REPORT

FOR THE TERMINAL EVALUATION (TE) OF THE PROJECT

POPs Legacy Elimination and POPs Release Reduction

Turkey

GEF ID: 4601; PIMS ID: 4833

UNIDO: SAP# 140288; 100292

UNDP: Award ID: 00082077; Output ID: 00091144

EVALUATOR:

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February 2021

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Project title:

POPs Legacy Elimination and POPs Release Reduction Project

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Evaluation time frame: December 2020 – February 2021

Date of evaluation report: 8 February 2021

GEF-5 Chemicals Focal Area

Implementing Partner: Ministry of Environment and Urbanization (MoEU) of Turkey

Evaluator: Maria Onestini

ACKNOWLEDGEMENTS

The evaluator would like to acknowledge and thank all who cordially shared their time, information, and inputs for the interviews and consultations that took place as part of the evaluation process. The evaluator would like to thank the support received by Naz Ozguc Yurtvermez.

DISCLAIMER

This document represents the analysis of the author and does not necessarily reflect the views and opinions of the Project, governments or institutions involved in the Project, the United Nations Development Programme, United Nations Industrial Development Organization, GEF, nor any other person or UN Agency.

III. ACRONYMS AND ABBREVIATIONS

BEP/BAT	Best Environmental Practice / Best Available Techniques
EU	European Union
GEF	Global Environment Facility
İZAYDAŞ	Izmit Waste and Residue Treatment, Incineration and Recycling Company
MAP	Mediterranean Action Programme
MEA	Multilateral Environmental Agreements
MoEU	Ministry of Environment and Urbanization
MoFAL	Ministry of Food, Agriculture and Livestock
MTR	Mid-Term Review
NIP	National Implementation Plan
PCB	Polychlorinated Biphenyl
POPs	Persistent Organic Pollutants
ToR	Terms of Reference
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organisation

1. EXECUTIVE SUMMARY

Table 1: Project Information Table

Project Details		Project Milestones	
Project Title	POPs Legacy Elimination and Release Reduction	PIF Approval Date:	12 April 2013
UNDP Project ID (PIMS #):	833	CEO Endorsement Date (FSP) / Approval date (MSP):	03 December 2014
GEF Project ID:	4601	ProDoc Signature Date:	21 May 2015
UNDP Atlas Business Unit, Award ID, Project ID:	91144	Date Project Manager hired:	01 September 2015
Country/Countries:	Turkey	Inception Workshop Date:	01 November 2015
Region:	Europe and Central Asia	Mid-Term Review Completion Date:	26 June 2015
Focal Area:	POPs	Terminal Evaluation Completion date:	25 March 2021
GEF Operational Programme or Strategic Priorities/Objectives:	Chemicals	Planned Operational Closure Date:	31 March 2021
Trust Fund:	FSP		
Implementing Partner (GEF Executing Entity):	Ministry of Environment and Urbanization		

BRIEF DESCRIPTION OF THE PROJECT

The *POPs Legacy Elimination and POPs Release Reduction Project* in Turkey had as its aim the protection of health and environment through elimination of current POPs legacies, ensuring that longer term capacity to manage POPs into the future is consistent with international practice and standards, and that integrating POPs activities with national sound chemicals management initiatives. Given that these are the aims, the Project sought to address a series of particular issues in relation to these matters. Turkey has a history of synthetic organo-chlorinated pesticide (OCP) use from the 1940s including significant use of POPs pesticides, mainly DDT but also using other pesticides such as aldrin, heptachlor and lindane leading to the presence of a variety of POPs pesticides in the environment. Recent reviews have found that PCBs were detected in wide-ranging human and animal biological media, suggesting that PCB release is a continuing issue in Turkey. Although PCBs were never produced in the country they were extensively used in electric equipment such as transformers. The use of PCBs was phased out from 1993 onward. Policy and regulatory tools for the control and elimination of PCBs began in the early 2000s. The finalised policy and framework were enacted in 2007 and are under the authority of the Ministry of Environment and Urbanization (MoEU). This regulation establishes obligations for the PCB holders and institutions including the MoEU. Before 2007 no systematic inventories of PCBs or PCB equipment had been done. Also, there were no thorough estimates of the amount and distribution of PCB-based equipment, either as stockpiled waste or in-service equipment. Since then there have been several exercises to inventory PCB containing equipment, survey sites, as well as screening. Some of these exercises were done with international organisations' support (including UNDP and UNIDO). The project's specific objective was to protect human health and the environment globally as well as locally through addressing POPs legacies including elimination of POPs pesticide and PCB stockpiles, and initiating clean-up of associated POPs and chemical pollutant contaminated sites, as well as dealing with longer term PCB phase out. This was to be done consistent with the country's Stockholm Convention obligations, reducing U-POPs release in major industrial sectors , and providing targeted institutional, regulatory and technical capacity strengthening, all within a sound chemicals management framework. The project was implemented by the Ministry of Environment and Urbanization. It aimed at meeting its objective by eliminating a large POPs pesticide stockpile consisting of 3000 t of pure HCH and associated high concentration POPs waste and at least 350 t of PCB stockpiles as well as supporting assessment, clean-up and monitoring of priority POPs contaminated sites. This was to be done involving a representative range of site contamination situations, remediation approaches and clean-up financing modalities. The project also aimed to demonstrate the sustainable treatment of up to 150 cross contaminated PCB transformer units by means of de-halogenation technologies, to provide technical assistance for setting up a national plan for treatment of PCB contaminated transformers, and to provide technical assistance for the establishment of Best Environmental Practice / Best Available Techniques (BAT/BEPs) among priority U-POPs emitting sectors. Additionally, the project aimed to support the qualification of needed hazardous waste infrastructure and national technical capability for the ongoing management of POPs and other chemical hazardous wastes as well as to support the strengthening of institutional and regulatory capacity within an overall chemicals management framework. The Project has been implemented in Turkey with the collaboration of UNDP and UNIDO with UNDP as managing agency.

Table 2: Evaluation Ratings Table for the Project[1]

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

[1] Accounts of these ratings are embedded in this report's narrative in each of the pertinent sections.

CONCISE SUMMARY OF FINDINGS AND CONCLUSIONS

Summary Main Findings

- Project design was very ambitious, had deficits in baseline data and access to pertinent information at the design stage and at the initiation stage.
- Some of the main reasons for project success was its relevance regarding priorities of Turkey in dealing with the issue of POPs elimination and fulfiling the country's targets in the context of the Stockholm Convention.
- The implementation architecture and ownership of the Project was also a factor that fostered the achievement of results.
- The extent that the expected outcomes and objectives were achieved have been met in some components while in others they have been overly achieved.
- The Project was fairly efficient in the achievement of expectations.
- There are some very concrete results and benefits ensuing from this Project, dealing with health, environment and development.
- Although no institutional, socio-political, nor environmental risks to sustaining long-term project results are foreseen, financial risks in dealing with POPs and hazardous waste are identified as a issue.

Summary Conclusions

The *POPS Legacy Elimination and POPS Release Reduction Project* in Turkey is concluding with a strong set of achievements but also with lessons learned. The Project has met with its immediate aims and objectives to protect human health and the environment globally as well as locally through addressing POPs legacies including elimination of POPs Pesticide and PCB stockpiles. Therefore, this is an example that global environmental benefits can be linked intrinsically to local/national benefits as a result of these sorts of projects. A contributing factor to the Project's achievement is institutionally-related. An asset of the Project has been the work of the management unit and the agencies involved, reinforced by the contribution of significant national and international expertise in the field. The ownership of the Government of Turkey regarding the Project, its expected outcomes and expected results as well as its sustainability ,has been a substantial contributing factor to the achievements.

Project design was affected by a lack of complete information on the situation regarding PCBs in the country as well as an ambitious design regarding the time, resources and efforts needed to eliminate stockpiles. Although project initiation was also delayed (and further efforts needed to be placed in the surveying of sites and in assembling information for elimination and consequently for contracting) implementation by the Project was impelled in an adaptive manner. Circumventing the above issues and relying on the Project strengths, the goal of POPs elimination as well as the aim of generating and upgrading capacity to deal with hazardous waste

and chemicals has been greatly achieved[2] thus far and is expected to be achieved fully. Many stakeholders have indicated that the stockpiles of POPs the Project dealt with were considered to be the largest POPs stock in the world and a problem that Turkey had to deal with for several decades. With the success of this Project, Turkish and Turkish-based institutions are in a unique position to leverage and upgrade their regional and global role in this issue. Sustainability factors, immediate follow – up to achievements, and visibility of the accomplishments can support replication and upscaling efforts in a local to global scale for all institutions involved.

Synthesis of the Key Lessons Learned

- *Operative design is directly linked to information, preparation and analysis*.
- *Time frame for implementation needs to commensurate with a project's scope.*
- *Procurement issues, if not addressed properly, can have a series of interlinked effects.*
- *Capacity building can be taken-on and engaged with in different modalities*.
- *Knowledge products need to be inserted in design in order to be developed throughout implementation.*
- *Public – private partnerships are key for integrated hazardous waste management projects that deal with industry and private companies.*
- *Robust project planning and design facilitates implementation.*
- *Realistic time frames are needed to be set at design vis-à-vis the complexity of the tasks to be accomplished*.

[2] Some elimination of stockpiles is still ongoing at the time of this assessment. Nevertheless, this is expected to be achieved fully in the next few months.

Table 3: Recommendations Summary Table

Rec #	TE Recommendation	Time frame
A	Partners should work together and strive to complete in the next few months the remaining tasks that need to be accomplished to fully conclude the Project.	Immediate follow up
A.1	This is to be done in order to manage/eliminate remaining stockpiles and implement environmentally sound disposal activities with a long-term outlook that could not be handled within the original time-scope of the Project, providing oversight as needed.	
B	Generate knowledge management and communication/visibility products	Immediate follow up:
B.1	Should there be residual funds or funds available from other processes/budget lines, Project could use those to generate knowledge management and communication/visibility products. This in order to: a) enhance sustained capacity building; b) nourish upstream processes –such as COPs, international meetings, analysis mechanisms/expert groups, etc.-- in the relevant global institutions involved (GEF, UNDP, UNIDO) with information regarding the Project; c) commence to ponder and perhaps plan follow-up, replication and upscaling not only in-country but also regionally and globally; d) give visibility to the substantial achievements the Project has leveraged.	
C	Project planning and design should include realistic implementation time frames.	Future programming
C.1	These should be set vis-à-vis the tasks to be accomplished, their complexity and the time needed to accomplish the tasks	
D	Co – financing commitments need to be accurately estimated at design.	Future programming
D.1	When co-financing estimates and –therefore—commitments are set at design, this needs to be done in a straightforward manner based on actual capabilities and/or factual pledges that a partner can leverage in order to avoid issues with scope and funding shortfalls once a project begins to implement and be based on realistic cash flow.	
E	Projects with intricate components and multiple partners need to have internal coordination mechanisms.	Future programming
E.1	These mechanisms need to be set at design, and should provide guidance for directing a project in an integrated manner throughout implementation, as well as to have a unified communication pattern with outside stakeholders.	
E.2	These sorts of mechanism should be set without adding unnecessary bureaucratic steps to implementation but for better coordination and articulation to be maintained among sub-activities and between experts/institutions involved.	

F	Procurement processes need to be streamlined.	Future programming
F.1	Critical assessments of procurement processes need to be carried out and resulting analysis implemented in order to avoid delays, partners' fatigue, and overall inefficiency.	
F.2	Procurement processes need to be in harmony with the complex technical issues the procedure is acquiring and their scope. Furthermore, these procedures need to incorporate flexibility in order to be attuned with intricate field issues	
G	Capacity building at all levels needs to be a strong element for these sorts of projects.	Future programming
G.1	Even technical assistance projects need to strongly incorporate capacity building aspects (by training for the public and private sectors, generation of knowledge management products, training of trainers, etc.) in order to generate or enhance national capacity and sustain knowledge, create ownership and overall support for integrated hazardous waste and chemical management within a national context.	
G.2	Training can also aid in knowledge transfer in a context of turnover of government personnel.	
H	Knowledge management products should be embedded in a project's framework.	Future programming
H.1	Knowledge tools based on the experiences and evidence derived from a project are also assets for capacity building, and (as such) should be part of the different capacity strengthening processes a project undertakes.	
H.2	Furthermore, KM products based on a project's experience are underpinnings for replication, upscaling and South-South cooperation and should be developed if there are intentions for these processes to take place during and after a project.	
I	Projects need to have a clear communication strategy.	Future programming
I.1	A project's communication strategy should be an ongoing process that generates buy – in, and knowledge about the issues a project deals with as well as acknowledge its visibility.	
I.2	A communication strategy needs to be accompanied by clear inputs where the different partners are identified (funders, implementing agency(ies), UN agencies involved).	
I.2	A communication strategy should document and communicate issues, and challenges as well as to highlight achievements. This strategy should function internally and externally to give proper visibility to all partners involved	
J	Future programming should build upon strategies, linkages, and developments engendered by a project, yet should also be forward looking and adapting to new issues and modalities supported by international agencies.	Future programming
J.1	Future programming should build upon strategies and linkages developed by experience derived from implemented projects, but should link this to new issues supported by the different financing and development agencies (integrated hazardous waste management, circular economy, innovation and adapting to evolving MEAs in the chemicals/hazardous waste fields	

2. INTRODUCTION

SUMMARY PROJECT DESCRIPTION

The *POPs Legacy Elimination and POPs Release Reduction Project* had a planned implementation period of four years. The actual finalization was on December 2020 given that the project was granted an eighteen-month extension. It had a total planned project cost of USD 91 344 583. Planned GEF financing was to be USD 10 815 000 with co-financing in the amount of USD 80 529 583 from various sources. Given that the protection of health and environment through elimination of current POPs legacies, ensuring longer term capacity to manage POPs into the future is consistent with international practice and standards, and that integrating POPs activities with national sound chemicals management initiatives are the aims of the Project, the project sought to address a series of particular issues in relation to these matters.

Turkey has a history of synthetic organo-chlorinated pesticide (OCP) use from the 1940s including significant use of POPs pesticides, mainly DDT but also using other pesticides such as aldrin, heptachlor and lindane leading to a presence of a variety of POPs pesticides in the environment. Most presence of major POPs pesticides have been found in large rivers and in large inland water bodies in Central Anatolia as well as in the Black and Aegean Seas coastal waters. This matter notwithstanding, Turkey's situation is considered well advanced in addressing POPs pesticides and obsolete pesticide stockpiles in general. There are no significant historic stockpiles of obsolete non-POPs except for a widely distributed inventory of expired pesticides collected from small distributors, small generators and users. The country has extensive studies on PCBs also, specially of their prevalence in the environment as well as in human and biological receptors. Recent reviews have found that PCBs were detected in wide-ranging human and animal biological media, suggesting that PCB release is a continuing issue in Turkey. Although PCBs were never produced in the country, they were extensively used in electric equipment such as transformers. The use of PCBs was phased out from 1993 onward. Policy and regulatory tools for the control and elimination of PCBs began in the early 2000s. The relevant finalised policy and frameworks were enacted in 2007 and are under the authority of the national Ministry of Environment and Urbanization (MoEU). This regulation establishes obligations for PCB holders and institutions, including the MoEU. Before 2007 no systematic inventories of PCBs or PCB equipment had been done and nor was there a complete estimate of the amount and distribution of PCB based equipment, either as stockpiled waste or in-service equipment. Since then, there have been several exercises to inventory PCB containing equipment, surveys of sites, as well as screening, some of them carried-out with international organisations' support (including UNDP and UNIDO). These analyses have indicated that substantial numbers of PCB-based electrical equipment were used in the country, but that since 2001 much of it has been disposed of and/or retired.

The project's specific objective was to protect human health and the environment globally as well as locally through addressing POPs legacies including elimination of POPs pesticide and PCB stockpiles, and initiating clean-up of associated POPs and chemical pollutant contaminated sites. This was to be done dealing with longer term PCB phase-out consistent with the country's Stockholm Convention obligations, reducing U-POPs release in major industrial sectors , and

providing targeted institutional, regulatory and technical capacity strengthening, all within a sound chemicals management framework.

The Ministry of Environment and Urbanization of Turkey implemented the project. It aimed at meeting its objective by eliminating a large POPs pesticide stockpile consisting of 3 000 t of pure HCH and associated high concentration POPs waste and at least 350 t of PCB stockpiles. This was to be done with practices supporting assessment, clean-up and monitoring of priority POPs contaminated sites involving a representative range of site contamination situations, remediation approaches and clean-up financing modalities. The project also aimed to demonstrate the sustainable treatment of up to 150 cross contaminated PCB transformer units by means of de-halogenation technologies, to provide technical assistance for setting up a national plan for treatment of PCB contaminated transformers, and to provide technical assistance for the establishment of BAT/BEPs among priority U-POPs emitting sectors. Additionally, the project aimed to support the qualification of needed hazardous waste infrastructure and national technical capability for the ongoing management of POPs and other chemical hazardous wastes as well as to support the strengthening of institutional and regulatory capacity within an overall chemicals management framework. The GEF – funded Project has been implemented in Turkey with the collaboration of UNDP and UNIDO. UNDP was the managing agency.

PURPOSE OF THE EVALUATION

The varied purposes of evaluation exercises include monitoring results as well as assessing effects/impacts and promoting accountability. This evaluation centres, therefore, upon valuating the outcomes, outputs, products, and processes achieved by the *POPs Legacy Elimination and POPs Release Reduction Project* in Turkey. The specific objectives of the evaluation were to determine if and how project results were achieved, and to draw useful lessons that can both improve the sustainability of benefits from this project as well as to aid in the overall enhancement of UNDP programming. Lastly, this exercise follows general objectives of these sorts of evaluations which have as an overall purpose to assemble lessons learned and best practices to aid projects' processes in the future.

SCOPE AND METHODOLOGY

This final evaluation has primarily focused on assessing the effectiveness, efficiency, sustainability, and relevance of the project considering the accomplished outcomes, objectives, and effects. It includes the following scope:

- Assess progress towards achieving project objectives and outcomes as specified in the Project Document.
- Assess signs of project success or failure.
- Review the project's strategy considering its sustainability risks.

The evaluation has focused upon the outcomes, outputs, products and processes achieved or with a perspective of being achieved. The specific objectives of the evaluation were

to determine if and how project results were achieved, and to draw useful lessons that can both improve the sustainability of benefits from this project as well as aid in the overall enhancement of UNDP/ UNIDO / GEF future programming. The varied purposes of evaluation exercises include monitoring results as well as effects/impacts and promote accountability. Lastly, this assessment follows general objectives of these sorts of evaluations which have as a purpose assembling lessons learned and best practices to aid projects' processes in the future.

The approach for the evaluation of the *POPs Legacy Elimination and POPs Release Reduction Project* has been determined mainly by the Terms of Reference (ToR) (see

) for this assignment and it follows methods and approach as stated in UNDP guidelines and manuals, relevant tools, and other relevant UNDP guidance materials, including the *Guidance for Conducting Terminal Evaluations of UNDP-supported*, *GEF-financed Projects* (2020) and *UNDP's Handbook on Planning, Monitoring and Evaluating for Development Results*. The analysis entails evaluating distinct stages and aspects of the project including design and formulation, implementation, results, and the involvement of stakeholders in the project's processes and activities. It has been carried out following a participatory and consultative approach ensuring close engagement with governments' counterparts, project team, and other key stakeholders.

The time scope of the final evaluation is for the whole project as such, including its planned implementation period together with the extension period granted. It is significant to point out that the findings, rankings, lessons learned and best practices respond to analysis of the project as a whole. That is, the scope of this evaluation is the project in its entirety.

