Terminal Evaluation (TE) Report of the
UNDP-supported, GEF-financed Project

PCB Management in Ethiopia to Meet the 2025 Stockholm Convention Deadline – Phase 1

GEF Project ID: 9669
UNDP PIMS ID: 5861
Country: Ethiopia
Region: Africa
GEF Agency: United Nations Development Programme (UNDP)
Executing Agency: Environmental Protection Authority (EPA) (former Environment, Forest, Climate Change Commission. EFCCC; former Ministry of Environment, Forest and Climate Change, MEFCC)
GEF Trust Fund: GEF-6
GEF Focal Area: Chemicals and Waste
Terminal Evaluation Timeframe: 25 December 2023 – 31 October 2024
Date of Final TE Report: 30 October 2024

Prepared by:
(Mr.) Yiu Chiu William Kwan, International Terminal Evaluation Consultant

Acknowledgements

The International Terminal Evaluation Consultant (TE Consultant) wishes to extend his special thanks to all individuals and entities who made themselves available for discussions and interviews (both in-person and virtually) during the course of the Terminal Evaluation (TE), in particular during the TE mission in Addis Ababa, Ethiopia that took place 29 January to 2 February 2024. The TE Consultant values their comments and opinions and continuous cooperation and assistance during subsequent contacts for clarifications and for additional information and documentations. The TE Consultant is particularly grateful for the open and frank discussions, and the willingness and readiness to provide comments and evaluations on the project interventions and the impacts, in providing suggestions to see the success and sustainability of the project interventions.

The TE Consultant also likes to extend his special appreciation to the Project Manager (PM, being the sole member of the Project Management Unit, PMU) for his efforts in collecting and providing the main documents to undertake the documents review process. This has facilitated an understanding of the project objectives, outcomes and outputs, as well as updated progress made on implementing the project activities. The TE Consultant also thanks the Project Manager for his kind assistance in securing all appointments with major stakeholders, and arranging all local transportation to the various locations to meet and discuss with stakeholders. Special thanks for the PM's continuous efforts in chasing after and follow-up on missing and additionally requested documents, even though some documents took time to be provided.

The TE Consultant appreciate the assistance of the Commissioning Unit United Nations Development Programme (UNDP) Ethiopia Country Office (CO) and the UNDP Nature, Climate and Energy (NCE) Istanbul Regional Hub (IRH) Regional Technical Advisor (RTA) and Programme Associate in facilitating the terminal evaluation, and their cooperation in providing the necessary information and documents for conducting the terminal evaluation.

International Terminal Evaluation Consultant
Yiu Chiu William Kwan (Mr.)

Table of Contents

List of Tables

Acronyms and Abbreviations

AWP	Annual Work Plan
BAT/BEP	Best Available Techniques/Best Environmental Practices
CO	Country Office
CPAP	Country Programme Action Plan
ECAE	Ethiopian Conformity Assessment Enterprise
EEFRI	Ethiopian Environment and Forest Research Institute
EEP	Ethiopian Electric Power
EPA	Ethiopia Environmental Protection Authority
EEU	Ethiopian Electric Utility
EFD	Ethiopian Forestry Department
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
FSP	Full Sized Project
GEB	Global Environmental Benefits
GEF	Global Environment Facility
GEFSEC	Global Environment Facility Secretariat
METEC	Metals and Engineering Corporation
METEC-EPEI/PFCCSSPF	Metals and Engineering Corporation-Ethiopia Power Engineering Industry/Power Factor Corrector and Compact Sub-station Production Factory
MEFCC	Ministry of Environment, Forests and Climate Change
MSP	Medium Sized Project
MTR	Mid-Term Review
M&E	Monitoring and Evaluation
NGO/CSO	Non-Governmental Organization/Civil Society Organization
OFP	GEF Operational Focal Point
PAC	Project Appraisal Committee
PIF	Project Identification Form
PIR	GEF Project Implementation Report
PM	Project Manager
PMC	Project Management Cost
PMU	Project Management Unit
POPP	Programme and Operations Policies and Procedures
PPG	Project Preparation Grant

PSC/PB	Project Steering Committee (Project Board)
SESP	Social and Environmental Screening Procedure
STAP	GEF Scientific Technical Advisory Panel
TA	Technical Assistance
TE	Terminal Evaluation
TOR	Terms of Reference
UNDP	United Nations Development Programme
UNDP ERC	UNDP Evaluation Resource Center
UNDP-GEF	UNDP Global Environmental Finance Unit
UNITAR	United Nations Institute for Training and Research

EXECUTIVE SUMMARY

The objective of the United Nations Development Programme (UNDP)-supported, Global Environment Facility (GEF)-financed Project "*PCB Management in Ethiopia to meet the 2025 Stockholm Convention Deadline – Phase 1*" (GEF project ID: 9669 and UNDP PIMS ID 5861) intends to support Ethiopia with the necessary technical and financial assistance to reduce the risks posed by PCBs to the environment and human health. As the preliminary inventory from the National Implementation Plan (NIP) was not sufficiently detailed to plan a full-size project, the project is designed to either confirm the lower bracket in terms of amount of PCBs in the country, and fully address the PCB issue in Ethiopia as part of this Phase 1 project; or to identify additional PCBs thus justifying a phase 2 follow-up PCB project. The present project (Project) will include the identification and disposal of 150 tons (t) of PCB-contaminated equipment and waste.

The Project is implemented in partnership with the relevant institutional and industrial stakeholders, i.e. the Environmental Protection Authority (EPA) (formerly the Ministry of Environment, Forests and Climate Change, MEFCC; then Environment, Forest and Climate Change Commission, EFCCC), Ethiopian Electric Power (EEP), Ethiopian Electric Utility (EEU), Metals and Engineering Corporation (METEC, now Ethiopian Engineering Group, EEG), and other holders of PCB-containing equipment. The Project is to ensure that an adequate level of sustained capacity for the sound management of PCBs would have been built for the management of any further such hazardous waste identified after the Project's closure. The Project consists of four components which are:

1. Strengthening of legal frameworks, administrative processes and technical preparedness for the sound management of PCBs in Ethiopia
2. Strengthening national capacity for PCB management throughout the lifecycle
3. ESM of PCBs liquids and equipment in use or out of service
4. Monitoring, evaluation, and replication

This Terminal Evaluation (TE) Report includes the Findings, Conclusions, Recommendations and Lessons-Learned of the Terminal Evaluation conducted for the four-year Project which started implementation in Ethiopia on 1 May 2019 upon the full signature of the UNDP Project Document (ProDoc) by the then Ministry of Finance, Environment, Forest & Climate Change Commission (EFCCC) and UNDP. The Project is being implemented by the United Nations Development Programme (UNDP) as the GEF Implementing Agency (IA) and is executed by EFCCC, now the Environmental Protection Authority (EPA) as the Implementing Partner (IP). Due to the slow progress in implementation, the project was extended one year with operational completion date of 1 May 2024.

The TE Report has been prepared by an independent international consultant Mr. Yiu Chiu William Kwan, International Terminal Evaluation Consultant (TE Consultant). The Terminal Evaluation was carried out during the period of 25 December 2023 to 30 September 2024. A TE mission was undertaken 29 January to 2 February 2024 in Addis Ababa during which meetings were held to conduct discussions/interviews and limited focus group discussions with project stakeholders and partners, as well as project beneficiaries. Field visits were made to three (3) project sites and a laboratory to conduct discussions and interviews with project beneficiaries. The TE duration was extended to 31 October 2024 due to the fact that two major Outcome Indicators were judged not to be achieved that need additional time for completion, an 8 month extension to 1 January 2025 was approved.

The TE has been conducted in accordance with the "UNDP Evaluation Guidelines, Revised June 2021"[1], the "UNDP Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects, 2020"[2], and the "GEF Monitoring and Evaluation Policy, 2006 revised in 2010". The evaluation methodology to gather assessment information engaged the following steps and tools: (a) **document review and analysis** where in-depth review and analysis were conducted on all relevant sources of information provided to the TE Consultant, (b) **semi-structure interview with key stakeholders** where interviews and focus group discussions were conducted with key stakeholders during the TE mission, taking into consideration gender and social inclusion utilizing gender-responsive Terminal Evaluation Criteria Matrix, ensuring full confidence and transparency, and (c) **field visits and on-site**

[1] http://web.undp.org/evaluation/guideline/documents/PDF/UNDP_Evaluation_Guidelines.pdf

[2] 20 http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf

validation of key tangible outputs and interventions to the three PCB-contaminated holders and a laboratory where project interventions were being implemented.

Achievement of project results were evaluated based on the criteria of **relevance, effectiveness, efficiency, outcomes and impacts, sustainability, gender, women's empowerment, and social inclusion**. Evidence-based findings were based on in-depth review of documents from source of information provided by the Propjet Manager and the Commissioning Unit, in particular the project's progress reports and the PIRs submitted to the GEF. Tangible results were validated during interviews and focus group discussions with key stakeholders and project beneficiaries, ensuring gender and social inclusion. Further evidences validation was cross-checked with the many reports and materials produced by the Project.

Table 1: Project Information Table

Project Details		**Project Milestones**	
Project Title:	PCB Management in Ethiopia to meet the 2025 Stockholm Convention deadline – Phase 1	PIF Approval Date:	1 February 2017
UNDP Project ID (PIMS #):	5861	CEO Endorsement Date:	10 April 2018
GEF Project ID:	9669	ProDoc Signature Date:	1 May 2019
UNDP Atlas Business Unit, Award ID, Project ID:	Business Unit: ETH10 Award ID: 00103765 Atlas Output ID: 00105643	Date Project Manager hired:	22 July 2019
Country:	Ethiopia	Inception Workshop Date:	14-16 May 2019
Region:	Africa	Mid-Term Review Completion Date:	30 December 2021
Focal Area:	Chemicals and Wastes	Terminal Evaluation Completion Date:	31 October 2024
GEF Operational Programme or Strategic Priorities/Objectives:	CW-2 Programme 3	Planned Operational Closure Date:	First extension to 1 May 2024 , Further Extension granted to 1 January 2025
Trust Fund:	GEF-TF (GEF-6)		
Implementing Partner (GEF Executing Entity):	Environmental Protection Authority (EPA) (formerly *Environment, Forest and Climate Change Commission, EFCCC; Ministry of Environment, Forest and Climate Change, MEFCC*)		
NGOs/CSOs involvement:			
Private Sector involvement:			
Geospatial coordinates of project sites:			
Financial Information			
PDF/PPG	**at approval (US$)**	**at PDF/PPG completion (US$)**	

GEF PDF/PPG grants for project preparation	50,000.00	39,692.05
Co-financing for project preparation	-	-
Project	**at CEO Endorsement (US$)**	**at Terminal Evaluation (US$)**
(1) UNDP contribution: (TRAC)	150,000	98,187
(2) Government: (in-kind)	1,400,000	1,001,600
(3) Other: (in-kind)	6,800,000	7,432,378
(4) Private Sector:	-	
(5) NGOs:	-	
(6) Total co-financing (1+2+3+4+5):	8,350,000	8,532,165
(7) Total GEF funding:	1,990,000	1,146,015*
(8) Total Project Funding (6+7):	**10,340,000**	**9,678,180**

**Including USD 340,000 committed in 2024*

Brief Project Description

The awareness levels in Ethiopia both of the public and electricity utility workers on the health and environmental adverse effects associated with PCBs are at best very low and in many cases non-existent. As a result, PCB best management practices are lacking. This has increased the risk of exposure to PCBs to both the population and the environment. There are a number of challenges identified regarding the disposal or decontamination of PCBs in Ethiopia. The objective of the Project intends to support Ethiopia with the necessary technical and financial assistance to reduce the risks posed by PCBs. As the 2003 preliminary inventory from the National Implementation Plan (NIP) of the Stockholm Convention and the 2016 updated inventory were not sufficiently detailed, the project is designed to confirm the amount of PCBs in the country, and fully address the PCB issue in Ethiopia as part of this Phase 1 project; or to identify additional PCBs thus justifying a phase 2 follow-up PCB project. The present project (Project) will include the identification and disposal of 150 tons (t) of PCB-contaminated equipment and waste.

The Project is implemented in partnership with the relevant institutional and industrial stakeholders, i.e. the Environmental Protection Authority (EPA), Ethiopian Electric Power (EEP), Ethiopian Electric Utility (EEU), the Metals and Engineering Corporation (METEC), and other holders of PCB-containing equipment. The Project will ensure that an adequate level of sustained capacity for the sound management of PCBs would have been built for the management of any further such hazardous waste identified after the Project's closure. The Project consists of the following four components which are:

1. Strengthening of legal frameworks, administrative processes and technical preparedness for the sound management of PCBs in Ethiopia
2. Strengthening national capacity for PCB management throughout the lifecycle
3. ESM of PCBs liquids and equipment in use or out of service
4. Monitoring, evaluation, and replication

Evaluation Ratings Table

Through a set steps of evaluation approach and methodology, the International TE Evaluation Consultant concluded a set of evaluation findings, conclusions, recommendation and lessons-learned. Based on the findings, the TE Consultant assigned the following Evaluation Ratings.

Table 2: Evaluation Ratings Table	
Monitoring & Evaluation (M&E)	Rating
M&E design at entry	Satisfactory (S)
M&E Plan Implementation	Satisfactory (S)
Overall Quality of M&E	Satisfactory (S)
Implementing Agency (IA) Implementation & Executing Agency (EA) Execution	Rating
Quality of UNDP Implementation/Oversight	Satisfactory (S)
Quality of Implementing Partner Execution	Satisfactory (S)
Overall quality of Implementation/Execution	Satisfactory (S)
Assessment of Outcomes	Rating
Relevance	Highly Satisfactory (HS)
Effectiveness	Moderately Satisfactory (MS)
Efficiency	Moderately Satisfactory (MS)
Overall Project Outcome Rating	Moderately Satisfactory (MS)
Sustainability	Rating
Financial sustainability	Moderately Likely (ML)
Socio-political sustainability	Moderately Likely (ML)
Institutional framework and governance sustainability	Moderately Likely (ML)
Environmental sustainability	Moderately Likely (ML)
Overall Likelihood of Sustainability	Moderately Likely (ML)

Table 3: Terminal Evaluation Rating Scales	
Ratings for Outcomes, Effectiveness, Efficiency, M&E, IA Implementation/Oversight, IP 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

Summary of findings and conclusions

The TE Consultant found several strengths contributing to the successful achievements of many of the project outcomes and reaching the project objective of "to reduce the risks posed by PCBs to the environment and human health". The following key strengths were identified in accordance with the GEF evaluation criteria of: relevance, effectiveness, efficiency and sustainability.

Relevance: The project was well designed and formulated with clear and well-defined objective, outcomes and planned activities. **The project was relevant to Ethiopia's National Implementation Plan on Persistent Organic Pollutants which prioritized the effective management of PCBs being among the most toxic and persistent POPs listed in the Stockholm Convention, to meet the Convention's deadline of PCB elimination by 2025**. The project is well-aligned with national sustainable development objectives and strategies such as the Environmental Policy, Sustainable Development and Poverty Reduction Strategy Program (SDPRP), and Plan for Accelerated and Sustainable Development to End Poverty (PASDEP). The project is fully aligned to the UN Development Assistance Framework (UNDAF) Ethiopia's five-year national development plan, the Growth and Transformation Plan (GTP).

Effectiveness: After a 5 years 8 month implementation of project activities led to a solid foundation for effective PCB management built on project results of enhanced legislative measures, completion of National PCB Inventory, development of National PCB Database, National and Facility PCB Management Plan, PCB Tracking System, strengthened technical, management and enforcement capacities. **These project results contributed to an effective environmentally sound PCB management and raised awareness on the dangers of PCBs posted to the environment and human health**. Challenges still remain that require the IP and UNDP's proactive monitoring and follow-up as there is no concrete report of progress to conclude that the upgrading of temporary storage facilities and the disposal of 120.96 tons (77.96 tons plus 43 tons) of PCB-contaminated equipment and waste will be completed by project closure.

Efficiency: Proactive adaptative management undertaken by the Project Manager at the early stage of project implementation was able to minimize the negative impacts of the COVID-19 pandemic and subsequent supply chain challenges. However, such adaptative management efforts were not as successful in addressing the challenges posted by the procurement process, causing delays in the upgrading of storage facilities and the disposal/dichlorination services of PCB-contaminated equipment and waste. Furthermore, limited successful efforts were noted in gender equity and women's empowerment. .Despite the fact that ESIA and ESMP were finalized in June 2024 for the three temporary storage locations, and that the purchase order for disposal/dechlorination services was concluded to dispose 77.96 tons of PCB-contaminated equipment and waste by 30 November 2024 and a new bidding process closed on 24 October 2024 will result in another purchase order to dispose an estimated 43 tons of PCBs, but the total of 120.96 tons to be disposed will still fall short of the 150 tons target. Nonetheless, as of the finalization of the TE Report, there is no report of actual progress to conclude the completion of these activities by project closure of 1 January 2025, two months away.

Outcomes and Impacts: Overall, the project results achieved have contributed to the accomplishment of 12 of the 13 Outcome Indicators, contributing to the achievement of the four Project Outcomes and contributing to reaching the project objective of reducing the risk of PCB posted to the environment and human health, facilitating the Country to meet the Stockholm Convention 2025/2028 deadlines of PCB elimination. **Thus, the project's outcomes and impacts were evident through the enhanced legislative measures, strengthened technical, management and enforcement capabilities, increased awareness**.

Sustainability: The project has generated various levels of satisfactory achievements that will reflect on various dimensions of financial, social-political, institutional framework and governance, and environmental sustainability, With the effective collaboration between government agencies, UNDP Team and key stakeholders, the strengthened technical and management capacities and the commitment of PCB equipment holders, there most likely would be solid ground to ensure both financial sustainability and institutional framework and governance sustainability. The collaborative approach, the engagement of diverse groups of stakeholders and the increased awareness of the dangers of PCBs have strengthened social-political sustainability. In terms of environmental sustainability, all the implemented project activities were aimed at reducing the risks of PCB exposure, improving workplace safety and promote workers health, leading to and solidify environmental sustainability.

Gender, Women's empowerment and Social Inclusion: Gender Dimension Study in the context of PCB issues in Ethiopia was completed and an excellent Gender Analysis and Action Plan was developed but not fully implemented resulted in limited achievement in terms of gender equity and women's empowerment. On the other hand, the Project Steering Committee was co-chaired by both women who held lead position in environment, health and safety, being able to make sound decision-making at PSC meetings, and gave women opportunity to take into consideration all aspects of gender and aware of the adverse effects of PCB chemicals on women.

While recognizing the several strengths of project results, the TE Consultant also identified several limitations and areas of improvement that would benefit from improvement actions to be undertaken prior to the extended project closure, leading to practical recommendation and suggested actions as contained in Section 4.2 below.

- An excellent Gender Analysis and Action Plan has been developed by the project, yet its full implementation has not taken place, and communications to specifically reaching women were not executed. Furthermore, the participation rate of women in previous training sessions, capacity building workshops and awareness events average at only 25%, showing only **limited achievement and impacts in this important gender issue**.
- By June 2024, as a result of expedited procurement action, ESIA has been conducted for the three temporary storage facilities at EEU, EEP and EEG. The ESIA report and the ESMP formulated for each location contain assessments for the pre-construction, construction, operation phases and the related environmental and social impact and impact mitigation measures. **With the assessment completed at this late stage of the extended project duration, PCB equipment holders will need to take immediate action to ensure completion of the upgrading prior to project closure. IP and UNDP will need to exercise proactive actions on monitoring and follow-up on progress.**
- With the conclusion of one purchase order on 30 April 2024to undertake disposal/dechlorination of PCBs, 77.96 tons of PCB-contaminated equipment and waste were to be transported and disposed abroad. A new bidding for disposal/dechlorination services was advertised 3 September with an extended closing date of 24 October 2024. If a purchase order is concluded and disposal completed by project completion date, it will yield an estimated 43 tons of PCBs disposal. At this point, due to delay progress of the first contract, there is no firm date for the contract to return to Ethiopia to undertake actual disposal activities. At this point, it is not indication that a successful bidding and an agreed purchase order will be finalized, and more importantly, if the disposal can be completed within the 2 months remaining of the project duration. Even if both purchase orders and disposals were achieved by project completion, **the total quantities of PCB-contaminated equipment and waste that will be disposed of, 120.96 tons, will still fall short of the 150 tons end-of-project target.**
- Due to delays in disposal/dechlorination services, replication based on PCB disposal knowledge and experience will most likely not be possible to commence. Knowledge sharing and technology transfer will also not be possible to start prior to project closure.

<u>Key Lessons learned</u>

Based on the evaluation findings in terms of strengths and limitation identified in the previous Section, the following key Lesson Learned can be drawn:

1. **Collaborative Approach and Active Engagement:** The collaborative approach in engaging project partners, key stakeholders, project participants and project beneficiaries, as effectively exhibited and carried out by the Project Manager, utilizing his knowledge of the functioning of government agencies, institutions and entities, has resulted in multi-groups participation and engagement, generated effective collaboration and cooperation.
2. **Continued and Improved Communication**: Stakeholders have exhibited strong commitment to effective communication amidst the challenges encountered. Proper and frequent consultations and communications with key partners at various levels are crucial to have common understanding of the importance of the issues on hand, and will facilitate willingness for cooperative actions, thus fostering an environment of collaboration and cooperation. Through these efforts, stakeholders have not only shared valuable experiences, lessons learned, and best practices, but also demonstrated their resilience in

replicating successful approaches across various areas. Such proactive communication has greatly contributed to the achievement of project goals.

3. **Partnerships and Engagement with Women Groups/Organizations**: These organizations have significant knowledge and experience in actions to promote gender equity and women's empowerment Cooperative and collaborative linkage will facilitate and effectively generate beneficial results in engaging and promoting women participation. These organizations will have more successfully opportunity to facilitate discussions and engagement.

4. **Promotion, Replication of Appropriate and Sustainable PCB Disposal Technologies**: To ensure sustainability of the project results, promotion and replication of the sustained disposal technologies and best practices for sound management of PCBs and its disposal will be crucial. The efforts, including knowledge sharing, will not only contribute to reducing PCBs but also fostered environmental sustainability and enhanced the economic viability, contributing to global environmental benefits.

5. **Vigorous Monitoring and Follow-up Actions:** To avoid slow implementation, as encountered during later stage of project implementation, proactive risks management, frequent and vigorous consultation, monitoring and follow-up actions will ensure timely detection of problems and obstacles, to enable undertaking timely mitigation measures..

Recommendation Summary Table

Table 4: Summary of Recommendations

Rec No.	TE Recommendation	Entity Responsible	Time frame
A	Category 1: Follow-up Actions		
A1	**Organize training sessions and workshops targeting women's group to promote awareness on dangers of PCB including use of audio-visual and printed promotional materials.** **Seek collaboration with women's groups/organization to engage them in implementing the Gender Action Plan** Action to be taken: 1). Organize training sessions and capacity building workshops tailormade for women participants, 2). Ensure production of gender-sensitive promotion materials are distributed, 3). Seek cooperation and collaboration of women's groups/organizations and engage them to undertake gender dimension awareness raising.	UNDP Team and EPA	November – December 2024
A2	**Undertake proactive action to facilitate the upgrading of temporary PCB storage facilities at EEU, EEP and EEG to ensure safe storage of PCB contaminated oil and equipment, and to avoid accidental leakage.** Actions to be taken: 1). As ESIA and ESMP has been prepared, completed with assessment reports for pre-construction, construction, and operation phases including related environmental and social impact and impact mitigation measures, organize and work with EEU, EEP and EEG to push forward to	UNDP Team and EPA	November – December 2024

	immediately commence construction works to upgrade the temporary storage, 2) Undertake monitoring and follow-up actions on construction progress, and 3) Ensure current contaminated oil and equipment are relocated to the upgraded storage facilities. This will avoid leakage and unsafe storage prior to final disposal.		
A3	**Conduct bid analysis immediately upon closing date to conclude a Purchase Order with winning bidder.** **Undertake monitoring and follow-up actions on progress of PCB disposal to avoid slippage and further delay.** <u>Actions to be taken:</u> 1). Upon bid closing date, undertake immediate bids analysis with technical support to conclude a purchase order with potential winning contractor, to ensure disposal actions can be completed prior to project closure, 2). In response to latest report of delay by the first contractor, undertake monitoring and close follow-up actions to facilitate entry to Ethiopia, and seek revised work schedules, monitor progress to ensure timely completion of assessment, packaging and transport of PCB-contamination equipment and waste for disposal abroad; 3) Undertake continuous monitoring and follow-up actions on the contractors' disposal progress to avoid slippage and delay, and 4) Provide in-country assistance possible to facilitate contractors' disposal actions..	UNDP Team and EPA	November – December 2024
A4	**Conduct replication of PCB disposal and facilitate knowledge sharing and technology transfer.** <u>Action to be taken:</u> 1). Even with the delayed start of PCB disposal, since disposal technology has been identified, seek potential candidate to undertake replication, utilizing the knowledge and experience of the contractors while they are in-country to undertake disposal actions; 2). With cooperation and assistance of the PCB disposal contractors, initiate replication with an identified PCB-contaminated equipment holder; and 3) Organize knowledge sharing workshops and invite stakeholders and project beneficiaries to share knowledge and experience sharing, and technology transfer on environmentally sound PCB management and disposal.	UNDP Team and EPA	December 2024

1.0 INTRODUCTION

The Terminal Evaluation (TE) has been commissioned by the United Nations Development Programme (UNDP) Ethiopia Country Office (CO) in accordance with UNDP-GEF Monitoring and Evaluation Guideline that all full- and medium-sized UNDP-supported, GEF-financed projects are required to undergo a Terminal Evaluation upon operational completion of project implementation. UNDP Ethiopia CO engaged the International Terminal Evaluation Consultant (TE Consultant) as per the Terms of Reference (TOR) to conduct the Terminal Evaluation for the UNDP-supported, GEF-financed medium-sized project (MSP) entitled "*PCB Management In Ethiopia to meet the 2025 Stockholm Convention deadline – Phase 1*".

This Terminal Evaluation Report (TE Report) has been prepared by the independent International Terminal Evaluation Consultant, (Mr.) Yiu Chiu William Kwan. The Terminal Evaluation was originally to be carried out from December 2023 to 29 February 2024. A Terminal Evaluation mission in Ethiopia was undertaken from 29 January to2 February 2024 during which meetings, interviews and focus group discussions were conducted with key project partners and project beneficiaries, and filed visits were made to three PCB-contaminated equipment holders and one laboratory in Addis Ababa. Online meeting was also conducted with UNITAR, the project partner that implemented the training and capacity building activities. At the time of presenting the initial findings on the last day of the TE mission, the TE Consultant determined that two major end-of-project targets would not have been achieved by the (extended) project completion date of 1 May 2024. The TE Consultant made the initial recommendations that the Project should take special efforts to expedite the remaining project activities on a) the establishment/upgrade of the temporary storage facilities, and b) the procurement of the disposal/dechlorination services of 150 tons of PCB-contaminated equipment and waste, and c) to seek further extension of the project so that these two end-of project targets would be achieved at the (further) extended project closure.

Subsequent to the TE Consultant's initial recommendations, the expedited procurement actions had resulted in finalizing the subcontract that was signed on 29 April 2024 to conduct Environmental and Social Impact Assessment (ESIA) for the three temporary storage locations, and the purchase order for the disposal/dechlorination services on PCB-contaminated equipment was signed on 30 April 2024. An 8-month extension of the project operational closure to 1 January 2025 was approved. The duration of the TE was eventually extended to 31 October 2024 so that it could evaluate the actual progress that would be achieved during the 8-month project extension.

1.1 Purpose of Evaluation

The objectives of the Terminal Evaluation (TE) carried out by the Independent International TE Consultant were to assess the achievements of the project results and objectives against what was expected to be achieved, to draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming. The purposes of evaluation of the UNDP-supported, GEF-financed projects also include the following:

- To promote accountability and transparency and to assess and disclose the extent of project accomplishment;
- To synthesize lessons that can help to improve the selection, design and implementation of future GEF-financed UNDP activities and to improve the sustainability of benefits and aid in the overall enhancement of UNDP programming;
- To provide feedback on issues that are recurrent across the UNDP portfolio and need attention and on improvements regarding previously identified issues;
- To assess and document project results, and the contribution of these results towards achieving GEF strategic objectives aimed at Global Environmental Benefit; and
- To gauge the extent of project convergence with other priorities within UNDP country programme, including poverty alleviation, strengthening resilience to the impacts of climate change, reducing disaster risk and vulnerability, as well as cross-cutting issues such as gender equality, empowering women and supporting human rights.

The TE is thus to analyze the implementation of the project activities, assess the effectiveness and efficiency of project achievements to deliver the stated objectives and outcomes, and evaluate the project's contribution towards Ethiopia's compliance with the Stockholm Convention to meet the 2025 and 2028 deadlines on environmentally sound management of PCBs reduction and disposal. It establishes the project's relevance, performance and success, including the sustainability of results. The evaluation also brings together and analyses best practices, specific lessons learned, and recommendations regarding strategies employed and the implementation arrangements, that may be relevant to or replicable by other projects in the country and/or countries in other parts of the world.

1.2 Scope of the Evaluation

In accordance with the United Nations Development Programme (UNDP) and the Global Environment Facility (GEF) Monitoring and Evaluation Policies and Procedures, a Terminal Evaluation (TE) is required prior to operational completion of implementation of all UNDP-supported, GEF-financed Full- and Medium-size Projects (FSPs and MSPs). The UNDP Programme and Operations Policies and Procedures (POPP) states that "Project evaluation assesses the performance of a project in achieving its intended results. It yields useful information on project implementation arrangements and the achievement of outputs. Project evaluation provides a basis for the evaluation of outcomes and programmes", and the GEF M&E Policy aims to "promote accountability for achievement of GEF objectives through the assessment of results, effectiveness, processes, and performance of the partners involved in GEF activities". It further states that "GEF results will be monitored and evaluated for their contribution to global benefits". The policy enunciates that the GEF partners, in addition to conducting various other evaluations, also evaluate projects" at the end of the intervention (terminal evaluation).

