance test for at least 2 incinerators or cement kiln carried out with a range of different HCW, E-waste and HW carried out. Successful plants certified and permitted.	Testing and certification of incinerators for their compliance with the Stockholm Convention BAT / BEP is a key step in for the establishment of environmentally sound waste disposal capacity in the country.
	Indicator 14: Amount of U-POP release prevented through enhanced management of healthcare waste.	3.18 to 10.54 g Teq / yr of PCDD/F released by the candidate facilities estimated at PPG stage. Incineration of E-	Modality of replacement of substandard incinerators in the selected HCF (replacement with non-combustion	Procurement of non- combustion equipment for replacing sub-standard incinerators completed and	Improvement in the HCF waste segregation capacity, further replacement of substandard incinerator in public sector with non-combustion

Component/Result	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
		waste considered the 2 <sup>nd</sup> biggest source of U-POPs in the NIP.	equipment or with centralized services) agreed for all the project HCFs. Baseline release of U-POPs reassessed. TORs for the new equipment drafted and advertised. Procurement of non- combustion facilities or external waste disposal services started.	new equipment installed and teste. External waste disposal services with certified disposal facilities contracted At least 90% of the baseline U-POPs release permanently avoided through adoption of non-combustion equipment or disposal in certified plants	technologies integrated by disposal services with certified incinerators is the only sustainable way to achieve a substantial reduction of PCDD/F release in the environment from HCW management.
Component 3- Developing waste diversion/resource recovery capacity for GHG and U-POPs reduction Outcome 3.1 Effective waste diversion/resource recovery capacity from HW and SW	Indicator 15: Level of awareness achieved through project implementation on Hazardous Waste and Municipal Solid Waste, measured by means of KAP (Knowledge, Attitudes and Practices) surveys at baseline and project end.	Limited awareness raising initiatives carried out in baseline projects, mostly focused on the management of organic waste	Awareness raising and involvement of the community of with at least 1000 generators involved in the demonstration of waste collection.		Effective and targeted Hazardous waste and Municipal Solid Waste awareness raising campaigns can boost a substantial shift from the unsafe or even illegal management of waste to an environmentally sound management which can create jobs and preserve the environment.
streams developed with associated GHG and U-POPs release reduction achieved	Indicator 16: 100 Generator of hazardous waste trained on the minimisation and ESM of waste potentially contaminated by POPs. Indicator 17. 300 ton of E-waste stored at Swaqa and other POPs waste inventoried, labelled, and safeguarded for future disposal in coordination with bilateral initiatives	Waste potentially contaminated by POPs including E-waste are not properly managed at Swaqa	At least 100 generators of hazardous waste trained on Stockholm and Basel convention on hazardous waste, as well as on the minimization of hazardous waste generation and their ESM	At least 300 tons of E-waste potentially contaminated by POPs and other POPs waste identified, labelled and safeguarded for future disposal in certified facilities.	Training at source may be extremely effective in preventing the generation and improper disposal of hazardous waste. The safeguarding activity at the Swaqa site will be effective if carried out with other initiatives (including bilateral ones) aimed at a better management of hazardous waste and at a rehabilitation of the Swaqa site
	Indicator 18: Amount of U-POP release prevented through diversion of municipal waste, through recycling and RDF in certified facilities.	Uncontrolled burning of waste is the biggest source of U-POPs identified in the NIP (around 52 g/TEq /yr)	Pilot door to door collection designed and contract with potential recyclers agreed. Procurement of materials for waste minimization, collection and recycling completed. Surveillance system to prevent burning at selected landfills designed and implemented.	Implementation of the pilot collection and recycling scheme as detailed in output 3.1.1, with an estimated reduction of at least 0.3g Teq / year of PCDD/F through waste diversion and open burning prevention.	Open or uncontrolled burning of waste is only the symptom of a wider social problem which can be addressed through the development of the waste value chain, establishment of a capillary waste management system, awareness raising and community-driven control of the territory.
Component/ Outcome 4 Knowledge Management and M&E	Indicator 19: Number and quality of project monitoring and planning reports drafted and submitted with reference to the M&E plan.	N/A	Inception activities carried out, project management structure implemented. Project reporting and planning established and implemented	Project reporting and planning continued until project end	Proper project monitoring and planning is crucial for a successful implementation of the project
	Indicator 20: Number and quality of project audit and evaluation reports	N/A	Mid Term Evaluation and auditing activities carried out	Terminal Evaluation and auditing activities carried out	Evaluation based on agreed and measurable indicators is key for understanding the level of achievement,