To carry out this evaluation exercise several data collection tools for analysing information from the principles of results-based evaluation (including relevance, ownership, efficiency and effectiveness, sustainability) were used. Following UNDP/GEF guidelines, the relevant areas of the project were evaluated according to performance criteria and prospects of sustainability with ratings as summarized in the tables found in Annexes (**Error! Reference source not found.**). The tools chosen for the evaluation, with a mixture of primary and secondary data as well as a combination of quantitative and qualitative material, were selected to provide a spectrum of information and to validate findings. These methods allowed for in-depth exploration and yielded information that facilitated understanding of observed changes in outcomes and outputs (both intended and unintended) and the factors that contributed to the achievements or lack of accomplishments.

Regarding specific methodologies to gather assessment information, the following tools and methods were used:

- *Document analysis*. In depth analysis of documentation was carried out. The analysis examined documents prepared during the planning and implementation phases of the project. A list of documents consulted is found in annexes (Annex 3: List of documents reviewed and list of consulted online resources).
- *Key informant interviews:* Interviews were implemented through a series of open and semi-open questions raised to stakeholders directly and indirectly involved with the Project. Given the COVID-19 pandemic mission travel could not take place. Therefore, all of these dialogues were held online, through video conferences via internet. Key actors (stakeholders) were defined as government actors, project staff, consultants and national/international experts involved in design and or implementation, as well as the private sector. Stakeholders to interview were chosen to be the key actors from every group directly or tangentially involved in the Project. The array of stakeholders, therefore, was a representative sample of actors involved such as the implementing and partnering agencies, national government representatives, other levels (e.g., local) representatives, UNDP and UNIDO staff, and representatives from civil society stakeholders directly and tangentially involved with the

Project. Annexes contains a list of stakeholders contacted (Annex 2: List of persons interviewed and list of persons who answered online questionnaire).

- *Questionnaire:* In order to engage with a broad spectrum of stakeholders, beyond those mentioned above, a brief open-ended questionnaire was sent to a cluster of key stakeholders defined as significant partners or interested parties. This tool was used to collect their feedback on specific issues covered by the assessment. This online survey aided in collecting feedback on specific issues covered by the review as well as making this assessment participative as well as help with evaluability factors. Upon receipt of answers, a qualitative analysis of the responses took take place in order to validate and triangulate information. With the questionnaire as well as with the key informant interviews, anonymity of responses as well as independence of the assessment was assured (Annex 2: List of persons interviewed and list of persons who answered online questionnaire).

A first tool developed for this process was an evaluation matrix. This matrix guided the data collection process and, as the evaluation proceeded, the matrix was used to collect and display data obtained from various sources that relate to relevant evaluation criteria and questions. This tool was developed not only as a guide for systematizing data collection but also to make the evaluation process transparent. The matrix contains Evaluative Criteria Questions (that is questions and sub questions related to each of the evaluation criteria enclosed in the evaluation); Indicators; Sources; and Methodology.

LIMITATIONS AND EVALUABILITY PARTICULARLY IN LIGHT OF COVID-19 PANDEMIC

As it occurs in most of these sorts of assessments, there can be a series of limitations and these can be exacerbated by the crisis situation related to the COVID-19 pandemic. Besides the characteristic evaluability issues such as access to inputs and constraints in terms of time and resources, with the Covid-19 pandemic there have been other limitations identified. For instance, in light of the pandemic, mission travel was cancelled. Therefore, in order to mitigate whatever issues might arise in this sense, different access instruments were used (such as different tools for key interviews) and a questionnaire was added to the methodologies in order to broaden stakeholder access, participation, and inputs at different levels. Since by the time the review took place stakeholders had adapted greatly to the pandemic at a distance modality of engagement, not only within the UN agencies but also with government and in engagement with the private sector, stakeholder access was not considered an issue. Nevertheless, the process modality without a mission and without face-to-face nor group discussion encounters has proved to be a challenge given that it was not possible to hold focus groups or group discussions where different issues could be validated in light of different views by diverse stakeholders. Furthermore, it was not possible to take on direct observation at sites as it would have been done when a mission *in situ* takes place.

STRUCTURE OF THE EVALUATION REPORT

This evaluation report is structured beginning with an executive summary, an introduction and an evaluation scope and methodology section. A second section contains an overall project

description within a developmental context, including an account of the problems the project sought to address, as well as its initial objectives. Furthermore, indicators and main stakeholders involved in the projects are described, as well as what were the expected results. Essentially, this segment of the report deals with the design stage and design concept of the project. A third core section of this report deals fundamentally with the evaluation findings, analytically observing the results framework and its reform, as well as linkages with other projects and interventions in the sector. Furthermore, this segment also deals with findings relating to the actual implementation of the project, including strategic issues such as adaptive management and partnership agreements, and monitoring. This third section concludes with findings on project overall results and findings related to the criteria established for evaluations such as relevance, effectiveness and efficiency, ownership at the national level, mainstreaming and sustainability. A fourth core section of the present report entails overall conclusions as well as forward looking issues and recommendations. Lastly, an annex section includes project and evaluation support documentation.

3. PROJECT DESCRIPTION

PROJECT START AND DURATION, INCLUDING MILESTONES

The Project has had a planned implementation period of four years. The actual finalization was on December 2020 given that the project was granted an eighteen-month extension. It had a total planned project cost of USD 91 344 583. Planned GEF financing was to be USD 10 815 000 with co-financing in the amount of USD 80 529 583 from various sources. At the time of project start, the planned co – financing was to be provided by the following sources:[3] UNDP (cash) USD 100 000; UNIDO (cash) 38 000 USD, Government (in-kind) 19 070 00 USD; Government (cash) 100 000 USD; UNDP (in-kind) 270 000 USD ; UNIDO (in-kind) 120 000 USD. The rest of the co – financing was to provide from other sources such as the European Commission and the private sector. Actual co – financing data is presented further along this report when dealing with actual implementation.

DEVELOPMENT CONTEXT: ENVIRONMENTAL, SOCIO-ECONOMIC, INSTITUTIONAL, AND POLICY FACTORS RELEVANT TO THE PROJECT OBJECTIVE AND SCOPE AND PROBLEMS THAT PROJECT SOUGHT TO ADDRESS

Polychlorinated biphenyls, or PCBs, the originally labelled “dirty dozen”, are chemicals governed by the Stockholm Convention on Persistent Organic Pollutants, convention which aims to eliminate or restrict the production and use of persistent organic pollutants (POPs). Although production of PCB has long been stopped globally, it continues to be used in power generation and transmission systems given that much of the equipment that contains PCBs is still operational, and it is too costly for many utilities to do replace all of their PCB-containing equipment, including transformers and capacitors. The challenge is therefore how to safely operate this equipment without contaminating, as well as how to deal with that equipment and any PCB it contains once its useful life ends. For this, GEF has been funding projects that support the safe removal and treatment of equipment that is no longer in use, and for the establishment of environmentally sound management (ESM) systems for equipment that is still in use.[4]

Furthermore, Turkey signed (in 2001) and ratified the Stockholm Convention on Persistent Organic Pollutants (in 2009) respectively. The Project falls under the GEF goal of providing funding to assist developing countries in meeting the objectives of international environmental conventions. According to Article 7 of the Convention, Parties are required to develop National Implementation Plans (NIP) to demonstrate how they intend to implement obligations assumed under the Stockholm Convention. According to existing rules, each Party should develop and submit the NIP within two years from ratification and update NIPs within every five years thereafter considering amendments and additional listed POPs. The first NIP, prepared with GEF assistance, addressing the inventories and strategic action plan for the initial twelve POPs, was

[3] Actual funding and co – funding information is found in the implementation section of this report further along and in annexes.

[4] www.thegef.org.

developed by the Ministry of Environment and Forestry in the period 2007-2010. A draft of the updated NIP was developed with GEF assistance along with UNIDO to reflect current status of POPs management and address new annexed POPs included in the amendments to the SC that came into force in 2010. The draft NIP update contains a comprehensive concordance table correlating SVC provisions and obligations with current Turkish legislation as a well as an action plan to fill any existing gaps. Parties to the Stockholm Convention have commitments to implement legal, organizational and environmental management measures (including substantive technological changes) in order to comply with this agreement requirements. This Project aimed at assisting Turkey to achieve compliance with the Stockholm Convention by developing and building the required capacity to protect the population and environmental resources from POPs-related pollution. In this context, in line with the identified priority POPs issues for Turkey, the Project (in addition to strengthening the national capacity to address POPs) addresses the elimination of POPs pesticide stockpiles and complete the elimination of Polychlorinated Biphenyl (PCB) stockpiles by undertaking a PCB phase out plan; clean-up POPS contaminated sites that have been identified and address the reduction of unintentional POPs releases from priority industrial sectors (e.g. iron and steel, non-ferrous metals) through implementation of Best Available Techniques (BAT) as well as Best Environmental Practices (BEP). The Project also included was a demonstration study for the treatment of cross-contaminated PCB transformer units and provides technical assistance for the establishment of a national plan for the treatment of PCB contaminated transformers

It is within this general context that the *POPs Legacy Elimination and POPs Release Reduction Project* in Turkey has been developed. Given that the protection of health and environment through elimination of current POPs legacies and ensuring longer term capacity to manage POPs into the future is consistent with international practice and standards, and that integrating POPs activities with national sound chemicals management initiatives are the aims of the Project, the project sought to address a series of particular issues in relation to these matters.[5]

Turkey has a history of synthetic organo-chlorinated pesticide (OCP) use from the 1940s including significant use of POPs pesticides mainly DDT but also using other pesticides such as aldrin, heptachlor and lindane leading to a presence of a variety of POPs pesticides in the environment. Most presence of the major POPs pesticides has been found in major rivers, large inland water bodies in Central Anatolia as well as in Black and Aegean Seas coastal waters. This matter notwithstanding, Turkey's situation is considered well advanced in addressing POPs pesticides and obsolete pesticide stockpiles. There are no significant historic stockpiles of obsolete non-POPs obsolete except for a widely distributed inventory of expired pesticides collected from small distributors, small generators and users.

The country has extensive studies on PCBs also, specially of their prevalence in the environment as well as in human and biological receptors. Recent reviews have found that PCBs were detected in wide-ranging human and animal biological media, suggesting that PCB release

[5] https://www.thegef.org/topics/persistent-organic-pollutants.

is a continuing issue in Turkey. Although PCBs were never produced in the country, they were extensively used in electric equipment such as transformers. The use of PCBs was phased out from 1993 onward.

Policy and regulatory tools for the control and elimination of PCBs began in the early 2000s. The finalised policy and framework were enacted in 2007 and are under the authority of the Ministry of Environment and Urbanization (MoEU). This regulation establishes obligations for the PCB holders and the institutions including the MoEU.

Before 2007 no systematic inventories of PCBs or PCB equipment had been done nor were there thorough estimates of the amount and distribution of PCB based equipment, either as stockpiled waste or in-service equipment. Since then there have been several exercises to inventory PCB containing equipment, of sites surveys, as well as of screening. Some of them were carried out with international organisations' support (including UNDP and UNIDO). These analyses have indicated that substantial numbers of PCB-based electrical equipment were used in the country, but that since 2001 much of it has been disposed of and/or retired.

The project's specific objective was to protect human health and the environment globally as well as locally through addressing POPs legacies including elimination of POPs Pesticide and PCB stockpiles, and initiating clean-up of associated POPs and chemical pollutant contaminated sites, as well as dealing with longer term PCB phase out consistent with the country's Stockholm Convention obligations. Furthermore, the Project aimed at reducing U-POPs release in major industrial sectors and to provide targeted institutional, regulatory and technical capacity strengthening, all within a sound chemicals management framework.

The project was directed by the Ministry of Environment and Urbanization. It aimed at meeting its objective by eliminating a large POPs pesticide stockpile consisting of 3 000 t of pure HCH and associated high concentration POPs waste and at least 350 t of PCB stockpiles as well as supporting assessment, clean-up and monitoring of priority POPs contaminated sites involving representative range of site contamination situations, remediation approaches and clean-up financing modalities. The project also aimed to demonstrate the sustainable treatment of up to 150 cross contaminated PCB transformer units by means of de-halogenation technologies, to provide technical assistance for setting up a national plan for treatment of PCB contaminated transformers, and to provide technical assistance for the establishment of BAT/BEPs among priority U-POPs emitting sectors. Additionally, the project aimed to support the qualification of needed hazardous waste infrastructure and national technical capability for the ongoing management of POPs and other chemical hazardous wastes as well as to support the strengthening of institutional and regulatory capacity within an overall chemicals management framework.

The GEF – funded Project has been implemented in Turkey with the collaboration of UNDP and UNIDO. UNDP was the managing agency. It was expected that the objective and specific

aims of the Project would be achieved through five components [6] and through their corresponding expected outcomes as indicated in the chart below.

Table 4: Project Objective, Components, Agencies in Charge of Each Component, and Expected Outcomes

Objective: Protection of health and environment through elimination current POPs legacies, ensure longer term capacity to manage POPs into the future consistent with international practice and standards, and integrate POPs activities with national sound chemicals management initiatives.
Component 1: Elimination of Current POPs Stockpiles and Wastes - UNDP
Outcome 1.1 - Elimination and infrastructure removal from remaining POPs pesticide storage sites
Component 2: Planning and Capacity Building for Environmentally Sound Management of Future PCB Stockpiles - UNIDO
Outcome 2.1: Implementation of national PCB regulation
Outcome 2.2: Systematic approach for the analytical determination of PCB in electrical equipment, labelling and inventory
Outcome 2.3: Development and adoption of national PCB equipment treatment, phase out and retirement plan
Outcome 2.4: Improvement of storage and maintenance of cross contaminated PCB equipment
Outcome 2.5: Verification of decontamination technology for PCB contaminated transformers remaining in service and its pilot demonstration
Component 3: Unintended POPs Release Reduction - UNIDO
Outcome 3.1: Determination and verification on an enterprise level of source and technology specific U-POPs emissions
Outcome 3.2: Provision of training and technical assistance on BAT/BEP for priority industrial sectors
Outcome 3.3: Development of a national U-POPs release reduction plan
Outcome 3.4: Demonstration of BAT/BEP in industrial priority source categories
Component 4:Management Capacity for POPs Contaminated Sites - UNDP
Outcome 4.1: Implementation of the "Soil Pollution Control and Point-Source Contaminated Sites Regulation"
Outcome 4.2: Undertaking priority POPs contaminated sites assessments and clean up measures under the "Soil Pollution Control and Point-Source-Contaminated Sites Regulation"
Component 5: Institutional and Regulatory Capacity Strengthening for POPs and Sound Chemicals Management - UNDP
Outcome 5.1: Legislative framework updated and adopted consistent with convention obligations adopted.
Outcome 5.2: Strengthened technical capacity including operational POPs monitoring, supporting analytical capability, and planning related research and development capability
Outcome 5.3 Development and implementation of modern tools for a national sound chemicals management framework

[6] The sixth component is not an implementation module per se since it is the monitoring and evaluation section of the Project.

The immediate aim of the Project was to protect human health and the environment globally as well as locally through addressing POPs legacies including elimination of POPs Pesticide and PCB stockpiles.

BASELINE INDICATORS ESTABLISHED

Baseline indicators for the Project Objective and for each of the expected project outcomes were established in the Project Document (ProDoc). These are found in the chart below.

	Indicator	Baseline
Objective: Protection of health and environment through elimination current POPs legacies, ensure longer term capacity to manage POPs into the future consistent with international practice and standards, and integrate POPs activities with national sound chemicals management initiatives.	Major legacy POPs stockpiles (POPs pesticides and current/pending PCB based equipment) eliminated in an environmentally sound manner	Globally significant large POPs pesticide stockpile remains without action beyond securing it and no more than token amounts being destroyed in the medium future. 500 t of existing PCB based equipment scheduled for export and elimination in 2014 Approximately 650t of additional PCB equipment identified as requiring phase out and elimination. No fully qualified national capability for destruction of POPs stockpiles in place.
	A long-term PCB phase out plan assuring compliance with SC requirements is in place and capacity is in place to eliminate PCB cross contamination in electrical equipment and plans are in place for phase out and elimination of remaining PCBs based electrical equipment.	National inventory of PCB based equipment still being developed. Existence of PCB cross contaminated transformers identified but no systematic inventory identifying extent of the issue exists. No clear PCB phase out plan operational with respect to addressing remain PCB issues in accordance with the SC. No national capability available to treat cross contamination and retain such equipment in service.
	Implemented regulatory framework for addressing contaminated sites and action initiated on POPs contaminated sites Tracked and quantified continuing reductions in U-POPs release from major industrial sectors Turkey can claim developed country status respecting POPs and sound chemicals management, with an institutional and regulatory framework fully harmonized with that of the EU and with including active participation as a donor and provider of environmental services to developing countries.	Framework legislation covering contaminated sites in place but not yet implemented. No systematic action on identification and addressing POPs contaminated sites yet taken. No effective financing mechanism in place to support contaminated site legacy issues Although data on U-POP emission are available for some sectors, priority sector like I&S still lack of confirmed U-POP emission information and cost/effectiveness of BAT/BEP Turkey has initiated a program targeting EU harmonization in this area. A growing technical and service provider capability in this area exists but is not fully capable of meeting international standards. No focused international technical assistance programs are in place in this area for developing countries.
Outcome 1.1 - Elimination and infrastructure removal from remaining POPs pesticide storage sites	Elimination of 3,038 t of POPs pesticides and POPs waste from the Merkim site and its environmentally sound destruction, including 2,800 t during project implementation.	Elimination to date limited to approximately 500 t of POPs pesticides since 2007, including 238 t eliminated in anticipation of GEF support No action with respect to the site except for passive enterprise care and custody Currently accumulating stockpiles of OPs in MoA custody.

	Building demolition, removal, contaminated soil, restoration and monitoring of the Merkim site Elimination of 30 t of obsolete pesticide stocks	
Outcome 1.2: Elimination of high concentration PCBs and PCB contaminated equipment stockpiles.	Elimination of minimum of 200 t of existing and pending PCB based equipment stockpiles	Current PCB pending stockpiles available for elimination of approximately 650 t (excluding 500 t targeted for 2014 elimination under UNEP/MAP project).
Outcome 1.3: Qualification of existing and developing POPs destruction facilities	Izaydas HTI facility fully qualified and permitted for POPs destruction inclusive of required upgrading and test burns	Izaydas facility without proven capability to manage halogenated waste streams including POPs
Outcome 2.1: Implementation of national PCB regulation	Number of technical annex and guidance documents to the existing PCB legislation developed. Number of PCB owners on role and duties in relation to PCB rules (sampling, labelling, reporting), gender disaggregated	Missing technical guidance on how to comply with the regulation has low to poor technical enforcement
Outcome 2.2: Systematic approach for the analytical determination of PCB in electrical equipment, labelling and inventory	Number of trained staff from industry on sampling, labelling, reporting, and prevention of cross contamination performed and certified Amount of sampling and analysis of transformers carried out Update of the PCB database with data on cross contaminated transformers.	Industry managers and technical staff lack awareness and knowledge on PCB issue with specific reference to cross – contamination. Analytical data on PCB contaminated equipment still limited The PCB database established by the government does not contain information on PCB cross contaminated equipment
Outcome 2.3: Development and adoption of national PCB equipment treatment, phase out and retirement plan	Number of main industrial stakeholders from power generation and manufacturing industry consulted on PCB management plan priorities. PCB national management plan developed and adopted	A national plan for PCB management, with special reference with cross PCB contaminated equipment is missing No consultants on the topic
Outcome 2.4: Improvement of storage and maintenance of cross contaminated PCB equipment	Number of standards and Guidance Documents for prioritizing, maintenance, handling and storage of PCB contaminated equipment on-line, in use or temporarily stored issued. Physical or operational measures adopted for preventing release of PCB or human exposure to PCB from equipment online, in use or store.	PCB contaminated transformers are not identified and therefore their management is weak.
Outcome 2.5: Verification of decontamination technology for PCB contaminated transformers remaining in service and its pilot demonstration	Quantity of PCB contaminated equipment cleaned by technology demonstration, and demonstration reports released. Quantity of material recycled Value of recycled material Number of jobs created Quantity of CO2 emissions reduced	Beside incineration and exporting for disposal of pure PCB transformers, there is no capacity in the country to decontaminated cross-contaminated transformers.