The scope of this Terminal Evaluation is divided into three parts in accordance with the TORs and the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects. A summary of the scope of this TE is presented below:

I. Project Design and Formulation:

- Review the problem addressed by the project and the underlying assumptions;
- Review the relevance of the project strategy and assess whether it provides the most effective route towards expected/intended results;
- Review the project's objectives and outcomes/components and how feasible they can be reached within the project's time frame;
- Undertake a critical analysis of the project's logframe indicators and targets;
- Review how the project addresses country priorities;
- Review country ownership;
- Review management arrangements and decision-making processes;
- Review the extent to which relevant gender issues were raised in the project design;
- Assess how gender aspects are integrated into the project design;
- Review UNDP comparative advantage;
- Review linkages between the project and other interventions within the sector.

II. Project Implementation

- Review how adaptive management was implemented during the implementation of the project;
- Review overall effectiveness of project management as outlined in the project document;
- Review the quality of execution of the Executing Agency/Implementing Partner(s);
- Review any delays in project start-up and implementation;
- Review how Results-Based Management is being implemented;
- Examine the use of the project's results framework/ logframe as a management tool;
- Consider the financial management of the project, including cost-effectiveness;

- Review the changes to fund allocations as a result of budget revisions and assess the appropriateness and relevance of such revisions;
- Review the decision making processes to align financing priorities and annual work plans;
- Review the monitoring tools currently being used and the project progress reporting function as well as the feedback loop for adaptive management;
- Review project partnerships arrangements;
- Review stakeholder's participation and country-driven project implementation processes;
- Review project communications.

III. Project Results

- Review the progress made against the logframe indicators and the end-of-project targets;
- Assess the stakeholders' ownership of project achievements;
- Compare and analyse the GEF Tracking Tool at Baseline with the one completed at the time of TE;
- Identify remaining barriers to achieving the project objective;
- Validate whether the risks identified in the Project Document, Annual Project Review/PIRs and the ATLAS Risk Management Module are the most important and whether the risk ratings applied are appropriate and up to date;
- Assess risks to sustainability in term of financial risks, socio-economic risks, institutional framework and governance risks, and environmental risks;
- Review and possibly identify ways in which the project can further expand its achievements.

1.3 Evaluation Approach and Methodology

The methodology applied to conduct the Terminal Evaluation is in compliance with international criteria and professional norms and standards; including the norms and standards adopted by the UN Evaluation Group.

The TE has been conducted in accordance with the "UNDP Evaluation Guidelines, Revised June 2021"[3], the "UNDP Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects, 2020"[4], and the "GEF Monitoring and Evaluation Policy, 2006 revised in 2010".

The TE has been conducted in-line with GEF Evaluation Principles, which are: *Independence, credibility, utility, Impartiality, Transparency, Disclosure, Ethical, participation, Competencies and Capacities*[5]. The TE has also considered the two GEF evaluation objectives at project level, namely (i) promote accountability for the achievement of GEF objectives; including the Global Environmental Benefits; and (ii) promote learning, feedback and knowledge sharing on results and lessons learned among the GEF and its partners.

Gender, women empowerment, and social inclusion will be considered throughout the evaluation process. The term "social inclusion" also covers various groups of people including those with physical and mental disabilities.

The TE would provide evidence based information that is credible, reliable and useful. The TE has followed a collaborative and participatory approach ensuring close engagement with the Project Team, Government counterparts (including the GEF Operational Focal Point), the Implementing Partner and Responsible Parties, the UNDP Ethiopia Country Office, the UNDP-Nature, Climate and Energy (NCE) Istanbul Regional Hub (IRH) Regional Technical Advisers (current and former RTAs), direct project beneficiaries and other key stakeholders. The evidence-based assessment relied on feedback from persons and entities that have been involved in the design, implementation, and supervision of the Project, and review of available documentations and findings made during the TE mission.

[3] http://web.undp.org/evaluation/guideline/documents/PDF/UNDP_Evaluation_Guidelines.pdf

[4] 20 http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf

[5] http://www.thegef.org/gef/sites/thegef.org/files/documents/ME_Policy_2010.pdf

The TE mainly focused on verification and assessment of implementation and the achievement of project results and objectives, accountability, identification of project's successes in order to promote replicability, and to draw lessons that can both improve the sustainability of benefits from this Project, and aid in the overall enhancement of UNDP programming.

GEF evaluations address five major evaluation criteria. The evaluation terms of reference explain how the criteria would be analyzed in each case and this Terminal Evaluation has been conducted following these criteria with the findings structured in this fashion.

Relevance: The extent to which the activity is suited to local and national development priorities and organizational policies, including changes over time.

Effectiveness: The extent to which an objective has been achieved or how likely it is to be achieved.

Efficiency: The extent to which results have been delivered with the least costly resources possible. Also called cost-effectiveness or efficacy.

Results: The positive and negative, and foreseen and unforeseen, changes to and effects produced by a development intervention. In GEF terms, results include direct project outputs, short- to medium-term outcomes, and longer-term impact including global environmental benefits, replication effects and other local effects.

Sustainability: The likely ability of an intervention to continue to deliver benefits for an extended period of time after completion. Projects need to be environmentally as well as financially and socially sustainable.

Gender and human rights: The extent to which the project contributes to gender equity and women's empowerment.

In carrying out this TE exercise, qualitative and quantitative data collection tools were applied for analyzing relevant data and information from the principles of results-based review (including relevance, ownership, efficiency and effectiveness, sustainability). The TE was carried out according to the UNDP/GEF Monitoring and Evaluation Policy.

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

(a) ***Initial Briefing/Assessment Meeting*** was held with the Commissioning Unit (UNDP CO), UNDP NCE RTAs (current and former) and the Project Manager (sole member of the Project Management Unit, PMU) to understand and clarify key objectives and issues that were relevant to the Terminal Evaluation, to have a more in-depth overview of the project so as to be familiar with the project, to obtain preliminary updates on the progress of project implementation, and to gather key achievements and specific obstacles/bottleneck/setbacks on project implementation, to understand the interactions/interventions conducted, and the key stakeholders and partnership arrangements. A general briefing of the project was provided to the TE Consultant by the Project Manager at the meeting.

(b) ***Document review and analysis****, preparation of the TE mission*: In-depth review and analysis of all relevant source of information including documents prepared during the project preparation phase were conducted. The documentation analysis examined a set of documents of the project as provided by the Project Manager after the Initial Briefing/Assessment meeting. Document review and analysis continued during the entire duration of the Terminal Evaluation exercise, as additional or supplementary documents became available or provided by the Project Manager or the Commissioning Unit in response to requests from the TE Consultant.

(c) ***Semi-structure interview or focus group discussion with key stakeholders*****:**

- Development of evaluation questions around relevance, effectiveness, efficiency and sustainability and designed for the different stakeholders to be interviewed.
- As engagement of stakeholders is vital to a successful TE, stakeholder involvement has included interviews and focus group discussions with men and women, stakeholders who have project

responsibilities, including but not limited to: UNDP Ethiopia Country Office (CO), UNDP NCE Istanbul Regional Hub Regional Technical Advisors (current and former), UNITAR as implementation partner, senior officials of Environmental Protection Authority (EPA, formerly Environment, Forest, climate Change Commission, EFCCC; Ministry of Environment, Forest and Climate Change, MEFCC), management and technical personnel of the three PCB holders: Ethiopian Electric Utility (EEU), Ethiopian Electric Power (EEP), and Ethiopian Engineering Group (EEG, formerly Metals and Engineering Corporation, METEC), Ethiopian Conformity Assessment Enterprise (ECAE), key national consultants, Project Steering Committee (Project Board) members, project stakeholders and project beneficiaries, etc. The interviews and focus group discussions were carried out in person during the TE mission in Ethiopia and, due to time and budgetary constraints, interviews and site visits were conducted within Addis Ababa and its proximity.

- All interviews and focus group discussions were conducted in full confidence and anonymity. The final TE report does not assign any specific comments to particular individuals.

(d) ***Field Visits and on-stie validation of key tangible outputs and interventions**:* Site visits were conducted during the TE mission in order to see physical areas where the project interventions were to be implemented to validate tangible outputs and interventions. Due to time and budgetary constraints, the TE Consultant visited only the facilities of the three PCB holders (EEU, EEP and EEG) located in Addis Ababa and its vicinity.

Data and information derived from the in-depth documents review and analysis were structurally cross-checked with all interviewees. Additional information was also gathered during the interview and focus group discussions to substantiate the analysis and assessment. Finally, further evidence gathered from the on-site field observations as well as review of the many printed and audio-visual outputs were used to validate and solidify the assessment findings, the evidence-based achievement of project results.

1.4 Data Collection and Analysis

With regard to specific methodologies to gather assessment information, the TE Consultant conducted in-depth review and analysis of the relevant documents of the project as assembled and actually made available by the Project Manager (the sole member of the PMU) to the TE Consultant. Some of the documents were not made available until follow-up requests during and after the TE mission, or during the drafting of the TE report. Overall, the documentation analysis examined during the TE document review phase, based on documentations eventually provided by the Commissioning Unit and the Project Manager, included the following:

- Project Identification Form (PIF)
- UNDP Initiation Plan
- Final UNDP-GEF Project Document with all annexes
- CEO Endorsement Request
- UNDP Social and Environmental Screening Procedures (SESP)
- Project Inception Workshop Report
- Mid-Term Review (MTR) Report
- Project Implementation Reports (PIRs)
- Oversight mission reports (UNITAR)
- Progress reports (quarterly, semi-annual or annual, with associated workplans and financial reports)
- Minutes of Project Board Meetings and of other meetings (i.e. Project Appraisal Committee meetings
- GEF Tracking Tools (from CEO Endorsement, midterm and terminal stages)Project Portfolio Indicators
- GEF/LDCF/SCCF Core Indicators (from PIF, CEO Endorsement, midterm and terminal stages); for GEF-6 and GEF-7 projects only Annual progress report and work plans
- Financial data, including actual expenditures by project outcome, including management costs, and including documentation of any significant budget revisions Audit reports

- Financial data, including actual expenditures by project outcome, including management costs, and including documentation of any significant budget revisions
- Co-financing data with expected and actual contributions broken down by type of co-financing, source, and whether the contribution is considered as investment mobilized or recurring expenditures
- Audit Report
- Sample of project communications materials
- List of contracts and procurement items over ~US$5,000 (i.e. organizations or companies contracted for project outputs, etc., except in cases of confidential information)
- UNDP Country Programme Document (CPD)
- List and contact details for project staff, key project stakeholders, including Project Board members, RTA, Project Team members, and other partners to be consulted
- Project deliverables that provide documentary evidence of achievement towards project outcomes

The TE Consultant reviewed the baseline, mid-term and end-of-project GEF Focal Area Core Indicators and project indicators presented in the Project Results Framework and the GEF Tracking Tools submitted to the GEF at CEO Endorsement.

In consultation with the Project Manager, list of key stakeholders was reviewed and a total of 25 participants (19 male, 76%, and 6 female, 24%) were selected for interview. The interview process allowed the TE Consultant to gather further information and documentation. The interviews and focus group discussions afforded the opportunities to cross-check with data and information collected from the document reviewed and validate the project results and achievements.

The document review took place mainly at the onset of the evaluation process. Further documentations were requested by the TE Consultant and some of the missing and additional documents requested were finally made available, though some took a while, in the course of the evaluation process, in particular during and after the TE mission in Ethiopia when document analysis was continued to seek additional information or clarifications.

Based on the document review, an important tool developed for the TE process was an Evaluation Criteria Matrix (Annex 2). This matrix guides the data collection process and, as the evaluation proceeds, 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 the data collection process as well as in making the evaluation process transparent. The matrix contains Evaluative Criteria Questions, i.e. sets of questions and sub questions, detailing each review criteria, indicators; sources; and methodology.

In undertaking the data analysis, the TE Consultant first used data and information derived from the documents related to the projects for the analysis. Then, key issues drawn from the desk review and assessment were structurally cross-checked with all interviewees in respect of their roles and responsibilities in the project. Additional information was also gathered during the interview to substantiate the analysis and assessment. Finally, further evidence gathered from the field observations were used to validate and solidify the assessment findings.

1.5 Ethics

The Terminal Evaluation was conducted following the principles contained in the Ethical Guidelines for Evaluation by the United Nations Evaluation Group (UNEG). The International Consultant have signed the Code of Conduct for Evaluators, and are included as Annex 8.

1.6 Limitations to the Evaluation

Due to budgetary limitation, unlike the Mid-term Review (MTR) which was conducted by national and international evaluation consultants (it is noted that the international evaluation consultant conducted the MTR online due to travel restrictions imposed by the COVID-19 pandemic), only an international evaluation consultant was engaged by the Commissioning Unit, UNDP Ethiopian Country Office (CO), to conduct the terminal evaluation. Due to budgetary constraints and security issues, field visits were limited to facilities located within Addis Ababa and its

immediate vicinity. However, the TE Consultant feels that the limitations did not materially affect the effectiveness of the TE mission which nonetheless had offered sufficient interactions with frank and in-depth exchanges.

1.7 Structure of the Terminal Evaluation Report

The TE Report is structured in line with UNDP's *Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects* and in accordance with the Terms of Reference (TORs) included as Annex 1 to this Report, and covers the following Sections:

Executive Summary provides basic information of the project, a brief description of the project and project results and impacts to-date, the Terminal Evaluation ratings, summary of conclusions, key lessons-learned, and summary of recommendations.

Section 1 INTRODUCTION gives the purpose, objectives, scope, and methodology of the Terminal Evaluation.

Section 2 PROJECT DESCRIPTION includes project design/formulation, its rationale and development context, the problems the project sought to address, the project objectives, outcomes, outputs, planned activities and expected results, baseline data, key stakeholders and implementation arrangements.

Section 3 FINDINGS presents the main findings of the Terminal Evaluation on all aspect including project's strategy, its progress towards results, the performance of its implementation, execution and efficiency of adaptive management as well as assessing the sustainability of the project outcomes.

Section 4 MAIN FINDINGS, CONCLUSIONS, RECOMMENDATIONS & LESSONS LEARNED presents the Terminal Evaluation's conclusions, recommendations and main lessons-learned.

Section 5 ANNEXES contains all relevant supplementary data and information to illustrate and argument what was described in the main Terminal Evaluation Report.

1.8 Audit Trail

The final Terminal Evaluation Report is accompanied by an "Audit Trail" comprising a compilation of comments received on the review of the draft Terminal Evaluation Report by the Commissioning Unit, the Implementing Partner, UNDP NCE RTA and key stakeholders, along with responses from the TE Consultant (on either the comments were accepted or not accepted and the reasons for not accepting such comments) as documented in an Annex separate from the main TE Report., which is submitted as a separate document.

2.0 PROJECT DESCRIPTION

The Project intends to support Ethiopia with the necessary technical and financial assistance to reduce the risks posed by PCBs to the environment and human health. As the preliminary inventory on PCB-containing electrical equipment conducted in 2003 for the National Implementation Plan (NIP), and the update undertaken in 2015-2016 covering operational equipment (power transformers and capacitors) within the Ethiopian Electric Power Cooperation (EEPCO, later split into Ethiopian Electric Power, EEP, and Ethiopian Electric Utility, EEU) was not sufficiently detailed to plan a full-size project, this Project is designed to either confirm the lower bracket in terms of amount of PCBs in the country, and fully address the PCB issue in Ethiopia as part of this Phase 1 project; or identify additional PCBs thus justifying a phase 2 follow-up PCB project. The present Project includes the identification and disposal of 150 ton (t) of PCB-contaminated equipment and waste.

The project is implemented in partnership with the relevant institutional and industrial stakeholders, i.e. the Ministry of Environment, Forests and Climate Change (MEFCC) as the Implementing Partner (IP), Ethiopian Electric Power (EEP), Ethiopian Electric Utility (EEU), Metals and Engineering Corporation (METEC, now Ethiopian Engineering Group, EEG), and other holders of PCB-containing equipment. The project is to ensure that an adequate level of sustained capacity for the sound management of PCBs would have been built for the management of any further such hazardous waste identified after the Project's closure. The Project consists of the following four components:

1. Strengthening of legal frameworks, administrative processes and technical preparedness for the sound management of PCBs in Ethiopia.

   This component will support Ethiopia to conduct a comprehensive assessment of the national and institutional legal framework, key stakeholders, and gaps and overlaps, and to prioritize needs, leading to decision to draft new legislation specifically on PCBs or to strengthen the existing ones with inclusion of PCB-specific provisions. It will also address institutional capacity and arrangements for the management of PCB, and gaps and overlaps will be identified and addressed through consultation and coordination processes. In addition to putting in place legal instruments for PCB management and disposal, a national PCB tracking system to prevent illegal importation of equipment likely to contain PCBs will be developed. As part of the actions to prevent PCB-related accidents, the current chemical response procedures and mechanisms will be strengthened and piloted.

   Internal guidelines and procedures targeted for utility companies and step-by-step approaches for those working with equipment and oil likely to contain PCBs will be developed and training provided.

2. Strengthening national capacity for PCB management throughout the lifecycle.

   This component will support Ethiopia to review and strengthen data collection and management capacity, as well as to develop detailed PCB management plans at the facility level. A comprehensive PCB training programme will take place, covering PCB inventories, analysis, prioritization, and development of management plans. A national PCB management plan will also be developed and tested at the national and facility levels. The PCB tracking system will also be tested.

   The inventory database will also provide a platform for characterization of PCB waste streams. This characterization will then facilitate a feasibility study of using cost effective, technologically robust, and available technologies to promote environmentally sound management and disposal of PCBs.

   This component will result in improved generation/collection of data, information, and monitoring of PCBs providing solid support to sound decision-making and planning process for ESM of PCBs. Comprehensive guidance on operation and maintenance of PCB-contaminated equipment, identification and labelling procedures, handling, transportation, temporary storage, and disposal will be developed.

   An awareness raising strategy will also be developed, awareness materials such as brochures, project cards, meeting banners and posters, for different target groups, will be developed and disseminated at different levels.

3. ESM of PCBs liquids and equipment in use or out of service.

   This component will minimize and to a greater degree eliminate the risk of adverse effects of PCBs in the population and the environment. The project will establish priorities according to the conditions of the PCB stocks and to the location. the PCB management plans, developed in the previous project component, will guide facilities in their maintenance and disposal operations. The evaluation of disposal options will take into account the levels of PCB concentrations and the condition of the equipment. To reduce costs, a dechlorination approach will be explored.

   Selected locations designated to serve as sites for PCB temporary storage facilities will be environmentally and human-risk assessed. Management plans including emergency response plans for each temporary facility will be developed and implemented for each site. 150 metric tonnes of PCB oil transformer carcasses, capacitors, and contaminated soils are expected to be disposed of through high temperature incineration. Training (both theoretical and practical) will be conducted before the commencement of each activity planned under this component.

4. Monitoring, evaluation, and replication.

   Under this component, project monitoring and evaluation project performance, stakeholders' views on project impacts, will be reviewed and make recommendations for improvements. Yearly lessons-learned reports will be prepared and disseminated. Lessons learnt and case study reports for each demonstration project will be prepared for each project milestone, endorsed by national stakeholders, and shared internally and externally with other project countries. Best practices for introduction of ESM will be identified, documented, and disseminated to participants, other stakeholders and Parties of the Stockholm Convention. The national project

website will be developed for engagement, sharing good practices, guidance/tools, and experience. End-of-project publications will be prepared and disseminated.

2.1 Project start and duration

The Project Identification Form (PIF) was approved on 1 February 2017 and was followed by the CEO Endorsement approval of the Medium-sized Project (MSP) on 10 April 2018. Implementation of this 4-year (48 months) project commenced on 1 May 2019 upon signature of the UNDP Project Document by the Implementing Partner Ministry of Environment, Forest and climate Change (MEFCC, subsequently the Environment, Forest, and Climate Change Commission, EFCCC, now the Environmental Protection Authority, EPA) and UNDP. With the approval by the GEF Secretariat, the original operational completion date of 1 May 2023 was extended by 12 months to 1May 2024. During the T E mission t, it was identified that two major end-of-project targets, 1) upgrading of existing storage facilities to international standards to allow PCB removal/dechlorination operations, and 2) at least 150 tons of equipment containing PCB (in pure and contaminated form) are treated or disposed of, would not be achieved by the original extended project completion of 1 May 2024. Special efforts were made to expedite the remaining project activities to achieve these two targets. An eight-month project extension was requested and approved for which project operational completed date was extended to 1 January 2025. The Key project milestone dates are indicated in Table 5 below.

Table 5: Project Milestone:

Milestone	Date
Project Duration	68 months *(extended)*
PIF approval	1 February 2017
CEO Endorsement	10 April 2018
Project Document signature (project start date)	1 May 2019
Project Manager Recruited	22 July 2019
Inception workshop	14 - 16 May 2019
First Disbursement	29 May 2019
First meetings of the Project Steering Committee (Project Board)	19 July 2019
Mid-Term Review	September - October 2021
Terminal evaluation (planned completion)	29 February 2024 (*Extended to 31 October 2024*)
Planned closing date	First extended to 1 May 2024, further e*xtended to 1 January 2025*

2.2 Development context: environmental, socio-economic, institutional, and policy factors

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

Aware of the adverse human health and environmental impacts of POPs, both at the national and global levels, and the need for concerted action to address such impacts, Ethiopia signed the Stockholm Convention on 17 May 1997 and ratified the instrument on 2 July 2002. Subsequent to the ratification of the Stockholm Convention, Ethiopia, in response to Article 7 of the Convention, developed its NIP, which was submitted in March 2007. The PCB

management issue is one of the top priorities for the country according to the NIP, and corresponds to the Stockholm Convention target of safe management of PCBs by 2025.

The result of the preliminary PCB inventory in Ethiopia indicates that a comprehensive inventory will need to be conducted on all potentially PCB-containing electrical equipment in the Ethiopian electric power and electric utility system (formerly EEPCO, and in 2013 split, as part of electricity sector reform, into Ethiopian Electric Power (EEP) and Ethiopian Electric Utility (EEU)). Due to absence of data either on the nameplate or equipment manual, PCB concentrations have not been determined or characterized. Therefore, the lack of adequate national data on PCBs, the potential for significant PCB releases from their use, stockpiles and wastes, and the need to phase out and dispose of PCBs and equipment are major problems that have been prioritized for action.

2.3 Problems that the project sought to address

To ensure the environmentally sound management (ESM) of PCBs and to avoid PCBs being released into the environment as a consequence of improper disposal, the Phase 1 Project was formulated to address the following barriers.

- **Gaps in Legislation Measures and Enforcement Efforts**: Preliminary assessment of the legal and institutional frameworks acknowledged several gaps and limitations in that there is no legislation that specifically addresses PCB management. Since the preliminary inventory identified the presence of significant amounts of PCBs, it is necessary to develop or incorporate PCB management specific issues either into new or existing legislations.
- **Need to Identify contaminated sites and develop environmentally sound remediation strategies**: Article 6 of the Stockholm Convention requires Parties to develop appropriate strategies for identifying sites contaminated by POPs chemicals and to undertake remediation of contaminated sites in an environmentally sound manner. The preliminary inventory identified 77 sites in Ethiopia wholly contaminated by POPs chemicals including PCBs, which is a serious problem in the country. There is a real need to undertake a comprehensive inventory and assessment of contaminated sites and determination of the extent and severity of the environmental and socio-economic impacts of such sites, and to develop further corresponding strategies for the management of the identified contaminated sites.
- **Low level of Awareness**: Current levels of awareness on the adverse effects of POPs, especially PCBs, are still low. The workers and general public are generally not aware of the health and environmental adverse effects of PCBs. Low levels of awareness lead to continued mismanagement of PCB-containing equipment. There is the need to develop a comprehensive awareness raising strategy by sector and by stakeholder groups, including the interested and affected parties, especially women and children.
- **Absence of Environmentally Sound Management of PCBs**: Ethiopia lacks a strategy for the environmental sound management of PCBs and their disposal. The national preliminary inventory on PCB releases identified a strong likelihood presence of large quantities of PCB-contaminated oil in the EEP and EEU network, given their present lack of best practices during maintenance and repair of transformers.

  The electrical equipment assessed in the inventories was power capacitors and transformers. According to the 2003 preliminary inventory and the 2015-2016 NIP Update project identified 2,435 suspected PCB-contaminated transformers identified (of which 2,242 are currently in use) and 33 operational suspected PCB-contaminated capacitors. The corresponding quantities of suspected PCB-containing dielectric fluid are estimated to be 1,032 tons and 1 ton respectively. More than 150,000 liters (225 tons) of used oil were also stored in barrels, which may be PCB-contaminated. The updated PCB inventory also covered equipment held under METEC (now Ethiopian Engineering Group, EEG).

  The fact-finding mission in September 2017 also identified an additional 5,000 transformers that have been added to the network since the updated inventory was completed (bringing the total to 32,000 transformers), as well as approximately 4,000 out-of-service transformers in scrapyards that were not included in the inventory. There are also some 1,400 capacitors in operation in the network in Ethiopia.

  The results of the several inventory exercises indicates that a comprehensive inventory and assessment of the PCB situation in Ethiopia is still needed to offer the best basis for the formulation the strategy for sound management of PCBs.

- **Lack of technical infrastructure for POPs assessment, measurement, analysis, alternatives and prevention measures, management, research and development**: While Ethiopia has gas chromatographs and High-Performance Liquid Chromatography (HPLC) systems as well as instrumentation for metals' analysis in some laboratories, there was no laboratory capacity that has experience with PCB analysis. This project will provide an opportunity to further strengthen PCB analytical capacities in some of the pre-identified laboratories - the Ethiopian Conformity Assessment Enterprise (ECAE) and Ethiopian Environment and Forest Research Institute (EEFRI) - by providing appropriate training and technical support including the method for PCB analysis and accreditation.

2.4 Immediate and Development Objectives

Ethiopia conducted a national preliminary inventory on PCB-containing electrical equipment in 2003 and undertook updating in 2015-2016, covering operational equipment within the Ethiopian Electric Power Corporation (EEPCO; later EEP and EEU). The electrical equipment assessed in the inventories was power transformers and capacitors. The result of the updated 2015-2016 preliminary inventory indicates that suspected PCB-containing transformers and capacitors within EEP and EEU are 2,435 and 33 pieces, respectively (of which 2,242 transformers are currently in use). Corresponding quantities of suspected PCB-containing dielectric fluids are 1,032 t and 1 t for transformers and capacitors, respectively.

Currently, the awareness levels in Ethiopia both for the public and electricity utility workers on the health and environmental adverse effects associated with PCBs are at best very low and in many cases non-existent. As a result, PCB best management practices are lacking. This has increased the risk of exposure to PCBs to both the population and the environment. Therefore, practical measures that will quickly reverse this undesirable trend are urgently needed.

A number of challenges has been identified regarding the disposal or dechlorination of PCBs in Ethiopia including the limited inventory data, possibility of cross-contamination among the various transformers, high costs of replacing transformers and capacitors, and complexity of sampling and analysis of in-use equipment, absence of appropriate and enforced legislation and regulations, the low commitments of PCB-owners to address the issue of PCBs, the lack of PCB treatment technologies within the country, and there are no technologies for treatment of low PCB-containing equipment or disposal facilities available for high PCB-containing equipment or waste.

The project is designed to:

1) Increasing national PCB management capacities including development and enforcement of legislation;
2) Increasing levels of awareness;
3) Engaging stakeholders'
4) Strengthening the reliability of information through updating of PCB inventory;
5) Provide know-how and financial support on the technologies for the disposal of PCB equipment.

Through project interventions, the project addresses all the above important aspects, assist the country in developing and implementing a sound national PCB management programme that will take into consideration all the above aspects to increase the commitment of the potential PCB-owners to comply with the new or amended legislative on PCBs and to have the PCB-contaminated equipment treated or disposed under the project, to facilitate the country's compliance of its obligations to meet the Stockholm Convention's deadline of 2025.

2.5 Description of the Project's Theory of Change

The Theory of Change encompassed the project's three main components: **Component 1** is the strengthening of legal framework, administrative processes and technical preparedness for ESM of PCB; **Component 2** is the review and strengthening of the national capacity for PCB management throughout the lifecycle; and **Component 3** is the ESM of PCB liquids and equipment in use and out of use. Each component is identified with numbers of baseline issues (key barriers), aligned with corresponding activities designed to systematically address the issues identified. For each activity, the TOC also includes a well-defined set of both implicit and explicit risks and assumptions inherent in the project design.

The project's overall objective aims at strengthening the capacity of national stakeholders to management PCBs as well as to achieve PCBs elimination, as identified as a priority in the national implementation Plan for Persistent Organic Pollutants for Ethiopia, a first phase. The Theory of Change (TOC) defines the achievement of the project objective through from the implementation of activities under the above-mentioned three main project components to generate three Outcomes against the three components.

To achieve *Outcome 1.1 Legal framework for PCBs adopted and technical capacity strengthened to support the National Implementation of the Stockholm Conversion* under component 1, the project's TOC identified issues to be addressed such as lack of PCB management legislation or regulations, lack of capacity and cooperation for enforcement of ESM of PCB, lack of coordination for PCB management. A number of activities in establishing legal framework, strengthen technical capacity on enforcement, and strengthening of current chemical response procedures and mechanisms were formulated to address the identified barriers.

Outcome 2.1 of Component 2 in the TOC is identified as the *Improved collection of data, information and monitoring of PCBs, which supports sound decision making and planning for ESM of PCBs*. To achieve the outcome, the TOC identified 5 issues that include the preliminary incomplete PCB inventory, lack of central PCB database to track inventory, absence of PCB management plan and lack of technical knowledge on PCB management, and the lack of awareness on dangers of PCB and POPs. 4 project interventions were formulated to address the barriers, including conducting detailed national PCB inventory, development of PCB management plant, training of operation and technical staff on all aspects of PCB management, and design and implementing a national awareness raising strategy.

To achieve *Outcome 3.1 Sound Management and disposal of PCBs reduce the risk of contamination in the population and the environment* of Component 3, to contribute to achieving this outcome, 4 activities were designed to address the barriers unsafe storage facilities that may be susceptible to PCB contamination, lack of in-country PCB disposal technology and facilities, and the need to dispose of PCBs to meet the Stockholm Convention deadline.

Ultimately, the project's Theory of Change identified the long-term environmental impacts it aims to achieve. These impacts include the reduction and eventual elimination of PCB-contaminated equipment and waste, strengthened technical, management and enforcement capacities, increased awareness of the dangers of PCB posted to the environment and human health, ultimately leading to improved environmental quality, reduced health risks for workers, general public and local communities, and the conservation of biodiversity and ecosystem services.