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Component/Result	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
	drafted and submitted with reference to the M&E plan.				learning lessons and identifying best practices.
	Indicator 21: Presence of a knowledge management system established and sustained	N/A	KM system including project website established (to be completed in the 1 <sup>st</sup> year of project implementation out.	Terminal reporting completed and submitted to GoJ, UNDP and GEF.	Making the information generated by the project available will enhance sustainability and replication of project activities.

# **Annex 9: Performance Rating of GEF Projects**

The main dimensions of project performance on which ratings are provided in terminal evaluation are outcomes, sustainability, quality of monitoring and evaluation, quality of implementation, and quality of execution. **Outcome ratings** 

# The overall ratings on the outcomes of the project will be based on performance of the criteria of relevance, effectiveness and efficiency. A six-point rating scale is used to assess overall outcomes.

Highly Satisfactory (HS)	Level of outcomes achieved clearly exceeds expectations and/or there were no short comings
Satisfactory (S)	Level of outcomes achieved was as expected and/or there were no or minor short comings
Moderately Satisfactory (MS)	Level of outcomes achieved more or less as expected and/or there were moderate short comings
Moderately Unsatisfactory (MU)	Level of outcomes achieved somewhat lower than expected and/or there were significant shortcomings
Unsatisfactory (U)	Level of outcomes achieved substantially lower than expected and/or there were major short comings
Highly Unsatisfactory (U)	Only a negligible level of outcomes achieved and/or there were severe short comings
Unable to Assess (UA)	The available information does not allow an assessment of the level of outcome achievements

## **Sustainability Ratings**

The sustainability will be assessed taking into account the risks related to financial, sociopolitical, institutional, and environmental sustainability of project outcomes. The evaluator may also take other risks into account that may affect sustainability. The overall sustainability will be assessed using a four-point scale.

Likely (L)	There is little or no risks to sustainability
Moderately Likely (ML)	There are moderate risks to sustainability
Moderately Unlikely (MU)	There are significant risks to sustainability
Unlikely (U)	There are severe risks to sustainability
Unable to Assess (UA)	Unable to assess the expected incidence and magnitude of risks to sustainability

## **Monitoring and Evaluation Ratings**

Quality of project M&E are assessed in terms of design and implementation on a six point scale:

Highly Satisfactory (HS)	There were no short comings and quality of M&E design / implementation exceeded expectations
Satisfactory (S)	There were no or minor short comings and quality of M&E design / implementation meets expectations
Moderately Satisfactory (MS)	There were some short comings and quality of M&E design/implementation more or less meets expectations
Moderately Unsatisfactory (MU)	There were significant shortcomings and quality of M&E design / implementation somewhat lower than expected
Unsatisfactory (U)	There were major short comings and quality of M&E design/implementation substantially lower than expected
Highly Unsatisfactory (U)	There were severe short comings in M&E design/ implementation
Unable to Assess (UA)	The available information does not allow an assessment of the quality of M&E design / implementation

## **Implementation and Execution Rating**

Quality of implementation and of execution will be rated separately. Quality of implementation pertains to the role and responsibilities discharged by the GEF Agencies that have direct access to GEF resources. Quality of Execution pertains to the roles and responsibilities discharged by the country or regional counterparts that received GEF funds from the GEF Agencies and executed the funded activities on ground. The performance will be rated on a six-point scale.