Outcome 3.1: Determination and verification on an enterprise level of source and technology specific U-POPs emissions	Determination and verification on enterprise level of current PCDD/F emission factor – sintering plants and / or EAF Determination and verification on enterprise level of current U-POPs emission factors - nonferrous metal (Cu, Al, Zn) production Determination and verification on enterprise level of current U-POPs emission factor for other priority sectors Number of companies adopting BEP Number of people trained on PCDD/F sampling and analysis	Emission factors for priority sectors assessed based on sampling and analytical data are missing. There is the need to increase sampling and analytical capacity for PCDD/F at industrial stack
Outcome 3.2: Provision of training and technical assistance on BAT/BEP for priority industrial sectors	Number of people trained on U-POPs inventory. Number of people trained on BAT-BEP in priority sectors	The awareness and knowledge on U-POPs and BAT/BEP is still low and need to be strengthened.
Outcome 3.3: Development of a national U-POPs release reduction plan	Regulatory assessment report on U-POPs completed; Priority intervention areas identified National U-POPs release reduction plan with risk based and cost-effectiveness priorities developed.	
Outcome 3.4: Demonstration of BAT/BEP in industrial priority source categories	Number of sectors in which BAT / BEP has been effectively demonstrated. Number of companies adopting BAP/BEP Amount of incremental investment made Quantity of mercury releases reduced Quantity of I-TEQ/a reduced Quantity of CO_2 releases reduced	
Outcome 4.1: Implementation of the "Soil Pollution Control and Point-Source Contaminated Sites Regulation"	Soil Pollution Control and Point-Source Contaminated Sites Regulation implemented with operational reporting, inventories and prioritized actions implemented.	Regulation developed and passed but not implemented. Limited awareness on the part of potential holders of contaminated sites. No coordinated development of financing mechanisms beyond application of a simple polluter approach. Limited technical capability in key assessment and technology related disciplines.
Outcome 4.2: : Undertaking priority POPs contaminated sites assessments and clean up measures under the "Soil Pollution Control and Point-Source-Contaminated Sites Regulation"	Demonstration site assessment/clean up design completed and containment/remediation/ monitoring initiated on three priority contaminated sites	Action on cleaning up contaminated sites limited to fragmented initiatives driven primarily by individual enterprise initiatives.
Outcome 5.1: Legislative framework updated and adopted	Legal and regulatory framework governing POPs and HW	Basic regulatory framework in place with gaps respecting EU

The baseline indicators were largely fitting to define a reference point. Some of them were measurable, yet some were not. Regarding the latter, this is due to the lack of baseline information for some of the issues that the Project attempted to confront. As will be seen in the

pertinent sections of design further along this report, issues with baseline information were not only linked to indicators but also to other baseline information matters.[7]

MAIN STAKEHOLDERS IDENTIFIED AT THE DESIGN LEVEL

At the design level, a series of specific main stakeholder groups were identified. These were divided into principal institutional stakeholders and external (non-government) stakeholders. For both sets of stakeholders their roles and functions were also specified at design. These were, at the time of project development, as follows.

Table 5: Roles and Functions, Institutional Stakeholders

Ministry/ department/subsidiary organization	Roles and Functions (in accordance with adopted legislation and regulations)
Ministry of Environment and Urbanization (MoEU)	• The overall coordination of policies and strategies regarding prevention of environmental pollution, HW and chemicals waste management, contaminated sites • Developing standards and benchmarks related to the above • Preparing programmes on pollution mappings, education, research, planning and action plans related to the above • Determination and monitoring implementation • Determine and assess the environmental impacts of facilities or activities that have or may have solid, liquid and gas waste releases to the environment • Permitting and audit facilities or activities • Conducting dissemination and awareness rising activities on environmental problems and their solutions • Making collaboration with international bodies, regional centres and other countries on information exchange activities regarding to environmental issues
Ministry of Forestry and Water Management (MoFWA)	• Co-ordination and control related to national water resources management; • Policy for protecting water resources for sustainable use of water; • Monitoring of water discharges and water bodies • Development and application of water quality and discharge standards setting • Acting as GEF Operational Focal Point.
Ministry of Food Agriculture and Livestock	• Control, regulation, licensing and monitoring of registration, production, import, export, sales, use and storage of agricultural chemicals
Ministry of Development	• Development of public investment policies and plans • Integration of environmental consideration into these • Approval of specific public sector investment related to chemicals and hazardous waste management and site clean-up

[7] How these issues impacted upon implementation will be indicated in the pertinent sections since this section of the report deals with design.

The roles and responsibilities of the institutional stakeholders, as described in the Project Document, basically entailed indicating their roles, responsibilities and functions as defined in national norms and regulations vis-à-vis POPs.

In addition, the Project Document draws a list of non – governmental stakeholders that may engage with the Project. The type of stakeholder as well as their potential interests and roles vis-à-vis the Project are listed in the following table.

Table 6: Interests and Potential Roles, Non – Governmental Stakeholders

• **Stakeholder Category/Organization**	• **Interests and Potential Roles**
• Enterprises either holding POPs, having custody of contaminated sites or are responsible for U-POPs release	• Fulfil the national legislation related to POPs (disposal of POPs and clean-up of contaminated sites; ensure emissions are limited to the given standards; ensure EIA, Environmental Permits are received before start-up of operations). • Increasing recognition and value of addressing environmental legacies for legal, marketing and financial (liability) reasons. • Roles as project beneficiaries, partners and co-financiers.
• Local communities and land holders affected by project activities • Neighbouring the Merkim site • Neighbouring Izaydas and other treatment and disposal facilities • Public along HW transport routes • Neighbouring contaminated sites addressed by the project	• Concerns related to impact and risk associated with project related facilities recognizing • Ensuring appropriate environmental benefits are achieved and negative impacts are compensated for. • These communities need to be fully informed of these benefits and potential risks in transparent manner with provision for their informed input and active participation as the project is implemented.
• Environmental service providers • Environmental/engineering consultants • Civil contractors • Transportations firms • Analytical laboratories • Operators of HW handling and storage facilities • Operators of HW treatment and disposal facilities	• The project will offer opportunities for a range of environmental service providers both in terms of being the primary beneficiary of the project's technical capacity strengthening activities and through business opportunities it may offer, all of which should improve national environmental management capacity and export potential in the future. • To optimize national involvement the project needs to proactively make these stakeholders aware of the project and its potential, as well ensure they are a primary target of training and technical capacity strengthening.
• Civil society organizations/ENGOs	• Concerns and interests of responsible environmental protection and associated public advocacy. • Role in proposing solutions, options and approaches to local issues and concerns • Advocacy for responsible utilization of public resources • Potential roles as partners and service providers in public consultation and awareness initiatives.

• Industry associations	• Key focal points for discussion with the private sector • Involvement In activities under components 2 and 3 • Advocacy for industry and trade associations particularly in facilitating awareness and increased sensitivity to legacy issues and technical understanding of solutions.
• Academic institutions • Universities/higher education institutions • Non-government research institutes • Primary and secondary schools	• The project offers both a teaching and possible niche R&D stimulation opportunity relative to hazardous waste and contaminated sites management, which have broader long-term value to the country, beyond the short-term priority of OP management addressed in the project. • Involvement as peer reviewers and potentially direct participants can be fostered by ensuring they are aware of the project's activities. • Involvement as key partners and beneficiaries in national R&D initiatives related to the issue.
• General public	• The public generally have both a role and an interest in the project and the broader issues of hazardous waste, chemicals and contaminated sites in recognition of the need to "mainstream" these issues in the overall social consciousness as well as raise their profile for public policy makers. • This should be supported by general public awareness both about the project and the broader long-term issues with linkages to more mainstream issues such as SWM being highlighted.
• International Organizations International Financial • Organizations • Multi-lateral agencies • Bi-lateral assistance agencies International NGOs/civil society organizations	• The international community, particularly those resident and active in the country, represent stakeholders largely through their role in providing key and coordinated international assistance as they have to date. • As such it is important that the project fully acknowledge these past contributions and provide well defined ongoing opportunities for continuing support.

EXPECTED RESULTS

Overall, it was expected that the Project would aid in protecting human health and the environment globally as well as locally in Turkey through addressing POPs legacies (including elimination of POPs Pesticide and PCB stockpiles) and initiating clean-up of associated POPs and chemical pollutant contaminated sites. It also aimed at dealing with longer term PCB phase out consistent with the country's Stockholm Convention obligations, reducing U-POPs release in major industrial sectors , and providing targeted institutional, regulatory and technical capacity strengthening. All of the above was expected to be achieved within a sound chemicals management framework.

4. FINDINGS

4.1 PROJECT DESIGN/FORMULATION

ANALYSIS OF RESULTS FRAMEWORK: PROJECT LOGIC AND STRATEGY, INDICATORS

As all projects of this sort, a key aspect of its design is the inception log frame/results framework which includes project strategy and the intervention's logic as well as baseline and target indicators. The Project's logic and strategy at the design and formulation level was fitting. The formulation documents effectively identify key issues that hinder adequate protection of human health affected by POPs legacies, PCB phase out, and reduction of harmful U-POPs release in Turkey. The results framework, therefore, bases its logic and strategy upon identified threats and barriers and how to overcome them by achieving outcomes and outputs. Therefore, the overall strategy is deemed adequate for the problem at hand. In the following sections there are analysis of different components that make – up the results framework.

The threats as well as underlying causes that hinder the proper elimination of POPs legacies and reducing POPs releases in Turkey as well as for addressing hazardous waste and chemicals management issues were identified at the design stage. The four barriers identified were: institutional; legal and regulatory; information and awareness; technical capacity and supporting infrastructure; as well as financial. These are explained below:

Institutional barriers: The institutional matters identified as barriers fall under the tension between economic growth and environmental issues. Furthermore, institutionally, dealing with POPs requires substantial coordination efforts between and among different line ministries, which are not present at the time. This is not only reflected regarding coordination efforts within the national level but also between the national institutions and the provincial/local jurisdictions.

Legal and regulatory barriers: Limited implementation of governing measures of regulatory framework dealing with PCBs and contaminated sites has been an obstacle identified for dealing with the issue nationwide.

Information and awareness barriers: Although awareness regarding environmental legacy issues in Turkey is increasing, it is still limited.

Technical capacity and supporting infrastructure barriers: The design analysis indicated that there were deficits in technical in-country capacity as well as infrastructure barriers to deal with the issue in general.

Financial barriers: Barriers for mobilizing resources to deal with legacy issues, financial liability issues, as well as a lack of robust economic instruments, in particular those that involve public – private partnerships to effectively address the matters, were also recognised as impediments.

The Project's logic and strategy therefore was to confront these issues through specific outputs and expected outcomes that would, plausibly, deal with identified threats and barriers. Therefore, in terms of overall logic and strategy the design responded to an adequate rationale and it was designed as a strategic intervention.

The Project's objectives and components were clear and very much addressing Turkey's priorities and were country – driven. Many stakeholders pointed out that the POPs Project came to deal with a considerable problem that the country has had for several decades, in particular regarding POPs legacies.

Although the overall logic and strategy of the Project is adequate, some issues have been identified throughout the implementation period regarding aspects of the log frame and its associated design factors which are described below.

When doing a SMART (Specific, Measurable, Attributable, Relevant, Time-bound/Timely/Trackable/Targeted) analysis of end of project target indicators, it can be said that they fulfil several but not all of these parameters for all indicators. For instance, they are specific (S) since they clearly communicate a description of a future condition. Some are measurable (M) since they are presented with metrics (for instance, tons of POPs to be dealt with, number of trainings, etc.), however some are not presented with metrics. They are certainly relevant (R) since they aligned with the country's development framework and with an issue that Turkey identified as key for health matters, as well as for meeting with the country's international environmental commitments. They are time bound and targeted (T) given that they are expected to be achieved by the end of the intervention.

Yet, and as will be seen in the implementation sections of this report, several of the indicators were overly ambitious and were difficult to achieve particularly within the expected time frame that the POPs Project was originally supposed to operate in. For instance, by all accounts and analysis the target metric in Outcome 1.1 ("Elimination of 3 038 t of POPs pesticides and POPs waste from the Merkim site and its environmentally sound destruction, including 2 800 t during project implementation") was not deemed achievable within the original time frame and has been achieved to a large degree owing to the implementation extension of 18 months granted after the mid-term review.

Design formulation was carried out through the standard steps and processes for this sort of project. In entailed a Project Identification Form (PIF) developed to secure GEF Council approval which identified scope, beneficiaries, framework design. Furthermore, the next stage entailed project preparation for CEO endorsement embodied in the resulting Project Document. All of these were processes engaging with national and international experts and were participatory vis-à-vis relevant key stakeholders, particularly those stakeholders from relevant government agencies. Project design and overall concept was aligned with relevant country priorities, as well as aligned with germane normative, regulations, strategies, and plans.

As stated before in this report, in the section regarding baseline indicators, a number of baseline data and information was not available or incomplete for some of the issues that the Project attempted to confront. Although the project design and formulation used available data,

a good deal of it was sparse or estimated. For instance, many questions are indicated as estimates, such as the volume of PCBs and pesticides and inventories (of transformers for example). In general, although the design made use of available data, these gaps had to be faced with at implementation since a number of these key issues were not fully known at design and implementation had to contend with this issue at start-up. This issue was also brought up in the risk analysis (see below) that began to be developed with PIF, an issue which was further expanded in the Project Document. It is stated in the PIF, for example, that some of the risks are associated with obtaining precise estimates of PCBs quantities and that this would be addressed through detailed survey work upon start up.

A time frame analysis, in retrospect, indicates that the implementation time period originally planned was deemed too short for fulfilling several of the tasks that the Project would engage in, such as the elimination of stockpiles. This was resolved by the extension made as a result of the recommendation originating from the mid-term review (an extension of a year and a half), yet several key stakeholders have pointed out that the sheer tasks that the POPs Project in Turkey entailed should have had a more precise time frame from the design stage.

Project components were designed as discrete and distinct units for the implementing agencies, with the expectation that each agency would contribute with their specific capacities but distinctly (with UNDP implementing Components 1, 4 and 5 and UNIDO implementing components 2 and 3). Therefore, this Project cannot be accurately described as a joint project per se, particularly at the design phase. After mid-point it was deemed that it was desirable to have this design specificity adjusted and more exchanges between the responsible parties for each component were implemented.

Design specified that the initiative would build upon other relevant projects (current and previous) in the same focal area. The Project Document enumerates a series of initiatives (supported by GEF) that directly relate to focal area and some that include linkages to POPs although they deal with other matters at large. These were, at the time of design:

1 GEF Project No. 4919: Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs).

2 GEF Project No.5000: Life Cycle Management of Pesticides and Disposal of POPs Pesticides in Central Asia and Turkey.

3 GEF regional framework project No. 2600: Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem – Regional Component: Implementation of agreed actions for the protection of the environmental resources of the Mediterranean Sea and its coastal areas (known as the UNEP/MAP project) also has a linkage to POPs in the Turkey. This project that started in 2008 has a component directed to the disposal of PCBs.

4 GEF Project No. 1873: Enabling activities to facilitate early action on the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) in the Republic of Turkey.

Further to the GEF – supported projects mentioned above, there have been a number of bi-lateral international initiatives linked to POPs management, mainly involving EU assistance. These have dealt with expanded institutional, regulatory and technical support capacities,

harmonization related to chemicals management, POPs and associated emission control and monitoring activities.

A potential stakeholder list was drawn up at design. Furthermore, potential interests and probable roles of different stakeholders in the implementation of the Project was also drawn in the planning stages following consultations during project preparation. The roles and functions of institutional actors were defined as what is stated in current normative. That is, for institutions (i.e., different line ministries) their roles were basically defined as what their statutory functions and responsibilities are regarding POPs. For non – governmental stakeholders (including the private sector, local communities, civil society organizations) their potential roles were more amply defined than for institutional stakeholders. They are not only identified as a typology but their interests in the matter and their potential roles and potential responsibilities are also defined. It is of significance to note that as part of this non-state actors analysis, uneven awareness and technical and managerial deficits in all stakeholder organizations is also identified and there are proposals as to how to address this, such as through training and information dissemination.

The Project did not have an explicit theory of change. Tacitly however, and recomposing from project documents and consultations with stakeholders, outcomes and outputs would theoretically generate change (i.e. protect human health and the environment globally as well as locally through addressing POPs legacies including elimination of POPs pesticide and PCB stockpiles) through the analysis of barriers in order to achieve the desired result.

No gender analysis was completed for the Project at design.[8] At the design level, the replication approach has been very much a continual and solid aim of the project, both tacitly and explicitly. Explicitly project planning documents point out that the project has a replicability approach through the progressive development of POPs legacy management and of general sound chemical and hazardous waste management. It is of interest to note that –even at design—there is an aim to potentially replicate achievements not only nationally but also in other regional and global contexts.

Core ideas for replication (and for sustainability) at the time of design included, among other strategies, applying integrated cost-effective criteria for the elimination of POPs waste; ensuring the development of national capacity and supporting the private sector in tandem with the use of international expertise in the subject; development of national POPs and hazardous waste management infrastructure. Therefore, there is a stated aim to upscale, replicate or expand outcomes and outputs, both during project implementation as well as in follow – up.

In particular as it relates to GEF – funded projects, UNDP's comparative advantage is associated to the agency's global network of country offices, its experience in integrated policy

[8] It should be noted, also, that gender analysis with action plans are only required for projects approved since July 2018. Therefore, this was not a requirement for this Project. Gender issues as pertaining to the Project are analysed further along this report.

development, human resources development, institutional strengthening, and non-governmental and community participation.[9]

UNIDO's comparative advantages also fall within the technical field in dealing with chemicals. Moreover, an overall comparative advantage for GEF is that UNIDO can involve the industrial / private sector in projects, which is very fitting in the context of the POPs Project in Turkey. UNIDO's thematic areas and service modules correspond to several of GEF's focal areas specific to the Project, precisely including environmental management in Persistent Organic Pollutants and Persistent Toxic Substances.[10]

The management arrangements for this project were fairly standard for a National Executed Project (NEX) with the variation that this was a joint project. Turkey's Ministry of Environment and Urbanism (MoEU) executed the Project as Local Executing Agency and Beneficiary. Implementation followed UNDP guidelines for nationally executed projects as well as UNIDO Guidelines on Technical Cooperation Programmes and Projects. UNDP was the Managing Agency (MA). The MoEU designated a senior official as the National Project Director (NPD) for the project. The NPD was responsible for overall guidance and management by coordinating activities; for verifying that expenditures were aligned with budgets and work plans; and for coordination with other government entities outside of the MoEU while facilitating procurement of inputs and delivery of outputs.