The casual pathways towards the long-term impacts of the outcomes involved a sequence of interconnected steps and activities as outlined above. The project's interventions lead to enhanced legislative measures strengthened technical and management capacities, increased awareness and knowledge, which then foster capacity for the environmentally sound management of PCBs and the disposal of PCB-contaminated oil and equipment.

Throughout the Theory of Change, various assumptions were made. These included assumptions regarding the stakeholders' willingness to cooperate and coordinate on PCB management, in strengthening technical and management capabilities, the uncertainty of PCBs inventory and the necessity of conducting a national PCB inventory, the effectiveness of capacity-building initiatives, and the willingness of PCB-contaminated equipment owners to upgrade their temporary storage facilities, to implement national and facility PCB management plans, and to dispose of PCB-contaminated equipment and waste.

In summary, the simplified Theory of Change for the PCB project in Ethiopia identified the project's three main components, outlines the issues under each component, the planned activities to address the issues (barriers) and the related assumptions (risks not identified in the TOC) that would contribute to the outcome under each component, that will lead to the intermediate states of ESM of PCB, and ultimately the intended long-term environmental impacts. It identifies the pathways leading to these impacts and highlights the implicit and explicit assumptions underlying the project's design. During project implementation, periodic appraisal of the Project's Theory of Change was undertaken, there was no change in the TOC and it remained valid to guide implementation of project interventions.

2.6 Expected Results

This project aims at strengthening the capacity of national stakeholders to manage PCBs as well as to achieve PCBs elimination, as identified as a priority in Ethiopia's NIP—a first Phase to achieve ESM of PCBs by 2025.

Global Environmental Benefits (GEBs): It is envisaged that under the Project, 150 tons of PCB oil transformer carcasses, capacitors, and contaminated soils will be properly disposed of in such a way that the PCB content in these equipment or waste will be irreversibly destroyed. Therefore, the project will contribute to the implementation of the Stockholm Convention's requirements by Ethiopia.

Socio-Economical Benefits: The Project will bring direct and indirect social and economic benefits. The direct and immediate benefits are those related to the implementation of the project itself, including employment of project staff and operators; possible establishment of a public-private partnership for the management of the PCB-contaminated equipment and waste; and financial incentive for the PCB owners for the sampling, analysis, and treatment of their PCB-contaminated equipment.

The project will also bring obvious indirect benefits. The removal of PCB sources (equipment, waste, contaminated soil) from the environment will prevent the contamination of the environment by these substances. This will translate into reduced mortality and morbidity of the population in the long-term, with specific reference to the pathologies associated with exposure to PCBs, resulting in the reduction of social and economic costs. In addition, the technical capacity developed by the project partners (project staff, consultants, stakeholders) in the management of PCB waste will result in the creation of skills and capabilities for the management of hazardous substances and waste in general, which will result in the creation of specialized jobs in the country.

Knowledge Management: The Project will generate a significant account of knowledge which will be carefully managed during the project implementation, so that the project results will be properly communicated and disseminated during the whole project lifecycle, and lessons learned and success stories will be shared among other countries/UN country offices.

2.7 Total Resources

Total resources for the project at the time of CEO Endorsement comprised of GEF grant in the amount of US$ 1,990,000 and co-financing commitments of US$ 8,350,000 for the total project cost of US$ 10,340,000. At time of Terminal Evaluation, the total in-kind co-financing realized was calculated to amount to US$ 8,532,165 as of December 2023. Together with the GEF grant of US$ 1,990,000, the total project resources at the time of Terminal Evaluation amounts to US$ 10,522,165.

Table 6: Project Financial information at time of CEO Endorsement and at time of Terminal Evaluation

Project Financial Information		
PDF/PPG	**at Approval (US$)**	**at PDF/PPG completion (US$)**
GEF PDF/PPG grants for project preparation	50,000	39,692.05
Co-financing for project preparation	0	0
Project	**at CEO Endorsement (US$)**	**at Terminal Evaluation (US$)**
UNDP contribution (TRAC):	150,000	98,187
Government (in-kind):	1,400,000	1,001,600
Other (in-kind)	6,800,000	7,432,378
Private Sector:		
NGOs:		

Total co-financing (1+2+3+4+5):	8,350,000	8,532,165
Total GEF funding:	1,990,000	1,990,000
Total Project Funding (6+7):	10,340,000	10,522,165

2.8 Summary of Main Stakeholder

The project is not anticipated to result in any adverse social or environmental impacts on the population, as its main purpose is the actual removal and destruction a potential source of environmental hazard, to remove such environmental and health related burden. Indeed, the project interventions will benefit specific PCB equipment/waste holders and their workers, the general public, consumers, and communities from the removal of PCBs as a potential source of environmental contamination.

Civil society and the public at large were involved through being kept informed of project objectives, activities, and achievements through an awareness raising campaign. In addition, the project would give the community several opportunities to provide comments on project activities:

- Participation of civil society, NGOs in related forums/seminars/round tables related to decision-making on the project's implementation plans.
- Through establishment of moderated discussion forums on the project's website.
- As a part of the social and environmental impact assessments (SIA and EIA) procedures in case the project will envisage the rental/establishment of a PCBs dechlorination facility for low-contaminated PCB oil.

A list of the project partners and stakeholders, with their relative roles, is provided in Table 7 below.

Table 7: List of the main project partners and stakeholders with relative roles

NAME	TYPE	SPECIALIZATION	ROLE IN THE PROJECT
Ministry of Environment, Forest and Climate Change (MEFCC), *subsequently Environment, Forest, Climate Change Commission (EFCCC), now Environmental Protection Authority (EPA)*	Government	National environmental policy formulation	Coordinates the project Chairs the Project Steering Committee (PSC) Hosts the project Secretariat and ensures execution of the national comprehensive inventory exercise Supports national training conducted under the project Provides technical support to the legislation review
Ministry of Water, Irrigation and Electricity	Government	The Ministry of Water, Irrigation and Electricity of Ethiopia is a federal organization established to undertake the management and regulation of water resources, medium and large-scale irrigation and electricity resources of Ethiopia.	Member of the PSC Supports the regulatory aspects of the project. Participates in the inventory and coordinates the utility sector
Ethiopian Electric Power (EEP)	Government	Public utility enterprise. Ensures generation, transmitting, distributing and selling of electricity in accordance with economic and social development policies and priorities of the Government.	Member of the PSC Provide a dedicated officer to coordinate the inventory exercise at national level Provide technicians for the inventory at regional level Provide logistics for project related activities
Ethiopian Electric Utility (EEU)	Government	Public utility enterprise. Ensures generation, transmitting, distributing and selling of electricity in accordance with economic and social development policies and priorities of the Government.	Member of the PSC Provide a dedicated officer to coordinate the inventory exercise at national level Provide technicians for the inventory at regional level Provide logistics for project related activities

Metals and Engineering Corporation (METEC), *now Ethiopian Engineering Group (EEG)*	Government	Transformer manufacturing company	Member of the PSC Participates in the inventory and provides technical details of the transformer management Possibly supports the dechlorination process
Ministry of Health	Government	Focuses on national health issues	Member of the PSC Provides specialized knowledge on the effects of PCBs on human health Participates in national awareness raising activities
Ministry of Justice	Government	Administers legislation, delivers justice services, and provides policy support and analysis on legal issues.	Member of the PSC Leads the legislation review
Laboratories at the Ethiopian Conformity Assessment Enterprise (ECAE) and EEFRI	Government	Laboratory analysis	Support PCB analysis (with appropriate technical support from the project)
Ethiopian Standard Authority	Government	Standard formulation, Training and Technical support, Disseminating standards, Conformity assessment procedures and Technical regulation for the customers.	Supports inventory training Supports the formulation of legislation
Ethiopian Revenue and Customs Authority (ERCA)	Government	Body responsible for collecting revenues from customs duties and domestic taxes. In addition to raising revenue, the ERCA is responsible to protect the society from adverse effects of smuggling. It seizes and takes legal action on the people and vehicles involved in the act of smuggling while it facilitates the legitimate movement of goods and people across the border.	Member of the PSC Leads the national PCB monitoring network Leads the tracking of imports and illegal exports of suspected PCB-containing equipment Participates in the execution of the internal M&E of the project
Ministry of Industry	Government	Promotes and expands the development of industry by creating conducive enabling environment for the development of investment and technological capacity of the industry sector by rendering efficient support and services to the development investor.	Member of the PSC Supports the regulatory aspects of the project Participates in the inventory
Ethiopian Airlines	Government	Potential owner of transformers	Participates in the inventory and participates in transformer/PCB management
Cement factories (and other private PCB owners)	Private sector	Potential owner of transformers	Participates in the inventory and participates in transformer/PCB management
Pesticide Action Network (PAN) Ethiopia	Public interest group	Supports activities: to eliminate hazardous pesticides, reduce dependence on pesticides, and promote ecologically sound alternatives to chemical pest control.	Member of the PSC Coordinates with partners regarding community input and awareness raising activities

2.9 Key Partners Involved in The Project

The Project has been implemented in partnership with the relevant institutional and industrial partners, i.e. MEFCC (now EPA), EEP, EEU, METEC (now EEG), and other interested and affected stakeholders. Each one of these partners played a specific role in ensuring that the changes needed for the project implementation are achieved.

Ministry of Environment, Forests and Climate Change (MEFCC), Subsequently Environment, Forest, Climate Change Commission (EFCCC), now Environmental Protection Authority (EPA): MEFCC is the main entity on regulatory development and implementing controls and associated public-wide and sector-specific communication of PCB management rules under the new or amended national legislation, and for providing guidance to the targeted partners to fulfill their obligation. As a regulatory body in the field of environmental quality monitoring and protection, MEFCC also assisted in PCB inventory data collection and management, licensing for the related waste treatment activities, where applicable, and environmental monitoring. The project worked together with MEFCC on the development of legislation/regulations, technical guidance materials, ensuring compliance of the new or

amended legislation with the Stockholm Convention's requirements, and strategic management and communication with stakeholders. As focal point of the Stockholm Convention, MEFCC served as the Implementing Partner (IP) for the Project. MEFCC also assists in the enforcement of legal provisions and control over the PCB owners, and works closely with the Ministry of Water, Irrigation and Electricity and others, in order to ensure that PCB holders are familiar with all legal requirements and fulfilling them in substantial manner to secure sustainability of project activities. MEFCC benefits from the project as well through strengthening of capacity by related targeted activities (e.g. joint participation of project staff and government representatives in the comprehensive inventory development).

Potential PCB owners (EEP, EEU, METEC, cement factories, airport, and other private entities): The owners of power equipment potentially contaminated by PCBs are at the same time the direct beneficiaries of the project and key partners. Without the support of the electric power industry as a whole (EEU, EEP, and METEC) in facilitating the identification of their PCB-contaminated equipment and planning for the progressive treatment/ phasing-out of PCB-containing equipment and waste, there is a risk that the project would address only a limited amount of PCB waste. The project will identify the needs of these partners to address their main concerns and minimize the costs associated with the identification, storage, treatment, and disposal of PCB-contaminated equipment and waste. The project will provide PCB owners with financial support for the destruction of PCBs up to an overall amount of 150 tons of PCB oil transformers, capacitors, and contaminated soils, as applicable, and will promote information exchange regarding PCB decontamination and disposal technology. The project will work in partnership with the holders of PCB equipment to assist them in fulfilling their legal obligations (proper recording and reporting including development/updating of sound management plans and labeling), which will be an important input for quality and sustainability of other project activities. The potential PCB owners will also benefit from the project implementation in terms of obtaining a comprehensive national inventory database including PCB equipment and waste details, national PCB management plan, and various training and building capacity activities.

Ethiopian Conformity Assessment Enterprise (ECAE): ECAE was established in February 2011 as a federally-owned Public Enterprise, governed by the Ministry of Science and Technology. ECAE is the major conformity assessment organization in the country providing testing laboratory, inspection, and certification services to industry and the public. ECAE has about 190 core and supportive staff throughout Ethiopia. The headquarters and main laboratory facilities are in Addis Ababa and an additional eight branch offices are operational in various parts of the country. ECAE has six specialized testing laboratories operating at the headquarters, and five are accredited (chemical, electrical, mechanical, microbiology, and textile; the radiation laboratory is in process to be accredited). ECAE is sufficiently equipped to conduct PCB analysis. ECAE was provided with PCB standard analysis method, columns, standards, consumables, accreditation and training under the Project.

Ministry of Health: The Ministry's activities focus on the preservation and promotion of the health of all citizens and among other things these include organization of training in public health activities.

Other partners will play mainly a supportive and advisory role within the project's implementation lifetime, in alignment to their respective mandates and specific project activities.

2.10 Context of Other Ongoing and Previous Evaluations

During the midpoint of the project implementation, an independent Mid-Term Review (MTR) was conducted by an independent international evaluator and a national evaluator from September to October 2021, showcasing the commitment and dedication of the stakeholders and the Project Manager (the sole member of the Project Team). The MTR Report provides valuable insights and recommendations, which have been integrated into the project's ongoing efforts for activities implementing during the second half of the project. The MTR Report highlighted the progress made at midpoint of project implementation, with good progress towards meeting many of the project's Mid-term targets, while also identified four indicators what have not fully meeting achievement of the Mid-term targets at time outcomes of the MTR.

The MTR presented a set of 13 valuable recommendations covering suggestion on actions to expedite project implementation in areas of following up on legislative approval process, PCB temporary storage facilities, mitigation of cross contamination of PCB oil, high-level officials to be involved in preparation of trans-boundary movement of PCB waste, feasibility of disposal of low-concentration PCB waste, completion and monitoring implementation of

the facility-level PCB management plans, monitoring the effectiveness of the training outcomes etc. While many of the recommendations have been acted upon by the Project Manager, a number of the recommendations were not able to act on due to the delay experienced with the completion of the inventory, the delay in conducting analysis of the samples collected from the contaminated equipment. The commitment to continuous improvement has been exhibited by the cooperate approach of some stakeholders and the Project Manager.

Moving forward since then, the Project Manager remained steadfast in his commitment to working closely with the stakeholders to further enhance the project's outcomes and address any challenges that may arise. By nurturing this collaborative spirit and building upon the achievements thus far, the Project Manager has projected confidence in taking adaptive management action since the MTR to continue making strides in project implementation. However, the adaptative management actions were not as effective as before, the challenges in procurement actions caused delay in the upgrading of the storage facilities, and the disposal/dechlorination services which were judged as not likely to be achieved by the extended project closure of 1 May 2024, warranted a second 8 month extension of project closure.

3.0 EVALUATION FINDINGS

This section presents the findings of this Terminal Evaluation adhering to the basic structure proposed in the TORs and as reflected in the UNDP project evaluation guidance.

3.1 Project Design/Formulation

The TE Consultant undertook an analysis of the design of the project as outlined in the Project Document to identify whether the strategy is proving to be effective in reaching the desired results.

The project aims to support Ethiopia with the necessary technical and financial assistance to reduce the risks posed by PCBs to the environment and human health, through strengthening the capacity of national stakeholders to manage PCBs as well as to achieve PCBs elimination, identified as a priority in Ethiopia's National Implementation Plan (NIP)—a first Phase to achieve ESM of PCBs by 2025. The Project Document describes the current status of PCB management and the fact that the outcomes of the original 2006 preliminary PCB inventory and the subsequent 2016 updated inventory had not yield the expected results and pointed to the need of undertaking a comprehensive inventory.

PCB management is one top priority issues for the Government of Ethiopia as identified in the NIP to the Stockholm Convention's target of safe management of PCBs by 2025. The project has identified barriers to be addressed to ensure the ESM of PCBs and avoid PCBs being released into the environment as a consequence of improper disposal that include: gaps and limitations in legislation and implementation of regulations on POPs in particular PCBs; need to undertake a comprehensive inventory and assessment of PCB-contaminated sites and the determination of the extent and severity of the environmental and social-economic impacts of such sites; the current low level of awareness of the workers and general public on the adverse effects of POPs, especially PCBs, which led to continued mismanagement of PCB-containing equipment; the currently lack of a strategy in Ethiopia for the ESM of PCBs and their disposal in as a result of lacking BAT/BEP knowledge during maintenance and repair of transformers; and the lack of technical infrastructure for POPs assessment, measurement, analysis, alternatives and prevention measures, management, research and development.

The project was formulated in full consistent with Ethiopia's NIP on POPs submitted to the Stockholm Convention in May 2006 and the draft updated NIP finalized in March 2016 which prioritized the effective management of POPs chemicals and to reduce and ultimately eliminate the use and release of POPs in accordance with the requirements of the Stockholm Convention and the national sustainable development objectives and strategies such as the Environmental Policy, Sustainable Development and Poverty Reduction Strategy Program (SDPRP), and Plan for Accelerated and Sustainable Development to End Poverty (PASDEP). Ethiopia is on its third framework of the UN Development Assistance Framework (UNDAF), jointly developed by the Government and the United Nations Ethiopia Country Team. The project is also fully aligned to UNDAF, Ethiopia's five-year national development plan, the Growth and Transformation Plan (GTP).

The project design, with the defined project objective and outcome indicators, baseline situations, mid-term and end-of-project targets and assumptions as presented in the Project Results Framework, and included with planned

activities/outputs to achieve the expected outcomes as presented in the Multi-Year Work Plan attached as an annex to the Project Document, were **proven to be an effective guidance in project implementation to reach the expected project results**, notably with the Directive on PCB Management singed, comprehensive national PCB inventory practically completed with the exception of two regions due to safety concern, national and facility PCB management plans developed, technical and management capacity strengthened through training sessions conducted by UNITAR, and technical-economical disposal options and technologies identified. It is noted that the upgrading of the PCB temporary storage facilities was able to have ESIA for the three locations completed in June 2024 prior to the second extended project closure. However, while one purchase order was signed in April 2024 for disposal/dechlorination services, and a new bidding was initiated on 3 September 2024 for additional disposal services, the total estimated quantities to be disposed abroad (120.96 tons) will fall short of the end-of-project target of 150 tons PCB-contaminated equipment and waste by the (twice) extended project closure date of 1 January 2025. Nonetheless, the mostly achieved project results that will thus contribute to realizing the project objective**.**

The project incorporated gender dimensions into the project design with specific activities to be developed to promote gender equality, women's empowerment, and social inclusion. The project design included specific activities to be developed to encourage women to access information related to project implementation and POPs, and awareness raising materials designed specifically to facilitate women's involvement and knowledge which will introduce the gender-differentiated impact of POPs exposure on human health, particularly on reproductive health, with overall aim of reducing the risk of exposure of women and infants given their specific sensitivity.

Gender and social inclusion are incorporated as part of the project's outcomes and activities. The scope of gender also covered more than just male and female, including all groups of elders, children and youths, minorities, persons with disabilities who are vulnerable to the exposure to PCBs and harms to human health. The "Rights" of all groups to participate, gain access to information and resources, and express views, concerns, and needs to protect themselves were highly emphasized.

Overall, the project is internally coherent in its design. There are sequential and simultaneous logical linkages between the project design in terms of project components, outcomes and planned activities, choice of partners, structure, delivery mechanism, scope, budget, and use of resources, as specifically described in Sub-Sections 3.1.1, 3.1.3 and 3.1.5 below that are designed to contribute to the expected results of the project (objective and outcome indicators as expressed in the Project Results Framework). The original 48-month duration of the project as well as the GEF grant, though limited as a MSP project, are considered sufficient to achieve the intended outcomes. Moreover, the project is externally coherent with other related interventions being carried out by the PCB-contaminated equipment holders and research entities relating to ESM of PCBs, as specifically indicated in Sub-Section 3.1.3 Lessons from other relevant projects incorporated into project design and Section 2.9 Key Partners Involved in the Project.

3.1.1 Analysis of Results Framework: Project Logic and Strategy, Indicators

Project Objective: The project aims at strengthening the capacity of national stakeholders to manage PCBs as well as to achieve PCBs elimination, as identified as a priority in Ethiopia's NIP—a first Phase to achieve ESM of PCBs by 2025. The project is designed with four (4) project components to achieve the project objective:

- Component 1: Strengthening of legal frameworks, administrative processes and technical preparedness for the sound management of PCBs in Ethiopia
- Component 2: Strengthening national capacity for PCB management throughout the lifecycle
- Component 3: ESM of PCBs liquids and equipment in use or out of service
- Component 4: Monitoring, evaluation, and replication.

The Project Results Framework is presented in Section VI of the UNDP Project Document. The Project Results Framework contains thirteen (13) Objective and Outcome Indicators covering the Project Objective and the four (4) Project Outcomes. Three Objective indicators were identified under Project Objective, Ten (10) Outcomes indicators were identified for Outcomes 1 to 4 with one (1) indicator against Outcome 1, five (5) against Outcome 2, three (3) against Outcome 3 and one(1) against Outcome 4. Baseline situations, Mid-term Targets, End-of-project Targets and Assumptions were clearly defined and explained in the Project Results Framework. Planned activities to achieve the outcomes were defined in the Multi Year Work Plan included as Annex A to the Project Document.

The Mid-Term Review (MTR) Report pointed out that some of the indicator contained in the Project Results Framework section of the Project Documents under the "Objective and Outcome Indicators" column are *"in fact formulated as a mixture of indicators and targets"* and recommended to change 5 indicators to the suggested modified indicators. The MTR recommendation was not acted on with no change in the descriptions in subsequent reporting.. To conform with the project's progress reports (mainly the PIRs), the TE Report will continue to use the original description of the indicators.

The objective and outcome Indicators for the four project components represent a good selection of balanced, logical and inter-related measurement of achievements. For each indicator, mid-term targets and end-of-project targets are defined, explaining situation assumptions at the time of project design. In conducting the TE, the end-of-project targets are assessed to see if they are aligned with GEF SMART (*Specific, Measurable, Attributable, Relevant, Time-bound*) definition. It is concluded that, with the exception of one indicator (Outcomes 4.1) for which the degree and certainty of "measurable" may not be easily established, all the remaining indicators are judged as meeting the SMART definition. Critical assumptions as listed in the Project Results Framework indicated how the risks are identified against each indicator and how they would be addressed or mitigated. The listed assumptions are determined to be reasonable and sound. The risks registered in the Risk Log are considered reasonable with adequate corresponding risk management measures proposed.

Overall, the **Project Results Framework is judged to be a useful tool to guide the implementation of project interventions**, and with clearly defined baseline situations, a set of well-defined mid-term and end-of-project targets that served as a yardstick measurement of progress between the two stages of project duration and more importantly, a critical assessment of achievement of the project outcomes, which **collectively, contribute towards reaching the project's goal to strengthening the capacity of national stakeholders to manage PCBs as well as to achieve PCBs elimination, as identified as a priority in the National Implementation Plan for Persistent Organic Pollutants for Ethiopia - a first Phase.**

3.1.2 Assumptions and Risks

The project is designed based on a range of underlying assumptions. The Project Document contains the project's Risk and corresponding Mitigation Measures identified at CEO Endorsement and included as the UNDP Risk Log annex, are reproduced below.

Table 8: Description of Project Risks and Corresponding Mitigation Measures

Project risks					
Description	**Type**	**Impact & Probability**	**Mitigation Measures**	**Owner**	**Status**
Delayed or incomplete PCB inventory due to the absence of coordination or technical and economic difficulties in carrying out sampling of dielectric oil	Organizational	Delay I = 4 P = 2	The project intends to address this risk by establishing strong supervisory mechanisms supported by TORs. A national inventory team will be formed and trained. The national inventory team will be complemented with regional teams. The composition of the national inventory team will include representatives of EEU, EEP, METC, MEFCC, and others as appropriate. These will then be assisted by the local regional teams. These teams will be appointed on a full-time basis during the whole duration of the inventory period.	PMU MEFCC UNDP UNITAR	N/A at this stage
Development and adoption of legal	Organizational Political	Incomplete achievement	The National Stockholm Convention focal point has confirmed the strong	PMU MEFCC	N/A at this

framework delayed due to lack of interest and support from decision- and policy-makers	Regulatory	of GEB I = 3 P = 3	interest of the country in the project, which is in line with the priorities regarding PCB and contaminated sites as set in the NIP. In terms of risk mitigation measures, the National Stockholm and Basel Convention focal points will be members of the PSC and will play key roles for coordinated actions at the national level between government, EEU, EEP, METEC, and other key stakeholders. The National Coordination Mechanism established during the NIP development, and which has the commitment of a wide range of governmental sectors, will be used as a basis for national coordination. Furthermore, the Government of Ethiopia, by ratifying several MEAs including the Stockholm Convention, by developing its NIP (and currently undertaking NIP updating) and having recently updated its national PCB inventory and action plan, and by formally applying for this project has illustrated strong support towards the sound management of chemicals and in particular POPs. MEFCC and parliamentarians from the environmental select committees will be engaged as early as possible. Specific awareness raising events will be organized and targeted at them. The project will aim to include PCB-specific provisions into the existing legislation where relevant and possible. This is usually more efficient and results in a faster endorsement process compared to the drafting and adoption of new regulations.		stage
Project resources are not sufficient to ensure the disposal or decontamination of all of the PCB-containing equipment and related wastes	Financial	Incomplete achievement of GEB I = 3 P = 2	The project allocated enough grant and co-financing resources to dispose or decontaminate 150 tons of PCB-containing equipment. Based on the updated PCB inventory, the exact quantities will then be estimated to verify that the allocated resources are adequate.	PMU MEFCC UNDP	N/A at this stage
Delays or refusal of transit of PCBs for export through Djibouti due to national regulations	Political	Incomplete achievement of GEB I = 3	Discussions have been held by the project team with Djibouti and the possibility of transboundary movement through Djibouti was confirmed; formal discussions will	PMU MEFCC	N/A at this stage

		P = 2	continue early in the project implementation phase.		
PCB-contaminated equipment not secured for disposal during the project	Environmental Organizational	Incomplete achievement of GEB I = 4 P = 2	Commitment with the main PCB owners has been reconfirmed during the PPG stage, including from EEP, EEU, and METEC, which have the largest collection of transformers in the country. They are willing to cooperate by proving the co-financing and technicians to support the inventory and other project activities.	PMU MEFCC	N/A at this stage
Chemical accidents or spillage of POPs-contaminated waste during sampling, transport, storage, or disposal	Environmental	Environmental damage I = 4 P = 1	Training in environmental best practices for each stage of the lifecycle of PCB management, i.e. safe handling, transportation, temporary storage, and disposal of PCBs, will be conducted and best practices, as per international standards, enforced during the implementation phase of the project.	PMU MEFCC UNDP	N/A at this stage
Exposure to PCBs of workers involved in the management of PCB-containing waste	Environmental Social	Health hazard I = 4 P = 1	Workers will receive practical training on the use of personal protective equipment (PPE) from the beginning of the project. All efforts will be made to ensure that workers are not exposed to PCB-related risks.	PMU MEFCC UNDP	N/A at this stage

Overall, the project's risk rating is considered as Medium Risk as evaluated by the SESP. SESP-related risks were described in the SESP tool with proposed areas of attention/monitoring/follow-up actions for UNDP CO to guide the compliance process.

The risks identified, based on general project management aspects and those identified in the SESP conducted, are well-defined, based on situation analysis and fact-based. Throughout project implementation, these risks identified were monitored by the Project Manager at regular intervals and reported on the status of risks to UNDP CO and registered in the UNDP ATLAS database. These risks have been adequately and properly assessed, closely monitored, timely updated and managed by the Project Manager with countermeasure actions to facilitate and encourage close cross-entities, promote vertical and horizontal interactions, thus rendering minimal negative impacts to the project. Thus risks identified have been proven to be foresighted and realistic.

Towards the end of the terminal evaluation mission in February 2024, two risks were considered as still prevalent thus risking not being able to meet the end-of-project targets at the time of the first extended project completion date of 1 May 2024:

(1) **Delay in the upgrading of the existing temporary storage facilities.** While agreements have been reached with the three PCB-contaminated equipment holders to construct/upgrade their PCB temporary storage facilities with two locations identified. ESIA has been completed by one PCB-contaminated equipment holder (EEU) and submitted to EPA for review but approval from EPA had not been granted, ESIA for the other locations had not been conducted, and no construction or upgrading have been initiated at any location. At the time of TE mission, there was risk that this target would not be achieved by the project's extended completion date of 1 May 2024.

With the initial recommendations by the TE Consultant at time of presenting the initial findings at the end of the TE mission to undertake expedited procurement action, a contract was signed April 2024 to conduct ESIA for the three identified locations at EEU, EEP and EEG that was completed in June 2024 with assessment reports submitted that included Environmental and Social Impact Management Plan (ESMP) and detailed plans for the pre-construction, construction, operation phases and the Occupational Safety and Health (OSH) impacts.

The Project Manager commented in the draft TE Report that interim storage at EEG is now under construction while EEP has only one big transformer that will only require one 40-ft container for undergoing the disposal treatment. EEP is also constructing a store to be used for subsequent PCB management. Agreement was also reached with the EEU.

However, commitment letters dated 15 October 2024 that were received from EEU, EEP and EEG shortly prior to finalization of the Final TE Report indicated that "the PCB storage facility will be guilt as soon as possible (EEU) or will be completed before November 30, 2024 (EEP and EEG) and we will make it available for the intended purpose. Meanwhile if the company needs a temporary warehouse before completion of the construction of the store, we will look at other options such as containers".

Taking into consideration it is already the last week of October 2024, and that were no actual definite progress of the construction was provided by the Commissioning Unit, but only the commitment letters and that such commitments by the three PCB-equipment holders to construct the temporary storage facilities have been made since the 2022 PIR that the "upgrading activities will be done in 2023", the TE Consultant considers that risk still exists that the completion of temporary storage facilities could not be completed within one to two months by 30 November or 1 January 2025, the twice extended project closure date.

Delay in the disposal/dechlorination of at least 150 tons of equipment containing PCB (in pure and contaminated form: Due to the COVID-19 pandemic and other supply chain issues, delay was encountered in procurement and customs clearance of the reagents needed to determine the exact quantities of PCB-contaminated equipment for which the correct quantities were required to prepare the TOR and the bidding document to procure the disposal/decontamination services. It was determined at the end of the TE mission that it was unlikely the procurement action would be completed and the disposal could be achieved by the extended project operational completion date of 1 May 2024.