Highly Satisfactory (HS)	There were no short comings and quality of implementation / execution exceeded expectations
Satisfactory (S)	There were no or minor short comings and quality of implementation / execution meets expectations
Moderately Satisfactory (MS)	There were some short comings and quality of implementation / execution more or less meets expectations
Moderately Unsatisfactory (MU)	There were significant shortcomings and quality of implementation / execution somewhat lower than expected
Unsatisfactory (U)	There were major short comings and quality of implementation / execution substantially lower than expected
Highly Unsatisfactory (U)	There were severe short comings in quality of implementation / execution
Unable to Assess (UA)	The available information does not allow an assessment of the quality of implementation / execution

# Annex 10: Evaluation Report Outline<sup>33</sup>

- Title page
- Tile of UNDP-supported GEF-financed project
- UNDP PIMS ID and GEF ID
- TE timeframe and date of final TE report
- Region and countries included in the project
- GEF Focal Area/Strategic Program
- Executing Agency, Implementing partner and other project partners
- TE Team members
- Acknowledgements
- Table of Contents
- Acronyms and Abbreviations

Executive Summary (3-4 pages)

- Project Information Table
- Project Description (brief)
- Evaluation Ratings Table
- Concise summary of findings, conclusions and lessons learned
- Recommendations summary table

# Introduction (2-3 pages)

- Purpose and objective of the TE
- Scope
- Methodology
- Data Collection & Analysis
- Ethics
- Limitations to the evaluation
- Structure of the TE report

Project Description (3-5 pages)

- Project start and duration, including milestones
- Development context: environmental, socio-economic, institutional, and policy factors relevant to the project objective and scope
- Problems that the project sought to address: threats and barriers targeted
- Immediate and development objectives of the project
- Expected results
- Main stakeholders: summary list
- Theory of Change

## Findings

• (in addition to a descriptive assessment, all criteria marked with (\*) must be given a rating

<sup>&</sup>lt;sup>33</sup>The presented TE Report outline is based on the 2020 UNDP/GEF TE guidelines that reflect the GEF-7 project development template. However, the project was prepared according to the GEF-6 project development template that was not identical with the GEF-7 template.

- Project Design/Formulation
- 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

**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 (\*)
- UNDP implementation/oversight (\*) and Implementing Partner execution (\*), overall project implementation/execution (\*), coordination, and operational issue

Project Results

- Progress towards objective and expected outcomes (\*)
- Relevance (\*)
- Effectiveness (\*)
- Efficiency (\*)
- Overall Outcome (\*)
- Country ownership
- Gender
- Other Cross-cutting Issues
- Social and Environmental Standards
- Sustainability: financial (\*), socio-economic (\*), institutional framework and governance (\*), environmental (\*), and overall likelihood (\*)
- Country Ownership
- Gender equality and women's empowerment
- Cross-cutting Issues
- GEF Additionality
- Catalytic Role / Replication Effect
- Progress to Impact

Main Findings, Conclusions, Recommendations & Lessons Learned

- Main Findings
- Conclusions
- Recommendations
- Lessons Learned

# Annexes

- TE ToR (excluding ToR annexes)
- TE Mission itinerary

- List of persons interviewed
- List of documents reviewed
- Summary of field visits
- Evaluation Question Matrix (evaluation criteria with key questions, indicators, sources of data, and methodology)
- Questionnaire used and summary of results
- Co-financing tables (if not include in body of report)
- TE Rating scales
- Signed Evaluation Consultant Agreement form
- Signed UNEG Code of Conduct form
- Signed TE Report Clearance form
- Annexed in a separate file: TE Audit Trail
- Annexed in a separate file: relevant terminal GEF Tracking Tool(Capacity Development Scorecard at TE stage)

# Annex 11: Evaluation Consultant Agreement Form

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

**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.

Name of Consultant: Dalibor Kysela

Name of Consultancy Organization (where relevant): \_\_\_\_\_N.A.\_\_

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

Signed at Vienna on 1 December 2023

limb Signature:

# **Annex 12: Evaluation Report Clearance Form**

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

Evaluation Report Reviewed and Cleared by				
UNDP Country Office				
Name:Dr. Nedal Alouran/ Programme Specialist				
Head of Environment, Climate Change & DRR Portfolio				
DocuSigned by:         Date:4/4/2024           B790F11B36D1471         Date:4/4/2024				
UNDP GEF RTA				
Name: Selimcan Azizoglu				
Signature:				