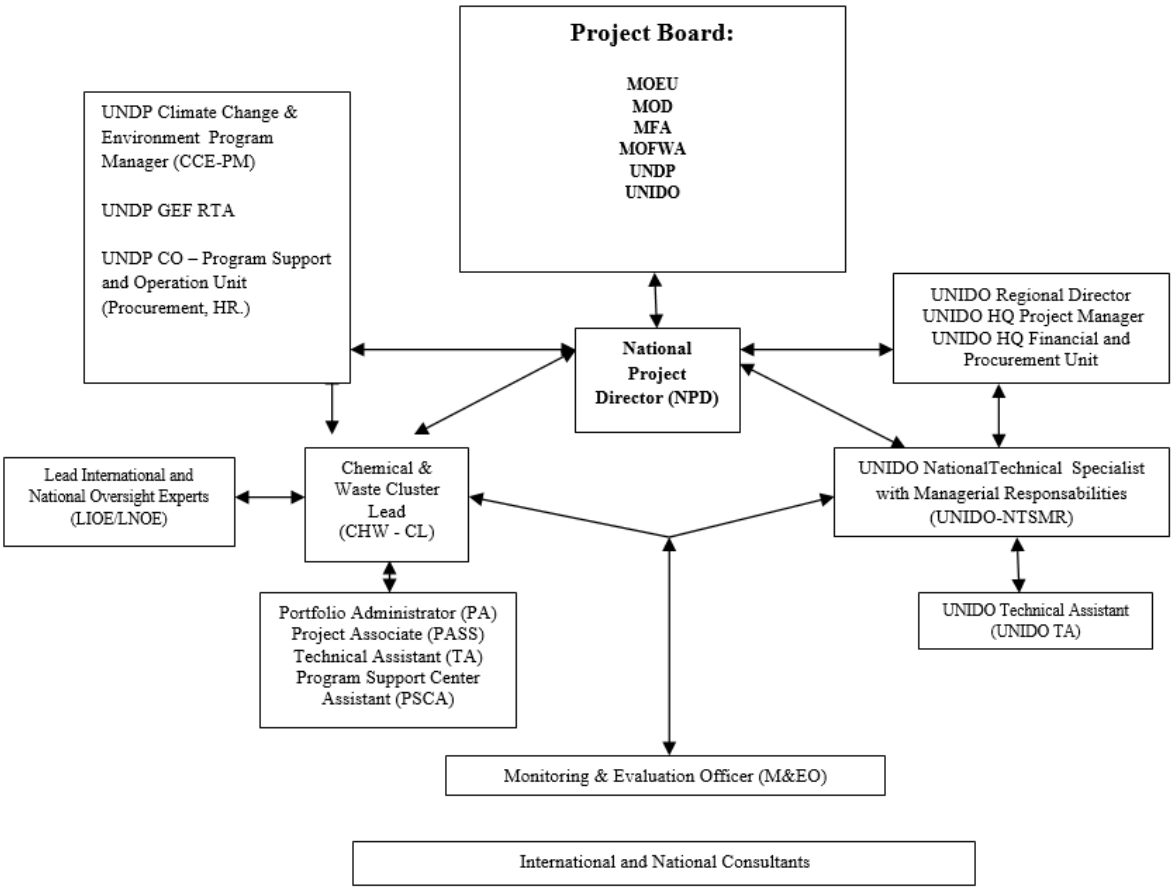
The design also provided some guidelines for the functioning of management arrangements and for the linkages between the two agencies. UNDP and UNIDO were to maintain oversight and manage the overall project budget for their respective components and their pro-rated share of the project management budget. UNDP would take the lead and UNIDO would provide the requested technical information for monitoring the project implementation as well as for timely reporting of progress to GEF. Furthermore, project design also lays out guidance as to the Project Board and Project Management Unit[11]. Following is a figure extracted from the Project Document that charts management arrangements.

[9] Global Environment Facility. GEF/C.31/5 May 15, 2007. GEF Council June 12-15, 2007. Agenda Item 11. Comparative Advantages of the GEF Agencies.

[10] *Independent Thematic Evaluation of UNIDO's work the area of Persistent Organic Pollutants* (*POPs*). Vienna 2012.

[11] This section deals with design, in the next section where implementation is analysed there is an assessment of how management actually functioned.

Figure 1: Management Arrangements (Source: Project Document)



ASSUMPTIONS AND RISKS

Risks were articulated in the PIF document. This risk analysis (see table below[12]) included not only identifying the risk *per se*, it also comprised an assessment as to their likelihood of occurring and possible mitigation actions.

[12] Source: PIF.

Table 7: Risk Analysis from PIF

Risk	*Rating*	*Risk mitigation strategy*
Institutional risks associated with poor coordination among institutional stakeholders at the national and international level	Low	The well developed and stable institutional structure in the government with well-defined responsibilities and working relationships, particularly between MOEU other national stakeholder ministries and local authorities provides a basic framework in which the project can be implemented. Similarly, the established structure of responsibility within MoEU within the Chemicals Department acting as the internal and external (national and international) focal point on the POPs issue offers a working level institutional structure, inclusive of the active direct technical involvement of the Air Protection and Waste Management Departments. Within MoEU Environmental Directorate will directly supervise the PMU, and maintains a close relationship will the GEF Operational Focal Point, formally located in the Environmental Directorate but now in the Ministry of Forests and Water. At the international level the project involves two GEF Agencies and is complimentary to several bi-lateral programs associated with the European Commission. MoEU and its predecessor have long established relationships with all of these organizations in implementing international assistance projects. UNDP and UNIDO have established a strong relationship in jointly implementing other project in Turkey with MoEU and its predecessor and the selection of an operating modality based on project implementation at the country office level with UNDP having a major resident project management capability as the lead agency will serve to minimize potential conflict.
Cost risks associated with POPs legacy elimination	Low	There are some uncertainties associated with the cost of eliminating POPs pesticides stockpiles and remaining high level PCB equipment largely associated with obtaining precise estimates of quantities. This will largely be addressed through detailed survey work and development of retirement incentive commitments during the PCB stage. The unit cost of destruction is based on 2011 competitively determined and contracted delivered prices for similar obsolete pesticides and PCB wastes in the region disposed of at EU incineration facilities.
Uncertainties associated with addressing the lower-level PCB contaminated equipment	Moderate	The extent and nature of low PCB transformer contamination in the country remains a major unknown. Similarly, the optimum approach to addressing it is uncertain. Rather than making substantial up-front commitments to a fixed type of program, this uncertainty is addressed by undertaking a definitive assessment of the issue through a sampling program and determining the optimum approach to addressing what is found in the PPG stage. These options range from early retirement, retention in service as monitored POPs, and/or decontamination of oil and equipment for continuing service. The project will retain the flexibility to pursue the latter option depending on what is found and the selection of option by PCB holders and regulatory authorities.
Level of private sector participation in the assessment of U-POPs monitoring, implementation of BAT/BEP measures and contaminated site assessment is limited	Low	The strong and now expanding mandatory air monitoring and soil contamination regulations provide MOEU with the legal authority to initiate the required programs and order action. At the same time the Turkish private sector generally has recognized the need to improved environmental management and have a cooperative relationship with MoEU in these initiatives. The GEF project will serve to facilitate this cooperation through the technical assistance it provides in these areas, including deferring initial assessment costs.
Level of capacity (technical, institutional) is underestimated	Low	As evidenced by the work to date on the NIP and more generally the overall institutional and technical maturity in Turkey, the basic level of capacity in the country is high. The project will serve to strengthen capacity and expertise in targeted areas as well as provide targeted awareness raising.

The Project Document describes further the issues of risks and assumptions. In the Project Log Frame, a series of assumptions and risks were further identified including issues such as co – financing constraints, unobtainability or unwillingness of electric industry of having their equipment sampled. Again, the issue of whether or if reliable and quantitative data would be made obtainable by project implementation to ensure that the phase out and retirement plan is sound and sustainable arises again. Several of these risks evolved during implementation which is indicative that they were reasonably well defined.

4.2 PROJECT IMPLEMENTATION

ADAPTIVE MANAGEMENT (CHANGES TO THE PROJECT DESIGN AND PROJECT OUTPUTS DURING IMPLEMENTATION)

Adaptive management is defined as the project's ability to adapt to changes to the project design (project objective, outcomes, or outputs) during implementation resulting from: (a) original objectives that were not sufficiently articulated; (b) exogenous conditions that changed, due to which change was needed; (c) the project's restructuring because the original expectations were overambitious; or (d) the project's restructuring because of a lack of progress.

The Project's adaptive management was proactive and timely. Although not formalized in restructuring per se, since it did not change design/log frame nor outputs, it did adapt its time scope and implementation due to original expectations being overambitious (in particular in relation to Outcome 1), and adapted to delays as well given changes in exogenous conditions.

An adaptation that the Project had to implement dealt with obtaining straightforward data on POPs, particularly data from industry. Estimates at design were approximations that needed to be validated and upgraded during implementation, and industry was not particularly willing to provide this information in the first stages of implementation and when surveying was being done in order to have baseline substantiated. Furthermore, generating inventories for PCBs and other waste streams was a rather difficult task to accomplish not only due the scarcity of data but also due to the fact that conditions changed in the lapse between design and implementation. Also, project preparation grant did not provide sufficient resources (funds, time, etc.) to have a full-fledged study of inventories to deal with such a large stock of waste and such a considerable project. The Project showed proactive adaptation to the circumstances when disposal took place in order to deal with the change in conditions and amount of waste found at this time.

The midterm review recommended an up to 18 – month extension, in part due to the over ambitiousness of some of the components and in part due to delays in the recruitment of the project staff and relatively long procurement cycles in the tender processes for the disposal of POPs stockpiles, delays in completion of investments, as well as delays in sample collection processes. This was a significant change given that without this extension the first component would not have been achieved.

The Project also had to adapt to changing or particular exogenous conditions. For instance, the devaluation of the Turkish lira during the implementation process. Furthermore, during the implementation process there were six election periods whereas in Turkey electrical distribution cannot be hindered during election periods. This situation resulted in delays which had to be adapted to since there could not be sampling at sites given that electricity distribution could not be manipulated. Therefore, sampling had to adapt to this circumstance also. The COVID-19 pandemic was also a context that urged adaptation, not only due to national limitations but also due to international travel restrictions which affected the capacity of international contractors to travel to Turkey.

ACTUAL STAKEHOLDER PARTICIPATION AND PARTNERSHIP ARRANGEMENTS

As established in the Project Document and at inception, a broad framework for stakeholder analysis was carried out at Project design. The main partnership arrangements with relevant stakeholders to be involved was established. The implementation of project activities engaged with several key actors, fairly following the planned framework for stakeholder analysis. Engagement with different areas of the Turkish government that deal with the issues that the Project dealt with were proactive and indicative of full country ownership. Full engagement with the private sector was somewhat difficult at start-up but scaled up during the implementation process. Actual engagement with non-governmental organizations and with the general public was at a less significant level than what it was foreseen at design.

It must be pointed out that one of the key positive outcomes of the Project has been the strengthening of public – private partnerships in POPs legacy elimination and POPs release reduction in particular and in hazardous waste management in general. On account of the Project there has been an engendering of improved working relations between the private sector and public sector in this field.

PROJECT FINANCE AND CO-FINANCE

The Project had a total planned project cost of USD 91 344 583. Planned GEF financing was to be USD 10 815 000 with co-financing in the amount of USD 80 529 583 from various sources. At the time of project start, the planned co – financing was to be provided by the following sources: UNDP (cash) USD 100 000; UNIDO (cash) 38 000 USD, Government (in-kind) 19 070 00 USD; Government (cash) 100 000 USD; UNDP (in-kind) 270 000 USD ; UNIDO (in-kind) 120 000 USD. The rest of the co – financing was to be provided from other sources such as the European Commission and the private sector.

Actual co-financing from UNDP was 100 000 USD in cash (100% of what was committed) and 370 000 USD in kind (which was 137% of what was pledged). UNIDO's co – financing was 100% of what was committed at design (38 000 USD in cash). Co-financing by the European Commission (EU IPA Program) was 12 700 000 USD which represents 120% of what was committed. The Turkish Government co-financed the Project in the amount of 12 740 000 USD, which was 102% of what was committed at design. Seventy – three percent of pledged funds by the private sector were leveraged at the time of this terminal evaluation (i.e. February 2021).

Specific data broken down by each source is included in Annexes (see Annex 7: Co-financing Table). The final co – financing at the time of this evaluation was 83 percent of planned co – financing at design. As seen above, institutional stakeholders either met or exceeded their commitments. The private sector lagged behind somewhat given that their actual co-funding entailed 73 percent of the commitment at design. Furthermore, timing of co - funding (particularly from the private sector) actually occurred in the last year of implementation, raising some difficulties regarding the cash flow issue as it relates to execution (i.e. timely flow of funds).

MONITORING & EVALUATION: DESIGN AT ENTRY (*), IMPLEMENTATION (*), AND OVERALL ASSESSMENT OF M&E (*)

The Project commissioned an independent external mid-term review in a timely manner. It also used its findings and recommendations for adaptive management. Therefore, feedback between this monitoring tool as well as other similar instruments (PIRs, etc) provided information that was used to improve and adapt project performance.

Imbedded in design there was a Monitoring and Evaluation (M & E) plan, this included a series of standard activities. In fact, M & E has been imbedded in the Project as a component (Component 6: Monitoring, learning, adaptive feedback, outreach, and evaluation). The monitoring framework indicated that there would be an inception workshop, site visits, mid-term review, project implementation reports, audits, a final evaluation process (i.e., the process that gives rise to this report). In addition to this terminal evaluation, design documents indicated that the project team would prepare the Project Terminal Report to summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. Therefore, for M&E design at entry the ranking is *Highly Satisfactory (HS)* since there were no short comings in the quality of M&E design.

The implementation of the Monitoring and Evaluation plan was properly and timely followed, with the exception of the generation of a project terminal report by the Project Team. Although it is understood that the present document (i.e. this terminal evaluation report) would fulfil some of the functions of the terminal report, if produced this report would have fulfilled not only its monitoring intents but served as a communication and visibility tool, and even as a knowledge management product.

The Project regularly conveyed information on implementation to the MoEU with consistent reports. Although these reports were not mandated by the M&E plan, the Project took upon them to habitually generate these in order to keep institutional partners up to date and informed of the Project's execution process.

Therefore, the achievement of the monitoring plan at implementation is considered that to have been *Satisfactory (S)* since there were only minor shortcomings and the quality of M&E implementation met expectations. A composite ranking that considers monitoring and evaluation design at entry together with the M & E plan's implementation for the overall quality of M&E is *Satisfactory (S).*

UNDP AND UNIDO IMPLEMENTATION/OVERSIGHT (*) AND IMPLEMENTING PARTNER EXECUTION (*), OVERALL PROJECT IMPLEMENTATION/EXECUTION (*), COORDINATION, AND OPERATIONAL ISSUES

The Project Document sets up coordination and operational structures as well as proposed management arrangements. The management arrangements and oversight structure were fairly standard for this sort of Project, with the variance that this was a jointly implemented project with both UNDP and UNIDO acting as implementing agencies. The directives established in the Project Document for management were followed (with a National Project Director, Project Management Unit, Project Board, etc.).

In implementing there were several positive factors highlighted regarding the national implementing partner, that is the Ministry of Environment and Urbanization, which supported proactive and quality implementation. First of all, the ownership of the Project demonstrated by the MoEU greatly aided in the delivery of activities. Furthermore, the active participation of the MoEU in the Project Board as well as their positive rapport with UNDP and with UNIDO greatly aided in implementation, execution and coordination.

By all accounts the work of the PMU and of both Implementing Agencies has been well received by the relevant stakeholders at the local, national and international level (including institutional actors and the private sector). The experience of the project management personnel (both at the MoEU as well as their technical personnel) was well valued and seen as a key factor for working cooperatively with the institutions and the beneficiaries (public and private) involved in the Project, and providing accurate quality support. The work of the project management personnel was also very much results-oriented and striving to achieve objectives. Furthermore, the active responsiveness of the persons involved (within the IAs and within project management, as well as by experts involved) was valued by stakeholders and beneficiaries.

Several issues (operational) have been identified, however, that to some degree hindered a better flowing and timely implementation:

- *Protracted procurement cycle*. Stakeholders and beneficiaries (public, private, consultants, etc.) have indicated that the convoluted multi-layered procurement processes (in particular as related to *Outcome 1.1 Elimination and infrastructure removal from remaining POPs pesticide storage sites*, but also in other processes) delayed implementation and hindered a more efficient approach to the execution of the component. UNDP's rules on procurement[13] (evaluation, tendering/bidding, approval, etc.) were seen as intricate, complex, and lengthy (taking many months to achieve final decisions). Main stakeholders indicate that these rules are not appropriately adapted for such a large endeavour as was the enterprise associated to Component 1. Regrettably the drawn-out and complex procurement process also had other tangential impacts besides the mere length of time and the effort it took to complete and process, among them changes in market price and currency exchange issues (that is market price for disposal processes significantly increased between the time of planning and

[13] UNDP was spearheading this particular component.

execution while the Turkish lira faced a steep devaluation) as well as hindering the ability of the Project to accommodate to the issue that actual POPs value was larger than estimated.

- *Internal communication and coordination.* The project followed very much what was planned at design, in particular regarding the matter that components would be distinct. However, as was also indicated in the midterm review, internal communication was at times lacking due to this.[14] This issue was not only pertinent regarding the two agencies (UNDP and UNIDO) but also vis-à-vis the different experts, personnel, beneficiaries involved which found that this sort of fragmentary approach hindered integrated implementation.[15]

Therefore, as an amalgamated review, the global quality of implementation and execution, of the executing agencies as well as the quality execution of implementing agencies is *Satisfactory (S)* since –overall-- a few shortcomings (particularly in procurement and in communication) were identified throughout the implementation process as a whole.

RISK MANAGEMENT, INCLUDING SOCIAL AND ENVIRONMENTAL STANDARDS (SAFEGUARDS)

UNDP's Social and Environmental Standards (SES) screening was carried out at design so that project programming would maximize social and environmental opportunities and benefits as well as ensuring that adverse social and environmental risks and impacts would be avoided, minimized, mitigated and managed. Some safeguards were identified (such as additional health services including testing needed throughout the project in particular testing of labour force at the target sites where POPs would be destroyed or where decontamination would take place). Overall, the Project committed to and implemented environmental and health risk assessment methodologies and practices applicable to hazardous waste stockpiles as well as applied relevant technical guidelines on operational safety procedures for hazardous chemicals waste handling, Key stakeholders indicate that these safeguards have been applied in general in regards to environmental and as well workplace health and safety standards in order to implement risk management procedures.

4.3 PROJECT RESULTS AND IMPACTS

PROGRESS TOWARDS OBJECTIVE AND EXPECTED OUTCOMES (*)

The *POPs Legacy Elimination and POPs Release Reduction Project* in Turkey met and achieved nearly all its anticipated outputs and outcomes at Project closing. A few of these outputs are still expected to be achieved in the few months after project closure and in a few

[14] In part due to recommendations imbedded in the midterm review, internal communications (between UNDP and UNIDO particularly) were enhanced in the second tranche of implementation.

[15] This matter is taken up also in other areas of the report since it had an effect on other criteria (for instance, efficiency).

months after this report, yet the metrics (end-of-project achievement indicators) point to a great degree of attainment of outcomes at the output and at the outcome levels.

In the next chart specifics of achievements are indicated. Following this, there is a narrative regarding factors that contributed to or affected outcome achievements and where criteria analysis is explored.