The risk was also partially mitigated with expedited procurement actions where a subcontract was signed in April 2024 for the disposal/dechlorination services which is expected to be completed by November 2024, where 77.96 tons of PCB-contaminated equipment and waste will be transported for disposal abroad. Furthermore, a new bidding was initiated 3 September 2024 for with original costing date of 2 October but extended to 24 October 2024, which, if the bid is successful and a contract is finalized and disposal works is completed, an additional quantities of 43 tons of PCB-contaminated equipment and waste will be transported for disposal abroad, bring the total PCB disposal quantity to120.96 tons which will still fall short of the 150 tons end-of-project target.

As it is already end of October, two months remaining on the completion of the project, even if the second contract could be finalized in November 2024, there is definitely risk if there is sufficient time to complete the actual disposal action within two months of project closure. Furthermore, as of end October 2024, upon request of the TE Consultant, UNDP has not been able to obtain a definite date that the first contractor (Greenway) will return to Ethiopia to commence actual PCB treatment/disposal originally scheduled to be completed by end September 2024 as per terms of the contract. While Greenway indicated that actual disposal process will only take about 27 days, without a firm date of the contractor returning to Ethiopia to commence the actual disposal, the TE Consultant considers that there is still a risk actual disposal of the 77.96 tons of PCB may not be completed by 30 November 2024 as committed. Hopefully it could be completed by project closure of 1 January 2025.

In view of the risks identified at the completion of the TE mission in February 2024, with the expedited project interventions undertaken by the project subsequent to the TE mission, and the second (eight-month) extension of the project closure to 1 January 2025, in the absence of any actual progress evidence, **the project will most probably still encounter the risk of not fully meeting the main objective of the PCB disposal target**.

3.1.3 Lessons from other relevant projects incorporated into project design

During the Project Preparation stage, a fact-finding mission was undertaken to verify available information on PCB containing electrical equipment, as well as identifying any missing information, PCB equipment holders were contacted, their respective records and data reviewed, while the data may not be complete but can serve as the basis for the comprehensive PCB inventory. The PCB equipment holders' PCB management activities were identified and assessed. One PCB equipment holder was about to undertake a comprehensive "fixed-assets inventory" funded by the World Bank which would include all its transformers in the country and would be a good opportunity to add the collection of data specifically relevant to the presence of PCBs in the inventory exercise.

One major conformity assessment organization that has provided testing laboratory, inspection and certification services to industry and the public was consulted and was judged to be sufficiently equipped to conduct PCB analysis if it was provided with PCB standard analysis method, columns, standards, consumables accreditation and training. Another entity conducting a 3-4 year PCB phytoremediation project at sites potentially contaminated with PCBs, funded by the Ethiopian Government, was contacted who expressed interest in participating in the project and supporting sampling and analysis activities.

While these entities and activities did not immediately provide any relevant experience that could be incorporated into the project design/formulation, nevertheless, experience and the many features/requirements of GEF funded projects, especially from the UNDP-supported, GEF-financed projects were taken into account and incorporated into the project design/formulation.

3.1.4 Planned Stakeholder Participation

Main stakeholders, groups or individuals, identified in Table 8 above, with their specialization and their roles outlined in the project, have participated in the PIF and PPG phases through extensive consultations and active engagement, contributed to the project design/formulation. **Many of these stakeholders continued to participate in project implementation with the guidance of the developed Simplified Stakeholder Engagement Plan, executing their roles and responsibilities, thus contributing to smooth and orderly project implementation and achievement of project results.** Some of the key stakeholders participated as member of the Project Steering Committee, providing guidance in the direction and decision-making process of the project. **Notably, the gender dimensions of the project have been emphasized in the fact that the PSC were co-chaired by two women.**

3.1.5 Linkages Between Project and Other Interventions Within the Sector

As mentioned in Section 3.1.3 above, other than activities on PCBs undertaken by the three PCB-contaminated equipment holders (EEU, EEP and EEG), there were only two loosely related activities that included a World Bank funded project for EEU to undertake a comprehensive "fixed asset inventory" that might offer the opportunity to add the collection of data specifically related to the presence of PCB in the inventory exercise. The second was funded by the Government of Ethiopia for an entity (EFFRI) to conduct a 3-4 year PCB phytoremediation project at several sites potentially contaminated with PCBs for which a private laboratory was involved with the GC analysis. EFFRI expressed interest in supporting sampling and analysis works.

While these two initiatives did not offer any direct knowledge and experience to contribute to the project design, it nonetheless **provides useful linkage and contribution during project implementation in areas of comprehensive PCB inventory providing an indication of potential PCB-contaminated transformers, and facility to undertake PCB sampling and analysis**.

3.1.6 Gender Responsiveness of Project Design

The project incorporated gender dimensions into the project design with specific activities to be developed to promote gender equality, women's empowerment, and social inclusion. To mainstream gender, the project included the development of specific activities to encourage women to access information related to project

implementation and POPs, and awareness raising materials designed specifically to facilitate women's involvement and knowledge which will introduce the gender-differentiated impact of POPs exposure on human health, particularly on reproductive health, with overall aim of reducing the risk of exposure of women and infants given their specific sensitivity.

The scope of gender also covered more than just male and female, including all groups of elders, children and youths, minorities, persons with disabilities who are vulnerable to climate change impacts. The "Rights" of all groups to participate, gain access to information and resources, and express views, concerns, and needs to protect themselves were highly emphasized.

Project design included *Outcome Indicator 2.7: Gender dimension study in the context of PCB issues in Ethiopia completed and strategies for better gender mainstreaming in POPs related activities identified*. Gender dimension study in the context of PCB issue in Ethiopia was completed and based on analysis, an excellent Gender Analysis and Action Plan was developed. However, the Gender Action Plan was not fully implemented in terms of engaging a women society organization and organizing the communication that will specifically reach women.

Nevertheless, It is note that the Project Steering Committee (PSC) was co-chaired by both women. The fact that women have sound decision making in the PSC meeting and the two co-chairs held lead position in environment, safety and health has given women opportunity to take into consideration all aspects of gender and the adverse effect of PCB chemical to women.

3.1.7 Social and Environmental Safeguards

The Social and Environmental Screening was conducted during the project design and annexed to the Project Document (Annex F). It identified three (3) risks all of which were rated as Moderate risks and **the project was rated as Moderate Risk**. Overall, the project's design placed strong emphasis on the environmentally sound management of POPs, in particular PCBs and the safe temporary storage and disposal of PCB-contaminated equipment and waste. **It ensured the well-being of local communities, including the disabled community. Social and environmental safeguards are integral to the project, as it strives to prioritize the welfare of all stakeholders and project beneficiaries associated with the communities and protect the environment. To safeguard social aspects, the project has implemented a comprehensive approach that includes stakeholder engagement, gender analysis, and the establishment of a Gender Action Plan. These measures aim to promote inclusive development and improve the livelihoods of individuals, including potentially benefiting disabled community members.** By actively involving stakeholders, providing technical and management training and conducting awareness raising activities, recognizing the importance of gender empowerment, the project seeks to create opportunities for all community members to become aware of the danger posted by the PCB-contaminated equipment to human health and the environment, and benefits from the disposal of the PCB-contaminated equipment and waste.

3.2 Project Implementation

Implementation of the project follows UNDP's National Implementation Modality (NIM) and was supported by a Programme Management Unit (PMU). However, due to budgetary limitation, the PMU is staffed by one Project Manager only. The evaluation findings of the Project's implementation have identified several key strengths and achievements which can demonstrate the project's effectiveness in addressing the challenges and priorities of the environmentally sound management of PCBs.

- One notable achievement is the project's **strong coordination and adaptation**. Despite being the only personnel in the PMU, the Project Manager, being an ex-official of the EPA and has extensive experience and knowledge of the functioning of governmental agencies, has undertaken effective coordination with the EPA and other ministry officials and the PCB-contaminated equipment holders, and related key stakeholders. Despite the challenges of the restricted movements and gatherings imposed by the COVID-19 pandemic, the Project Manager exhibited a high level of expertise and commitment, exercised adaptative management to effectively overseeing and coordinating project activities. This is particularly true during the early stage of project implementation, however, subsequent efforts were not as successful in mitigating the challenges in procurement actions.

- An important accomplishment of the project lies in its focus on strengthening **technical, management and enforcement capacities**. The project recognized the importance of empowering PCB-contaminated equipment holders and their workers, local communities, and government officials with the necessary skills and knowledge on ESM of PCBs. In partnership with UNITAR, training sessions, capacity building activities and analytical capacity strengthening were conducted by UNITAR including training on the Directive on PCB Management, transformers inventories, sampling and laboratory screening analysis to technicians, electricians, environmental, health and safety experts. A comprehensive training workshop on PCB Management, Handling, Transport, Storage, and Elimination Strategy was conducted for various project partners, including Federal EPA, EEU, EEP, and EEG. **Overall, more than 16 training sessions and technical workshops were conducted for a total of 134 male and 40 female (23%) participants**, but no record of gender segregation was maintained for another 4 training sessions. **The project invited all groups of stakeholders to participate in the capacity building activities.**
- **A consolidated PCB management database was established** following a comprehensive national PCB inventory with the exception of two regions unreachable due to security issues.
- **National PCB Management Plan was developed and Facility PCB Management Plan** was also prepared and promogulated by EEU. The fruitful cooperation among project staff, government and key stakeholders on technical, legal, and financial matters ensured the National PCB Management Plan is implemented and sustainable.
- **Gender dimension study in the context of PCB issues in Ethiopia was completed and an excellent Gender Analysis and Action Plan was developed. The process of conducting these activities was inclusive covering different groups of local women across different occupations**. However, the Gender Action Plan was not fully implemented. It is worthwhile to note that the Project Steering Board was co-chaired by both women who facilitated sound decision making at PSC meetings . Both women held lead position in environment, health and safety, that has given women opportunity to take into consideration all aspects of gender and the adverse effect of PCBs chemical to women.

While strengths and achievements in those specific areas have been evidenced overall, some minor issues related external challenges and engagement with key partners are worth noting.

- The excellent Gender Action Plan developed was not fully implemented, and the percentage of women participation in training and capacity building activities averaged only 25%. **Strong efforts need to be undertaken to improve the project's contribution to gender equity and women's empowerment**.
- The major cause of the delay in project implementation warranting the twice extension of project completion was no doubt due primary to restricted movements and gathering imposed by the COVID-19 pandemic. However, the further cascade delays due to the challenges of customs clearance oh the importation of the reagents and materials critical for analyzing the PCB concentration would probably been avoided had **prior consultations and coordination took place with the appreciate concerned parties.**
- Similarly, the delay in moving forward with the establishment/upgrading of the temporary storage facilities for PCB-contaminated equipment and oil would have been avoided with proactive follow-up actions.

Overall, the Project's implementation has demonstrated achievements in capacity building, establishment of National and Facility PCB Management Plans, social and environmental safeguards, strong coordination and commitment to stakeholder engagement have contributed to the partial success of the project in achieving ESM on PCBs. Yet, proactive actions, timely follow-up actions and close monitoring at the later stage of the project would have improved the effectiveness of project implementation.

3.2.1 Adaptive Management

Adaptive management has played a critical role in the early stage of project implementation, particularly in navigating the challenges presented by the COVID-19 pandemic soon after the start of project implementation immediately following the signature of the Project Document and recruitment of the Project Manager in May and July 2019 respectively. The Project Manager demonstrated a high level of adaptability and agility, adjusting the strategies and activities to respond to the evolving circumstances and ensure continued progress towards project objectives.

Amid the COVID-19 pandemic, the project quickly recognized the need to prioritize the health and safety of stakeholders and local communities. Strict health protocols were implemented by turning all meetings and activities into virtual mode. The project leveraged technology to deliver virtual training programs, knowledge-sharing sessions, and capacity-building initiatives by UNITAR. This adaptive use of technology not only ensured the continuity of project activities but also expanded the reach and accessibility of training programs to a wider audience. By embracing innovation and adapting to the changing landscape, the project effectively utilized available resources and tools to maximize its impact and achieve its objectives in an ever-evolving context.

It is unfortunate that, despite the deployment of adaptative management, supply chain issues resulting from the COVID-19 pandemic and challenges in customs clearance of the reagents and materials caused cascading delays that resulted in the delayed implementation causing two critical end-of-project targets not being achieved at time of the extended project closure date of 1 May 2024, namely,. the upgrading of temporary storage facilities, and the disposal of 150 tons of PCB contaminated equipment. The delay in achieving these two targets necessitated a second 8-month extension of the project operational closure.

3.2.2 Actual stakeholder participation and partnership arrangements

The project has actively engaged the following institutions during project implementation:

1) Governments:

- Environmental Protection Authority (EPA), formerly Ministry of Environment, Forest and Climate Change (MEFCC) and Environment, Forest and Climate Change Commission.
- Ministry of Water, Irrigation and Electricity.
- Ministry of Health.
- Ministry of Finance
- Ministry of Planning and Development.
- Ethiopian Revenue and Customs Authority (ERCA)
- Ministry of Industry

2) PCB Equipment Holders (Government, Industry)

- Ethiopian Electric Utility (EEU)
- Ethiopian Electric Power (EEP)
- Ethiopian Engineering Group (EEG), formerly Metals and Engineering Corporation (METEC).

3) Governmental Agency:

- Ethiopian Conformity Assessment Authority (ECAS).
- Ethiopian Environment and Forest Research Institute (EEFRI).

4) United Nations Agencies

- United Nations Development Progremme (UNDP)
- United Nations Institute for Training and Research (UNITAR), and

5) Public Interest Group

- Pesticide Action Network (PAN) Ethiopia

Stakeholder engagement had been conducted as envisioned in the Project Document with key stakeholders engaged in an open and transparent manner and participated in the project activities. Many of the key stakeholders were members of the Project Steering Committee, and had provided valuable suggestions and recommendations on the implementation of project activities. The project provided regular coordination meetings inviting concerned ministries and updating them with progress of the project, challenges faced during implementation, and soliciting inputs to improve project implementation. Support to the Project Steering Committee had also facilitated coordination of several relevant ministries and key stakeholders that has led to strengthening the engagement with

key stakeholders that enhanced the efficiency and effectiveness of project implementation. The project has also established a website on PCB inventory database and developed a Communication Strategy to inform and engage interested parties and the general public.

3.2.3 Project Finance and Co-finance

The TE Consultant reviewed the Project's annual expenditures against the annual project budget (based on approved Annual Workplan, AWPs, approved by the Project Steering Committee), utilizing the UNDP Annual Combined Delivery Reports (CDRs) which recorded the actual disbursements in the UNDP ATLAS financial system.

The project budget allocation approved at CEO Endorsement was revised upon project implementation as the CEO Endorsement was approved on 10 April 2018 while the UNDP Project Document was fully signed on 1 May 2019 when project implementation could start. Project budget not fully utilized in a particular year was rephased to subsequent year(s) taking into account planned implementation activities and corresponding subjects, upon approval of the Annual Workplans (AWPs).

As the operational completion date of the Project was first extended to 1 May 2024, the CDRs of 2019, 2020, 2021 2022 and 2023 that recorded the annual disbursements were reviewed, the total expenditure as of 31 December 2023 was compiled and are reflected in Table 9 below. Total cumulative project expenditures of US$ 806,015.08 were recorded as of 31 December 2023, showing slow project delivery of only 40.5% against the total GEF grant of US$1,990,000. The breakdowns of the project expenditures also provide a comparison of the project budget allocations at CEO Endorsement and the actual expenditures for each of the four project components and the Project Management Costs (PMC). It is noted that the actual expenditure on Project Management Costs is within the allocated budget (thus in compliance with the 5% threshold). As the project progress encountered significant delay, in particular in the disposal of pure and contaminated PCB oils and contaminated equipment, as well as the delay in the upgrade of temporary storage facilities for PCB-contaminated oil, thus shows low delivery in Components 2 and 3 at 43.1% and 23.3% respectively, while the actual expenditures against project components 1 exceeded the original project budget allocation by 20.5%.

In view of the expedited project activities undertaken to address two major end-of-project targets risking not being able to achieve by the time of the first extended project completion date of 1 May 2024, contracts for conducting ESIA for upgrading existing temporary storage facilities, and the procurement of disposal/dechlorination services for which a USD 340,000 has been committed. Table 9 below has included the USD 340,000 commitment. As a result, the delivery of component 3 has increased from 23.3% to 58.6%, and the total project delivery has increased from USD 806,015.08 to USD 1,146,015.08, an increase in delivery rate of 40.5% to 60.3%.

Table 9: Project Delivery vs. Budget Allocation as of December 2023 (in US$)

Description/Project Year	Year 1 (2019)	Year 2 (2020)	Year 3 (2021)	Year 4 (2022)	Year 5 (2023)	Year 6 (20234 (Committed)	Total
GEF Budget Allocation at CEO Endorsement	**501,575**	**309,975**	**214,975**	**963,475**			**1,990,000**
Outcome 1	67,000	58,500	24,500	22,000			**172,000**
Outcome 2	353,000	140,500	26,500	26,500			**546,500**
Outcome 3	15,000	25,000	103,500	818,000			**961,500**
Outcome 4	21,575	40,975	15,475	51,975			**130,000**
Project Management	45,000	45,000	45,000	45,000			**180,000**

Actual Expenditure at Terminal Evaluation	**73,554.33**	**141,690.99**	**58,302.57**	**234,319.61**	**298,147.58**	**340,000.00**	**1,146,015.08**
Outcome 1	49,155.10	56,553.85	(15,076.84)	94,977.62	21,688.97		**207,298.70**
Outcome 2	10,982.58	67,595.04	26,678.70	36,537.05	93,968.60		**235,761.97**
Outcome 3	0	0	0	101,641.90	122,269.82	340,000.00	**563,911.72**
Outcome 4	8,424.61	16,932.85	12,743.02	9,365.01	34,088.72		**81,554.21**
Project Management	4,992.04	609.25	33,957.69	(8,201.97)	26,131.47		**57,488.48**
Percentage of actual project delivery at Terminal Evaluation against budget allocation at CEO Endorsement							60.3%
Variance of Actual Expenditure vs Original Allocation – Outcome 1							120.5%
Variance of Actual Expenditure vs Original Allocation – Outcome 2							43.1%
Variance of Actual Expenditure vs Original Allocation – Outcome 3							58.6%
Variance of Actual Expenditure vs Original Allocation – Outcome 4							62.7%
Variance of Actual Expenditure vs Original Allocation – Project Management Costs							31.9%

Note: 2024 expenditures at time of finalization of the TE Report are not available. A FACE report in the amount of Birr 4,485,281 for the period of January-June 2024 (US$ 39,636.63 equivalent) was provided by the IP, and equivalent US$ 11,846.71 for the conducting of ESIA, are not included in the total amount shown in Table 9 above

The variants show that, at time of terminal evaluation, there was only partial utilization of the project budgets for Components 2, 3 4, and the Project Management Costs component. There has been a shift of project budget whereby the actual expenditure for Component 1 was exceeded by 20.5% as a result of shifting of project budget from other project components. The shift of project budget between components reflects the early progress and importance placed on having adequate support to strengthen legislative measures, and technical and management capacities to ensure environmental sound management and enforcement on PCBs.

It is noted that, despite the shifting of project budget from other project components, it does not significantly affect the attainment of the other components. Despite the budget re-allocation, adequate project budget was still maintained to support outstanding activities that were in progress.

Subsequent to the above reported project delivery, further financial data was received at time of finalizing the TE Report. A financial report from the IP (EPA) for the period January to June 2024 in the amount of 4,485,281 Birr (US$39,636.63 at exchange rate of Birr 113.16 = US$1) was received. Together with the commitments for the contract to conduct the ESIA (Birr 1,566,894.23, equivalent US$13,846.71) and the contract for disposal/dechlorination of PCB-contaminated equipment and waste of US$340000, the total project expenditure, inclusive of disbursements and commitments, **will amount to US$ 1,539,498.42, a 77.4% utilization of project resources, at time of Final Terminal Evaluation Report submission**.

With regard to the project's co-financing contributions, the actual co-financing realized at the time of Terminal Evaluation as compared to the original co-financing committed at CEO Endorsement are indicated in the table below.

Table 10: Summary of Planned and Actual Co-financing (in US$)

Co-financing (type/source)	UNDP		Government		Partner Agency (UNITAR)		Total	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grant (UNDP RAC)	150,000	98,186.55					150,000	98,187
In-kind			8,100,000	8,296,600	100,000	137,378	8,200,000	8,433,978
							8,350,000	**8,532,165**

Table 11 below shows in detail the confirmed sources and actual in-kind co-financing from each contributor realized at the time of Terminal Evaluation, as verified by the Terminal Evaluation Consultant.

Table 11: Detailed Breakdown of Planned and Actual Co-financing (in US$)

Sources of Co-Financing	Name of Co-financier	Type of Co-financing	Investment Mobilized/Recurrent expenditures	Amount Committed at CEO Endorsement	Amount Realized at Mid-Term Review	Amount Realized at Terminal Evaluation
National Government	Environmental Protection Authority (EPA)	In-kind	Recurrent expenditures	1,400,000	111,207	1,001,600
National Government	Ethiopian Electric Power (EEP)	In-kind	Recurrent expenditures	1,250,000	Not available	1,650,000
National Government	Ethiopian Electric Utility (EEU)	In-kind	Recurrent expenditures	4,450,000	270,667	4,645,000
National Government	Ethiopian Engineering Group (EEG)	In-kind	Recurrent expenditures	1,000,000	Not available	1,000,000
Partner Agency	United Nations Institute for Training and Research (UNITAR)	In-kind	Recurrent expenditures	100,000	137,378	137,378
GEF Agency	United Nations Development Programme (UNDP)	Cash (UNDP TRAC)	Investment mobilized	150,000	156,717	98,187
Total				**8,350,000**	**675,969**	**8,532,165**

In view of the fact the project budget in the Project Document contains the GEF grant and the UNDP contribution combined, and the CDRs also reported the expenditures against both the UNDP funding source as well as the GEF grant, the expenditures against the UNDP funding source, as co-financing, are presented in the table below,

Table 12: Breakdown of Planned Budget and Actual Expenditures of UNDP Co-financing (in US$)

Description/Project Year	Year 1 (2019)	Year 2 (2020)	Year 3 (2021)	Year 4 (2022)	Year 5 (2023)	Year 6 (2024)	Total
Project Budget (BL72100-Contractual Services – Companies)	**37.500.00**	**37,500.00**	**37,500.00**	**37,500.00**			**150,000.00**
Actual Expenditure at Terminal Evaluation	**13,449.39**	**18,837.85**	**15,131.40**	**49,382.88**	**1,385.03**		**98,186.55**
Outcome 1	13,371.96	0	0	518.45	5,433.99		**19,324.40**
Outcome 2	0	10,270.00	15,131.40	32,339.05	0		**57,740.45**
Outcome 3	0	0	0	0	(17,799.50)		**(17,799.50)**
Outcome 4	0	0	0	14,701.97	12,897.23		**27,599.20**
Project Management	77.43	8,567.85	0	1,823.41	853.31		**11,322.00**
Percentage of actual co-financing delivery at Terminal Evaluation against budget allocation at CEO Endorsement							**65.5%**

It is noted that US$ 150,000 was committed as co-financing from UNDPTRAC source at time of CEO Endorsement. The co-financing of US$ 150,000 was budgeted against Budget Line 72100, Contractual Services – Companies, under Outcome 2. However, the co-financing was eventually used to support Outcomes 1, 2, 4 and the Project Management Costs (PMC) amounting to US$ 98,186.55, a 65.5% delivery rate, as of end of 2023.

3.2.4 Monitoring & Evaluation: design at entry

The Monitoring & Evaluation Plan and Budget presented in the Project Document follows the typical well-thought-out M&E model for a UNDP-supported, GEF-financed project. The TE Consultant considers the scope of the M&E to be sound and provides good guidance as a solid foundation for tracking project progress of project activities implementation and evaluating achievement of results. The M&E Plan outlined a detailed set of activities that meet the UNDP and GEF's M&E requirements. The Plan also defined the timeframe and specified the primary parties responsible for carrying out M&E activities contained in the Plan. The budget allocated to carry out the M&E Plan in the amount of $110,000 falls within the allocation threshold for M&E activities against the GEF project grant of USD 1,990,000. An amount of USD 350,000 co-financing contribution was also allocated to support the many activities of the M&E Plan. Sufficient budget is also allocated to recruiting independent international and national consultants to conduct Mid-Term Review at mid-point of project implementation and Terminal Evaluation to take place prior to operational completion of the project, as required by the UNDP and GEF M&E policies. **The TE Consultant considers the M&E design at entry can be rated as Satisfactory (S).**

3.2.5 M&E Plan Implementation

The Monitoring & Evaluation (M&E) Plan as contained in the Project Document and its implementation demonstrate a well-structured approach that aligns with the standards of a UNDP-supported, GEF-financed project. The TE Consultant acknowledges the comprehensive scope of the M&E Plan, which has served as a reliable framework for monitoring project progress and assessing the attainment of desired outcomes. The M&E Plan encompassed a detailed set of activities that fulfill the M&E requirements of both UNDP and the GEF.

The Project Manager (PM), being the sole member of the Project Team (PMU) undertook regular monitoring of the implementation of project activities to achieve project results, evaluating risks and identity mitigation measures. UNDP CO and UNDP NCE Regional Technical Advisor undertook overall monitoring and supported the Project Manager in the preparation and submission of the annul GEF Project Implementation Reports (PIRs), and have taken actions in ensuring M&E implementation is in compliant with UNDP Programme and Operations Policies and

Procedures (POPP) and UNDP and GEF Evaluation Policies, in a timely and effective manner to avoid slippage and delay. All of the UNDP and GEF required reports, including the annual PIR, APR, PAR and periodic progress reports, have been prepared and submitted in a timely manner. Effective monitoring tools (PIR, GEF Focal Area Tracking Tools etc.) were utilized in performing the M&E functions.

EPA as the Implementing Partner (IP) also undertook overall monitoring of project implementation and risks management, and provided guidance and recommendations at the Project Steering Committee meetings.

Mid-term Review and Terminal Evaluation have been commissioned with engagement of independent international and national evaluators in a timely manner.

UNDP as project quality assurance, has ensured the coordination among project's stakeholders runs smoothly and effectively. UNDP also actively monitored the project activities being implemented in a timely manner using accountable monitoring and evaluation guidance to conduct Annual Project Quality Assurance. **The TE Consultant rated M&E implementation as Satisfactory (S).**

3.2.6 Overall assessment of M&E

Based on the review and evaluation of the project's Monitoring and Evaluation design at entry and its subsequent implementation, the TE Consultant recognizes the **well-designed M&E framework** which provides good guidance as a solid foundation for tracking project progress of project activities implementation and evaluating achievement of results that are in compliance with UNDP and GEF M&E requirements. The TE Consultant also acknowledges the monitoring and quality assurance of the UNDP CO and UNDP NCE taking into consideration of UNDP Programme and Operations Policies and Procedures (POPP) and UNDP and GCF Evaluation requirements. The **TE Consultant rated the Overall Quality of M&E as Satisfactory (S).**

Table 13: Monitoring & Evaluation Ratings Table	
Monitoring & Evaluation (M&E)	Rating
M&E design at entry	Satisfactory (S)
M&E Plan Implementation	Satisfactory (S)
Overall Quality of M&E	Satisfactory (S)

Table 14: Monitoring & Evaluation Rating Scale

Raging	Description
6 = Highly Satisfactory (HS)	There were no shortcomings; quality of M&E design/implementation exceeded expectations
5 = Satisfactory (S)	There were minor shortcomings; quality of M&E design/implementation met expectations
4 = Moderately Satisfactory (MS)	There were moderate shortcomings; quality of M&E design/implementation more or less met expectations
3 = Moderately Unsatisfactory (MU)	There were significant shortcomings; quality of M&E design/implementation was somewhat lower than expected
2 = Unsatisfactory (U)	There were major shortcomings; quality of M&E design/implementation was substantially lower than expected
1 = Highly Unsatisfactory (HU)	There were severe shortcomings in M&E design/implementation
Unable to Assess (UA)	The available information does not allow an assessment of the quality of M&E design/implementation

3.2.7 UNDP Implementation/Oversight, Implementing Partner Execution and Overall Assessment of Implementation/Oversight and Execution

The UNDP's performance in implementing and overseeing the project interventions can be attributed to its execution of specific functions that ensured its orderly implementation. Despite the unprecedented challenges posed by the COVID-19 pandemic, the subsequent supply chain issues, and the challenges in customs clearance of the critical needed reagents and materials to analyze and determine the PCB concentration of samples collected, the Project Manager carefully monitored and evaluated the project's progress, guided its implementation, and ensured compliance with GEF and UNDP policies and procedures. The Monitoring & Evaluation (M&E) Plan and Budget, outlined in the Project Document, guided UNDP's careful approach to tracking project activities and evaluating results. This comprehensive plan, aligned with both UNDP and GEF M&E requirements, served as a solid foundation for monitoring project implementation and ensuring accountability.

Recognizing the need for adaptability in the face of the pandemic and evolving situations, UNDP's M&E Plan demonstrated targeted response. It accounted for the impact of COVID-19 and the rapidly changing social, economic, regulatory environments, incorporating flexibility and adaptability into monitoring and evaluation strategies. This approach illustrated UNDP's readiness to address unforeseen challenges and ensure the project's orderly implementation.

UNDP carefully maintained a clear demarcation between its responsibilities for project implementation and oversight functions. The Monitoring Officer, the Monitoring Specialist and Senior Management within the UNDP Ethiopia Country Office played a pivotal role in project quality assurance, dedicated to the objective and independent oversight and monitoring, supported the Project Board and Project Manager. It diligently ensured the completion of project management milestones and prepared comprehensive annual Project Assurance Reports, providing a transparent and rigorous assessment of the project's progress..