Table 8: Achieved cumulative progress since project start

Objective: Protection of health and environment through elimination current POPs legacies, ensure longer term capacity to manage POPs into the future consistent with international practice and standards, and integrate POPs activities with national sound chemicals management initiatives.
Component 1: Elimination of Current POPs Stockpiles and Wastes - UNDP
▪ POPs/OPs pesticides elimination (including packaging) of a noteworthy amount of legacy POPs stockpiles has been eliminated. The latest metrics indicate that 2,500 t of stockpiled high concentration POPs pesticides and associated POPs waste has been eliminated in cooperation between the Project and the beneficiary as well as 300 tons of PCBS and PCB contaminated equipment has been disposed by the Project ▪ The Merkim site owners are responsible for any remaining POPs/OPs pesticides and debris from the decontamination of the warehouse - about 350-400 tons[16] ▪ 40 tons of Obsolete Pesticides under MOFAL (Ministry of Agriculture) custody were removed and eliminated ▪ The actual demolition and Merkim's site remediation is expected to be conducted after the main disposal activity of concentrated POPs waste category will be concluded ▪ Fully accomplished certification of a high-temperature facility recognized by the Basel convention's guidance on the POPs waste movement and disposal technologies. Fully certified technology and fully approved facility for the use for destruction of hazardous-POPs waste. For the above, the following intermediate processes (among others) were implemented: o Detailed site assessment, operational plans, environmental assessment , tender documents and contracting for Merkim POPs stockpile site and infrastructure removal o Operational and safeguards training for hazardous waste and residual site clean-up o Public consultation for design, permitting for above activities on the Merkim site o PCBs and PCB containing equipment stockpiles of inventory update identified in the PPG phase and negotiation of project period phase out agreements under MOEU regulatory orders as required o Facility upgrade investment in materials handling, monitoring infrastructure at the Izaydas complex

[16] Government and the Project are engaged in providing a close oversight to these processes.

- Test burns undertaken on representative POPs (PCBs and POPs pesticides) at the Izaydas
- Public consultation for design, permitting for activities at Izaydas
- Investments by Izaydas facility to prepare for testing procedures.
- Construction a POPs certified storage facility
- Online monitoring laboratory for air emissions recorded at stack
- Integrated operations management room with the technology screen process, carbon filter
- Liquid line for liquid PCB oils to reach the rotary kiln point.
- Test burns and certification of quality of incineration
- Dissemination of incineration reports, etc.

Component 2: Planning and Capacity Building for Environmentally Sound Management of Future PCB Stockpiles - UNIDO

- Elimination of 289 tons of PCBs waste and PCB based equipment has been completed
- Approximately 15 tons of PCB contaminated mineral oil has been treated

For the above the following intermediate processes (among others) were implemented:

- Technical annex and guidance documents to the existing PCB regulation developed
- Capacity building of relevant authorities for monitoring, measuring and reporting the implementation of the existing PCB regulation
- Training on PCB equipment identification and labelling
- Sampling and analysis of online or stored transformers for checking their contamination by PCBs
- Update of the existing PCB inventory and identification of PCB containing equipment
- Consultation with main stakeholder from electricity sector for the identification of management plan priorities and development of said plan
- Promotion and development of an implementation strategy for the PCB management plan implemented
- Improvement of storage and maintenance of cross contaminated PCB equipment; Standards and Guidance Documents for prioritizing, maintenance, handling and storage of PCB contaminated equipment;
- Adoption of physical or operational measures for preventing release of PCB or human exposure to PCB from equipment on-line, in use or stored;
- Determination decontamination technology for PCB contaminated transformers piloted;
- Feasibility study concerning technological options for the treatment of transformers on-line or stored for maintenance;
- Selection, procurement and testing of equipment for the treatment of PCB contaminated transformers

Component 3: Unintended POPs Release Reduction - UNIDO

- Unintended POPs release reduction

For the above the following intermediate processes (among others) were implemented

- Training and technical assistance on BAT/BEP for priority industrial sectors

- National U-POPs release reduction plan with risk-based and cost/effectiveness priorities completed
- An assessment report on the regulatory gaps with reference to SC requirement and EU-IPPC regulation completed
- Demonstrations and assessments of BAT/BEP in several industrial sectors (iron and steel, electric arc furnaces, non-ferrous metal sector
- In total, 2.98 g-TEQ/yr of PCDD/F reduction achieved

Component 4:Management Capacity for POPs Contaminated Sites - UNDP

- Implementation of the "Soil Pollution Control and Point-Source Contaminated Sites Regulation"

For the above the following intermediate processes (among others) were implemented:

- Technical assistance provided to central and regionally-based staff of the MoEU
- Guideline on remediation technologies for local staff produced
- Upgrading of the national contaminated sites registration system
- Training and risk assessments carried out
- Studies on financial mechanism options developed
- Software improvement support for development of contaminated sites' information system
- Site assessments

Component 5: Institutional and Regulatory Capacity Strengthening for POPs and Sound Chemicals Management - UNDP

- Legal and regulatory framework governing POPs and HW import/export fully harmonized, updated and consistent with EU standards and compliant with the Stockholm Convention and related MEAs
- Strengthened technical capacity
- Development implementation of modern tools for sound chemicals management framework

For the above the following intermediate process (among others) were implemented:

- Drafting of by-law was prepared in line with the EU POPs Regulation No.850/2004/EC
- POPs legislation has been published by the end of 2018.
- Software support provided to enhance the implementation of PIC (Prior Informed Consent)
- Technical support to the Ministry of Environment Chemicals and Waste Departments on National Waste Management Plan of Turkey
- Assessment of current POPs analysis and monitoring capacity in the country
- Preparation of a proposal for National POPs Monitoring Mechanism in Turkey

RELEVANCE (*)

Relevance is the extent to which a project's objectives are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donors' policies. Regarding alignment with national development and environmental priorities, the Government of Turkey places a high priority on addressing the reduction of pollution and eliminating related pressures and impacts to the natural and human environment, particularly those associated with historical legacies. This is echoed in the series of policies that the country has adopted to deal with waste

management (including hazardous waste management) and which are imbedded in the country's policy and regulatory framework.

Relevance is also applicable regarding international commitments relative to hazardous waste, chemicals and contaminated sites management assumed by Turkey. The Project explicitly facilitated having the country meet its international obligations as expressed in the relevant Multilateral Environmental Agreements Turkey is a party to that deal with these issues (the Stockholm, Basel, and Rotterdam accords mainly).

Therefore, relevance is tied to generating capacity and receiving technical assistance to deal with these issues from a local to a global spectrum. As many stakeholders have indicated to this evaluation, the POPs Project came to deal with an issue that has been problematic for Turkey for several decades (i.e., disposal of legacies), has helped in improving local health conditions, has generated capacity, and has positioned the country as a unique actor for impelling cooperation and replication at different scales.

Relevance is also analysed in relation to IA's and GEF's strategic priorities. This is exemplified by alignment of the Project with the following:

- Contribution to achieving UNDAF Outcome 2 Democratic and Environmental Governance (relevant UN-wide, that is for both UNDP and UNIDO).
- UNIDO as an UN implementing agencies that support countries through Enabling Activities and NIP under the Stockholm Convention as well as UNIDO as an agency defined as specialist in the 'Chemicals' area with a focus of POPs.
- Contribution to achieving expected CPAP UNDP: Outcome 3: Strengthening policy formulation and implementation capacity for the protection of the environment, and cultural heritage in line with sustainable development principles and taking into consideration climate change and disaster management.
- Contribution to the achievement of Output 3.3.8: Protection of health and environment through elimination of current POPs legacies, ensure longer term capacity to manage POPs into the future consistent with international practice and standards, and integrate POPs activities with national sound chemicals management initiatives.
- Contribution to achieving expected CPAP UNDP: Output 3.3.8: Protection of health and environment through elimination of current POPs legacies, ensure longer term capacity to manage POPs into the future consistent with international practice and standards, and integrate POPs activities with national sound chemicals management initiatives.

Relevance is also applicable with regards to GEF Strategic Objective and Program: GEF-5 Chemicals Strategy: Objective CHEM-1: Phase out POPs and Reduce POPs Releases. The project is fully in compliance with the GEF-5 area of work on 'Chemicals' and specifically with the strategic objective 7 of the focal area on 'POPs enabling activities' that is to assist eligible partner countries to implement their obligations under the Stockholm Convention, and to achieve the purposes of the convention, including to reduce and eliminate production, use and releases of POPs through (1) Strengthening Capacity for NIP Development and Implementation, (2) Partnering in

Investments for NIP Implementation and (3) Generating and Disseminating Knowledge to Address Future Challenges in Implementing the Stockholm Convention.

Regarding SDGs the Project links to several such as: SDG 3 Ensure healthy lives and promote well-being for all at all ages; SDG 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Therefore, relevance is assessed on a six-point scale as *Highly Satisfactory (HS)* since there were no shortcomings at the national institutional nor agency level regarding the significance of this intervention.

EFFECTIVENESS (*)

The effectiveness of a project is defined as the degree to which the development intervention's objectives were achieved or are expected to be achieved. The valorisation of effectiveness is used as an aggregate for judgment of the merit or worth of an activity, (i.e., the extent to which an intervention has attained, or is expected to attain, its major relevant objectives proficiently in a sustainable fashion and with a positive institutional development impact).

The effectiveness of this project can be rated as *S (Satisfactory)* since it met expectations as to the degree of objectives being achieved. This is factual at the objective, output and at the outcome's levels.

The POPs Project level of achievements in all of the distinct outcomes and outputs was commensurate to metrics (i.e. indicators) as well as more general impacts and effects expected to be achieved.[17] Following GEF Core Indicators as a measure of achievements[18] as can be seen in the next chart, a high degree of Global Environmental Benefits has been attained during the Project's implementation, higher than original planned GEBs.[19]

[17] Outcome 1.1 has failed behind to some degree in the tonnage of POPs elimination achieved at the time of this evaluation, yet there is a high expectation that this target will be met in the months to come. See footnote 18 below for a full explanation.

[18] GEF Core Indicator 9 Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products - Indicator 9.1 Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type).

[19] See Annex 8: Summary of Project Global Environmental Benefits, this table's source is the Project Document.

Table 9: GEF Core Indicators Achieved for Core Indicator 9.1

Core Indicator 9	**Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products**		***(Metric Tons)***
Indicator 9.1	Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)		
POPs type			Metric Tons Achieved TE
Alpha hexachlorocyclohexane	Lindane	(select)	*3202*
(select)		Polychlorinated biphenyls (PCB	*289*
DDT		(select)	*40*

The breakdown of POPs removed and disposed is as follows:

- 244 tons – Preliminary work
- 1660 tons – Polyeco work
- 1298 tons – Merkim owned waste[20]
- 289 tons – PCB
- 40 tons - obsolete pesticides.

Table 10: GEF Core Indicators Achieved for Core Indicator 10.2

Core Indicator 10	**Reduction, avoidance of emissions of POPs to air from point and non-point sources**		***(grams of toxic equivalent gTEQ)***
Indicator 10.2	Number of emission control technologies/practices implemented		*2.98 g-TEQ/y*
			Number Achieved TE
			2

U POPs removed is as follows:

- 2.98 g-TEQ/ yr. of PCDD/F reduction achieved

[20] 700 tons out of it already destructed. The remaining waste was sent to Izaydas site for destruction shortly before this evaluation began and destruction will be completed within this year, therefore it is reported as completed by the Project for evaluation purposes.

Another important achievement has resulted from the support for certification for incineration of hazardous waste that Izaydas facility received. It is now the only certified facility of the type in Middle Eastern Region and will remain a crucial facility to help address Turkey's remaining POPs disposal aspects as well as help the country meet with international commitments (such as those related to hazardous waste contained in the Basel and Stockholm conventions).

All other outputs/outcomes/results were achieved at the level expected or exceeding it and in accordance with target indicators. The Project also contributed to country expected outcomes as expressed in UN programming (UNDAF, CPAP, GEF strategic priorities) and contributed to the country's national priorities as well as in meeting with international commitments (such as meeting with commitments by adherence to the Stockholm Convention). Normative upgrading, development of modern tools for chemical management and increased capabilities installed for hazardous waste management are overall some of the effective attainments generated by the Project.

This project has been also learning experience, not only for the governmental institutions in Turkey, but also for the implementing agencies (that is, UNDP and UNIDO), for the funder (GEF) and for the private sector.

As such, the effectiveness of the Project is not put in doubt, but this evaluation based on its assessment (and validated by the stakeholders consulted) there are a series of matters which could have aided in further effectiveness related to implementation/follow-up/replication and upscaling, such as:

- *Capacity building*. Although it is fully understood that this was a project conceived as a technical cooperation and technical assistance project, and that formal/informal capacity building was only a lesser overall purpose of the Project, effectiveness could have been enhanced (as well as follow-up, replication and sustainability) if capacity building could have been furthered. Although, again, it is understood that whatever formal capacity building took place at the planned amounts, and that even informal capacity building took place, greater effectiveness could be achieved by further imbedding capacity building mechanisms. This is expressed by a series of stakeholders interviewed in the process of this assessment (from national institutions, national experts, as well as from the private sector) that –although they have learned from this process- they would have been keen to engage further in learning and in capacity generation/enhancing functions.
- *Knowledge management.* To some degree related to the above, the Project –overall—did not generate a robust set of knowledge management materials. These would have increased effectiveness within the implementation window yet also –and perhaps more importantly—could have aided in generating further achievements, continuing capacity building and generated opportunities for upscaling and replication (nationally, regionally and globally).
- *External communications.* A project's external communication not only attends to the visibility of the intervention, it also gives an account of a project's progress and intended impact through communications, outreach and even in some cases through public awareness drives. Although the Project did generate some communication materials, maintained a

webpage with information[21] and generated a few materials such as posters and factsheets, it did not have a specific integrated communication strategy and there was no direct nor indirect public information drives as part of the Project. Although there was a web page presence, some media did report the clean-up process, and a few companies reported disposal in their sustainability corporate information (informing that clean-up/disposal had taken place at their facilities), this was not done in an integrated manner. Project did not communicate strategically, and partners –in turn—did not perceive communication factors properly. Although it is understood that institutional and private sector partners were not keen to share information during the implementation process due to the sensibility of the data, it would have benefited the Project to have an open external communications process not only for efficiency but also for visibility of the achievements.

EFFICIENCY(*)

Efficiency is defined as the extent to which results have been delivered with the least costly resources possible. Efficiency is a measure of how economically resources/inputs (funds, expertise, time, etc.) are converted into results.

The Project has been efficient in achieving outputs/products and in achieving outcomes and effects/impact in Turkey in a high degree of accomplishment vis-à-vis expected target indicators and other metrics. Also, it has provided value-for-money since it achieved the results within budgets, agreed disbursement, etc., while leveraging investments and in-kind support from sources external to the project per se (co-funding).

The linkage between UNDP and UNIDO played a role in efficient implementation, in particular after the midterm review. Each agency (in charge of distinct expected outcomes individually) worked in tandem, with each agency contributing to the Project in relation to their comparative advantages. The discrete yet collaborative work is a positive example of UN Delivery -as -One approach and of UN inter-agency collaboration at a national level while reducing duplication of efforts.

The Project Management Unit also played a role in the timely resourceful delivery of expected results, adapting to changing circumstances and other externalities. If project management is considered in a broader spectrum (i.e., including not only PMU, but also UNDP, UNIDO, MOEU, board, etc.) it was also an efficient mechanism to obtain results at a level approximate to expectations.

Two areas that affected efficiency have been identified by this assessment, based on delivery information as well as on stakeholders inputs:

- *Procurement issues.* As indicated in other sections of this report, one of the major issues that affected timely delivery and –therefore—efficiency has been associated to procurement issues, in particular as it related to the stockpile elimination of POPs. Tendering and bidding

[21] https://kalicikirleticiler.com/en/.

processes including evaluation of tenders, decision making and approval was drawn-out and time/effort consuming. It was multi-layered and it consumed an inordinate amount of processing time. Inputs from key stakeholders have even indicated that UNDP procurement modalities are not adapted to these large-scale interventions and should be modified to be more fitting to the scope of what is being procured.

- *Internal communication and coordination.* The project followed very much what was stated at design, in particular regarding the matter that components would be distinct. However, as was also indicated in the midterm review, internal communication was at times lacking due to this. This issue was not only pertinent the two agencies (UNDP and UNIDO) but also vis-à-vis the different experts, personnel, beneficiaries involved which found that this sort of fragmentary approach hindered integrated implementation. The project could have benefitted from a coordination mechanism (such as a steering committee or similar instrument) made up of relevant stakeholders (UNDP, UNIDO, Government of Turkey representatives, experts, private industry) that could have aided in coordination and engendered better unified management.

The efficiency of implementation met expectations to a large degree. Therefore, the overall ranking of efficiency is *Satisfactory (S).*

OVERALL OUTCOME (*)

Given the high degree of relevance and the satisfactory degree of effectiveness and efficiency, the overall project outcome is ranked as *Satisfactory (S).*

SUSTAINABILITY: FINANCIAL (*), SOCIO-ECONOMIC (*), INSTITUTIONAL FRAMEWORK AND GOVERNANCE (*), ENVIRONMENTAL (*), AND OVERALL LIKELIHOOD (*)

Sustainability of an intervention and its results are examined to determine the likelihood of whether benefits would continue to be accrued after the completion of the project. Sustainability is examined from various perspectives: financial, social, environmental and institutional.

Financial sustainability: Financial risks to sustainability relate to the likelihood of financial and economic resources not being available once assistance ends. Since financial risks are at the very core of many of the issues related POPs management in Turkey (including private investments in the matter) the ranking for financial sustainability is *Moderately likely (ML),* given that, although there are moderate risks, there are also expectations that at least some of the outcomes will be sustained in time financially.

Socio-economic risks to sustainability: When analysing socio economic risks to sustainability, an examination is made of the potential social or political risks that may jeopardize sustainability of project outcomes, particularly when there is no evident ownership. The level of stakeholder ownership (both by private and public actors), as seen in the narrative of this report,

is very strong and the accomplishments of the POPs Project support ownership. Therefore, the ranking for socio – economic sustainability is *Likely (L).*

Institutional framework and governance risks to sustainability: At the time of the final evaluation there is a good expectation that institutional framework and governance gains derived from the Project can be sustained, with no discernible risks. This not only due to the institutional strengthening that has taken place at the national level, but also with the work and technical assistance with authorities at several levels for management of contaminated sites that has been developing throughout the Project. Therefore, the ranking for institutional/governance sustainability is *Likely (L).*

Environmental risks to sustainability: Environmental risks to sustainability are not identified. That is, no environmental factors that could undermine the future flow of project environmental benefits have been identified, nor was there an identification of environment related activities in the project area that can conceivably pose a threat to the sustainability of project outcomes. Therefore, the ranking for environmental sustainability is *Likely (L)* since there are no identifiable risks to sustainability in this regard.

With regards to sustainability, it is noteworthy to observe that there are a number of follow – up initiatives already started as well as consensus from varied stakeholders (public and private) as to the wish and need to carry out similar activities or projects in the near future in Turkey, in POPs in particular, but also in hazardous waste/chemical management in general. Furthermore, several of the achievements can engender sustainability as a logical outcome that spans over several of the sustainability prospects indicated above. For instance, this is pertinent regarding the hazardous waste facility that has been certified (Izaydas). In addition, the provision of software registration system for contaminated sites as well as software development support not only related to the Stockholm Convention but also with other similar MEAs (for instance, prior informed consent issue regarding the Rotterdam convention) can engender sustainability of results.

Taking a composite view of the rankings for financial, socio – economic, institutional as well as environmental sustainability probabilities, the overall likelihood of sustainability is ranked as *ML (Moderately Likely).*

COUNTRY OWNERSHIP

Country ownership from governmental institutions in Turkey has been very high for this Project, from the Ministry of Environment and Urbanisation as the main institutional stakeholder and with the involvement as well of the Ministry of Food Agriculture and Livestock. It has been pointed out by several stakeholders that this high level of ownership has been one of the key factors in the successful implementation of the POPs Project. This signals not only actual institutional involvement but also the potential effect that this project can have in the future through upscaling, replication as well as through further engagement in similar projects (at the national as well as at regional/global scales). The project concept was supported by government at its different stages of design and was aligned with national policies. Furthermore, national

representatives (mainly from MoEU), took an active role in project identification, design, planning, implementation as well as to overall oversight.

The link with both agencies (UNDP and UNIDO) was highly positive and government liaised actively with both IAs with regard to each agency's components within the POPs Project. This has also aided in working in tandem between the agencies and government in the field of hazardous waste management and in chemicals, taking further into account Turkey's specificity in this field as a middle-income country with a level of increasing industrialization.

Another area of ownership to highlight is related to non-state actors, particularly the private sector. Although the Project had, in its start-up stages, some strains in dealing with the private sector, in particular regarding disclosure of private sector data (a challenging issue from the beginning due to the accessibility of site visits for competitors in the local market and due to dealing with conflict of interests of competing companies and vis-à-vis data confidentially) these matters were bypassed and a strong country ownership on the activities, products and processes of the Project was engendered from the private sector also. This is also key due to the pending work on elimination of POPs stockpiles which will foreseeably take place in the next few months. Overall, non-state stakeholders' ownership is also a signal of the potential to sustain benefits once the project terminates.

GENDER EQUALITY AND WOMEN'S EMPOWERMENT

At design the Social and Environmental analysis indicates that the project is not likely to significantly impact gender equality and women's empowerment, which is demonstrated at implementation. Atlas Gender Marker Rating for the Project is GEN1: some contribution to gender equality. There are a few references to gender in project design. For instance, in Outcome 2.1: Implementation of national PCB regulation: Number of technical annex and guidance documents to the existing PCB legislation developed. Number of PCB owners on role and duties in relation to PCB rules (sampling, labelling, reporting), gender disaggregated. Furthermore, gender disaggregated data for training activities is requested at design and fulfilled at reporting. The Project involved a number of women at implementation from both the private and public sectors as well as in capacity building activities.

CROSS-CUTTING ISSUES

Given that GEF -- financed projects are key elements in UN country programming, project objectives and outcomes should align with UN country programme strategies as well as to GEF-required global environmental benefits. When dealing with mainstreaming and cross-cutting issues, evaluations also explore whether project outcomes are being mainstreamed into national policies. he POPs Project converged environment-related and other development programming, aligned with UNDAF and other such programming relevant to UNDP and UNIDO's cross cutting and mainstreaming issues.

The POPs Project helped in impelling processes that further improved governance as well as improved natural resource management in the country. Regarding sustainable development,

it is noteworthy that although the project focused upon global environmental benefits derived by the Project there were several national and sub-national level cross-cutting issues that can be highlighted as positive integrated issues. For instance, the positive impact on human health that can be derived from the Project's outcomes via reduced risk to exposure to harmful chemicals.

GEF ADDITIONALITY

The Project's outcomes (results, effects, impact) are closely related to incremental reasoning for all components, and a catalyst for the incremental benefits of GEF support. Specifically, for (a) elimination of POPs stockpiles and wastes; (b) planning and capacity building for environmentally sound management of future PCB Stockpiles; (c) unintended POPs release reduction management capacity for contaminated sites; (d) institutional and regulatory capacity strengthening for pops and sound chemicals management.

Following GEF guidelines[22], the POPs project in Turkey falls under all six areas of GEF additionality:

- Specific Environmental Additionality
- Legal/Regulatory Additionality
- Institutional Additionality/Governance additionality
- Financial Additionality
- Socio-Economic Additionality
- Innovation Additionality.

The outcomes related to the incremental reasoning (for instance legal/regulatory; governance; innovation additionalities). The data (see section on achievements, impact, GEB) demonstrate with quantitative data incremental environmental benefits and these outcomes (as indicated throughout this report) are attributable to this intervention.

CATALYTIC/REPLICATION EFFECT

The potential catalytic and replication effect for the Project, as well as for both agencies (UNDP and UNIDO) has been established early on in project design. Explicitly, project planning documents point out that the project has a replicability approach through the progressive development of POPs legacy management in particular and for sound chemical and hazardous waste management in general. It is of interest to note that –even at design—there is an aim to potentially replicate achievements not only nationally but also in other regional and global contexts.

Another matter that signals a strong potential catalytic and replication effect is the expressed aspiration by all sorts of stakeholders (that is, from government, private sector as well

[22] As stated in '*An Evaluative Approach to Assessing GEF's Additionality*', https://www.thegef.org/council-meeting-documents/evaluative-approach-assessing-gef-s-additionality

as of national experts) to continue to work with international and national institutions in the issues of integrated hazardous waste management.

The catalytic role of the Project is found in several different features thus far, such as:

- *Production of public good*. The Project has introduced new technologies and approaches to deal with POPs in Turkey.
- *Demonstration*. The introduction of new technologies and approaches ushered specific demonstration processes and sites for hazardous waste management. Although to a lesser degree, since the approach of the project was more of a technical assistance than a capacity building intervention, there has been some training that could catalyse further work in this area. The Project did not have a strong emphasis on information dissemination nor on the generation and dissemination of knowledge management, although some products were developed in this vein.

The replication/catalytic role of the Project is found in several different features potentially applicable in near future, such as:

- *Upscaling.* As project documents indicate, the issue of POPs is not circumscribed to the sites and legacies already dealt with. There are a number of other areas in Turkey which could potentially benefit at the national and sub national scales for dealing with hazardous waste management and chemical issues.
- *Replication.* The potential for replication is very high, not only at the internal national scale as seen above, but also regionally since Turkey is in a unique demonstrative position (based on the results of this project) to engender replication. Replication in the Middle Eastern Region, in CIS and other Eastern European contexts, as well as other similar geographic/developmental areas, for knowledge transfer and capacity building within these countries and regions as well as for the use of project-trained individuals, institutions or companies to replicate the project's outcomes in other regions.

PROGRESS TO IMPACT

Long-term impacts (of different sorts) can be attributed to the Project in the field of reduction of and improved management of hazardous waste mainly associated to the specific expected results. Other impacts and effects have also arisen which are not included in the specific metrics of project design but that do have and will foreseeably have in the future an indelible impact upon environmental stress reduction and health. Both sorts of impacts and effects are described below.

Some of the quantifiable global environmental benefits (GEB) directly derived from the Project are as follows:

- Elimination of 2,400 t of POPs pesticides, 400t of POPs pesticide waste, and 30 t of obsolete pesticides.[23]
- Secure disposal of 200 m3 of POPs contaminated soil.
- Elimination of over 350 t of PCB based equipment inclusive of an estimated 115 t of PCBs.
- U POPs removed 2.98 g-TEQ/ yr. of PCDD/F reduction achieved
- Contaminated site management.

Other positive impacts and effects, although not quantifiable (some of them even unplanned or unintended) are indicative of the multi-faceted processes the Project sustained. These can also be portrayed as environmental and development benefits (not only at global but also at regional, national and even local scales). Among these, the most salient impacts and effects found are as follows.

- Capacity built and upgraded in POPs stockpile and waste management, including PCBs and POPs pesticides in both the private and in the public sectors, including aiding in international certification for hazardous waste facility[24] and infrastructure.
- Upgraded emission control investment to reduce U-POPs release.
- Enhanced compliance of Turkey with international conventions (Stockholm, Basel, Rotterdam) enhancing also national regulatory policies and regulatory framework.
- Upgraded capacities in integrated hazardous waste and chemicals management, qualification of POPs destruction facilities in Turkey.
- Generation of linkages between national stakeholders (private companies, national experts) with international waste disposal companies and international expertise.
- Improved relation between the private sector and government and cooperation/trust strengthened in order to deal with POPs in particular and with integrated hazardous waste management in general.
- Positive health impact on the long term, including worker's health and safety issues.

[23] A certain amount of elimination is ongoing, yet it is expected to be completed in the next few months after this evaluation.

[24] In compliance with Basel Convention guidelines.

5. MAIN FINDINGS, CONCLUSIONS, RECOMMENDATIONS AND LESSONS

MAIN FINDINGS

- Project design was very ambitious, had deficits in baseline data and access to pertinent information at the design stage and at the initiation stage. This somewhat hindered start up and imposed a need for adjustments, extensions, and adaptation. In other areas, the Project was well designed (outputs, components, intermediate processes and products, local specificity).
- One of the main reasons for project success was its relevance regarding priorities of Turkey in dealing with the issue of POPs elimination and fulfiling the country's targets in the context of the Stockholm Convention.
- The implementation architecture and ownership of the Project (through the project management staff, national and international experts, government and institutional stakeholders, as well as with the implementing agencies) was also a factor that fostered the achievement of results.
- The extent that the expected outcomes and objectives were achieved have been met in some components while in others they have been overly achieved.
- The Project was fairly efficient in the achievement of expectations. Yet, an issue that has impaired to some degree efficiency in implementation has been the long and convoluted procurement process for some of the most complex and large components.
- There are some very concrete results and benefits ensuing from this Project, dealing with health, environment and development. These benefits are not only global in nature but also local and national.
- Although no institutional, socio-political, nor environmental risks to sustaining long-term project results are foreseen, financial risks in dealing with POPs and hazardous waste are identified as an issue. This is not only a sustainability issue but also a matter for ensuring longer term capacity to manage POPs into the future, and for upscaling and replication.

CONCLUSIONS

The *POPS Legacy Elimination and POPS Release Reduction Project* in Turkey is concluding with a strong set of achievements but also with lessons learned. The Project has met with its immediate aims and objectives to protect human health and the environment globally as well as locally through addressing POPs legacies including elimination of POPs pesticides and PCB stockpiles. Therefore, this is an example that global environmental benefits can be linked intrinsically to local/national benefits as a result of these sorts of projects.

The Project developed through five years with implementation by UNDP and by UNIDO in close collaboration with the Government of Turkey. A contributing factor to the Project's achievement is institutionally-related. An asset of the Project has been the work of the

management unit and the agencies involved, reinforced by the contribution of significant national and international expertise in the field. The ownership of the Government of Turkey regarding the Project, its expected outcomes and expected results, as well as its sustainability has been a substantial contributing factor to the achievements.

Project design was affected by a deficiency of complete information on the situation regarding PCBs in the country as well as an ambitious design regarding the time, resources and efforts needed to eliminate stockpiles. Although project initiation was also delayed (and further efforts needed to be placed in the surveying of sites and in assembling information for elimination and, consequently, for contracting) implementation by the Project was impelled in an adaptive manner. Furthermore, information flow from the private sector improved to a degree after implementation began and issues on data from the private sector were dealt with. Another drawback identified by all types of stakeholders has been the long-convoluted procurement process for the elimination of POPs that ensued due to organisations not being necessarily adapted to this sort of technically complex and ambitious intervention.

Circumventing the above issues and relying on the Project strengths, the goal of POPs elimination as well as the aim of generating and upgrading capacity to deal with hazardous waste and chemicals has been greatly achieved[25] thus far and is expected to be achieved fully. Many stakeholders have indicated that the stockpiles of POPs the Project dealt with were considered to be the largest POPs stock in the world and a problem that Turkey had to deal with for several decades. Furthermore, based on the activities and products generated by the Project, there has been major upgrading of in-country capacity to better deal with hazardous waste and aid Turkey in fulfilling its international commitments with chemical – related multilateral environmental agreements.

With the success of this Project, Turkish and Turkish-based institutions are in a unique position to leverage and upgrade its regional and global role in this issue. Sustainability factors, immediate follow – up to achievements, and visibility of the accomplishments, can support replication and upscaling efforts in a local to global scale for all institutions involved.

RECOMMENDATIONS

Recommendations for the POPs Legacy Elimination and POPs Release Reduction Project immediate follow up:

- Partners should work together and strive to complete in the next few months the remaining tasks that need to be accomplished to fully conclude the Project. This is to be done in order to manage/eliminate remaining stockpiles and implement environmentally sound disposal activities with a long-term outlook that could not be handled within the original time-scope of the Project, providing oversight as needed.

[25] Some elimination of stockpiles is still ongoing at the time of this assessment. Nevertheless, this is expected to be achieved fully in the next few months.

- Should there be residual funds or funds available from other processes/budget lines, Project could use those to generate knowledge management and communication/visibility products. This in order to:
    - enhance sustained capacity building;
    - nourish upstream processes –such as COPs, international meetings, analysis mechanisms/expert groups, etc.-- in the relevant global institutions involved (GEF, UNDP, UNIDO) with information regarding the Project;
    - commence to ponder and perhaps plan follow-up, replication and upscaling not only in-country but also regionally and globally;
    - give visibility to the substantial achievements the Project has leveraged.

Recommendations for GEF/UNDP/UNIDO for future programming:

- *Project planning and design should include realistic implementation time frames.* vis-à-vis the tasks to be accomplished, their complexity and the time needed to accomplish tasks.
- *Co – financing commitments need to be accurately estimated at design*. When co-financing estimates and –therefore—commitments are set at design, this needs to be done in a straightforward manner based on actual capabilities and/or factual pledges that a partner can leverage in order to avoid issues with scope and funding shortfalls once a project begins to implement. Co-financing should also assure appropriate cash flow as a factor of co-financing in order to aid in efficient implementation.
- *Projects with intricate components and multiple partners need to have internal coordination mechanisms.* These mechanisms need to be set at design, and should provide guidance for directing a project in an integrated manner throughout implementation, as well as to have a unified communication pattern with outside stakeholders. This sort of mechanism should be set without adding unnecessary bureaucratic steps to implementation but for better coordination and articulation to be maintained among sub-activities and between experts and institutions involved.
- *Procurement processes need to be streamlined.* Critical assessments of procurement processes need to be carried out and resulting analysis implemented in order to avoid delays, partners' fatigue, and overall inefficiency. Procurement processes need to be in harmony with the complex technical issues the procedure is acquiring and their scope. Furthermore, these procedures need to incorporate flexibility in order to be attuned to intricate field issues.
- *Capacity building at all levels needs to be a strong element for these sorts of projects.* Even technical assistance projects need to strongly incorporate capacity building aspects (by training for the public and private sectors, generation of knowledge management products, training of trainers, etc.) in order to generate and / or enhance national capacity and sustain knowledge, create ownership and overall support for integrated hazardous waste and chemical management within a national context. Training can also aid in knowledge transfer in a context of turnover of government personnel.
- *Knowledge management products should be embedded in a project's framework.* Knowledge tools based on the experiences and evidence derived from a project are also assets for capacity building, and (as such) should be part of the different capacity strengthening

processes a project undertakes. Furthermore, KM products based on a project's experience are underpinnings for replication, upscaling and South-South cooperation and should be developed if there are intentions for these processes to take place during and after a project.

- *Projects need to have a clear communication strategy.* A project's communication strategy should be an ongoing process that generates buy – in, generates knowledge about the issues a project deals with as well as acknowledge its visibility. A communication strategy needs to be accompanied by clear inputs where the different partners are identified (funders, implementing agency(ies), UN agencies involved). A communication strategy should document and communicate issues, and challenges as well as highlight achievements. This strategy should function internally and externally to give proper visibility to all partners involved.
- Future programming should build upon strategies, linkages, and developments engendered by a project, yet should also be forward looking and adapting to new issues and modalities supported by international agencies. Future programming should build upon strategies and linkages developed by experience derived from implemented projects, but should link this to new issues supported by the different financing and development agencies (integrated hazardous waste management, circular economy, innovation and adapting to evolving MEAs in the chemicals/hazardous waste fields, for example).

LESSONS LEARNED

The *POPs Legacy Elimination and POPs Release Reduction Project* leaves a number of lessons learned. Not only for the Implementing Agencies but also for national stakeholders and those who have been involved, such as the private sector. Some of the most salient lessons are as follows:

- *Operative design is directly linked to information, preparation and analysis*. Reliable inventories of waste, stockpiles, contaminated soil, etc., is categorically needed at project preparation and design to avoid lengthy modifications and costly adjustments. Surveying at design needs to be done not only by potential implementing agencies, but also with the cooperation of the public and private sectors as well as with the collaboration of other relevant national and international actors (academia, civil society organizations, etc.).
- *Time frame for implementation needs to commensurate with a project's scope.* In particular for large ambitious projects, the planned implementation time frame as well as associated resourcing needs to be commensurate with the scope of the results intended to be achieved. Realistic implementation time frames set at design allow for better planning and avoidance of extension requests.
- *Procurement issues, if not addressed properly, can have a series of interlinked effects.* Protracted and convoluted procurement issues have multiple impacts, not only delaying execution, but also impacting on fund mobilisation as well as overall results.
- *Capacity building can be taken-on and engaged with in different modalities*. For instance, capacity building cannot only be generated through formal training but also through informal settings. A lesson learnt (as well as a best practice) has been the effective linking of

national/international expertise (consultants, private companies, etc.) which has enhanced in-country capacity.

- *Knowledge products need to be inserted in design in order to be developed throughout implementation.* If not an integral part of design (with proper resourcing in terms of expertise, funds, and timing), knowledge products are not likely to be generated within a project in and of themselves. The utility of KM products for this sort of projects needs to be acknowledged in terms of their support in capacity building and capacity strengthening as well as in in replication and upscaling, not only in-country but also regionally and/or globally (even as South-South cooperation) when pertinent.
- Public – private partnerships are key for integrated hazardous waste management projects that deal with industry and private companies. The engendered public – private cooperation that this project prompted is an example that these sorts of processes are only achievable and durable if government institutions work jointly with the private sector.
- *Robust project planning and design facilitates implementation.* Effective design should be based on reliable and complete information as much as possible, realistic inventories based on field information and field reports, with mapping on where POPs are found (transformers, PCB, POPs in general) as well as on preparation and analysis. Surveying at design needs to be done with multiple partners and with the collaboration of relevant actors at different scales. Furthermore, project planning grants and project planning funding in general needs to be commensurate to the scope of the project being designed.
- Realistic time frames are needed to be set at design vis-à-vis the complexity of the tasks to be accomplished in order to impel better programming for project implementation and avoid extension requests.

6. ANNEXES

Annex 1: TE Terms of Reference

1. BACKGROUND

In accordance with UNDP and GEF M&E policies and procedures, all full- and medium-sized UNDP-supported GEF-financed projects are required to undergo a Terminal Evaluation (TE) at the end of the project. This Terms of Reference (ToR) sets out the expectations for the TE of the *full-sized* project titled *POPs Legacy Elimination and Release Reduction (PIMS 4833 & UNIDO SAP# 140288)* implemented through the *Ministry of Environment and Urbanization.* The project started on the *21 May 2015 and* is in its *5th* 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' (insert hyperlink).

UNDP in collaboration with UNIDO and Ministry of Environment and Urbanization implements the project which objective is to protect human health and the environment globally as well as locally through addressing POPs legacies including elimination of POPs Pesticide and PCB stockpiles, and initiating clean-up of associated POPs and chemical pollutant contaminated sites, as well as dealing with longer term PCB phase out consistent with the country's Stockholm Convention obligations, reducing U-POPs release in major industrial sectors , and providing targeted institutional, regulatory and technical capacity strengthening, all within a sound chemicals management framework. The project is directed by the Ministry of Environment and Urbanization. It will meet this objective by eliminating a large POPs pesticide stockpile consisting of pure HCH and associated high concentration POPs waste and PCB stockpiles as well as supporting assessment, cleanup and monitoring of priority POPs contaminated sites involving representative range of site contamination situations, remediation approaches and clean-up financing modalities. The project will also demonstrate the sustainable treatment of cross contaminated PCB transformer units by means of de-halogenation technologies, will provide technical assistance for setting up a national plan for treatment of PCB contaminated transformers, and will provide technical assistance for the establishment of BAT/BEPs among priority U-POPs emitting sectors Additionally the project will support the qualification of needed hazardous waste infrastructure and national technical capability for the ongoing management of POPs and other chemical hazardous wastes as well as supporting the strengthening of institutional and regulatory capacity within an overall chemicals management framework.