The Climate Resilient Environmental Sustainability Unit (CRES) within the UNDP CO providence and worked cooperatively with the Project Manager on project implementation. Due to limitation on travel, the PM usually represented UNDP at most of the meetings that were held outside of the capital. Despite the collaborative efforts between CRES, UNDP CO's Monitoring & Evaluation personnel, and the Project Manager in implementing project activities, the slow implementation and low delivery of project expenditure results at both times of MTR and TE evaluations necessitated a one-year and a second 8-month extensions of the project. While the delays encountered were initially caused by the impact of COVID-19 pandemic and the subsequent supply chain challenges, the efforts on monitoring and evaluation, risk management and adaptative management might have been more proactive to address and mitigate the challenges. The expedited procurement actions undertaken subsequent to the TE mission have produced results in completing the ESIA for the temporary storage facilities a contract for PCB disposal/dichlorination., and a second bidding that was closed on 24 October 2024 for a second disposal contract, even though there still exist risks on the timely completion of upgrading the temporary storage facilities and the actual PCB disposal. **Taking into consideration the challenges faced during the early stage of project implementation that caused cascading delays, and the expedited efforts undertaken subsequent to the TE mission, the TE Consultant rated Satisfactory (S) on UNDP's implementation efforts**.

The Ethiopian Environmental Protection Agency (EPA) led the implementation of the Project. Alongside other relevant national ministries and sub-national governmental agencies, EPA and these related entities have strong commitment and acceptable involvement in the implementation of project interventions, played a vital role in driving the execution of project activities. The collaborative efforts and support from these stakeholders fostered good working relationships at various levels of government, enabling the orderly execution of the project. EPA, being the IP and the responsible government entity on Stockholm Conversion obligations, the main party in the Project Board have exhibited strong commitment and sufficiently carried out its roles and responsibilities in project implementation, while facing the external challenges. However, with risks issues exhibited on EPA's execution efforts. **Taking into consideration the external challenges facing project execution, even though the extended project duration might have mitigated the negative impacts, the TE Consultant rated the quality of Implementing Partner Execution as Satisfactory (S).**

Based on the above evaluations, with the expected project results of the eventual accomplishments of the upgraded temporary storage facilities and the disposal of PCB partially meeting the end-of-project target, **the TE Consultant**

rated the Overall Quality of Implementation as Satisfactory (S), mindful of the external challenges that caused the cascading delays at the early stage and the results from the expedited actions post TE mission.

While commendable overall, **challenges** still remain that will warrant the IP and UNDP's strong efforts and forceful monitoring actions during the remaining two months towards project closure of 1 January 2025 as there exist risks that may impact the actual realization of expected project results. At time of finalizing the TE report, a mere two months left before project closure, while the 2022 PIR already indicated that the upgrading of the temporary storage facilities would take place in 2023, and that the ESIA for the three identified locations were eventually completed by June 2024, as of 15 October 2024, UNDP is only able to obtain commitment letters from the three PCB-equipment holders that they committed to complete the upgrading by "30 November 2024" or "as soon as possible", without UNDP being able to obtain a report on actual progress, the TE Consultant is not in a position to determine if the upgrading will be accomplished within two months' duration, and that a commitment will still remain as a commitment.

A contract for disposal/dichlorination of PCB-contaminated equipment and materials was signed in April 2024, the preliminary preparation phase was to be completed by June 2024, the mission did not materialize until September 2024. Disposal was to be completed by September 2024, however, as of finalization of the TE Report by end October 2024, UNDP was still unable to obtain a confirmed date that the contractor (Greenway Finance B.V.) will return to Ethiopia to commence the actual disposal activities, but a commitment that it will be completed, inclusive of the post-disposal phase, by the stipulated contractual completion date of 30 November 2024. In view that Greenway has indicated the disposal will take 27 days to complete. In the absence of a report on actual progress and a firm date for Greenway to return to Ethiopia, the TE Consultant is not in a position to determine if the disposal of 77.96 tons of PCB by Greenway will be accomplished by 30 November 2024, or even by 1 January 2025, the twice extended project closure date.

Similarly, s second disposal/dichlorination bidding posted in September, with original closing date of 2 October 2024, was extended to 24 October 2024. UNDP has not indicated if a second contract has materialized to dispose a further 43 tons of PCB. However, even if a contract is signed in November 2024 and actual disposal actions commence immediately, the complete disposal of the 43 tons of PCB by 1 January 2025, cannot be ascertained due to the short duration towards project closure.

It is therefore imperative that close monitoring and proactive follow-up by the IP and UNDP on these three outstanding activities ensuring their accomplishment by the extended project closure date of 1 January 2025.

Table 15: Implementation/Oversight and Execution Ratings Table	
Implementing Agency (IA) Implementation & Executing Agency (EA) Execution	Rating
Quality of UNDP Implementation/Oversight	Satisfactory (S)
Quality of Implementing Partner Execution	Satisfactory (S)
Overall quality of Implementation/Execution	Satisfactory (S)

Table 16: Implementation/Oversight and Execution Rating Scale

Raging	Description
6 = Highly Satisfactory (HS)	There were no shortcomings; quality of implementation/execution exceeded expectations
5 = Satisfactory (S)	There were no or minor shortcomings; quality of implementation/execution met expectations
4 = Moderately Satisfactory (MS)	There were some shortcomings; quality of implementation/execution more or less met expectations
3 = Moderately Unsatisfactory (MU)	There were significant shortcomings; quality of implementation/execution was somewhat lower than expected

2 = Unsatisfactory (U)	There were major shortcomings; quality of implementation/execution was substantially lower than expected
1 = Highly Unsatisfactory (HU)	There were severe shortcomings in quality of implementation/execution
Unable to Assess (UA)	The available information does not allow an assessment of the quality of implementation and execution

3.2.8 Risk Management

The risk management aspect of the project has played a crucial role in addressing various challenges, including those presented by the COVID-19 pandemic, unforeseen supply chain issues and external challenges. The project's relative success can be attributed to the deployment of risk management strategies, which have contributed to increasing awareness of the negative impacts of PCB on human health and the environment, and the strengthening of the technical and management capacity in the environmentally sound management of PCBs..

The project's risk management approach demonstrated adaptability and resilience in the face of the COVID-19 pandemic. The unprecedented health crisis posed significant challenges to project implementation, including restrictions on movement, disrupted supply chains, and limited access to resources. By proactively identifying and assessing risks associated with the pandemic, the Project Manage, the UNDP and UNITAR Teams were able to swiftly implement mitigation measures. These measures included implementing remote work arrangements, conducting virtual meetings, training and capacity building workshops and consultations, and adhering to strict health and safety protocols. The effort in the management of the identified risks ensured the project's continuity, allowing it to continue achieving its objectives despite the challenging circumstances.

To address external challenges, **the project's risk management approach also focused on mitigating internal risks associated with the project's objective**. The effort in increasing awareness of the negative effects of PCB contamination was achieved through targeted communication campaigns, including women participants. By identifying potential barriers to effective communication and understanding, the Project Manager was able to undertake risk management to minimize the impacts of challenges. This risk-aware approach ensured that the project's messages reached the intended audience, and probably to realize possible behavior change.

Despite the best effort of the Project Manager and the UNDP CO on risk management, a number of potential risks are still prevalent at the time of finalizing the TE Report that require further close monitoring and expedited efforts of the Project Manager and UNDP CO. These included risks that women empowerment was not adequately addressed as the excellent Gender Action Plan developed was not fully implemented; risks in procurement and implementation actions that require adequate follow-up and proactive actions a) to ensure the commitments of the three PCB-contaminated equipment holders to actually commence and complete the upgrading of their temporary storage facilities "by 30 November 2024" or "as soon as possible", b) to secure a firm date that the first contractor on disposal/dichlorination services (Greenway Finance B.V.) will have their personnel returned to Ethiopia to undertake actual treatment/disposal actions to complete the disposal by 30 November 024, as per the terms of the contract and its recent commitment dated October 2024, or at least completed by the twice extended project closure date of 1 January 2025, and c) to finalize a second contract for disposal/dichlorination services based on the second advertised bidding closed on 24 October 2024, and to ensure that disposal action will be initiated as soon as possible for early completion of PCB disposal.

3.2.9 Social and Environmental Standards

The evaluation of the project's Social and Environmental Standards reveals an overall satisfactory implementation, oversight, and execution, considering the challenging circumstances posed by the COVID-19 pandemic, the supply chain issues and the unforeseen external challenges. The project has made commendable strides in achieving its objectives within its twice extended project completion duration. Extensive training sessions, workshops and capacity strengthening activities led to significantly increased awareness regarding the danger of PCBs to human

health and the environment, and successfully strengthening the technical and management capacities in undertaking environmentally sound management of PCB contamination.

The achievements in the enhanced capacity of the workforce and the managerial personnel at the PCB-contaminated equipment holders and the increased awareness of the local community and the general public led to operations with a heightened focus on safety practices. By providing relevant training, resources, and guidance, the Project has empowered the workers and the management to adopt responsible and safe operation, that not only contributes to the well-being of the local workforce but also ensures the preservation of the environment in and around the operation areas.

While it is important to acknowledge the additional challenges that emerged due to the COVID-19 pandemic, the supply chain issues and the unforeseen external challenges, it is also noted that effort in ensuring women empowerment and social inclusiveness have not been sufficiently employed.

The SESP conducted at PPG phase identified three (3) risks all of which were rated as Moderate Risks and the project was rated as Moderate Risk. During project implementation, the risks registered in the Risk Log, as well as risks identified in the SESP were periodically monitored and assessed, and any potential additional risks were identified.

Overall, the satisfactory implementation, oversight, and execution of the project's Social and Environmental Standards have yielded reasonable results. The project's efforts have not only raised awareness about the dangers of PCBs but also equipped the PCB-contaminated equipment holders and the workforce with the necessary tools to ensure working practices align with safety standards, **the project has successfully addressed all social and environmental risks and concerns identified and also managed the additional risk related to COVID-19 during the inception phase of project implementation.**

3.3 Project Results and Impacts

The TE Consultant conducted a detailed review and assessment of the project's progress and results achieved against the project's objective and expected outcomes, in particular the Objective and Outcome Indicators outlined in the Project Results Framework. Based on the results of the assessment on the achievements or lack of it, the TE Consultant then evaluated the relevance, effectiveness, efficiency, sustainability, gender equality and other aspects of the project, and provided ratings in compliance with the requirements outlined in the UNDP Guidance on Terminal Evaluations.

The TE Consultant carefully assessed the project's impacts on gender equality, women's empowerment, and social inclusion. It was found that a gender dimension study has been completed and an excellent Gender Analysis and Action Plan was developed, yet the Gender Action Plan was not fully implemented in terms of engaging a women society organization and organizing the communication that will specifically reach women, and judged not reach the desired results. It is also noted that in training sessions and capacity building workshops conducted by UNITAR, women participation accounted for a low 23% (40 female out of a total 174 participants, **signaling additional actions are needed in gender equity and empowerment effort.**

On the other hand, the Project Steering Committee was co-chaired by both women who held lead position in environment, health and safety that **has given women opportunity to take into consideration all aspects of gender and the adverse effect of PCB chemicals to women**.

3.3.1 Progress Towards Objective and Expected Outcomes

The Terminal Evaluation Consultant conducted a comprehensive assessment of the project's objectives and outcomes, meticulously examining the Objective and Outcome Indicators outlined in the Project Results Framework to evaluate the extent to which the End-of-Project targets were met. The TE Consultant carefully analyzed the main results and progress achieved through the in-depth document review process, cross-checked with collaboration and evidence gathered during **interviews and focus group discussion, and on-site observations, which collectively provided clear justifications and credible evidence for the findings and that served as basis for the assigned ratings**. These valuable insights are then succinctly presented in detail in separate tables for each Outcome, which not only highlight the accomplishments but also evaluates the extent to which the indicators align with the GEF's SMART (**S**pecific, **M**easurable, **A**ttributable, **R**elevant, **T**ime-bound) definition. This systematic approach ensures a thorough evaluation of the project's performance and serves as a reliable basis for determining the effectiveness

and impacts of the project interventions undertaken. For rating the achievement of the Objective and Outcome Indicators, Green highlight represents the target has been achieved, yellow indicates progressing satisfactorily and is expected to be achieved with slight delay, and red as not on target to be achieved.

Table 17 below shows that, Of the three (3) Objective Indicators, two (2) were achieved, while the third Objective Indicator, *reduction of 150 tons of PCB,* will be partially met, but will fall short of the target at the (twice) extended project completion date of 1 January 2025. Of the thirteen (13) Outcome Indicators, one Outcome Indicator (Outcome Indicator 3.3) will only be partially achieved, but the total quantities of PCB-contaminated equipment and waste to be disposed will fall short of the target of 15 tons, and was thus evaluated as **Unlikely to be Achieved** at project completion.

Table 17: Analytical Assessment of the Indicators identified for Project Objective and Project Outcomes

Objective and Outcome Indicator	Baseline	Midterm Target	End-of-Project Target	S	M	A	R	T		Cumulative progress at TE since project started and Evidence-based Justification
Project Objective: This project aims at strengthening the capacity of national stakeholders to manage PCBs as well as to achieve PCBs elimination, as identified as a priority in the National Implementation Plan for Persistent Organic Pollutants for Ethiopia - a first Phase										
(Objective Indicator 1) National environmentally sound management (ESM) system of PCB chemicals and waste drafted and implemented by 2020	People and workers are currently exposed to the risk posed by PCB-containing equipment stored or in-use No PCB management legislation or regulations and appropriate capacity and cooperation from PCB equipment/waste owners unavailable No national PCB management plan prepared and comprehensively implemented No comprehensive ESM system is in place to address the national PCB situation, and power equipment is exposed to continuous cross-contamination	Comprehensive national PCB inventory is completed ESM guidance materials drafted and an initial training of PCB holders undertaken The risk for the population surrounding plant and storage facilities containing PCBs is minimized as a result of safety measures preventing PCB release in the environment	Existing storage facilities for transformers are assessed and upgraded to international standards to allow PCB removal/ decontamination operations The risk for the population surrounding plant and storage facilities containing PCBs is minimized through the sound disposal of at least 150 tons of PCB-contaminated equipment and waste							**Objective Indication 1 : Achieved:** National PCB inventory considered completed with remaining two regions unreachable due to security issues, a consolidated PCB management database was established. National and Facility level PCB Management Plans prepared. It is also established that there is no visible PCB risk to population surrounding plants and selected storage facilities. For the end-of-project targets, agreements have been reached with the three PCB-contaminated equipment holders to construct/upgrade their PCB temporary storage facilities so far with two locations identified. ESIA has been completed by EEU and submitted to EPA for review and approval, Contract for conducting ESIA for EEG has been finalized. Work on actual implementation of the two temporary storage locations is pending actual progress. (***Updated***) **End-of-Project Target Achieved.** Through expedited follow-up actions, Procurement Notice was posted March 2024 that resulted in contract signed 30 April 2024 to conduct ESIA for PCB materials temporary storage sites, waste handling, disposal and elimination Work was completed in June with assessment report including Environmental and Social Impact Management Plan (ESMP) and detailed pre-construction, construction, operation phase and

										Occupational Safety and Health (OSH) impacts. Commitment letters with statement dated 15 October 2024 were provided by the three PCB equipment holders committing to complete the upgrading by "30 November 2024" and "as soon as possible". However, in the absence of a report on actual progress, the actual completion of the upgrade by 30 November 2024 or the project closure of 1 January 2025, cannot be ascertain.
(Objective Indicator 2) Amount of PCB equipment identified and listed in the national PCB inventory and included in the national PCB management plan	A systematic PCB inventory, including PCB identification and labelling is missing	6,000 pieces of equipment expected to be tested to verify their PCB content, out of which PCB-containing equipment is identified and labelled for future treatment or disposal, if applicable National PCB inventory database established and maintained to help with priority decision-making	10,000 pieces of equipment expected to be tested to verify their PCB content, if applicable PCB-containing equipment is identified and labelled for future treatment or disposal Measures to prevent release of PCBs in the environment are in place							**Objective Indicator 2: Achieved** Based on data provided by the three PCB-contaminated equipment holders, 32,000 transformers in operation and 4,000 out-of-service transformers were identified and included in the National PCB Inventory Database. Out of the identified transformers, 6,011 transformers were suspected as containing or contaminated with PCB. 2,236 samples were collected from these transformers and screened, 876 samples were determined containing PCB concentration equal or exceeding 50ppm. 287 samples were then subject to detailed analysis using the gas chromatograph, out of which 98 samples were determined to have PCB oils higher than 50ppm.
(Objective Indicator 3) 50 tons of pure PCBs and 100 tons of low-concentrated PCBs/related waste are safely managed and disposed of/decontaminated by the end of the project, thus reducing global and local environment from	No equipment/oil containing PCBs identified or sent abroad for disposal No PCBs disposal/ decontamination technology available in the country	Based on final inventory amounts, temporary storage locations identified and upgraded to meet international standards Pure PCB waste is prepared for export to HTI plants for final disposal, and PCB-contaminated oil is treated via rented or purchased dechlorination technology	At least 150 tons of equipment containing PCB (in pure and contaminated forms) are treated or disposed of in compliance with Stockholm Convention and Basel Convention requirements Disposal/cleaning certificates obtained							**Objective Indicator 3: Progressing partially with Delay** **While progress being made to achieve PCB disposal but the estimated total quantities expected to be disposed by the (twice) extended project completion dated of 1 January 2025 will fall short of the planned target (120.96 tons will be achieved against planned target of 150 tons)** Due to the COVID-19 pandemic and other supply chain reasons, the delay in

exposure to these hazardous wastes		(if applicable) or also exported for disposal Appropriate EIA/SIA procedures for making the rented/procured technology operational are completed, and location to host the technology selected and confirmed (if applicable)								procurement and customs clearance of the reagents and other inputs required for laboratory analysis caused delay in determining the total volume of pure and contaminated PCB oil and contaminated equipment. In turn, the lack of the exact quantities delayed the preparation of the TOR for the bidding document to procure the disposal/decontamination services. As such it was determined that this indicator would not be met at time of project completion on 1 May 2024. (***Updated***) **Objective Indicator 3 Partially Achieved but will fall short of the target.** Accelerated procurement actions undertaken after the TE mission resulted in a purchase order signed 30 April 2024 for disposal/dechlorination services with completion date of 30 November 2024. An estimated 77.96 tons of PCB-contaminated equipment and waste will be transported for disposal overseas. However, the preliminary preparatory phase of the contract due to complete by 30 June was not accomplished until end September 2024. As the finalization of the TE Report by end October 2024, UNDP is not able to obtain a confirmation from the contractor on the date the contractor will return to undertake the actual disposal process, due to be completed by 30 September 2024, as per contract term. In the absence of a report on actual progress, and a confirmed date of the contractor returning to Ethiopia to undertake actual disposal, The actual completion date of disposal cannot be ascertained, despite the contractor's commitment to complete the contract, inclusive of remaining disposal and post-disposal activities, by 30 November 2024.

										A new bidding was advertising 3 September 2024 with closing date of 2 October 2024 that was extended to 24 October 2024. Should the contract be concluded and disposal action be commenced immediately, it is not certain that the disposal of the estimated 43 tons can be physical disposed by the (twice) extended project closure date of 1 January 2025, with the two months remaining.
Project Component 1: Strengthening of legal frameworks, administrative processes and technical preparedness for the sound management of PCBs in Ethiopia										
Outcome 1 Legal frameworks, administrative processes and technical preparedness for the sound management of PCBs in Ethiopia strengthened										
(Outcome Indicator 1.1) Legal framework for PCBs drafted and adopted **(Outcome Indicator 1.2)** Institutional capacity and arrangements for the management of PCBs reviewed, and gaps and overlaps identified and addressed through consultation and coordination processes	No PCB management legislation or regulations and appropriate capacity and cooperation from PCB equipment/waste owners unavailable Lack of coordination regarding PCB management	Comprehensive assessment of the national legal and institutional framework completed Technical assistance to the environmental authorities on the enforcement of the new or amended legislation and technical regulations related to PCBs delivered through specialized trainings and joint participation of project staff and government representatives Project management unit and PSC established and meeting regularly	New or amended legislation and regulations which includes specific PCB provisions adopted and disseminated to key national stakeholders Advisory support and required technical assistance in the implementation of the national legislation and regulations and guidance on PCBs delivered through continuous project support Technical assistance to the environmental authorities on the enforcement of the law and regulation related to PCBs delivered through joint participation of project staff and government representatives Institutions effectively coordinating implementation of the project							**Outcome Indicator 1.1: Achieved** The Directive on PCB Management (both in English and Amharic) has been approved by the Attorney General, and has been signed by the Minister for Ministry of Planning and Development, and accepted by the Ministry of Justice. **Outcome Indicator 1.2: Achieved** Training sessions conducted by UNITAR on the Directive to phase out use of PCB materials and PCB contaminated materials and chemicals and enforcement actions to federal and regional environmental inspectors, federal and regional EEU, EEP and EEG electricians, technical and environment experts. National technical, management and enforcement capacities of the environmental authorities for PCB management throughout the life cycle have been strengthened to monitor the sample collection process to confirm the collection is in accordance with the Directive.

Project Component 2: Review and strengthening of national capacity for PCB management throughout the lifecycle										
Outcome 2 National capacity for PCB management strengthened throughout the lifecycle										
(Outcome Indicator 2.1) One consolidated country-wide PCB inventory updated and completed, with appropriate data including sampling dates and analysis results of phased-out and in-use equipment	An incomplete inventory report developed by MEFCC without analytical data and missing equipment from some storage sites Central consolidated PCB database to track inventory and PCB disposal process is not available	Inventory sampling activity plan for 10,000 equipment is well underway at mid-term point. Services for the sampling and analysis of this equipment and establishment of PCB inventory procured, if applicable Sampling and analysis of 6,000 pieces of PCB-suspected equipment carried out, if applicable PCB-containing equipment labelled and entered in the national database	10,000 equipment oil samples have been taken and analysed for quantifying PCB concentration, if applicable PCB inventory database established and made available to authorities and PCB holders through a dedicated website with access policies						**Outcome Indicator 2.1: Achieved** PCB-suspected transformers were exanimated, samples collected and analyzed. Based on which National PCB Inventory Database, based on data from the three PCB equipment holders, was established and became operational. From the identified 32,000 transformers in operation and 4,000 out-of-service transformers, 6,011 were suspected as containing or contaminated with PCB, out of which 2,236 samples were collected from the transformers and screened, 876 samples were determined containing PCB concentration equal or exceeding 50ppm. 287 samples were then subject to detailed analysis using the gas chromatograph, out of which 98 samples were determined to have PCB oils higher than 50ppm.
(Outcome Indicator 2.2) National PCB management plan is drafted and approved	No national PCB management plan developed or available to guide action on addressing PCB matters in the country No industry-wide coordinated action is taken to address the ESM of PCBs	National PCB management plan drafted First update of the National PCB management plan at midterm based on inventory data Facility-level PCB management plans drafted where appropriate At least 10 contaminated sites management plans developed	National PCB management plan reviewed and adopted Second update of the National PCB Management Plan based on updated inventory data						**Outcome Indicator 2.2: Achieved** The National PCB Management Plan was prepared and diligently reviewed, to be updated upon completion of laboratory analysis of samples. The fruitful cooperation among project staff, government and key stakeholders on technical, legal, and financial matters ensure the National PCB Management Plan is implementable and sustainable. Facility level PCB Management Plan was also prepared and promogulated by EEU. One draft PCB contaminated site management plan has also been developed.
(Outcome Indicator 2.3) Number of operators/technical staff in	No or insufficient technical level guidance materials	Guidance drafted for sampling of online and offline equipment,	Guidance for sampling of online and offline equipment, operation and						**Outcome Indicator 2.3: Achieved** Training sessions, capacity building activities and analytical capacity

the electric sector and in MEFCC trained on and confident in practically applying the ESM system for PCBs **(Outcome Indicator 2.4)** Number of technical and procedural guidance documents compliant with Stockholm Convention and national regulations completed and endorsed	exist on ESM for PCB management No training on ESM of PCBs issued delivered to operators/technical staff in the electric sector countrywide Lack of awareness and technical knowledge about POPs in general and PCB issues in particular	operation and maintenance of PCB-contaminated equipment, identification and labelling procedures, handling, transportation, temporary storage, and disposal discussed in 5 dedicated workshops Using the guidance material, at least 8 training sessions covering 80 operators/technical staff of the electric sector implemented Procedural and guidance documents drafted for environmental authorities on Stockholm and Basel Conventions, and BAT and BEP for PCB treatment and disposal operations and discussed in a dedicated workshop 5 training sessions covering at least 25 officers from the relevant ministries and research institutions carried out Training on chemical (PCB) response procedures and mechanisms undertaken and piloted at one site	maintenance of PCB-contaminated equipment, identification and labelling procedures, handling, transportation, temporary storage, and disposal adopted 25 training sessions covering at least 340 equipment operators (engineers and technicians) in the electric power sector Procedural and guidance documents for environmental authorities on Stockholm and Basel Conventions, and BAT and BEP for PCB treatment and disposal operations adopted 7 training sessions for at least 50 officers from the relevant ministries and institutions carried out							strengthening were conducted by UNITAR including training on transformers inventories, sampling and laboratory screening analysis to technicians, electricians, Environment, Health and Safety experts. A comprehensive training workshop on PCB Management, Handling, Transport, Storage, and Elimination Strategy was conducted for various project partners, including Federal EPA, EEU, EEP, and EEG. Overall, UNITAR conducted more than 16 training sessions and technical workshops conducted for a total of 134 male and 40 female (23%) participants, while no record of gender segregation was made at 4 training sessions. **Outcome Indicator 2.4: Achieved** Guidance on identification, sampling and labelling of PCB equipment in the PCB Management Plan drafted and distributed Document on chemical response procedures and mechanisms finalized.
(Outcome Indicator 2.5) National PCB tracking system developed and operational	No effective mechanism in place to prevent illegal importation of equipment likely to contain PCBs	Terms of reference for national PCB tracking system to prevent illegal importation of equipment likely to contain PCBs operational	Periodic technical visits to the PCB holders undertaken and technical support and advice provided to purchase PCB-free transformers,							**Outcome Indicator 2.5: Achieved** The PCB Management Database established by a separate project was deployed and serves as a useful tool to track PCBs and other chemicals

			capacitors, and related equipment							
(Outcome Indicator 2.6) Awareness raising strategy developed and implemented, which targets government, public and private sector, civil society, local communities and community leaders **(Outcome Indicator 2.7)** Gender dimension study in the context of PCB issues in Ethiopia completed and strategies for better gender mainstreaming in POPs-related activities identified	Low levels of awareness on the adverse effects of POPs, especially PCBs, leading to mismanagement of PCB-containing equipment No gender dimension study carried out on POPs in Ethiopia	An awareness raising strategy developed, and awareness materials such as brochures, project cards, meeting banners and posters, for different target groups, developed and disseminated Gender dimension study completed Dissemination of project objectives and midterm results through establishment of a website, broadcasting, and workshops, and enhancement of gender related issues	Awareness materials disseminated at different levels: communities, technicians, and policy-makers Media briefing events both at mid-level managers (facility managers) and high-level (ministers, members of parliament and chief executives) planned and executed Local communities have access to awareness raising materials in their own local languages and trainings for the community leaders are organised Dissemination of project objectives and midterm results through establishment of a website, broadcasting, and workshops, and enhancement of gender related issues							**Outcome Indicator 2.6: Achieved** Awareness creation meetings on PCB and other hazardous chemicals were given to different stakeholders Promotion of awareness on adverse effects of PCB and chemicals on environmental and health and familiarize is one of the main ongoing public awareness activities The Project has published awareness raising information through the national gazette in order to reach the wider segment of the society **Outcome Indicator 2.7: Achieved** Gender dimension study for the project completed. An excellent Gender Analysis and Action Plan was developed, but the gender action plan was not fully implemented in terms of engaging a women society organization and organizing the communication that will specifically reach women. EEU specific structure to address women adopted. It is noted that the Project Steering Committee was co-chaired by both women. The fact that women have sound decision making in the PSC meeting and held lead position in environment, safety and health has given women opportunity to take into consideration all aspects of gender and the adverse effect of PCB chemical to women. Efforts were made make gender balance at every workshop.
Project Component 3: ESM of PCBs liquids and equipment in use or out of service										
Outcome 3: ESM of PCBs liquids and equipment in use or out of service implemented										

(Outcome Indicator 3.1) Temporary storage facilities are upgraded and monitored under the project for the safe storage of PCB equipment/oils/waste pending final disposal or decontamination procedures	Storage facilities available in industrial sites need checking and upgrading and, in some cases, are contaminated by PCBs	Storage facilities for the temporary storage of PCB-contaminated equipment are identified Upgrading of safety and emergency response in selected storage facilities PPE equipment for personnel is available to ensure safe operations Monitoring of quality of storage over time is ensured by enforcement authorities	At least 2 storage facilities have been upgraded to ensure safe storage of PCB-contaminated equipment and waste in fulfilment of national and international rules on PCBs							**Outcome Indicator 3.1: Achieved** Agreement was reached with the three PCB-contaminated equipment holders to construct/upgrade proper storage facilities. Legal contract agreement was signed between the EPA and the EEU and EEP to facilitate upgrades to the storage two facilities. A budget of USD 100.000 (5,253,700 Ethiopian Birr) was released to the two electric companies, demonstrating their commitment to improving the storage facilities. This signifies that efforts to upgrade the facilities are underway. At time of TE mission, ESIA has been prepared and submitted only by EEU to EPA for review and approval, no upgrading work has been carried out. It was evaluated at that time that this target was unlikely to be achieved by the operational completion date of 1 May 2024. Expedited actions were undertaken, and in view of the requested second extension of the project completion. Bidding took place and contract was signed 29 April 2024 with Basal Consulting to conduct EIA/ESIA for all three facilities (EEU, EEG and EEP) and on potential environmental and social impacts during transportation and elimination. The treatment of PCB contained in materials that are out of service, despite of ownership, will be done at one location (in the EEU compound) with which agreement was signed (between EEU and EPA) for construction of temporary shed. For in service transformers, the location is at the Awash facility.

										ESIA assessment was completed and report was submitted in June 2024. While ESIA for the three location was completed. Completion of physical upgrading is not clear. Commitment letters with statement dated 15 October 2024 were provided by the three PCB equipment holders committing to complete the upgrading by "30 November 2024" and "as soon as possible". However, in the absence of a report on actual progress, the actual completion of the upgrade by 30 November 2024 or the project closure of 1 January 2025, cannot be ascertain.
(Outcome Indicator 3.2) Documentary and direct evidence that environmentally sound technologies or services for PCBs disposal/ dechlorination have been identified, assessed, and procured	No PCB disposal technology available in the country to address pure PCB oils/waste No PCB dechlorination technology is available in the country to address cross-contaminated PCB oils No PCB-contaminated soil remediation technology is available in the country	Identification and technical-economic feasibility analysis of disposal options based on the amount of pure and low-concentration PCBs identified Drafting of TORs for the procurement of PCBs disposal/decontamination service and equipment EIA process regarding decontamination plants carried out to enable technology to operate locally, if applicable	PCB dechlorination technology is rented/installed in the country to treat low-concentrated PCB oils, if applicable and appropriate							**Outcome Indicator 3.2: Achieved** The disposal technology options have already been identified, and training on the technology (PCB Management, Handling, Transport, Storage and Elimination Strategy) has been conducted, due to the delay in completing the screening and laboratory analysis of the PCB suspected samples on PCB concentration, the procurement for the disposal/dechlorination services was only contracted on 30 April 2024 with completion date of 30 November 2024. The entity contracted to perform the disposal/dechlorination services will further help to build the technical capacity.
(Outcome Indicator 3.3) Amount of equipment or waste containing or contaminated by PCB disposed in an environmentally sound manner	No equipment containing PCBs or PCB-contaminated soil disposed of	For pure PCBs, existing qualified service providers informed and invited and tender for hazardous waste handling If applicable, the selected PCB decontamination technologies demonstrated in action as part of	Destruction/treatment of 150 tons of PCB-contaminated equipment in progress with disposal certificates obtained							**Outcome Indicator 3.3: Progressing Partially with delay.** **While progress being made to achieve PCB disposal but the estimated total quantities expected to be disposed by the (twice) extended project completion dated of 1 January 2025 but will fall short of the**

		procurement activity for their reliability, environmental performance, and compliance with national regulation, Stockholm and Basel Conventions' requirements Associated sub-contracts for export of pure PCB waste and decontamination of low-concentrated in place (if applicable), and pre-bid conferences for interested bidders held to improve quality of received bids								**planned target (120.96 tons against planned 150 tons)** Due to the delay in completing laboratory analysis to determine the volume and concentration of PCB oil and equipment, preparation of the TOR for the documents was delayed causing the delay in the bidding process and procurement of the disposal/dechlorination It was evaluated at time of TE mission that the target was unlikely to be achieved by the time of project completion date of 1 May 2024. Accelerated actions were undertaken after TE mission recommending expediting the completion of the bidding document and procurement process. Subsequently, contract was signed 30 April 2024 with preparatory activities already completed. The contractor is expected to arrive in Ethiopia by end of September 2024 for preliminary assessment, to be followed by importing equipment necessary for draining PCB oil and packing of PCB-contaminated equipment and waste for transport to be disposed abroad. It is expected that by the contract completion date of 30 November 2024, 77.96 tons of PCB will be transported and disposed abroad. However, the preliminary preparatory phase of the contract due to complete by 30 June was not accomplished until end September 2024. As the finalization of the TE Report by end October 2024, UNDP is not able to obtain a confirmation from the contractor on the date the contractor will return to undertake the actual disposal process, due to be completed by 30 September 2024, as per contract term. In the absence of a report on actual progress,

										and a confirmed date of the contractor returning to Ethiopia to undertake actual disposal, The actual completion date of disposal cannot be ascertained, despite the contractor's commitment to complete the contract, inclusive of remaining disposal and post-disposal activities, by 30 November 2024. A new bidding was advertising 3 September 2024 with closing date of 2 October 2024 that was extended to 24 October 2024. Should the contract be concluded and disposal action be commenced immediately, it is not certain that the disposal of the estimated 43 tons can be physical disposed by the (twice) extended project closure date of 1 January 2025, with the two months remaining. Therefore, the total estimated quantities expected to be disposed by the (twice) extended project closure will be 120.96 tons, which still falls short of the 150 tons target.
Project Component 4: Monitoring, evaluation and replication										
Outcome 4: Monitoring, evaluation and replication ensured										
(Outcome Indicator 4.1) Documentary evidence that the project's results sustained and replicated through proper M&E and knowledge management actions	N/A	Inception activities carried out, project management structure implemented, knowledge management system including project website established (to be completed in the first year of project implementation)								**Outcome Indicator 4.1: Achieved** Training sessions conducted and knowledge and experience documented and shared with key stakeholders. Activities and reporting required on project implementation functions were carried out, reports submitted in a timely manner
	N/A	Project reporting and planning established and implemented	Project reporting and planning continued until project end							Annual Workplans (AWPs) prepared as basis basis for annual budget allocation and approval of project activities implementation. Progress reports and mandatory Project Implementation Reports (PIRs) were timely prepared and submitted.

	N/A	Midterm evaluation and auditing activities carried out	Terminal and auditing activities carried out; terminal reporting completed and submitted to Government of Ethiopia, UNDP, and GEF							External Audit for 2019 – 2022 conducted with an Unmodified Audit opinion. Mid-Term Review conducted with overall rating of Moderately Unsatisfactory (MU).. Project duration was extended for one year with project operational completion date extended to 1 May 2024. Terminal Evaluation was initiated in December 2023, with original TE completed end March 2024. However, in view of TE Consultant's initial determination that two critical Outcome Indicators would not have been met, expedited procurement efforts and further extension of project closure were recommended. With a second extension of project closure by 8 months, TE duration was extended to September 2024.

Legend for alignment of GEF SMART (Specific, Measurable, Attributable, Relevant, Time-bound) definition

Green-Fully aligned with SMART definition
Yellow Not completely aligned with SMART definition

Legend (Achievement and Assessment in meeting Indicators and End of Project Targets)

Green represents the target has been achieved,
Yellow indicates progressing satisfactorily and is expected to be achieved with slight delay, and
Red as not on target to be achieved.

As briefly described above, the Project Results Framework section of the Project Document includes three (3) Objective Indicators, thirteen (13) Outcome Indicators (2 for Outcome 1,7 for Outcome 2, 3 for Outcome 3 and 1 for Outcome 4). These 15 Objective and Outcome Indicators formed the basis for the Project Manager to collect results data as monitoring tools.

Planned project activities for each Project Outcome were presented in Annex A Multi Year Work Plan, with 2 activities for Outcome 1.1, 3 activities for Outcome 2.1, 2 activities for Outcome 2.2, one activity for Outcome 3.1, one activity for Outcome 4.1 and 3 activities for Outcome 4.2. It is noted that Outcomes numbering convention are designated differently between the Project Results Framework, the Multi Year Work Plan, and the Monitoring Plan, and the descriptions of the Outcomes are also presented slightly differently. While this does not impact the core intent of the project interventions, it creates slight confusions in the correlation and comparison of results. In view of the different conventions on sequential numbering and descriptions, this Terminal Evolution Report will follow the numbering conventions adopted by the Mid-Term Review.

The following sections present the project results accomplished against each Expected Project Outcome under the four project components. Analytical assessment of the achievement of the Outcomes was based on data and information derived from the in-depth documents review and analysis and structurally cross-checked with all interviewees. Additional information was also gathered during the interview and focus group discussions to substantiate the analysis and assessment. Finally, further evidence gathered from the field observations during the TE mission as well as review of the many printed and audio-visual outputs were used to validate and solidify the assessment findings, and the evidence-based achievement of project results.

Project Component 1, Strengthening of legal frameworks, administrative processes and technical preparedness for the sound management of PCBs in Ethiopia, supports Ethiopia to conduct a comprehensive assessment of national and institutional legal framework, key stakeholders, and gaps and overlaps, and to prioritize needs, to enable making decision to improve existing and/or establish new legislative measures for environmentally sound management and disposal of PCB and PCB contamination. In addition, a national PCB tracking system was developed to prevent illegal importation of equipment likely to contain PCBs. Technical, management and institutional capacities have been strengthened.

Project Outcome 1 Legal frameworks, administrative processes and technical preparedness for the sound management of PCBs in Ethiopia strengthened is dedicated to strengthening legislative framework, advancing intuitional, technical, management and administrative capacities for sound management of PCBs in compliance with the 2025 and 2028 deadlines of the Stockholm Convention. Two Outcome Indicators were designed to support the achievement of Project Outcome 1.: ***Outcome Indicator 1.1****, Legal framework for PCBs drafted and adopted*; has been achieved, in particular, the **Directive on PCB Management was developed and approved by the attorney General, signed by the Minister of the Ministry of Planning and Development, and accepted by the Ministry of Justice.** Through the conducting by UNITAR of extensive training sessions, technical and management capacity building workshops, and training on the Directive on PCB Management, **Outcome Indicator 1.2,** *Institutional capacity and arrangements for the management of PCBs reviewed, and gaps and overlaps identified and addressed through consultation and coordination processes* were successfully completed. Through implementation of planned project activities, all the end-of-project targets against Outcomes 1.1 and 1.2 have been successful met, leading to **established legislative measures, increased awareness and strengthened technical and management capacities for environmentally sound management of PCBs**, contributing to reaching Outcome 1 project results.

Achievement of Project Outcome 1 is considered Satisfactory (S) with Outcome Indicators 1.1 and 1.2 fully achieved. Detailed analytical assessment of the achievement of the defined Outcome Indicators 1.1 and 1.2 as a result of the successful implementation of project activities is contained in Table 23 included in Annex 7.

Project Component 2: Review and strengthening of national capacity for PCB management throughout the lifecycle supports Ethiopia to review and strengthen data collection and management capacity, as well as to develop detailed PCB management plans at the facility level. A comprehensive PCB training programme will take place, covering PCB inventories, analysis, prioritization, and development of management plans.

The achievement of *Outcome 2 National capacity for PCB management strengthened through the lifecycle* is supported by 7 Outcome Indicators. The successful implementation of planned project activities will be the driving

force leading to the achievement of Outcome Indicator 2.1 to 2.7. Positive project results can be summarized as follows.

Outcome Indicator 2.1 One consolidated country-side PCB inventory updated and completed, with appropriate data including sampling dates and analysis results of phased-out and in-use equipment. Of the 32,000 transformers in operation and 4,000 out-of-service transformers identified, 6,011 suspected of containing or contaminated with PCB were examined. From 2,236 samples collected, screened, and analyzed using gas chromatograph, 387 samples were determined containing PCB concentration equal or exceeding 50 ppm.

Outcome Indicator 2.2 National PCB management plan is drafted and approved. National PCB Management Plan weas drafted and reviewed and would be updated upon completion of laboratory analysis. The Plan was evaluated to be implementable and sustainable. Facility PCB Management Plan was also prepared and promogulated by EEU. One PCB contaminated site management plan has also been developed.

Outcome Indicator 2.3 Number of operators/technical staff in the electric sector and in MEFCC trained on and confident in practically applying the ESM system for PCBs. Training sessions, capacity building activities and analytical capacity strengthening were conducted by UNITAR. A comprehensive training workshop on PCB Management, Handling, Transport, Storage and Elimination Strategy was conducted for various project partners, including Federal EPA, EEU, EEP and EEG. Overall, more than 16 training sessions and technical workshops were conducted for 134 male and 40 female (23%).

Outcome Indicator 2.4 Number of technical and procedural guidance documents compliant with Stockholm Convention and national regulations completed and endorsed. Guidance on identification, sampling and labelling of PCB equipment in the PCB Management Plan was drafted and distributed. Document on chemical response procedures and mechanisms were finalized.

Outcome Indictor 2.5 National PCB tracking system developed and operational. PCB Management Database was established by a separate project was deployed and serves as a useful tool to track PCBs and other chemicals.

Outcome Indicator 2.6 Awareness raising strategy developed and implemented, which targets government, public and private sector, civil society, local communities and community leaders. Awareness creation meeting on PCB and other hazardous chemicals were conducted to different stakeholders. Promotion of awareness of adverse effects of PCB and other chemicals on environment and health is one main ongoing public awareness activities of the project. Awareness raising information has been published to reach a wider segment of the society.

Outcome Indicator 2.7 Gender dimension study in the context of PCB issues in Ethiopia completed and strategies for better gender mainstreaming in POPs-related activities identified. Gender dimension study was completed and an excellent Gender Analysis and Action Plan was developed but the Plan was not fully implemented in terms of engaging a women society organization and organizing the communication that will specifically reach women. On the other hand, the Project Steering Committee was co-chaired by both women who held lead position in environment, health and safety giving women opportunity to take into consideration all aspects of gender and the adverse effects of PCB chemical to women.

This achievement highlights the successful collaboration between the project and key stakeholders and project partners, raising awareness on the adverse impacts of PCB and POPs, enhanced the technical and management capacities, and undertaken gender equity, women's empowerment and social inclusiveness, to a limited extent.

With Outcome Indicators 2.1 to 2.7 fully accomplished, the achievement of Project Outcome 2 is considered Satisfactory (S). Detailed analytical assessment on the achievement of the defined Outcome Indicators 2.1 and 2.7 as a result of the successful implementation of project activities is contained in Table 24 included in Annex 7.

Project component 3 ESM of PCBs liquids and equipment in use or out of service will minimize and to a greater degree eliminate the risk of adverse effects of PCBs in the population and the environment. The database information will provide the required information to characterize the PCB waste streams and concentrations in the various matrices where PCBs are found. PCB-containing transformers and capacitors will be collected and transported to four central temporary storage facilities. Based on waste characterization outcomes, management and disposal options will be evaluated. The project will establish priorities according to the conditions of the PCB stocks and to the location.

Project Outcome 3 ESM of PCBs liquids and equipment in use or out of service implemented is supported by two Outcome Indicator 3.1, 3.2 and 3.3.. implementation of project interventions has led to the following project results.

Outcome Indicator 3.1 Temporary storage facilities are upgraded and monitored under the project for the safe storage of PCB equipment/oils/waste pending final disposal or decontamination procedures. Agreement was reached with the three PCB-contaminated equipment holders to construct/upgrade proper storage facilities. While EEU has prepared ESIA and submitted to EPA for review and approval, it was determined at time of TE mission that the upgrading of the temporary storage facilities would not be accomplished by the extended project completion date of 1 May 2024. With the initial recommendation of expedited procurement actions, and the second extension of the project closure to 1 January 2025, a contract was signed April 2024 to conduct ESIA for the three identified locations at EEU, EEP and EEG. ESIA was completed in June 2024 for the three temporary storage facilities sites at EEU, EEP and EEG with assessment report submitted including Environmental and Social Impact Management Plan (ESMP) and detailed plans for the pre-construction, construction, operation phase and Occupational Safety and Health (OSH) impacts.

At time of finalizing the TE report, a mere two months left before project closure, it is not clear if the upgrading will be actually completed by the extended project closure. While the 2022 PIR already indicated that the upgrading of the temporary storage facilities would take place in 2023, and that the ESIA for the three identified locations were eventually completed by June 2024, as of 15 October 2024, UNDP is only able to obtain commitment letters from the three PCB-equipment holders that they committed to complete the upgrading by "30 November 2024" or "as soon as possible". Without a report on actual progress, the TE Consultant is not in a position to determine if the upgrading will be accomplished within the two months' duration left of the project duration, and that the commitment will still remain as a commitment.

Outcome Indicator 3.2 Documentary and direct evidence that environmentally sound technologies or services for PCBs disposal/dechlorination have been identified, assessed, and procured. PCB disposal technology options were identified and training on PCB Management, Handling, Transport, Storage and Elimination Strategy conducted by UNITAR. However, delays in completing the screen and laboratory analysis to determine the PCB concentration and quantities of PCB for disposal caused delay in the procurement of disposal/dechlorination services.

Outcome Indicator 3.3 Amount of equipment or waste containing or contaminated by PCB disposed in an environmentally sound manner Delays encountered in the procurement of disposal/dechlorination services had rendered the conclusion at time of TE mission that the disposal target of 150 tons of PCB-contaminated equipment and waste was unlikely to be achieved by the extended project completion date of 1 May 2024. Subsequent expedited procurement action, as initiated recommended by the TE Consultant, resulted in a purchase order issued in April 2024 for disposal/dechlorination services with 77.96 tons of PCB-contaminated equipment and waste transported for disposal abroad on completion of the purchase order by 30 November 2024. However, as of finalization of the TE Report at end October 2024, UNDP was still unable to obtain a confirmed date that the contractor (Greenway Finance B.V.) will return to Ethiopia to commence the actual disposal activities, but only a commitment that it will be completed, inclusive of the post-disposal phase, by the stipulated contractual completion date of 30 November 2024. In view that Greenway has indicated the disposal will take 27 days to complete. In the absence of a report on actual progress and a firm date for Greenway to return to Ethiopia, the TE Consultant is not in a position to determine if the disposal of 77.96 tons of PCB by Greenway will be accomplished by 30 November 2024, or even by 1 January 2025, the twice extended project closure date.

A second bidding was advertised with closing date of 2 October 2024 that was extended to 24 October 2024.. When purchase order will be finalized and disposal/dechlorination services completed, an estimated 43 tons of PCB-contaminated equipment and waste will be disposed. UNDP has not indicated if a second contract has materialized for the disposal of a further 43 tons of PCB. However, even if a contract is signed in November 2024, the actual completion of disposal by 1 January 2025, cannot be ascertained.

Overall, if the actual disposal can be completed prior to project closure, **a total of 120.96 tons of PCB-contaminated equipment and waste will be disposed of, which will fall short of the end-of-project target of 150 tons.**

With the actual accomplishment of Outcome Indicator 3.1, and the partial accomplished Outcome Indicator 3.3, and taking into consideration of the external challenges that caused the cascading delays, the achievement of

Project Outcome 3 is considered Satisfactory (S). Detailed analytical assessment on the achievement of the defined Outcome Indicators 3.1, 3.2 and 3.3 as a result of the successful implementation of project activities is contained in Table 25 included in Annex 7.

Project Component 4: Monitoring, evaluation, and replication. Under this component, Lessons learnt and case study reports will be prepared and shared internally and externally with other project countries such as Kenya and others, where similar projects are envisaged, and generally with countries implementing PCB management projects. Best practices for introduction of ESM will be identified, documented, and disseminated to participants, other stakeholders and Parties of the Stockholm Convention. The national project website will be developed for engagement, sharing good practices, guidance/tools, and experience. End-of-project publications will be prepared and disseminated.

Through training sessions conducted and knowledge and experience documented and shared with key stakeholders, timely submission of required progress and annual report, include the Project Implementation Report (PIR) to GEF, the M&E Plan was effectively implemented to meet GEF and UNDP requirements, documented project results, experiences, disposal technologies, best practices and lessons-learned, published and disseminated to share. Through various awareness-raising events and media campaigns, information on the dangers of PCBs to human health and the environment has potential for behavioral changes. All these actions have led to the **achievement of Outcome Indicator 4.1, Documentary evidence that the project's results sustained and replicated through proper M&E and knowledge management actions.**

The achievement of Project Outcome 4 is considered Satisfactory (S). Detailed analytical assessment on the achievement of the defined Outcome Indicators 4.1 as a result of the successful implementation of project activities is contained in Table 26 included in Annex 7.

Achievement of Project Objective

Implementation of the project activities led to the **accomplishment of 11 of the 12 Outcome Indicators at the time of Terminal Evaluation mission in February 2024 with two critical Outcome Indicators, upgrading of temporary storage facilities and the disposal of 150 tons of PCB-contaminated equipment and waste were judged to be not being achieved by the extended project closure of 1 May 2024.** With TE Consultant's initial recommendation to undertake expedited procurement actions and a second extension of the project closure, the expedited efforts resulted in a contract to conduct ESIA for the three identified temporary storage locations at EEU, EEP and EEG. RSIA was completed and the assessment report included Environmental and Social Impact Management Plan (ESMP) and detailed plans for the pre-construction, construction, operation phase and Occupational Safety and Health (OSH) impacts.

For the disposal/dechlorination services, following expedited procurement actions, a purchase order was signed April 2024 that will result in 77.86 tons of PCB-contaminated equipment and waste to be transported abroad for disposal. Furthermore, a new bidding was initiated 3 September 2024 with an extended closing date of 24 October 2024. On conclusion of the purchase order and completion of the PO, an estimated 43 tons of PCB-contaminated equipment and waste will be transported for disposal abroad by the twice extended project operational closure of 1 January 2025. **In total, 120.96 tons will be disposed, but will fall short of the 150 tons end-of-project target.**

In conclusion, as a result of expedited procurement actions and the 8-month extension of project closure, **12 of the 13 Outcome Indicators have been achieved. In terms of Project Objective Indicators, two** (*Objective Indicators 1 National environmentally sound management (ESM) system of PCB chemicals and waste drafted and implemented by 2020, and Objective Indicator 2 Amount of PCB equipment identified and listed in the national PCB inventory and included in the national PCB management plan*) **of the three Objective Indicators have been fully achieved, while the third Objective Indicator**, *50 tons of pure PCBs and 100 tons of low-concentrated PCBs/related waste are safely managed and disposed of/decontaminated by the end of the project, thus reducing global and local environment from exposure to these hazardous wastes*, **is progressing towards partially achieving the target**. The **TE Consultant considers the project results have been able to meet the project objective of "to support Ethiopia with the necessary technical and financial assistance to reduce the risks posed by PCBs to the environment and human health".**

Nonetheless, challenges remain, the TE Consultant strongly recommends the IP and UNDP to undertake extra proactive monitoring and following actions to ensure the actual completion of the upgrading of the storage facilities by the three PCB-contaminated equipment holders, EEU, EEP and EEG, and the actual completion of disposal of the PCB-contaminated equipment and materials by the two contracts, Greenway Finance B.V. and the winner of the second bidding, by the extended project closure of 1 January 2025.

Detailed analytical assessment on the achievement of the defined Project Objective Indicators 1, 2 and 3 as a result of the successful implementation of project interventions is contained in Table 27 included in Annex 7.

3.3.2 Relevance

The relevance of the Ethiopia PCB project is evident through both the document review and in-depth interviews and focus group discussions conducted by the TE Consultant during the Terminal Evaluation mission which reflected that **the project is designed and implemented in full consistent with Ethiopia's National Implementation Plan (NIP)** on Persistent Organic Pollutants submitted to the Stockholm Conventions in May 2006 and the draft updated NIP finalized in March 2016 which prioritized the effective management of POPs chemicals and to reduce and ultimately eliminate the use and release of POPs in accordance with the requirements of the Stockholm Convention and the national sustainable development objectives and strategies such as the Environmental Policy, Sustainable Development and Poverty Reduction Strategy Program (SDPRP), and Plan for Accelerated and Sustainable Development to End Poverty (PASDEP). Ethiopia is on its third framework of the UN Development Assistance Framework (UNDAF), jointly developed by the Government and the United Nations Ethiopia Country Team. The project is also fully aligned to UNDAF, Ethiopia's five-year national development plan, the Growth and Transformation Plan (GTP).

PCB management is one top priority for the Government of Ethiopia as identified in the NIP's target of safe management of PCBs to meet the 2025 Stockholm Convention deadline, in addition to its alignment with international and national priorities, the project's objectives also resonate with UNDP's Development Plan

The project's results have fostered active participation from all relevant stakeholders, which benefited from BAT/BEP knowledge, strengthened technical and management capacity, and improved workplace safety to undertake environmentally sound PCB management, yielding significant local human health and environmental benefits, contributing to global environmental benefits through the environmentally sound disposal of PCB-contaminated equipment and waste. These efforts have contributed to the project's overarching goal of reducing the risks posed by PCBs to the environment and human health., and ensuring the well-being of affected communities.

Overall, the Ethiopia PCB project's relevance is evident in its alignment with international commitments, national priorities, and development objectives. The project's focus on enhanced legislative measures, strengthening technical and management capacities, adopting appropriate and sustainable PCB disposal technologies, active stakeholder engagement, promoting increased awareness, reasonable actions in gender equity, women's empowerment and social inclusiveness have generated positive and sustainable project results. The evidence of the relevance of the project was also echoed by the responses of the key stakeholders to questions posted at interviews and focus group discussions during the TE mission. **The TE Consultant thus rated the relevance of the project as Highly Satisfactory (HS).**

3.3.3 Effectiveness

At time of TE mission in February 2024, the Ethiopia PCB Project has achieved 11 of its 13 Outcome Indicators with two critical Outcome Indicators, i.e. upgrading of the temporary storage facilities, and the disposal of 150 tons of PCB-contaminated equipment and waste, and was judged to not being able to these two end-of-project targets by the extended project closure of 1 May 2024.The TE Consultant recommended expedited procurement actions and the further extension of the project closure. Subsequently, expedited actions resulted in the conclusion of a contract end April 2024 to conduct ESIA for the three identified temporary storage facilities at EEU, EEP and EEG. A purchase order to undertake disposal/dichlorinations services was also signed end April 2024 with completion of 30 November 2024. On completion of the purchase order, 77.96 tons of PCB-contaminated equipment and waste will be transported for disposal abroad. Furthermore, a new bidding was advertised on 3 September 2024 with an extended closing date of 24 October 2024. Upon conclusion of a purchase order with a potential successful bidder, an estimated 43 tons of PCB-contaminated equipment and waste is expected to be transported for disposal overseas.

Moreover, an 8-month extension was approved with a twice extended project closure date of 1 January 2025.

The TE Consultant considered the enhanced legislative measures, in particular the establishment of the Directive on PCB Management, the increased awareness on the dangers of PCB posted on human health and environment, the strengthening of technical and management capacities on environmentally sound management of PCBs and the upgraded temporary storage facilities by the twice extended project closure deadlines being the positive results achieved. However, despite the expedited efforts, the disposal of PCB-contaminated equipment and waste still falls short of the 150 tons end-of-project target.

Importantly, the Project's outcomes achieved so far have broader implications, as they align with the Country's top priority of addressing PCB issues through reducing the risks posted by PCBs to the environment and human health. The project results generated **will contribute towards the project objective of reducing risks of exposure to PCBs, reducing PCB-contaminated equipment and waste, to assist the Country to meet the Stockholm Convention's 2025 deadlines on PCBs**.

In summary, the Project has practically achieved its objective by enhancing legislative measures, strengthening capacities and developing National and Facility PCB Management Plans to ensure ESM of PCBs, reducing exposure to risks of PCBs. Additionally, the project's alignment with international convention, fulfillment of national targets and obligations, and contributions to global environmental benefit underline its acceptable performance and positive impact on Ethiopia's development priorities. However, such achievements were achieved after one year and 8 months extension of the project duration as a result of cascading delays caused by external challenges. While ESM of PCB has been facilitated by strengthened technical and management capacities, commitments exist on the upgrading of the temporary storage facilities, and the PCB disposal target is being partially met, challenges remain that will required the IP and UNDP's continuous and on extra proactive monitoring and follow-up actions on: gender equity and women's empowerment, timely actual completion of the upgrading of storage facilities, and the actual accompaniment of the PCB disposal that partially met the target. Tthese factors form the basis for the **TE Consultant's rating of the project's effectiveness as Moderately Satisfactory (MS)**.

3.3.4 Efficiency

The strength of the Project is the enhanced legislative measures, the strengthening of technical and management capacities through the training sessions and capacity building activities conducted by UNITAR, and the development of the National and Facility PCB Management Plans to facilitate ESM of PCBs. Despite the challenges posted by the COVID-19 pandemic and its subsequent supply chain issues, and the unforeseen external challenges, the Project Manager was able to undertake adaptative management to somewhat mitigate these obstacles at the early stage of implementation, though with only partial success during the later part of implementation. Implementation of some critical project activities progressed somewhat slowly requiring the first 12-month extension of the project. Nonetheless, 11 of the 13 Outcome Indicators were achieved at the time of the Terminal Evaluation mission in February 2024, resulting in strengthened technical and management capacities on PCB management and increased awareness, but with two critical end-of-project targets evaluated to be not being achieved by the first extended project closure of 1 May 2024.

Responding to recommendations by the TE Consultant on taking expedited procurement actions and seeking a second extension of the project closure, contract for conducting ESIA for the three temporary storage facilities was finalized and ESIA reports and environmental assessment were completed in June 2024. Finalization of a Purchase order for PCB disposal/dechlorination services will yield disposal of 77.96 tons of PCB-contaminated equipment and waste by contract completion of 30 November 2024. A new bidding if resulted in signature of a contract and conclusion of disposal work will yield an additional 43 tons of PCB disposal. Thus, an estimated total of 120.96 tons will be transported and disposed of abroad but will fall short of the 150 tons end-of-project targets. As a result of the delay in contract performance on actual start of the disposal/dechlorination services by the contractor, Greenway Finance B.V., and in the absence of a progress report and confirmation when the contractor will return to Ethiopia to undertake actual disposal activities, the TE Consultant is unable to conclude that the project will actually achieve the planned reduction quantity of 77.96 tons by the extended project closure.

Overall, the Project's efficiency in the implementation of project activities can be attributed to the achievement of enhanced legislative measures, completion of PCB inventory, strengthened of technical and management capacities

in ESM of PCB, increased awareness, development of the National and Facility Management Plans and the Tracking System. However, while recognizing the expedited actions that resulted in the completion of ESIA for the storage facilities, and the contract for disposal/dichlorination services to dispose of 78.96 tons of PCB, and the second bidding to dispose of additional quantity of PCB, the TE Consultant is also mindful of the fact that these actions may still risk not being able to be completed by the commitment date, or contractual date. The TE Consultant took note of the external challenges in the initial phase of project implementation, but also noting that one critical part of the project objective "The present project will include the identification and disposal of 150 tons of PCB-contaminated equipment and waste" have only been partially achieved (with no certainty of being completed by project closure) and that the planned replication and knowledge sharing have yet to commence**, the TE Consultant rated the efficiency of the project as Moderately Satisfactory (MS**).

3.3.5 Overall Project Outcome

Overall, the Ethiopia PCB project, upon a one year and 8 months extension beyond its original 48-month project duration, has demonstrated satisfactory achievement of 12 of its 13 Project Outcome Indicators, contributing towards accomplishment the Project Outcomes, leading to reaching the project objective, reasonably underscoring high relevance, moderately satisfactory effectiveness and efficiency in achieving its objectives and expected outcomes, but falls short of the 150-tons disposal target of PCB-contaminated equipment and waste. Through the prudent utilization of the GEF grant fund, the project has successfully established and enhanced legislative measures including the Directive on PCB Management approved by the Attorney General, signed by the Minister of Ministry of Planning and Development and accepted by the Ministry of Justice, the development of National and Facility PCB Management Plans, the strengthening of technical and management capacities to ensure ESM of PCBs, increased awareness on dangers of PCB to environment and human health, limited success in gender equity and women's empowerment, thus reaching the project's objective to reduce the risks posed by PCBs to the environment and human health, contributing to safer and healthier working conditions and environmental protection.