Considering the targets and the progress in implementation, Project evaluated to contribute to below SDGs:

SDG 3, SDG 6, SDG 11 and SDG 12 by elimination of the hazardous waste as an important threat to public health and water resources, and contributing the establishment of healthy conditions in urban areas,

SDG 12 and SDG 13, by providing BAT/BEP methodologies in production, that support sustainability and liveable environments in urban areas, also considering climate change.

2. OBJECTIVE & SCOPE

The TE report 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 TE must provide evidence based information that is credible, reliable and useful. The TE expert will review all relevant sources of information including documents prepared during the preparation phase (i.e. PIF, UNDP Initiation Plan, UNDP Environmental & Social Safeguard Policy, the Project Document, project reports including Annual Project Review/PIRs, project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the expert considers useful for this evidence-based review). The TE expert will review the baseline GEF focal area Tracking Tool submitted to the GEF at CEO endorsement, and the midterm GEF focal area Tracking Tool that must be completed before the MTR field mission begins.

The TE expert is expected to follow a collaborative and participatory approach 26 ensuring close engagement with the Project Team, government counterparts (the GEF Operational Focal Point), the UNDP Country Office(s), UNDP-GEF Regional Technical Advisers, *UNIDO* Country Office and other key stakeholders.

3. DUTIES AND RESPONSIBILITIES OF INDIVIDUAL CONSULTANT (IC)

The generic duties and responsibilities of the IC are as follows:

- Preparing detailed methodology, work plan and outline;
- Preparing Terminal Evaluation Report with findings;
- Submitting lessons learned and recommendations for improvement, including recommendations for the revision of project strategy, approach, outputs and activities, if necessary;
- Providing recommendations for a strategy for future replication of the project approach for other types of the climate change and sustainable energy financing projects, for other countries in the region;
- Preparing description of best practices, and an "action list" in a certain area of particular importance for the project;
- Reviewing the documents listed in Annex 2b.

If required by the UNDP Project Team, the IC could provide additional consultancy services on topics related to her/his expertise area for other activities within the scope of this Terms of Reference.

4. INSTITUTIONAL ARRANGEMENTS

UNDP will provide to IC all relevant background documents. UNDP is not required to provide any physical facility for the work of the IC. However, depending on the availability of physical facilities (e.g. working space, computer, printer, telephone lines, internet connection etc.) and at the discretion of the UNDP and relevant stakeholders, such facilities may be provided at the disposal of the IC.

[26] For ideas on innovative and participatory Monitoring and Evaluation strategies and techniques, see UNDP Discussion Paper: Innovations in Monitoring & Evaluating Results, 05 Nov 2013.

The IC shall report to Climate Change and Environment Portfolio Manager of UNDP Turkey. The IC shall conduct the Terminal Evaluation in collaboration with Monitoring & Evaluation Advisor of CCE Portfolio at UNDP CO. The IC cannot have participated in the project preparation, formulation, and/or implementation (including the writing of the Project Document) and should not have a conflict of interest with project's related activities.

The principal responsibility for managing this evaluation lies with UNDP Country Office in Turkey. UNDP will assign a facilitator to set up the stakeholder interviews, arrange the field visits, coordinate with the GDF and provide translation (when necessary).

In preparation for the evaluation mission, Chemicals and Waste Cluster Lead, with assistance of UNDP CO, will arrange completion of the Management Effectiveness Tracking Tool (METT). Results of METT should be used by an international project evaluation consultant, who will provide his/her comments and track the progress in management effectiveness of project sites. Upon incorporation of the evaluator's comments the METT will be finalized and the results should be attached as a mandatory Annex to the Terminal Evaluation report. **This Terms of Reference follow the UNDP-GEF policies and procedures.**

5. DELIVERABLES

The core product of the Terminal Evaluation will be the Terminal Evaluation Report and Rating Tables given in Annex 2 of this Terms of Reference. IC shall be responsible to submit the following deliverables.

Activity	Milestone/Deliverables	Estimated Deadline	Estimated Number of Days to be invested*
Preparation	**Inception Report:** Desk review, development of methodology, updating timetable, drafting mission programme. Incorporating comments received from UNDP Country Office (if necessary).	**10 November 2020**	5
Evaluation Mission	In-country field visits, interviews, preliminary mission findings briefing(s), debriefings with project partners and providing aide memoire. Delivering a presentation on aide memoire (finding(s) and recommendation(s)) to Project Partners.	**15 November - 15 December 2020**	15
Draft Evaluation Report	Submission of **Draft Terminal Evaluation report**	**20 December 2020**	5

Final Evaluation Report	**Final Terminal Evaluation Report** in line with the comments received from the relevant stakeholders regarding the Draft TE Report and completed Audit Trail with responses to all comments received	**10 January 2020**	5
		Total Number of days	30

*All final TE reports will be quality assessed by the UNDP Independent Evaluation Office (IEO). Details of the IEO's quality assessment of decentralized evaluations can be found in Section 6 of the UNDP Evaluation Guidelines.[27]

Each and every activity to be conducted by the IC is subject to UNDP approval. Each step shall be conducted upon approval of the previous step by UNDP.

When submitting the final evaluation report, the evaluator is required also to provide an 'audit trail' (audit trail document will be provided), detailing how all received comments have (and have not) been addressed in the final evaluation report.

*Number of days to be invested for each deliverable may change but the total number of days worked by the individual contractor cannot exceed 30 days for this assignment (i.e. for submission of the deliverables) as defined in the ToR.

Reporting Line

The IC shall be responsible to the Climate Change and Environment Portfolio Manager of UNDP Turkey for the completion of the tasks and duties assigned in Section 5. Deliverables of this ToR. All of the reports are subject to approval from Climate Change and Environment Portfolio Manager of UNDP Turkey in order to realize the payments to the IC.

Reporting Language

The reporting language shall be in English.

Title Rights

The title rights, copyrights and all other rights whatsoever nature in any material produced under the provisions of this TORs will be vested exclusively in UNDP.

6. TE APPROACH & METHODOLOGY

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

[27] Access at: http://web.undp.org/evaluation/guideline/section-6.shtml

The TE expert 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 PIRs, project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the expert considers useful for this evidence-based evaluation. The TE expert will review the baseline and midterm GEF focal area Core Indicators/Tracking Tools submitted to the GEF at the CEO endorsement and midterm stages and the terminal Core Indicators/Tracking Tools that must be completed before the TE field mission begins.

The TE expert is expected to follow a participatory and consultative approach ensuring close engagement with the Project Team, government counterparts (the GEF Operational Focal Point), Implementing Partners, the UNDP Country Office(s), the Regional Technical Advisor, direct beneficiaries and other stakeholders.

Engagement of stakeholders is vital to a successful TE. Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to Merkim A.Ş., İZAYDAŞ, Erdemir, İSDEMİR, Brissa, EUAŞ, KARDEMİR, Akademi Çevre A.Ş. BEDAŞ, SEDAŞ, TURK TELEKOM, MOFAL, MOEU; executing agencies, senior officials and task team/ component leaders, key experts and consultants in the subject area, Project Board, project stakeholders, academia, local government and CSOs, etc. 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 expert is expected to conduct field missions to Ankara, Kocaeli, Zonguldak, Hatay, Karabuk, , Istanbul, including the following project sites Merkim Site, İZAYDAŞ HTI Facility, PCB Stockpile Owners in Kocaeli, KARDEMİR Factory, ISDEMİR Factory and site of Akademi Çevre..

The specific design and methodology for the TE should emerge from consultations between the TE expert 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 expert 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, stakeholders and the TE expert.

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

7. DETAILED SCOPE OF THE TE

The TE will assess project performance against expectations set out in the project's Logical Framework/Results Framework (see ToR Annex A). The TE will assess results according to the criteria outlined in the Guidance for TEs of UNDP-supported GEF-financed Projects *(insert hyperlink)*. *(The scope of the TE should detail and include aspects of the project to be covered by the TE, such as the time frame, and the primary issues of concern to users that the TE needs to address.*

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

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

Findings

i. Project Design/Formulation

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

ii. Project Implementation

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

iii. Project Results

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

Main Findings, Conclusions, Recommendations and Lessons Learned

- The TE expert 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 expert 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:

ToR Table 2: Evaluation Ratings Table for *(project title)*

Monitoring & Evaluation (M&E)	Rating[28]
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	Rating
Relevance	
Effectiveness	
Efficiency	
Overall Project Outcome Rating	
Sustainability	Rating
Financial resources	
Socio-political/economic	

[28] Outcomes, Effectiveness, Efficiency, M&E, Implementation/Oversight & Execution, Relevance are rated on a 6-point 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)

Institutional framework and governance	
Environmental	
Overall Likelihood of Sustainability	

8. TIMEFRAME

The total duration of the TE will be approximately *(30 working days)* over a time period of (*12 weeks)* starting on *(02 November 2020)*. The tentative TE timeframe is as follows:

Timeframe	Activity
11 October 2020	Application closes
25 October 2020	Selection of TE expert
02 November 2020	Preparation period for TE expert (handover of documentation)
(10 November 2020) 4 days	Document review and preparation of TE Inception Report
(15 November 2020) 1 day	Finalization and Validation of TE Inception Report; latest start of TE mission
(15 November – 15 December 2020) 15 days	TE mission: stakeholder meetings, interviews, field visits, etc.
15 December 2020	Mission wrap-up meeting & presentation of initial findings; earliest end of TE mission
(20 December 2020) 5 days	Preparation of draft TE report
21 December 2020	Circulation of draft TE report for comments
(10 January 2021) 5 days	Incorporation of comments on draft TE report into Audit Trail & finalization of TE report
20 January 2021	Preparation and Issuance of Management Response
25 January 2021	Concluding Stakeholder Workshop (optional)
31 January 2021	Expected date of full TE completion

Options for site visits should be provided in the TE Inception Report.

9. TE ARRANGEMENTS

The principal responsibility for managing the TE resides with the Commissioning Unit. The Commissioning Unit for this project's TE is *UNDP Country Office, Turkey.*

The Commissioning Unit will contract the evaluators and ensure the timely provision of per diems and travel arrangements within the country for the TE expert. The Project Team will be responsible for liaising with the TE expert to provide all relevant documents, set up stakeholder interviews, and arrange field visits.

10. MINIMUM QUALIFICATION REQUIREMENTS

An *independent evaluator* will conduct the TE

The evaluator cannot have participated in the project preparation, formulation and/or implementation (including the writing of the project document), must not have conducted this project's Mid-Term Review and should not have a conflict of interest with the project's related activities.

The expected qualifications of the expert are as follows:

	Minimum Requirements	Assets
General Qualifications	• Bachelor's Degree in environmental studies/Chemistry/Engineering/ natural resources/. (5 Points) • Fluency in English. (5 Points) • Full computer literacy. (4 Points)	• Masters or Higher Degree in natural resources/chemistry/ climate change/ environmental economics/ engineering/ business administration/ economics. (5 Points)
General Professional Experience	• Minimum ten (10) years of relevant professional experience. (15 Points)	• More than fifteen (15) years of relevant professional experience (5 Points)
Specific Experience	• 5 years of specific professional experience in environmental projects /chemicals and waste projects/ monitoring and evaluation of projects. (20 Points)	• Monitoring and evaluation experience with the United Nations system. (3Points) Experience applying SMART indicators and reconstructing or validating baseline scenarios (2 Points) • Competence in adaptive management, as applied to *chemicals and waste management (3 Points)* • Experience in evaluating projects (3 Points) •
Notes: • Internships (paid/unpaid) are not considered professional experience. • Obligatory military service is not considered professional experience. • Professional experience gained in an international setting is considered international experience. • Female candidates are encouraged to apply.		

11. EVALUATOR ETHICS

The TE expert will be held to the highest ethical standards and is required to sign a code of conduct upon acceptance of the assignment. This evaluation will be conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluation'. The evaluator 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 evaluator must also ensure security of collected information before and after the evaluation and protocols to ensure anonymity and confidentiality of sources of information where that is expected. The information knowledge and data gathered in the evaluation process must also be solely used for the evaluation and not for other uses without the express authorization of UNDP and partners.

12. PAYMENTS

Payments will be made within 30 days upon acceptance and approval of the corresponding deliverable by UNDP on the basis of actual number of days invested in that respective deliverable and the pertaining Certification of Payment document signed by the IC and approved by the responsible Cluster Lead. Final payment is due upon satisfactory delivery and approval of the Final TE report and completed Audit Trail, the Final TE report must be approved by both the Commissioning Unit and the RTA (via signatures on the TE Report Clearance form.)

The total amount of payment to be affected to the IC within the scope of this contract **cannot exceed 30 working days**. The IC shall be paid in USD if he/she resides in a country different than Turkey. If he/she resides in Turkey, the payment shall be realized in TL through conversion of the USD amount by the official UN exchange rate valid on the date of money transfer.

If the deliverables are not produced and delivered by the IC to the satisfaction of UNDP as approved by the responsible Cluster Lead, no payment will be made even if the IC has invested man/days to produce and deliver such deliverables.

Expected delivery dates of the reports will be finalized by UNDP during the Briefing Meeting that will be conducted upon contract signature.

The amount paid to the IC shall be gross and inclusive of all associated costs such as social security, pension and income tax etc.

Tax Obligations: The IC is solely responsible for all taxation or other assessments on any income derived from UNDP. UNDP will not make any withholding from payments for the purposes of income tax. UNDP is exempt from any liabilities regarding taxation and will not reimburse any such taxation to the IC.

13. PLACE OF WORK

Place of work (duty station) for the assignment is home-based.
There are *missions to Ankara and selected project sites*. The mission shall be a minimum of 15 working days in Turkey, although this may be conducted as two shorter missions with the mutual agreement of the IC and UNDP Turkey, provided that the total number of days spent in Turkey is not less than 15 working days. The mission to Turkey will cover days spent in Ankara, as well as days spent to visit project sites and also possibly a day or days in Istanbul for relevant meetings. All travel related costs (cost items indicated below) of these missions out of the duty station (economy class flight ticket and accommodation in 3 or 4-

star hotel) will be borne by UNDP. Approval of UNDP is needed prior to the missions is needed. The costs of these missions may either be;

Arranged and covered by UNDP CO from the respective project budget without making any reimbursements to the consultant or

Reimbursed to the consultant upon the submission of the receipts/invoices of the expenses by the consultant and approval of the UNDP. The reimbursement of each cost item subject to following constraints/conditions provided in below table;

covered by the combination of both options

Cost item	Constraints	Conditions of Reimbursement
Travel (intercity transportation)	full-fare economy class tickets	1- Approval by UNDP of the cost items before the initiation of travel 2- Submission of the invoices/receipts, etc. by the consultant with the UNDP's F-10 Form 3- Acceptance and Approval by UNDP of the invoices and F-10 Form.
Accommodation	Up to 50% of the effective DSA rate of UNDP for the respective location	
Breakfast	Up to 6% of the effective DSA rate of UNDP for the respective location	
Lunch	Up to 12% of the effective DSA rate of UNDP for the respective location	
Dinner	Up to 12% of the effective DSA rate of UNDP for the respective location	
Other Expenses (intra city transportations, transfer cost from /to terminals, etc.)	Up to 20% of effective DSA rate of UNDP for the respective location	

14. TOR ANNEXES

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

Annex 2: List of persons interviewed and list of persons who answered online questionnaire

Interviews

No	Name	Organization
1	Naz Ozguc	UNDP – Turkey CO
2	Nuri Ozbagdatli	UNDP – Turkey CO
3	Mahmut Osmanbasoglu	Former Project Director
4	Ersan Kaynaş	Merkim Endüstri Ürünleri
5	Murat Pekcan	Akademi Çevre Danışmanlık
6	Şeref Yılmaz	Ministry of Environment and Urbanization
7	Bursev Doğan Artukoğlu,	Ministry of Environment and Urbanization
8	Okşan Tartanoğlu	ERDEMİR
9	Aysun Saraç	Izaydas
10	Sahan Dede	Izaydas
11	Rodica Ivan	UNIDO
12	Eylem Dogan	UNIDO
13	Nesrin Aydiner	UNIDO
14	Ayse Celik	ISDEMIR
15	Maksim Surkov	UNDP
16	Hüseyin Cavusoglu	Brisa Bridgestone
17	Bulent Yilmaz	Brisa Bridgestone
18	Peri Ulusoy	Brisa Bridgestone
19	Cihan Durmus	Brisa Bridgestone
20	Arif Yigit	Brisa Bridgestone
21	Osman Ari	Ministry of Agriculture and Forestry
22	Yunus.Bayram	Ministry of Agriculture and Forestry
23	Muamme Fidan	Ministry of Agriculture and Forestry

Questionnaires

1	Emre Dölek	National Expert
2	İpek İmamoğlu	National Expert
3	Richard Cooke	International Project Expert
4	Ali Tellioğlu	National Expert

Annex 3: List of documents reviewed and list of consulted online resources

- "An Evaluative Approach to Assessing GEF's Additionality', https://www.thegef.org/council-meeting-documents/evaluative-approach-assessing-gef-s-additionality
- Global Environment Facility. GEF/C.31/5 May 15, 2007. GEF Council June 12-15, 2007. Agenda Item 11. COMPARATIVE ADVANTAGES OF THE GEF AGENCIES.
- https://www.erdemir.com.tr/
- https://www.isdemir.com.tr/
- https://www.ozgurkocaeli.com.tr/haber/4432469/yakimina-baslandi-kocaeli-bhc-belasindan-kurtuluyor
- https://www.polyecogroup.com/news/polyeco-group-signs-a-new-contract-for-pops-pesticides-management-in-turkey/
- https://www.thegef.org/project/pops-legacy-elimination-and-pops-release-reduction-project
- https://www.thegef.org/topics/persistent-organic-pollutants.
- https://www.tr.undp.org/content/turkey/en/home/projects/pops-legacy-elimination-and-pops-release-reduction-project/
- Independent Thematic Evaluation of UNIDO's work the area of Persistent Organic Pollutants (POPs). Vienna 2012.
- IZAYDAS Plant Trial Test Burning and About Disposal of Pops Stocks Report.
- Mid Term Evaluation of the Pops Legacy Elimination and Pops Release Reduction Project
- Oyak Mining Metallurgy Group. 2018 Sustainability Report.
    - Oyak Mining Metallurgy Group. Integrated Annual Report 2019.
- *Pops Legacy Elimination and Pops Release Reduction Project Izaydaş Clinical and Hazardous Waste Incineration Facility Test Burn Program Report*. September, 2017
- Project Document
- Project Implementation Reports (2020, 2019, 2018, 2017)
- www.kalicikirleticiler.com
- www.oyak.com.tr
- www.thegef.org
- www.unido.org

Annex 4: Evaluation Question Matrix (evaluation criteria with key questions, indicators, sources of data, and methodology)