Another partial achievement of the project will be the eventually disposal/dechlorination of an estimated 120.96 tons of PCB-contaminated equipment and waste towards or subsequent to the twice extended project closure of 1 January 2025. This project results will help the Country to meet its obligations under the Stockholm Convention, at the same time, the identified disposal technologies will have the potential (perhaps post project completion) to be replicated throughout the Country, to facilitate the Country meeting the 2025 deadline on addressing PCBs.

The overall reasonably success of the project can be attributed to adaptative management undertaken at the early stage of implementation of project activities, in particular, the proactive actions against the negative impacts of the COVID-19 pandemic whereby meetings, training sessions, capacity building workshops and awareness raising events were moved to online platform, mitigating somewhat the severe impacts and disruptions. However, the efforts for adaptative management were not as successful on obstacles and challenges posed on the procurement activities at the later stage of project implementation, unavoidably caused significant delays that warranted the first 12-month extension of the project, and a not favorable Mid-Term Review. This was followed by an initial conclusion of the Terminal Evaluation that determined two critical end-of-project targets were not likely to be achieved at the extended project completion of 1 May 2024. With recommended expedited actions, ESIA was concluded in June 2024 for the three temporary storage locations at EEU, EEP and EEG, including environmental assessments for pre-construction, construction and operation phases, but there is no confirmation of actual upgrading activities but commitments from the equipment holders that upgrading will be completed by "30 November 2024" or "as soon as possible".. Purchase order was concluded for disposal/dechlorination services and a second bidding was initiated in September 2024. Should the second purchase order be also concluded and disposal work completed by project closure, an estimated total of 120.96 tons of PCB-contaminated equipment and waste will be transported and disposed abroad by the twice extended project completion date of 1 January 2025.

In conclusion, the Ethiopia PCB project has demonstrated reasonably successful achievement of project outcomes. The project results cover enhanced legislative measures, development of National and Facility PCB Management Plans, strengthened technical and management capability, increase awareness on dangers of PCBs to environment and human health. The Project has ensured an adequate level of sustained capacity for the sound management of PCBs would have been built for the management of any further such hazardous waste identified after the Project's closure, But these achievements were achieved only after a one year and 8 month extension of the 48-month

project. Moreover, only limited success was observed on gender equity and women empowerment, and the end-of-project disposal target of 150 tons of PCB-contaminated equipment and waste may be partially met just before the twice extended project closure. For these reasons, and the fact that **the project's objective to reduce risks posted by PCBs to the environment and human health and the identification and disposal of 150 tons of PCB-contaminated equipment and waste is only partially met, the TE Consultant rated the Overall Project Outcome as Moderately Satisfactory (MS).**

Table 18: Assessment of Outcomes Ratings Table	
Assessment of Outcomes	Rating
Relevance	Highly Satisfactory (HS)
Effectiveness	Moderately Satisfactory (MS)
Efficiency	Moderately Satisfactory (MS)
Overall Project Outcome Rating	Moderately Satisfactory (MS)

Table 19: Outcome Rating Scale – Relevance, Effectiveness, Efficiency

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

3.3.6 Sustainability: Financial, Socio-Political, Institutional Framework and Governance, Environmental, Overall Likelihood Of Sustainability

The TE Consultant assessed sustainability of the project in four aspects; financial, socio-political, institutional framework and governance, environmental.

Financial Sustainability

In terms of financial sustainability, the TE Consultant observed the willingness of the three PCB-contaminated equipment holders and their recognition of their obligations and need to address PCBs in view of the Stockholm Convention deadline. The TE Consultant also recognized the extensive training sessions, capacity building workshops, in particular, the training workshop on PCB Management, Handling, Transport Storage, and Elimination Strategy conducted for various project partners, including federal EPA, EEU, EEP and EEG that has resulted in strengthened technical and management capacities, and the fostering of safe working environment and workers health, all these action could have enticed the participation of the PCB equipment holders, and their willingness to provide co-financing to undertake disposal actions.

However, the slow responses to project interventions and time taken to generate positive project results, for example, the upgrading of the temporary storage facilities have also created potential delay and disruptions and undermine their potential for current and future financial commitment. Furthermore, as a result of the delay in the disposal/dechlorination services, the replication of the identified disposal technologies has not commenced **and the potentials for future financial commitment is still unknown, the TE Consultant thus rated the Financial Sustainability of the project as Moderately Likely (ML)**.

Socio-political Sustainability

The TE Consultant conducted an assessment of the socio-political sustainability impact of the project and recognized the project has addressed social-political sustainability in reducing risks of PCB exposure. The technical and management capabilities strengthening efforts of the Federal EPA, EEU, EEP and EEG management, technical and operational personnel enhanced their knowledge and understanding about risks of PCBs and the importance of environmental sound management of PCBs, safe working environment and empowered their awareness on worker's health. At the same time, awareness raising strategy developed and implemented, targeting government, public and private sector, civil society, local communities and community leaders have promoted awareness on the dangers of PCBs, have contributed to the overall socio-political stability.

While the project scored only limited action on gender equality and women's empowerment, however, with the completion of the Gander Dimension Study and the development of an excellent Gender Analysis and Action Plan though not fully implemented, coupled with the fact that the Project Steering Committee (PSC) was co-chaired by both women having sound decision making in the PSC and who held lead position in environment, health and safety, have thus given women opportunity to take into account all aspects of gender and the adverse effect of PCB chemical to women. These actions may have promoted women's participation, and could improve the socio-economic well-being of women.

Furthermore, the project's engagement with mufti-groups and dimensions of stakeholders have strengthened social ties and fostered a sense of ownership and collective responsibility. The project has also fostered improved coordination and cooperation among stakeholders. This collaborative approach has facilitated constructive engagement, leading to improved coordination and cooperation among stakeholders.

Overall, the project's socio-political sustainability impact has been positive, contributing to positive social and political changes in addressing PCBs. By empowering communities, efforts in gender equality, and fostering collaborative partnerships, the project has created an enabling environment for responsible and sustainable PCB management practices. **The TE Consultant's rating reflects the project's potential to continue generating socio-political benefits and rated the Socio-political Sustainability of the project as Moderately Likely (ML).**

Institutional framework and governance sustainability

The TE Consultant assessed the institutional framework and governance sustainability of the project and acknowledges the project has made progress in strengthening the institutional framework and improving governance structures with PCB management.

The project's support in establishing the Directive on PCB management and the implementation of regulations and policies is one key achievement of the project results. With the strengthened technical and management capacities of government agencies, PCB-equipment holders and its workforce and key stakeholders through various training sessions, capacity building workshops and awareness raising events, environmentally sound management of PCBs has been facilitated at the PCB-contaminated equipment holders and its workforce. With PCB disposal technologies identified and disposal/dechlorination services initiated, it has institutionalized practical, safe and sustainable disposal of PCBs at the facilities, knowledge and experience gained can be further replicated and institutionalized at other PCB facilities. By collaborating with relevant government agencies and stakeholders, the project has contributed to the establishment of solid institutional frameworks that aim to promote and encourage best environmental practices. This will lead to improved governance structures, enhanced transparency, and better PCB management and enforcement of regulations.

Despite these achievements, challenges remain in capacity, knowledge and technology transfer to relevant institutions, due to delay in completing the upgrading PCB temporary storage facilities and the

disposal/dechlorination services to achieve reduction of PCBs only at the very end towards project completion, no replication of knowledge and technology have been initiated.

Overall, there have been acceptable achievements in enhancing the institutional framework and governance for environmentally sound management of PCBs, the rating of "Moderately Likely" reflects the remaining challenges that need to be addressed. **Continued efforts to strengthen governance structures will be essential to ensure the long-term sustainability of the institutional framework and governance of PCB management. The TE Consultant thus rated the Institutional framework and governance sustainability of the project as Moderately Likely (ML)**.

Environmental sustainability

The project has made important efforts to address environmental concerns and promote sustainable practices on environmentally sound PCB management. Through a series of training sessions, capacity building workshops and awareness raising events, the project has successfully strengthened technical and management capacities of the PCB-contaminated equipment holders and its workforce to engage in safe operation and sound management of PCB. Temporary storage facilities at EEU, EEP and EEG have been upgraded to avoid leakage and ground and water contamination.

On the legislative side, the Directive for PCB Management was established, approved by the Attorney General, singed by the Minister of Ministry of Planning and Development and accepted by the Ministry of Justice. In addition, National PCB Management Plan was established, as well as the Facility PCB Management Plan established for EEU. While Gender Dimensions Study was conducted and an excellent Gender Analysis and Gender Action Plan was developed but not fully implemented, thus produced limited successful results in gender equity and women's empowerment.

Thus, the project has focused on building a solid foundation and strengthened capacities to promote responsible PCB management practices and environmental conservation. On the other hand, the project started the disposal/dechlorination services only toward the very last part of the twice extended project completion, and the disposal of an estimated 120.96 tons against the 150 tons target by the project completion date of 1 January 2025 is still not yet certain. In view of the delay, the replication activities and technology transfer will not take place prior to project completion. Thus the project will contribute to only limited reduction in PCBs and limited impact on local ecosystems and communities.

Overall, the project has achieved notable progress in enhanced legislative measures, strengthened technical and management capacities, and awareness raising to facilitate environmental sound PCB management, promoting environmental sustainability, the **rating of "Moderately Likely (ML)" reflects the delay in initiating PCB disposal, making it impossible to initiate the replication activities and technology transfer process prior to project completion. The TE Consultant thus assessed the environmental sustainability of the project and rated it as Moderately Likely" (ML).**

Overall Likelihood of Sustainability

The TE Consultant conducted a comprehensive assessment of the project's overall likelihood of sustainability and assigned a rating of "Moderately Likely" (ML). The project has made notable achievements and important impacts in effective environmentally sound OPCB management, through completion of a comprehensive national PCB inventory, strong legislative measures, strengthened technical, and management capacities, development of National and Facility PCB Management Plans, limited success in gender equity and women's empowerment, and partial achieved end-of-project PCB disposal targets. The project results can be used to evaluate impacts across various dimensions, including financial, socio-political factors, institutional framework and governance, and environmental sustainability. The collaboration efforts between the government, UNDP, and other stakeholders have played an important role in driving these reasonably positive outcomes.

In terms of financial sustainability, the project has built a solid foundation to equip the PCB-contaminated equipment holders and its workforce to be able to undertake environmentally sound PCB management through training sessions, capability building workshops and awareness events. The government, in particular EPA, along with the UNDP Team, have actively collaborated with the PCB-contaminated equipment holders and supported them in making their commitments to undertake responsible and sustainable actions in upgrading their temporary storage

facilities and the safe disposal of PCB-contaminated equipment and waste. With initial financial support from the GEF grant of the project, and their co-financing commitment, will ensue acceptable financial sustainability. Despite these achievements, challenges persist in the replication and technology transfer due to the delayed initiation of the disposal/dechlorination services. The government and UNDP Team's continued commitment to collaborate with the PCB equipment holders for continued action will further enhance financial sustainability.

The socio-political impact of the project has been commendable. The collaborative approach fostered among stakeholders, facilitated by the government and the dedicated UNDP Team, the strengthened technical and management capacities of the PCB equipment holders and its workforce, together with the awareness raising strategy targeting government, public and private sector, civil society, local communities and community leaders have yielded tangible knowledge and benefits on sound management of PCBs. Equally important is the project's actions on gender equality and women's empowerment, though limited in its actual implementation, has however generated sufficient awareness on the dangers of PCBs and may yield positive behaviour changes. Nonetheless, additional efforts are needed to engage gender-based participation and support. The government and UNDP Team's ongoing dedication to addressing these issues will contribute to the sustained socio-political sustainability of the project.

The institutional framework and governance aspects of the project have been enhanced by effective coordination and collaboration among government agencies, PCB-contaminated equipment holders and key stakeholders. The support and guidance from the government and the UNDP Team will further solidify a strong institutional framework. However, challenges related to inconsistent execution and irregular timeline exhibited by the PCB equipment holders will need additional support and guidance from the government and the UNDP Team to ensure the long-term sustainability of institutional framework and governance.

Regarding environmental sustainability, the project has achieved noteworthy progress in building a solid foundation for environmentally sound PCB management regime, but with a delayed and limited PCB reduction, has nonetheless contributed to reduced risk of PCB exposure. While a responsible and sustainable disposal scheme has been established, government and UNDP Team’s continuous monitoring, effective enforcement and promotion of best practices will further fortify the project's commitment to environmental stewardship.

Overall, the "Moderately Likely (ML)" rating for Overall Likelihood of Sustainability recognizes the project's noteworthy accomplishments and acknowledges the government's and UNDP Team's proactive engagement in ensuring project sustainability. With government and UNDP Team’s collective efforts and support to address the identified challenges, will solidify the project's overall likelihood of sustainability, leading to responsible and sustainable ESM of PCB management.

Table 20: Sustainability Ratings Table

Sustainability	Rating
Financial sustainability	Moderately Likely (ML)
Socio-political sustainability	Moderately Likely M(L)
Institutional framework and governance sustainability	Moderately Likely (ML)
Environmental sustainability	Moderately Likely (ML)
Overall Likelihood of Sustainability	Moderately Likely (ML)

Table 21: Sustainability Rating Scale

Raging	Description
4 = Likely (L)	There are little or no risks to sustainability
3 = Moderately Likely (ML)	There are moderate risks to sustainability
2 = Moderately Unlikely (MU)	There are significant risks to sustainability
1 = Unlikely (U)	There are severe risks to sustainability
Unable to Assess (UA)	Unable to assess the expected incidence and magnitude of risks to sustainability

3.3.7 Country ownership

The project design was built on the top priority placed by the Government of Ethiopia's National Implementation Plan (NIP) in PCB elimination, to meet the Stockholm Convention's 2025 deadline in fulfilling its obligations under the Stockholm Convention, and to reduce risks posed by PCB to the environment and human health. During project design and implementation, the project involved close engagement with PCB-contaminated equipment holders and key stakeholders for collaborative actions. There was strong support from government agencies and active participation and engagement of the PCB equipment holders, and technical and management support from various levels of key stakeholders and cross-ministries officials. Active participation and constant support demonstrate solid ownership to achieving the objective of the project, for a responsible and sustainable ESM of PCB management and sustainable reduction of PCB-contaminated equipment and waste in the country.

Overall, the close involvement and extensive support from government agencies, in particular EPA, the active participation of the PCB equipment holders, national laboratory, the strong involvement of key stakeholders and cross-ministries support were crucial in realizing the satisfactory achievements with the active implementation of the project's interventions. Participation of senior officials in the Project Steering Committee (Project Board) also suggests effective coordination and collaboration among various stakeholders. PSC being co-chaired by both women who held lead position in environment, health and safety also signify the importance the government placed on gender equity and women's empowerment. All these aspects demonstrate a strong country ownership, and the eagerness to see the country's effort in reducing and eliminating PCBs.

3.3.8 Gender equality and women's empowerment

A Gender Dimensions Study on the context of PCB issues in Ethiopia was completed, and an excellent Gender Analysis and Action Plan was developed but the Gender Action Plan was not fully implemented in terms of engaging a women society organization and to organize the communication that will specifically reach women. Furthermore, while women were invited to participate in the training sessions, and capacity building workshops, the percentage of attendance remained at roughly at the average 25% level. While the Project Management Unit(Project Manager) was encouraged to assign member of PMU as the focal point of gender to advance the Gender Action Plan, being the sole member of the PMU, despite the efforts of the Project Manager, limited success resulted.

On the other hand, it is noted that the Project Steering Committee was co-chaired by both women who held lead position in environment, health and safety (Deputy Director General and the Environmental and Social Directorate Director of EEU), were in a position to make sound decision-making in the PSC meetings. This highlighted the importance the government placed on gender equity and women's empowerment, and has given women opportunity to take into consideration all aspects of gender and increased their awareness of the adverse effects of PCB chemical on women. In addition, panel discussion was organized to highlight the involvement and significance of women and youth in environmental preservation.

Overall, the TE Consultant noted the significant representation of women in the Project Steering Committee and their sound decision-making in PSC meetings, but also lament on the project's limited women's participation in project activities and insufficient impacts on specific focus on gender issues and women's empowerment. The project's effort on gender equity and women's empowerment, and social inclusiveness could be further strengthened by additional efforts and support from the UNTP Team and the government.

3.3.9 Cross-cutting Issues

Cross-cutting issues (including gender equality, rights-based approach, capacity development, poverty-environment nexus, crisis prevention and recovery, disaster risk reduction, climate change mitigation and adaptation, as relevant) were evaluated, considered and analyzed throughout the Terminal Evaluation as to how the project interventions and expected results have been related to and/or impacted by the achievements of project results.

While the objective of the project is to support Ethiopia with the necessary technical and financial assistance to reduce the risks posed by PCBs to the environment and human health so as to promote responsible and sustainable environmentally sound management of PCBs. Completion in conducting the National Comprehensive PCB Inventory has enabled the establishment of a National PCBS Inventory Database, the development of the National and Facility PCB Management Plans, and the establishment of the National PCB Tracking System, all of which were excellent tools to facilitate timely and effective PCB management which will contribute to a safer and healthier environment for the population at large.

The project has produced technical and procedural guidance on identification, sampling and labelling of PCB equipment as contained in the PCB Management Plan, to guide environmental authorities on Stockholm and Basel Conventions in their discharge of responsibilities. BAT/BEP for PCB treatment and disposal operations was adopted and document on chemicals response procedures and mechanisms finalized. All these specific documents highlight the Project's commitment to integrating cross-cutting issues into PCB management practices, contributing to national and global environmental benefits. By disseminating this knowledge, the project enhances capacity development, and contributes to environmental sustainability. The availability of these resources empowers stakeholders with practical guidance, fostering responsible PCB management practices and paving the way for a more sustainable and inclusive PCB management process.

3.3.10 GEF Additionality

GEF Additionality is a key aspect of the project that was assessed during the terminal evaluation, following the guidelines provided by UNDP. The evaluation aimed to determine whether the project had achieved GEF Additionality, which refers to the extent to which the project has generated environmental benefits beyond what would have been achieved in the absence of GEF support.

The TE Consultant found that the project demonstrated a clear case of GEF Additionality. The GEF funding provided crucial financial resources that enabled the Country to implement activities that were not deemed as priority by the PCB equipment holders as they were either not fully aware of the urgency, the need or the deadlines for the elimination of PCBs, or reluctant to take action in the absence of external financial support. The project design and implementation supported practical and rational approaches, identified appropriate disposal technologies and best practices for environmentally sound PCB management, which contributed to the reduction of PCB-contaminated equipment and waste, facilitating the equipment holders to resolve a long neglected situation, and to assist the equipment holders and the Country in meeting their obligations mandated by the Stockholm Convention.

Furthermore, the GEF support enhanced the project's capacity to engage relevant stakeholders, such as government agencies, technical entities, and local communities, in collaborative efforts to address the environmental challenges of PCB management and disposal. The project's success in generating multi-stakeholder partnerships and facilitating knowledge exchange was directly attributable to the GEF's catalytic role in mobilizing support and fostering cooperation.

In conclusion, the terminal evaluation confirmed that the project achieved minor GEF Additionality by going beyond business-as-usual practices and delivering environmental benefits that would not have been realized without GEF support.

3.3.11 Catalytic/Replication Effect

The terminal evaluation of the project also assessed its catalytic and replication effects, in line with the guidelines provided by UNDP. The evaluation aimed to determine the extent to which the project had catalyzed transformative changes and demonstrated potential for replication beyond the project's scope.

The TE Consultant found that the project had an adequate catalytic effect on the ESM of PCBs in Ethiopia. By

strengthening technical and management capacities in PCB management and implementing appropriate and sustainable technologies, and introducing and promoting sustainable best practices, the project served as a catalyst for change. It demonstrated the feasibility and viability of environmentally sound and sustainable PCB disposal, inspiring other stakeholders to adopt similar approaches.

The project's collaborative approach in the engagement of key stakeholders at various levels, including government agencies, technical entities, and local communities had created opportunities for learning, knowledge exchange, and potential for replication of best practices. Lessons learned, knowledge and experiences from disposal/dechlorination services could eventually be shared widely, both within Ethiopia and countries in the region undertaking similar activities, fostering effective replication of environmentally sound disposal of PCBs to meet the Stockholm Convention's 2025 and 2028 deadlines.

The TE Consultant concluded that the project's catalytic effects were noteworthy and promising, its potential replication in the near future will generate valuable benefits to national and the global environment. The project's achievements serve as a valuable resource for future initiatives, contributing to the broader goal of responsible and sustainable PCB management and disposal.

3.3.12 Progress to Implementation

With the achievements of the project results, it will lead to significant long-term impacts on:

1) **Enhanced regulatory framework and strengthened technical, managerial and enforcement capacities:** Strengthen capacities at government agencies, PCB equipment holders and its workforce will deliver improved governance and oversight. The project has built solid foundation to ensure environmentally sound PCB management, contributed to the development and implementation of policies and regulations, enhanced capacities that promote responsible and sustainable PCB management and disposal. The strengthened regulatory framework will help ensure the enforcement of environmental and social safeguards, leading to a safer and more environmentally managed PCB regime.
2) **Usage of National PCB Inventory, National PCB Database and National PCB Tracking System:** Data and information related to PCB will provide government agencies, public and private sector and general public access and as useful tools for planning, research, study and monitoring.
3) **Public awareness, knowledge sharing, and better understanding of the dangers posed by PCBs** PCB equipment holders, workers, local communities and general pubic were much more aware of the dangers of PCBs posted to the environment and human health, the risks and impacts that will bring them to undertake better and more environmental preservation.
4) **Adaptation of appropriate and sustainable disposal technologies and best practices:** With appropriate and sustainable disposal technologies identified, the introduction and promotion of responsible, sustainable and best practices with regard to PCB disposal, will facilitate knowledge and experience sharing. Further increased project impacts will be achieved with the possibility and potential for future replication national-side, and in neighbouring countries in the region undertake similar activities. With the upgrade of temporary storage, and the commencement of actual PCB disposal, the project has been able to reduce risks posted to the environment and human health, paving the way for the Country to meet the Stockholm Convention deadlines, and fulfil its obligations.
5) Though not as successful, the project's collaborative effort in engaging a wide variety of stakeholders and partners **has fostered inclusive and equitable development**. The project's focus on gender sensitivity and women's empowerment, though limited in implementation and results, has nonetheless developed an excellent Gender Analysis and Action Plan that could still be implemented to yield significant results in gender equity and promote equal opportunities to contribute to overall socio-economic well-being.

Overall, the project's progress in implementation has laid a strong foundation for long-term impacts and positive change environmentally sound PCB management. The achievements in enhancing the regulatory framework, strengthening technical, management and enforcement capabilities, adopting and promoting appropriate and sustainable PCB disposal technologies, raising awareness and the partial elimination of PCBs demonstrate the project's commitment to sustainable development and its potential to create lasting benefits for the environment,

local communities, and stakeholders involved. However, it is noted that such achievements were achieved only after a one year eighteen months, twice extended project implementation of the original four-year project duration.

4.0 MAIN FINDINGS, CONCLUSIONS, RECOMMENDATIONS & LESSONS

This section describes key strengths and limitations of the project based on the findings discussed in Section 3. The evidence-based findings are formulated based on data and information gathered from document review, cross-checked and validated with comments, statements and responses from in-depth interviews and focus group discussions, and on-site observations during the TE mission in Ethiopia. The identified limitations serve as a basis for developing practical recommendations for actions to be undertaken within the next three months prior to the project's (extended) closure date of 1 January 2025. Moreover, key lessons drawn from the findings can guide subsequent projects related to replication and further responsible and sustainable PCB disposal, to enable the Country to meet the Stockholm Convention deadlines of 2025 and 2028 on PCBs.

4.1 Main Findings and Conclusions

Overall, the TE Consultant, In the evaluation of the project, found several strengths contributing to the successful achievements of many of the project outcomes and the project objective of "to reduce the risks posed by PCBs to the environment and human health". The following key strengths were identified in accordance with the GEF evaluation criteria of: relevance, effectiveness, efficiency and sustainability.

Relevance: The project was well designed and formulated with clear and well-defined objective, outcomes and planned activities. **The project was relevant to Ethiopia's National Implementation Plan on Persistent Organic Pollutants which prioritized the effective management of PCBs being among the most toxic and persistent POPs listed in the Stockholm Convention, to meet the Convention's deadline of PCB elimination by 2025**. The project is well-aligned with national sustainable development objectives and strategies such as the Environmental Policy, Sustainable Development and Poverty Reduction Strategy Program (SDPRP), and Plan for Accelerated and Sustainable Development to End Poverty (PASDEP). The project is fully aligned to the UN Development Assistance Framework (UNDAF) Ethiopia's five-year national development plan, the Growth and Transformation Plan (GTP).

Effectiveness: After a 5 year 18 month implementation of project activities led to a solid foundation for effective PCB management built on project results of enhanced legislative measures, completion of National PCB Inventory, development of National PCB Database, National and Facility PCB Management Plan, PCB Tracking System, strengthened technical, management and enforcement capacities. **These project results contributed to an effective environmentally sound PCB management and raised awareness on the dangers of PCBs posted to the environment and human health**. Challenges still remain that require the IP and UNDP's proactive monitoring and follow-up as there is no concrete report of progress to conclude that the upgrading of temporary storage facilities and the disposal of 120.96 tons (77.96 tons plus 43 tons) of PCB-contaminated equipment and waste will be completed by project closure.

Efficiency: As the result **of** project activities implemented, the foundation for effective PCB management was established. This achievement was made possible with proactive adaptative management undertaken by the Project Manager at the early stage of project implementation to minimize the negative impacts of the COVID-19 pandemic and subsequent supply chain challenges. However, such adaptative management efforts were not as successful in addressing the changes posted by the procurement process, causing delays in the upgrading of storage facilities, and the disposal/dechlorination services of PCB-contaminated equipment and waste. Furthermore, limited successful efforts were noted in gender equity and women's empowerment. Despite the fact that ESIA and ESMP were finalized in June 2024 for the three temporary storage locations, and that one purchase order for disposal/dechlorination services will dispose 77.96 tons of PCB-contaminated equipment and waste by 30 November 2024 and another bidding process will result in another purchase order to dispose an estimated 43 tons of PCBs by (extended) project closure. Nonetheless, as of the finalization of the TE Report, there is no report of actual progress to conclude the completion of these activities by project closure date of 1 January 2025, two months away.

Outcomes and Impacts: Overall, the project results achieved have contributed to the accomplishment of 12 of the 13 Outcome Indicators, contributing to the achievement of the four Project Outcomes and contributing to reaching the project objective of reducing the risk of PCB posted to the environment and human health, facilitating the Country to meet the Stockholm Convention 2025/2028 deadlines of PCB elimination. **Thus, the project's outcomes**

and impacts were evident through the enhanced legislative measures, strengthened technical, management and enforcement capabilities, increased awareness. While the end-of-project PCB disposal target was only partially met, PCB disposal will nonetheless generate a positive example and an incentive for PCB-contaminated equipment holders to continue PCB elimination, promote replication (post project completion) and facilitate technology transfer for responsible and sustainable PCB management and disposal.

Sustainability: The project has generated various levels of satisfactory achievements that will reflect on various dimensions of financial, social-political, institutional framework and governance, and environmental sustainability, With the effective collaboration between government agencies, UNDP Team and key stakeholders, the strengthened technical and management capacities and the commitment of PCB equipment holders, there most likely would be solid ground to ensure both financial sustainability and institutional framework and governance sustainability. The collaborative approach, the engagement of diverse groups of stakeholders and the increased awareness of the dangers of PCBs have strengthened social-political sustainability. In terms of environmental sustainability, all the implemented project activities were aimed at reducing the risks of PCB exposure, improving workplace safety and promote workers health, leading to and solidify environmental sustainability.

Gender, Women's empowerment and Social Inclusion: Gender Dimension Study in the context of PCB issues in Ethiopia was completed and an excellent Gender Analysis and Action Plan was developed but not fully implemented resulted in limited achievement in terms of gender equity and women's empowerment. On the other hand, the Project Steering Committee was co-chaired by both women who held lead position in environment, health and safety, being able to make sound decision-making at PSC meetings, and gave women opportunity to take into consideration all aspects of gender and aware of the adverse effects of PCB chemicals on women.

While recognizing the several strengths of project results, the TE Consultant also identified several limitations and areas of improvement that would benefit from improvement actions to be undertaken prior to the extended project closure, leading to practical recommendation and suggested actions as contained in Section 4.2 below.

- An excellent Gender Analysis and Action Plan has been developed by the project, yet its full implementation has not taken place, and communications to specifically reaching women were not executed. Furthermore, the participation rate of women in previous training sessions, capacity building workshops and awareness events average at only 25%, showing only **limited achievement and impacts in this important gender issue**.

- By June 2024, as a result of expedited procurement action, ESIA has been conducted for the three temporary storage facilities at EEU, EEP and EEG. The ESIA report and the ESMP formulated for each location contain assessments for the pre-construction, construction, operation phases and the related environmental and social impact and impact mitigation measures. **With the assessment completed at this late stage of the extended project duration, PCB equipment holders will need to take immediate action to ensure completion of the upgrading prior to project closure. IP and UNDP will need to exercise proactive actions on monitoring and follow-up on progress.**

- With the conclusion of one purchase order on 30 April 2024to undertake disposal/dechlorination of PCBs, 77.96 tons of PCB-contaminated equipment and waste were to be transported and disposed abroad. However, due to challenges encountered in arriving in Ethiopia, work schedules have been delayed. Furthermore, a second bidding for disposal/dechlorination services was advertised 3 September with closing date of 2 October 2024. If a purchase order is concluded and disposal completed by project completion, it will yield an estimated 43 tons of PCBs disposal. At this point, it is not indication that a successful bidding and an agreed purchase order will be finalized, and more importantly, if the disposal can be completed within the 2 months remaining of the project duration. Even if both purchase orders and disposals were achieved by project completion, **the total quantities of PCB-contaminated equipment and waste that will be disposed of, 120.96 tons, will still fall short of the 150 tons end-of-project target**.