Evaluative Criteria Questions	Indicators	Sources	Methodology
Relevance: How does the project relate to the main objectives of the GEF focal area, and to the environment and development priorities at the local, regional and national levels?			
• Does the project relate to the GEF focal area and has it been designed to deliver global environmental benefits in line with relevant objectives?	• The project includes the relevant GEF outcomes, outputs and indicators • The project makes explicit links with global goals	• Project Document • GEF Focal Area Strategies • PIF	• Desk Review of Documents
• Is the project aligned to national development objectives, broadly, and to national energy transition priorities specifically?	• The project design includes explicit links (indicators, outputs, outcomes) to the development and environmental policies.	• Project Document • National development strategies, energy policies, Nationally Determined Contributions, etc. • PIF	• Desk Review of Documents
• Does the project have an explicit Theory of Change? • If so, 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 • The Theory of Change clearly identifies beneficiary groups and defines how their capabilities will be enhanced by the project.	• Project Document • PIF	• Desk Review of Documents
• Does the project directly and adequately address the needs of beneficiaries? • Is the project relevant with the country priorities? • Does it provide the most effective route towards expected/intended results?	• The project design includes explicit links to addressing the needs of beneficiary country. • Strategy of POPs Turkey relevant vis-à-vis countries needs	• Project Document • PIF	• Desk Review of Documents
• Is the project's results framework relevant to the development challenges and are results at the appropriate level?	• The project results framework adequately measures impact • The project indicators are SMART • Indicator baselines are clearly defined and populated, and milestones and targets are • The results framework is comprehensive and demonstrates systematic links to the theory of change • The result framework is adequately ambitious vis-à-vis resources, timeliness, and feasibility	• Project Document • PIF	• Desk Review of Documents • Stakeholder Interviews
• Is the project appropriately aligned with relevant UN system priorities (UNDP, UNIDO) including thematic objectives?	• The project's results framework includes relevant thematic outcomes and indicators from the UNDP Strategic Plan, UNIDO's plans, the UNDAF, UNDP CPD and other relevant corporate objectives	• Project Document • UNDP CPD, UNDAF, SP • UNIDO Corporate documents	• Desk Review of Documents
• 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.	• Stakeholder mapping/engagement plan and reporting • Quarterly Reports • Annual Reports (PIR)	• Desk Review of Documents • Stakeholder Interviews

	• Planning and implementation have been participatory and inclusive	• Stakeholder Consultation Reports	
• 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	• Project Document • Quarterly Reports • Annual Reports (PIR) • Stakeholder mapping/engagement plan and reporting	• Desk Review of Documents • Stakeholder Interviews
• Have relevant lessons learned from previous projects informed the design, implementation, risk management and monitoring of the project?	• Lessons learned are explicitly identified and integrated into all aspects of the Project Document	• Project Document • PIF	• Desk Review of Documents
• Did the project design adequately identify, assess and design appropriate mitigation actions for the potential social and environmental risks posed by its interventions? Risk management?	• Risk and risk management identification.	• Project Document	• Desk Review of Documents
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?			
• Has the project achieved its output and outcome level objectives?	• The project has met or exceeded the output and outcome indicator end-of-project targets	• Quarterly Reports • Annual Reports (PIR) • Monitoring Reports • Beneficiary testimony • Interviews • Pilot Data Analysis/Reports	• Desk Review of Documents • Interviews with project staff, (current and former), stakeholders and beneficiaries
• Were lessons learned captured and integrated into project planning and decision-making? • Were there opportunities to adapt implementation processes to conditions presented during project execution?	• Lessons learned have been captured periodically and/or at project end	• Steering Committee Meeting Minutes • Quarterly Reports • Annual Reports (PIR)	• Desk Review of Documents • Interviews with project staff, stakeholders and beneficiaries
• Were there issues with communication which affected effectiveness?	• Communication between and among stakeholders.	• Project planning documents.	• Document review • Interviews with stakeholders, particularly project staff
• 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.	• ATLAS Risk Log • M&E Reports • Midterm review	• Desk Review of Documents • Interviews with project staff, stakeholders and beneficiaries
• Were relevant counterparts from government and civil society involved in project implementation, including as part of the project steering committee?	• The steering committee participation included representatives from key institutions in Government	• Steering Committee Meeting Minutes	• Interviews with project staff, stakeholders and beneficiaries

• Has the project contributed directly to any changes in legislation or policy in line with the project's objectives?	• Draft legislation has been developed or enacted.	• Draft legislation • Policy Documents • Action/Implementation Plans	• Desk Review of Documents
• Has the project carefully considered the thematic issues related to human right/gender?	• The project results framework has incorporated gender equality considerations, as relevant. • The project prioritized the most vulnerable as key beneficiaries	• Gender Mainstreaming Plan • Project Document • Stakeholder analysis and engagement plan	• Desk Review of Documents
• Efficiency: Was the project implemented efficiently, in-line 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?	• The project demonstrated adaptive management and changes were integrated into project planning and implementation through adjustments to annual work plans, budgets and activities • Changes to AWP/Budget were made based on mid-term or other external evaluation • Any changes to the project's planned activities were approved by the Steering Committee • Any substantive changes (outcome-level changes) approved by the Steering Committee and donor, as required • Any changes based on midterm review	• Annual Work Plans • Steering Committee Meeting Reports • Quarterly Reports • Annual Reports (PIR) • Stakeholder/beneficiary testimony • Revised Project Results Framework • Midterm review	• Desk Review of Documents • Interviews with project staff, stakeholders and beneficiaries
• To what extent were the Project results delivered with the greatest value for money?	• Value for money analyses, requests for information, market surveys and other market intelligence were undertaken for key procurements. • Procurement is done on a competitive basis, where relevant.	• Procurement Evaluation Documents	• Desk Review of Documents • Interviews with project staff and government stakeholders
• 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?	• Co-financing was realized in keeping with original estimates • Co-financing was tracked continuously throughout the project lifecycle and deviations identified and alternative sources identified • Co-financiers were actively engaged throughout project implementation	• Annual Work Plans • Steering Committee Meeting Reports • Quarterly Reports • Annual Reports (PIR)	• Desk Review of Documents • Interviews with project staff, stakeholders and beneficiaries
• Was the level of implementation support provided by UNDP and UNIDO adequate and in keeping with the implementation modality and any related agreements?	• Technical support to the Executing Agency and project team were timely and of acceptable quality. • Management inputs and processes, including budgeting and procurement, were adequate	• UNDP/UNIDO project support documents (emails, procurement/recruitment documents) • Quarterly Reports • Annual Reports (PIR)	• Desk Review of Documents • Interviews with project staff, UNDP personnel
• Has the M&E plan been well-formulated, and has it served as an effective tool to support project implementation? Financial oversight?	• The M&E plan has an adequate budget and was adequately funded • The logical framework was used during implementation as a management and M&E tool • There was compliance with the financial and narrative reporting requirements (timeliness and quality)	• Project Document • M&E Plan • AWPs • FACE forms • Quarterly Narrative Reports • Interview reports	• Desk Review of Documents • Interviews with project staff and government stakeholders

	• Monitoring and reporting has been at both the activity and results levels		
• Gender Equality and Women's Empowerment: How did the project contribute to gender equality and women's empowerment?			
• Did the project analyse gender issues, gender differential matters? • Did the POPs project include gender equality matters in its design/implementation?	• Existence and use of a monitoring and reporting system/activities with gender differentiated data.	• Project Reports	• Document analysis
• Did the project have a gender strategy? • Did the project work on issues related to women's empowerment?	• Gender strategy • Gender responsive strategies	• Interview data	• Interviews
• Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results?			
• Are there financial risks that may jeopardize the sustainability of project outcomes?	• The exit strategy includes explicit interventions to ensure financial sustainability of relevant activities	• Project Exit Strategy • Risk Log	• 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	• Project Exit Strategy • Risk Log	• 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 • MOU(s) exist for on-going monitoring, maintenance and oversight of phased down or phased over activities	• Project Exit Strategy • Risk Log • MOU(s)	• 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	• Project Exit Strategy • Risk Log	• Desk Review of Documents
Impact: Are there indications that the project has contributed to, or enabled progress toward, reduced environmental stress and/or improved ecological status? Effects: Has the project had any effects, in particular sustainable effects?			
• Are there verifiable improvements in ecological status, or reductions in ecological stress, that can be linked directly to project interventions?	• The project has contributed directly to improved ecological conditions.	• Quarterly Reports • Annual Reports (PIR) • Monitoring Reports • Pilot Data Analysis/Reports	• Desk Review of Documents • Interviews
• Has the project had sustainable effects? For instance, has the project contributed directly to any changes in norms, policies or aligned with project's objectives?	• Draft legislation • Approved legislation • Policy Documents	• Action/Implementation Plans	• Desk Review of Documents • Stakeholder interviews (government)

Annex 5: Guiding questions and questionnaires used (for online answering and for interviews)

1.	What has been your involvement with the Project?
2.	What have been, in your opinion, the major achievements obtained by the Project?
3.	What have been the main problems or challenges, in your opinion, with the Project?
4.	Does the Project leave any lessons learned? That is, knowing what you know now what would you recommend that it would have been done differently?
5.	What would be your recommendations, for programming of similar projects in the future or for the sustainability of what the POPs Project has achieved?
6.	Any other comments or issues you would like to add, please insert here. -

Annex 6: TE Rating scales

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

Annex 7: Co-financing Table

Sources of Co- Financing	Name of Co-financer*	Type of Co-financing	Amount Confirmed at CEO endorsement (US $)/ Amt at Prodoc signing	Actual Amount Contributed at stage of Midterm Review (US$)	Actual % of Expected Amount	Actual Amount Contributed at stage of TE (US$)	Actual % of Expected Amount at TE
GEF Agency	UNDP	Cash	100000	88000	%88	100000	%100
GEF Agency	UNIDO	Cash	38000	20375	%54	38000	%100
GEF Agency	UNDP	In-kind	270000	150000	%55	370000	%137
National Government	Ministry of Environment and Urbanization	Cash	1160000	460000	%39	1450000	%125
National Government	Ministry of Environment and Urbanization	In-kind	1850000	1100000	%59	1850000	%100
National Government	Ministry of Forestry and Water Affairs	Cash	9290000	9290000	%100	9290000	%100
National Government	Ministry of Food, Agriculture and Livestock	Cash	120000	120000	%100	120000	%100
National Government	Ministry of Food, Agriculture and Livestock	In-kind	30000	30000	%100	30000	%100
Others	European Commission (EU IPA Program)	Cash	10200000	7200000	%70	12700000	%120
Private Sector	Merkim	Cash	3748000	750000	%20	3475800	%93
Private Sector	Merkim	In-kind	430000	200000	%46.5	550000	%113
Private Sector	ERDEMIR	Cash	4126535	4126535	%100	4126535	%100
Private Sector	ERDEMIR	In-kind	340000	340000	%100	340000	%100
Private Sector	ISDEMIR	Cash	305000	150000	%100	150000	%100
Private Sector	ISDEMIR	In-kind	49000	24000	%100	24000	%100
Private Sector	IZAYDAS	Cash	3397000	6845745	%133	6845745	%133
Private Sector	IZAYDAS	In-kind	1748000				
Private Sector	MESS	Cash	10500000	0*	0	0	%0
Private Sector	MESS	In-kind	500000	0*	0	0	%0
Private Sector	CINAR Environmental Laboratory	In-kind	233000	0**	0	233000	%100
Private Sector	Artek Engineering Environmental	Cash	375000	0**	0	375000	%100
Private Sector	Artek Engineering Environmental	In-kind	155000	0**	0	155000	%100

Private Sector	SGS Environmental Services	In-kind	350000	0**	0	350000	%100
Private Sector	NEN Engineering Laboratory	Cash	155000	0**	0	155000	%100
Private Sector	NEN Engineering Laboratory	In-kind	90000	0**	0	90000	%100
Private Sector	Contaminated Site Holders	Cash	1200000	0***	0	0	%0***
Private Sector	BEDAS	In-kind	2801998	1400999	%50	2801998	%100
Private Sector	IGSAS	In-kind	176389	35278	%20	176389	%100
Private Sector	SEDAS	In-kind	4438522	2219261	%50	4438522	%100
Private Sector	TFSAS	Cash	65217	0***	0	0	0
Private Sector	TFSAS	In-kind	1843478	0***	0	0	0
Private Sector	ETIMADEN	Cash	1193779	0***	0	0	0
Private Sector	ETIMADEN	In-kind	2665265	0***	0	0	0
Private Sector	Kardemir Sinter Plant	Cash	6720000	1344000	%20	6720000	%100
Private Sector	ISDEMIR Sinter Plant	Cash	14000000	10500000	%75	14000000	%100
TOTAL			**84664183**			**70954989**	

* MESS company was excluded from project in the inception phase.

** The companies have not yet started their activities within the project.

*** The pilot remediation activity was shifted to be conducted within the EU Project that is under C/F of project.

Annex 8: Summary of Project Global Environmental Benefits[29]

[29] Source: Project Document

Component/Outcome	Global Environmental Benefit	GEF-5 Chem-1/Stockholm Convention Linkage
Component 1:Elimination of Current POPs Stockpiles and Waste		
Outcome 1.1: Elimination and infrastructure removal from remaining POPs pesticide storage sites	• Elimination of 2,400 t of POPs pesticides, 400t of POPs pesticide waste, and 30 t of obsolete pesticides • Secure disposal of 200 m3 of POPs contaminated soil	GEF Chem-1 Outcome 1.4 GEF Chem-1 Indicator 1.4.2 SC Article 6
	• 20 national staff trained in POPs stockpile and waste management available for future requirements	GEF Chem-1 Outcome 1.5
Outcome 1.2: Elimination of high concentration PCBs and PCB contaminated equipment stockpiles	• Elimination of at least 350 t of PCB based equipment inclusive of an estimated 115 t of PCBs.	GEF Chem-1 Outcome 1.4 GEF Chem-1 Indicator 1.4.1 SC Article 6
Outcome 1.3: Qualification of existing and developing national POPs destruction facilities.	• National qualified capacity to eliminate future POPs stockpiles and wastes including PCBs and POPs pesticides generated nationally and potentially regionally (Residual PCB based equipment stockpiles and requiring phase out and elimination estimated to be at least 250 t) • Upgraded emission control investment to reduce U-POPs release	GEF Chem-1 Outcome 1.4 GEF Chem-1 Indicator 1.4.1 GEF Chem-1 Outcome 1.5 SC Article 5 SC Article 6
Component 2: Planning and Capacity Building for Environmentally Sound Management of Future PCB Stockpiles		
Outcome 2.1 Implementation of national PCB regulation	Guidance and national capacity for enforcement of PCB regulation established.	GEF Chem-1 Outcome 1.5 GEF Chem-1 Indicator 1.5.1 SC Annex A part II
Outcome 2.2: Systematic approach for the analytical determination of PCBs in electrical equipment, labelling and inventory	Capacity development, representative sampling data base for PCB cross contamination and basis for comprehensive overall national PCB inventory	GEF Chem-1 Outcome 1.4 Indicator 1.4.1 GEF Chem-1 Outcome 1.5 GEF Chem-1 Indicator 1.5.1 SC Article 6 SC Annex A part II
Outcome 2.3 Development and adoption of national PCB equipment treatment, phase out and retirement plan	Sustainable national PCB management plan, including identification, labelling, phase out and retirement established.	GEF Chem-1 Outcome 1.5 GEF Chem-1 Indicator 1.5.1 SC Annex A part II
Outcome 2.4. Improvement of storage and maintenance of cross contaminated PCB equipment	Sustainable national PCB management plan, including identification, labelling, phase out and retirement established.	GEF Chem-1 Outcome 1.5 SC Annex A part II
Outcome 2.5: Verification of decontamination technology for PCB contaminated transformers remaining in service and its pilot demonstration	• Decontamination and continued use elimination of 200 t of PCB and PCB contaminated transformers compliant to the definition of PCB under SC and directive 96/59 EC and its subsequent modification and integration.	GEF Chem-1 Outcome 1.4 Indicator 1.4.1 SC Article 5 SC Article 6 SC Annex A part II
	• Qualified national capacity to decontaminate PCB and PCB contaminated equipment compliant to the definition of PCB under SC and directive 96/59 EC and its subsequent modification and integration.	GEF Chem-1 Outcome 1.4 GEF Chem-1 Indicator 1.4.2 GEF Chem-1 Outcome 1.5 SC Article 5 SC Article 6 SC Annex A part II
Component3: Unintended POPs Release Reduction		
Outcome 3.1: Determination and verification on and enterprise level of source and technology specific U-POPs emissions.	Determination of national PCDD/F emission factors for the priority sectors (sinter plants, EAF, non-ferrous metals and other priority sectors)	GEF Chem-1 Outcome 1.5 SC Article 5

Component/Outcome	Global Environmental Benefit	GEF-5 Chem-1/Stockholm Convention Linkage
Outcome 3.2: Provision of training and technical assistance on BAT/BEP for priority industrial sectors	50 national staff trained on BAT/BEP (from priority sectors, governmental institutions)	GEF Chem-1 Outcome 1.5 SC Article 5
Outcome 3.3: Development of a national U-POPs release reduction plan.	National U-POPs release reduction plan developed targeting the U-POPs reduction from priority sectors with risk based and cost-effectiveness priorities	GEF Chem-1 Outcome 1.5 SC Article 5
Outcome 3.4: Demonstration of BAT/BEP in industrial priority source categories	Reduction in PCDD/F emissions of sinter plants, EAF plants and the non-ferrous metals sector by 5 TEQ/a	GEF Chem-1 Outcome 1.3 GEF Chem-1 Indicator 1.3.1 SC Article 5
Component 4: Management Capacity for POPs Contaminated Sites		
Outcome 4.1: Implementation of the "Soil Pollution Control and Point-Source-Contaminated Sites Regulation"	• Implemented national regulatory framework to require management of contaminated sites specifically POPs contaminated sites • Basis for effective financial instruments to allow remediation of elimination of POPs contaminated sites and elimination of release risk associated with POPs contaminants • Trained national experts in key contaminated sites management disciplines facilitating efficient POPs release reduction.	GEF Chem-1 Outcome 1.5 GEF Chem-1 Indicator 1.5.1
Outcome 4.2: Undertaking priority POPs contaminated sites assessments and clean up measures under the "Soil Pollution Control and Point-Source-Contaminated Sites Regulation"	• Site assessment and clean up design under regulatory direction on 4 priority sites • POPs containment/release prevention and/or elimination on three demonstration sites	GEF Chem-1 Outcome 1.4 SC Article 5 SC Article 6
	• Creation of replicable capability for undertaking future POPs contaminated site clean-ups	GEF Chem-1 Outcome 1.5 SC Article 5 SC Article 6
Component 5: Institutional and Regulatory Capacity Strengthening for POPs and Sound Chemicals Management		
Outcome 5.1: Legislative framework updated and adopted consistent with Convention obligations adopted.	• Fully developed and up to date POPs legal and regulatory framework in place and implemented to EU standards	GEF Chem-1 Outcome 1.5 GEF Chem-1 Indicator 1.5.1 SC Article 15
Outcome 5.2: Strengthened technical capacity including operational POPs monitoring, supporting analytical capability, and planning related research and development capability	• National technical analytical, monitoring and R&D capacity supporting national, regional and potentially global initiatives in reduction elimination of POPs release and related chemicals management activities. • Active participation and data contributions to the global POPs monitoring network	GEF Chem-1 Outcome 1.5 GEF Chem-1 Indicator 1.5 1 SC Article 11 SC Article 15
Outcome 5.3 Development and implementation of modern tools for a national sound chemicals management framework	• Modern sound chemicals management capability consistent with the global integrated approach to sound chemical management and promotion of green chemistry.	GEF Chem-1 Outcome 1.5 GEF Chem-1 Indicator 1.5 1

Annex 9: Signed UNEG Code of Conduct form

Evaluators:

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

Evaluation Consultant Agreement Form[30]

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

Name of Consultant: Maria ONESTINI

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

Signed at *Buenos Aires, Argentina on December 14 2020*

[30] www.unevaluation.org/unegcodeofconduct

Annex 10: TE Report Clearance Form

Terminal Evaluation Report for:
Reviewed and Cleared By:

Commissioning Unit (UNDP Portfolio Manager)

Name: Nuri Özbağdatli_____

Signature: _____ Date: _____

Regional Technical Advisor (Nature, Climate and Energy)

Name: ___Maksim Surkov_____

Signature: _____ Date: _____