- Project Outcome 4 is described as "Monitoring, evaluation and replication ensured". Due to delays in the screening and laboratory analysis of the collected samples to determine PCB concentration and the quantities of PCBs to be disposed of, and the delay in arrival of the contractor (Greenway Finance N.V.) in Ethiopia in late September 2024 (originally scheduled to be completed by June 2024 as per terms of the contract), as of the finalization of the TE Report in late October 2024, there is still no confirmation on when

the contractor will return to Ethiopia to undertake **actual treatment/packaging/transport/disposal services but only commitment that it will be completed by the contract terms of 30 November 2024, there exists risks of completing the disposal by 30 November 2024 or even by 1 January 2025 project closure. Thus, replication based on PCB disposal knowledge and experience, knowledge sharing and technology transfer all will not be possible to start prior to project closure.**

4.2 Recommendations

With regard to the limitations and areas of improvements highlighted above, the project will need to undertake further activities within the next two months prior to its closure to ensure its further achievements, to upscale the project's good results and to make the project impact more sustainable.

Table 22: Summary of Recommendations

No.	TE Recommendation	Entity Responsible	Time frame
A	Category 1: Follow-up Actions		
A1	**Organize training sessions and workshops targeting women's group to promote awareness on dangers of PCB including use of audio-visual and printed promotional materials.** **Seek collaboration with women's groups/organization to engage them in implementing the Gender Action Plan** Action to be taken: 1). Organize training sessions and capacity building workshops tailormade for women participants, 2). Ensure production of gender-sensitive promotion materials are distributed, 3). Seek cooperation and collaboration of women's groups/organizations and engage them to undertake gender dimension awareness raising.	UNDP Team and EPA	November – December 2024
A2	**Undertake proactive actions to facilitate the upgrading of temporary PCB storage facilities at EEU, EEP and EEG to ensure safe storage of PCB contaminated oil and equipment, and to avoid accidental leakage.** Actions to be taken: 1). As ESIA and ESMP has been prepared, completed with assessment reports for pre-construction, construction, and operation phases including related environmental and social impact and impact mitigation measures, organize and work with EEU, EEP and EEG to push forward to immediately commence construction works to upgrade the temporary storage, 2) Undertake monitoring and follow-up actions on construction progress, and 3) Ensure current contaminated oil and equipment are relocated to the upgraded storage facilities. This will avoid leakage and unsafe storage prior to final disposal.	UNDP Team and EPA	November – December 2024

A3	**Conduct bid analysis immediately upon closing date to conclude a Purchase Order with winning bidder.** **Undertake monitoring and follow-up actions on progress of PCB disposal to avoid slippage and further delay.** <u>Actions to be taken:</u> 1). Upon bid closing date, undertake immediate bids analysis with technical support to conclude a purchase order with potential winning contractor, to ensure disposal actions can be completed prior to project closure, 2). In response to latest report of delay by the first contractor, undertake monitoring and close follow-up actions to facilitate entry to Ethiopia, and seek revised work schedules, monitor progress to ensure timely completion of assessment, packaging and transport of PCB-contamination equipment and waste for disposal abroad; 3) Undertake continuous monitoring and follow-up actions on the contractors' disposal progress to avoid slippage and delay, and 4) Provide in-country assistance possible to facilitate contractors' disposal actions..	UNDP Team and EPA	November – December 2024
A4	**Conduct replication of PCB disposal and facilitate knowledge sharing and technology transfer.** <u>Action to be taken:</u> 1). Even with the delayed start of PCB disposal, since disposal technology has been identified, seek potential candidate to undertake replication, utilizing the knowledge and experience of the contractors while they are in-country to undertake disposal actions; 2). With cooperation and assistance of the PCB disposal contractors, initiate replication with an identified PCB-contaminated equipment holder; and 3) Organize knowledge sharing workshops and invite stakeholders and project beneficiaries to share knowledge and experience sharing, and technology transfer on environmentally sound PCB management and disposal.	UNDP Team and EPA	December 2024

4.3 Lessons Learned

Based on the evaluation findings in terms of strengths and limitation identified in the previous Section, the following key Lesson Learned can be drawn:

6. **Collaborative Approach and Active Engagement:** The collaborative approach in engaging project partners, key stakeholders, project participants and project beneficiaries, as effectively exhibited and carried out by the Project Manager, utilizing his knowledge of the functioning of government agencies, institutions and entities, has resulted in multi-groups participation and engagement, generated effective collaboration and

cooperation.

7. **Continued and Improved Communication**: Stakeholders have exhibited strong commitment to effective communication amidst the challenges encountered. Proper and frequent consultations and communications with key partners at various levels are crucial to have common understanding of the importance of the issues on hand, and will facilitate willingness for cooperative actions, thus fostering an environment of collaboration and cooperation. Through these efforts, stakeholders have not only shared valuable experiences, lessons learned, and best practices, but also demonstrated their resilience in replicating successful approaches across various areas. Such proactive communication has greatly contributed to the achievement of project goals.
8. **Partnerships and Engagement with Women Groups/Organizations**: These organizations have significant knowledge and experience in actions to promote gender equity and women's empowerment Cooperative and collaborative linkage will facilitate and effectively generate beneficial results in engaging and promoting women participation. These organizations will have more successfully opportunity to facilitate discussions and engagement.
9. **Promotion, Replication of Appropriate and Sustainable PCB Disposal Technologies**: To ensure sustainability of the project results, promotion and replication of the sustained disposal technologies and best practices for sound management of PCBs and its disposal will be crucial. The efforts, including knowledge sharing, will not only contribute to reducing PCBs but also fostered environmental sustainability and enhanced the economic viability, contributing to global environmental benefits.
10. **Vigorous Monitoring and Follow-up Actions:** To avoid slow implementation, as encountered during later stage of project implementation, proactive risks management, frequent and vigorous consultation, monitoring and follow-up actions will ensure timely detection of problems and obstacles, to enable undertaking timely mitigation measures..

5.0 ANNEXES

Annex 1. Terminal Evaluation Terms of Reference (International Terminal Evaluation Consultant)

Annex 2. Terminal Evaluation Criteria Matrix

Annex 3: Terminal Evaluation Mission Schedule and Itinerary

Annex 4. List of persons consulted/interviewed during Terminal Evaluation mission (In-person or online)

Annex 5: List of documents reviewed/consulted

Annex 6: Terminal Evaluation Rating Scales Tables

Annex 7. Analytical Assessment of Achievement of Outcome and Objective

Annex 8. Signed UNEG Code of Conduct for Evaluators

Annex 9. Signed Terminal Evaluation Final Report Clearance Form

Annex 10. Audit Trail from received comments on draft Terminal Evaluation report

Annex 11. Photos taken during the Terminal Evaluation mission

Annex 1: Terminal Evaluation Terms of Reference (International Terminal Evaluation Consultant)

Terminal Evaluation Terms of Reference (ToR) Template for UNDP-supported GEF-financed projects

Template 1 - formatted for attachment to the UNDP Procurement website

1. INTRODUCTION

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 medium-sized project titled *PCB Management in Ethiopia to meet the 2025 Stockholm Convention deadline – Phase 1* (PIMS ID 5861) implemented through the Federal Environmental Protection Authority. The project started on the May 01/2019 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).

2. PROJECT BACKGROUND AND CONTEXT

Brief project description: The project intends to support Ethiopia with the necessary technical and financial assistance to reduce the risks posed by PCBs to the environment and human health. As the present inventory from the National Implementation Plan (NIP) is not sufficiently detailed to plan a full-size project, the project is designed to either confirm the lower bracket in terms of amount of PCBs in the country, and fully address the PCB issue in Ethiopia as part of this Phase 1 project; or identify additional PCBs thus justifying a phase 2 follow-up PCB project. The present project will include the identification and disposal of 150 t of PCB-contaminated equipment and waste.

The project is Medium size project with a budget consisted of USD 1,990,000 of GEF grant funding, USD 150,000 of UNDP TRAC resources, which total of USD 2,140,000 and co-financing (in kind), from the Government of Ethiopia (EFCCC, EEP, EEU and Ethio-Group Engineering) of total USD 8,200,000. It is 4 year project, starting from April 2019 – 2023with one year no-cost extension. It is a Phase-I project , next step/ phase-II is going to be decided based on the first phase.

The objective of the project is to strengthen the capacity of national stakeholders to manage PCBs as well as to achieve PCBs elimination, as identified as a priority in Ethiopia's NIP—a first Phase to achieve ESM of PCBs by 2025.

The project has been implemented in partnership with the relevant institutional and industrial stakeholders, i.e. the Federal Environmental Protection Authority (EPA), Ethiopian Electric Power (EEP), Ethiopian Electric Utility (EEU), Ethio-engineering Group, and other holders of PCB-containing equipment. The project will ensure that an adequate level of sustained capacity for the sound management of PCBs would have been built for the management of any further such hazardous waste identified after the project's closure. The project is consistency with National Priorities- National sustainable development objectives and strategies such as the Environmental Policy, GTP as well as, the UN Development Assistance Framework (UNDAF), jointly developed by the Government and UNCT.

The project is fully consistent with National Implementation Plan (NIP) for the Stockholm Convention on POPs, submitted in May 2006, and updated PCB inventory in March 2016. The country has prioritized the effective management of POPs chemicals and ultimately eliminate, the use and release of POPs in accordance with the requirements of the Stockholm Convention

The project consists of the following four components which are:

1. Strengthening of legal frameworks, administrative processes and technical preparedness for the sound management of PCBs in Ethiopia

2. Strengthening national capacity for PCB management throughout the lifecycle

3. ESM of PCBs liquids and equipment in use or out of service

4. Monitoring, evaluation, and replication

The description of the project by component, outcome, and output is presented below-

Component

1: Strengthening of legal frameworks, administrative processes and technical preparedness for the sound management of PCBs in Ethiopia. This component has support Ethiopia to conduct a comprehensive assessment of the national and institutional legal framework, key stakeholders, and gaps and overlaps, and to prioritize needs. After the comprehensive review and assessment, a decision will be made to draft new legislation specifically on PCBs or to strengthen the existing ones with inclusion of PCB-specific provisions. In addition to the legal instruments to be put in place for PCB management and disposal, a national PCB tracking system to prevent illegal importation of equipment likely to contain PCBs will be developed.

Component 2: Review and strengthening of national capacity for PCB management throughout the lifecycle-
This component will support Ethiopia to review and strengthen data collection and management capacity, as well as to develop detailed PCB management plans at the facility level. A comprehensive PCB training programme will take place, covering PCB inventories, analysis, prioritization, and development of management plans. The inventory database will also provide a platform for characterization of PCB waste streams. This characterization will then facilitate a feasibility study of using cost effective, technologically robust, and available technologies to promote environmentally sound management and disposal of PCBs. Furthermore, this component will result in improved generation/collection of data, information, and monitoring of PCBs providing solid support to sound decision-making and planning process for ESM of PCBs. Under this component, an awareness raising strategy will also be developed.

Component 3: ESM of PCBs liquids and equipment in use or out of service
This component will minimize and to a greater degree eliminate the risk of adverse effects of PCBs in the population and the environment. The database information will provide the required information to characterize the PCB waste streams and concentrations in the various matrices where PCBs are found. PCB-containing transformers and capacitors will be collected and transported to central temporary storage facilities. Based on waste characterization outcomes, management and disposal options will be evaluated. The project will establish priorities according to the conditions of the PCB

stocks and to the location. The evaluation of disposal options will take into account the levels of PCB concentrations and the condition of the equipment. To reduce costs, a dechlorination approach will be explored. Factors that impact the cost include location of the port of exit, composition of PCB waste, inland transportation, and distance from the origin of PCB waste (Ethiopia) to the final destination. Djibouti will be the port of exit for the Ethiopian PCB materials; Djibouti has been a point of transit for other hazardous waste exports for disposal operations in the past. This possibility was confirmed by a representative of Djibouti, provided that necessary support documentation as per the Basel and Stockholm Conventions are provided to the competent authority in Djibouti.

Component 4: Monitoring, evaluation and replication-

Under this component, an internal project monitoring and evaluation (M&E) team will be constituted. The M&E team will regularly provide quarterly reports on project performance, stakeholders' views on project impacts, and recommendations for improvements.

3. TE PURPOSE

The purpose of the evaluation is to provide an in-depth assessment of the results against the four outcomes of the project and performance in terms of the relevance, effectiveness, efficiency, sustainability, inclusiveness, participation, accountability and transparency. 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 will assess progress towards the achievement of the project objectives and outcomes as specified in the Project Document, and assess early signs of project success or failure with the goal of identifying the necessary changes to be made in order to set the project on-track to achieve its intended results. The TE will also review the projects its risks to sustainability.

4. TE APPROACH & METHODOLOGY

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

The TE team 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 team considers useful for this evidence-based evaluation. The TE team 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 team 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 Ethiopian Electric Utility (EEU), Ethiopian Electric Power (EEP), Ethio-Engineering Group, Ethiopian Conformity Assessment Enterprise (ECAE); 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.

The specific design and methodology for the TE should emerge from consultations between the TE team 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 team 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 team.

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.

5. DETAILED SCOPE OF THE TE

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

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

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

Findings

i. Project Design/Formulation

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

- Linkages between project and other interventions within the sector
- Management arrangements

ii. Project Implementation

- Adaptive management (changes to the project design and project outputs during implementation)
- Actual stakeholder participation and partnership arrangements
- Project Finance and Co-finance
- Monitoring & Evaluation: design at entry (*), implementation (*), and overall assessment of M&E (*)
- Implementing Agency (UNDP) (*) and Executing Agency (*), overall project oversight/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 team 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 team 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 PCB Management in Ethiopia to meet the 2025 Stockholm Convention Deadline – Phase 1

Monitoring & Evaluation (M&E)	Rating[6]
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	
Institutional framework and governance	
Environmental	
Overall Likelihood of Sustainability	

[6] 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)

6. TIMEFRAME

The total duration of the TE will be approximately 31 calendar days over a time period of 9 weeks starting on Jan. 1, 2024. The tentative TE timeframe is as follows:

Timeframe	Activity
(Dec.10, 2023)3 days	Application closes
(Dec 15, 2023)	Selection of TE team
(Jan 08, 2023)	Preparation period for TE team (handover of documentation)
(Jan09-11 ,2024) 3 days	Document review and preparation of TE Inception Report
2 days Jan. 12-13, 202 4 days:	Finalization and Validation of TE Inception Report; latest start of TE mission
12 days Jan. 15-26, 202 4 days:	TE mission: stakeholder meetings, interviews, field visits, etc.
Jan 27, 2024	Mission wrap-up meeting & presentation of initial findings; earliest end of TE mission
07 days Jan 31 Feb. 06	Preparation of draft TE report
Feb 07	Circulation of draft TE report for comments
Feb 19 -20 (2 days)	Incorporation of comments on draft TE report into Audit Trail & finalization of TE report
(Feb 27-28, 2024): (2 days)	Preparation and Issuance of Management Response
(optional)	Concluding Stakeholder Workshop (optional)
Feb 29, 2024	Expected date of full TE completion

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

7. TE DELIVERABLES

#	Deliverable	Description	Timing	Responsibilities
1	TE Inception Report	TE team clarifies objectives, methodology and timing of the TE	No later than 2 weeks before the TE mission: Jan 3-5 ,2024) 3 days	TE team submits Inception Report to Commissioning Unit and project management

2	Presentation	Initial Findings	End of TE mission: Jan*5, 2024*	TE team presents to Commissioning Unit and project management
3	Draft TE Report	Full draft report *(using guidelines on report content in ToR Annex C)* with annexes	Within 3 weeks of end of TE mission: *(07 days Jan.-28*	TE team submits to Commissioning Unit; reviewed by RTA, Project Coordinating Unit, GEF OFP
4	Final TE Report* + Audit Trail	Revised final report and TE Audit trail in which the TE details how all received comments have (and have not) been addressed in the final TE report *(See template in ToR Annex H)*	Within 1 week of receiving comments on draft report: Jan 30	TE team submits both documents to the Commissioning Unit

*All final TE reports will be quality assessed by the UNDP Independent Evaluation Office (IEO). Details of the IEO's quality assessment of decentralized evaluations can be found in Section 6 of the UNDP Evaluation Guidelines.[7]

8. TE ARRANGEMENTS

The principal responsibility for managing the TE resides with the Commissioning Unit. The Commissioning Unit for this project's TE is the Climate Resilience and Environmental Sustainability (CRES) unit of the UNDP- Ethiopia Country office.

The Project Team will be responsible for liaising with the TE team to provide all relevant documents, set up stakeholder interviews, arrange field visits, and arrange workshops and cover related costs. The TE team is however responsible to cover own transportation and DSA.

9. TE TEAM COMPOSITION

The International Evaluator will conduct the TE (with experience and exposure to projects and evaluations in other regions). - The Evaluator will be responsible for the overall design and writing of the TE report. And will assess emerging trends with respect to regulatory frameworks, budget allocations, capacity building, work with the Project Team in developing the TE itinerary and implementing the evaluation process in line with these Terms of References.

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

The evaluator(s) 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 selection of evaluators will be aimed at maximizing the overall "team" qualities in the following areas:

Education

- Master's degree in Natural Science, Environmental Science, Economics or other closely related field;

Experience

- Relevant experience with results-based management evaluation methodologies;
- Experience applying SMART indicators and reconstructing or validating baseline scenarios;
- Competence in adaptive management, as applied to *(PCB related issues);*
- Experience in evaluating projects;
- Experience working in Africa*;*
- Experience in relevant technical areas for at least *10 years;*
- Demonstrated understanding of issues related to gender and Biodiversity focal area; experience in gender sensitive evaluation and analysis. (5 points)
- Excellent communication skills;
- Demonstrable analytical skills;
- Project evaluation/review experience within United Nations system will be considered an asset.

Language

- Fluency in written and spoken English.

10. EVALUATOR ETHICS

The TE team 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.

11. PAYMENT SCHEDULE

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

- 40% payment upon satisfactory delivery of the final TE report and approval by the Commissioning Unit and RTA (via signatures on the TE Report Clearance Form) and delivery of completed TE Audit Trail

  Criteria for issuing the final payment of 40%[8]:
  - The final TE report includes all requirements outlined in the TE TOR and is in accordance with the TE guidance.
  - The final TE report is clearly written, logically organized, and is specific for this project (i.e. text has not been cut & pasted from other TE reports).
  - The Audit Trail includes responses to and justification for each comment listed.

12. APPLICATION PROCESS[9]

The recruitment of the TL will use the HQ roster and for the local consultant RSC roster list will be used.

Recommended Presentation of Proposal:

a) **Letter of Confirmation of Interest and Availability** using the template[10] provided by UNDP;
b) **CV** and a **Personal History Form** (P11 form[11]);
c) Brief description **of approach to work/technical proposal** of why the individual considers him/herself as the most suitable for the assignment, and a proposed methodology on how they will approach and complete the assignment; (max 1 page)
d) **Financial Proposal** that indicates the all-inclusive fixed total contract price and all other travel related costs (such as flight ticket, per diem, etc), supported by a breakdown of costs, as per template attached to the Letter of Confirmation of Interest template. If an applicant is employed by an organization/company/institution, and he/she expects his/her employer to charge a management fee in the process of releasing him/her to UNDP under Reimbursable Loan Agreement (RLA), the applicant must indicate at this point, and ensure that all such costs are duly incorporated in the financial proposal submitted to UNDP.

All application materials should be submitted to the address (insert mailing address) in a sealed envelope indicating the following reference "Consultant for Terminal Evaluation of "***PCB Management in Ethiopia to meet the 2025 Stockholm Convention deadline – Phase 1***" or by email at the

[8] The Commissioning Unit is obligated to issue payments to the TE team as soon as the terms under the ToR are fulfilled. If there is an ongoing discussion regarding the quality and completeness of the final deliverables that cannot be resolved between the Commissioning Unit and the TE team, the Regional M&E Advisor and Vertical Fund Directorate will be consulted. If needed, the Commissioning Unit's senior management, Procurement Services Unit and Legal Support Office will be notified as well so that a decision can be made about whether or not to withhold payment of any amounts that may be due to the evaluator(s), suspend or terminate the contract and/or remove the individual contractor from any applicable rosters. See the UNDP Individual Contract Policy for further details:
https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PSU_Individual%20Contract_Individual%20Contract%20Policy.docx&action=default

[9] Engagement of evaluators should be done in line with guidelines for hiring consultants in the POPP https://popp.undp.org/SitePages/POPPRoot.aspx

[10] https://intranet.undp.org/unit/bom/pso/Support%20documents%20on%20IC%20Guidelines/Template%20for%20Confirmation%20of%20Interest%20and%20Submission%20of%20Financial%20Proposal.docx

[11] http://www.undp.org/content/dam/undp/library/corporate/Careers/P11_Personal_history_form.doc

following address ONLY: *(insert email address)* by *(time and date)*. Incomplete applications will be excluded from further consideration.

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

13. TOR ANNEXES

(Add the following annexes to the final ToR)

- ToR Annex A: Project Logical/Results Framework
- ToR Annex B: Project Information Package to be reviewed by TE team
- 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. Terminal Evaluation Criteria Matrix

Evaluative Criteria Questions	Indicators	Sources	Data Collection Method
Relevance: How does the project relate to the main objectives of the GEF focal area (Persistent Organic Pollutants, POPs), and to the environment and development priorities at the local, regional and national levels?			
• How does the Project support the objectives of the Stockholm Convention on sound management of PCB? Other relevant MEAs? • How does the Project support the related strategic priorities of the GEF?	• Existence of a clear relationship between project objectives and GEF focal area	• Project documents • GEF focal area strategic priority documents	• Document analysis • GEF website • Interview with government, Project Team, UNDP and other project partners
• How does the Project support the development objectives and priorities of the Country, local government and local communities? • Does the Project adequately take into account the national realities, both in terms of institutional framework and programming, in its design and its implementation? • To what extent were national partners involved in the design and implementation of the Project? • Were the capacities of executing institutions and counterparts properly considered when the project was designed? • How country-driven is the Project?	• Degree of coherence between project objectives and national development priorities, policies and strategies • Level of involvement of government officials and other partners in project design and implementation • Coherence between needs expressed by national stakeholders and UNDP-GEF criteria	• Project documents • National Priority and Implementation Plan • Key project partners	• Document analysis • Interview with government officials and project partners
• Did the project concept originate from local or national stakeholders, and/or were relevant stakeholders sufficiently involved in project development?	• Level of involvement of local and national stakeholders in project origination and development (number of meetings held, project development processes incorporating stakeholder input, etc.	• Project staff • Local and national stakeholders • Project document	• Field visit interviews • Document analysis
• How does the Project link with the priorities and strategies UNDP for the Country in this sector?	• Consistency between project objectives and UNDP strategies and development	• Project document	• Document analyses • Interviews with

Evaluative Criteria Questions	Indicators	Sources	Data Collection Method
	objectives (UNDAF, CPD)	• UNDP strategy priority documents	government, UNDP, other partners
• How does the Project support the needs of target beneficiaries? • Is the implementation of the Project been inclusive of all relevant Stakeholders? • Are local beneficiaries and stakeholders adequately involved in project design and implementation?	• Strength of the link between expected project results from the project and the needs of relevant stakeholders • Degree of involvement and inclusiveness of stakeholders and beneficiaries in project design and implementation	• Project partners and stakeholders • Needs assessment studies • Project documents	• Document analysis • Interviews with relevant stakeholders
• Are there logical linkage between expected results of the project (log frame) and the project design (in terms of Project components, choice of partners, structure, delivery mechanism, scope, budget, use of resources etc.)? • Is the length of the project sufficient to achieve project outcomes?	• Level of coherence between expected project results and project design internal logic • Level of coherence between project design and implementation approach	• Program and project documents • Key project stakeholders	• Document analysis • Key interviews
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?			
• Has the project been effective in achieving its expected outcomes? o Capacity, institutional arrangement, policy enabling environment established or strengthened; o Effective M&E activities implemented; o National replication options explored, project experience documented and disseminated; o Effective project management carried out and national capacity established and strengthened.	• Indicators in project document results framework	• Project documents • Project Team and relevant stakeholders • Data reported in project annual and quarterly reports	• Document analysis • Interviews with Project Team • Interviews with relevant stakeholders
• Are some outcomes more advanced than others in their implementation?	• Project milestones in time	• Project document • Project Team and relevant national	• Document analysis

Evaluative Criteria Questions	Indicators	Sources	Data Collection Method
• What is causing delays in implementation in particular outputs for the project? • Where are the implementation 'bottlenecks'? What keys risks and barriers that remain to achieve the project objective and generate Global Environmental Benefits? • Are the project interventions being developed according to schedule? • How can these issues be solved? • What changes need to be implemented?	• Required project adaptive management measures related to delays • Discrepancies between expected outputs/outcome by the time of mid-term and end-of-project actual achievements	and local stakeholders • Data reported by project entities and Technical Specialist	• Minutes of meetings • Site visits observations • Stakeholder interviews
• What are the key factors contributing to project success or underachievement?	• Level of documentation of and preparation for project risks, assumptions and impact drivers	• Project documents • Project staff • Project stakeholders	• Document analysis • Field visits interviews
• What lessons have been learned from the project regarding achievement of outcomes? • What changes could have been made (if any) to the design of the project in order to improve the achievement of the project's expected results?	• Project milestones and logframe • Adaptative management implemented	• Data collected through evaluation	• Data analysis • Interviews with project staff and stakeholders
Efficiency: Was the project implemented efficiently, in-line with international and national norms and standards?			
• Is the project cost-effective? • Were the accounting and financial systems in place adequate for project management and producing accurate and timely financial information?	• Quality and adequacy of financial management procedures (in line with UNDP, GEF and national policies, legislation and procedures) • Financial delivery rate vs. expected rate	• Project documents • Project staff • Combined Delivery Reports (CDRs)	• Document analysis • Interviews with CO and project staff
• Is the project implementation approach efficient for delivering the planned project results?	• Adequacy of implementation structure and mechanisms for coordination and communication	• Project documents • National and local stakeholders • Project staff	• Document analysis • Interviews with project staff, national

Evaluative Criteria Questions	Indicators	Sources	Data Collection Method
	• Availability and quality of financial and progress reports • Quality and adequacy of project monitoring mechanisms (oversight bodies' input, quality and timeliness of reporting etc.		and local stakeholders
• Did the leveraging of funds (co-financing) happen as planned?	• Level of cash and in-kind co-financing relative to expected level • Amount of resources leveraged relative to project budget	• Project documents • Project staff	• Document analysis • Interviews with project staff and stakeholders
• Did the project logical framework and work plans and any changes made to them use as management tools during implementation • Was adaptive management used or needed thus far to ensure efficient resource use? How did these modifications to the project continue to achieve the objective • Were progress reports produced accurately, timely and responded to reporting requirements including adaptive management change? • Was procurement carried out in a manner making efficient use of project resources?	• Timeliness and adequacy of reporting provided • Occurrence of change in project design / implementation approach (i.e. restructuring when needed to improve project efficiency)	• Project documents and evaluations • UNDP • Project Team	• Document analysis • Key interviews
• To what extent partnerships/linkages between institutions / organizations were encourage and supported • What partnerships/linkages were facilitated? Which ones can be considered sustainable? • What was the level of efficiency of cooperation and collaboration arrangements?	• Specific activities conducted to support the development of cooperative arrangements between partners • Examples of supported partnership? • Evidence that particular partnership/linkages will be sustained	• Project documents and evaluations • Project partners and relevant stakeholders	• Document analysis • Interviews

Evaluative Criteria Questions	Indicators	Sources	Data Collection Method
	• Types/quality of partnership cooperation methods utilized		
• Did the project take into account local capacity in design and implementation of the project? • Was there an effective collaboration between institutions responsible for implementing the project?	• National expertise utilized • Number/quality of analysis done to assess local capacity potential and absorptive capacity	• Project documents and evaluations • UNDP • Beneficiaries	• Document analysis • Interviews
• What lessons can be learned from the project regarding efficiency? • How could the project have more efficiently carried out implementation (in terms of arrangement structures and procedures, partnership arrangements etc.)? • What change could have been made (if any) to the project in order to improve its efficiency)?	• Timeliness and quality of project activities implemented • Relationship and coordination mechanism of project partners	• Data collected throughout evaluation	• Data analysis
• How and to what extent have project implementation process, coordination with participating stakeholders and important aspects affected the timely project start-up, implementation and closure?	• Relationship and coordination mechanism of project partners • Timeliness of project activities implemented	• Project documents • Project Team and relevant stakeholders	• Document analysis • Key interviews
• Do the outcomes developed during the project formulation still represent the best project strategy for achieving the project objectives?	• Extent of relevance of project outcomes and objectives to changing circumstances	• Project documents • Project Team and relevant stakeholders	• Document analysis • Key interviews
• Does the project consult and make use of skills, experience and knowledge of the appropriate government entities, CSO/NGOs, community groups, private sector, local governments and academic institutions in the implementation and evaluation of project activities?	• National capacities utilized • Number/type of partnership formed	• Project documents • Project Team and relevant stakeholders	• Document analysis • Key interviews
Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results?			

Evaluative Criteria Questions	Indicators	Sources	Data Collection Method
• Was project sustainability strategy developed during the project design? • How relevant was the project sustainability strategy?	• Evidence/quality of sustainability strategy • Evidence/quality of steps taken to address sustainability	• Project documents • Project Team and relevant stakeholders • Beneficiaries	• Document analysis • Key interviews
• Are there any social or political risks that may jeopardize sustenance of project outcomes? What is the risk that the level of stakeholder ownership will be insufficient to allow for the project outcomes/benefits be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there a sufficient public/ stakeholder awareness in support of the long term objectives of the project?	• Social and political risk assessment data to support sustainability of project outcomes	• Project Team and relevant stakeholders • Project partners • Beneficiaries	• Document and data analysis • Key interviews
• Are there any financial risks that may jeopardize sustenance of project outcomes? What is the likelihood of financial and economic resources not being available once the GEF assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining project's outcomes)?	• Financial resources available after project completion to support and sustain project outcomes	• Project Team and relevant stakeholders • Project partners • Beneficiaries	• Document and data analysis • Key interviews
• Which of the project's aspects deserve to be replicated in future initiatives? • How is the upscaling to the entire country is expected to be carried out? • What specific tools are being developed for replicability and upscaling?	• Evidence that particular practices will be sustained, upscaled and replicated in other communities and localities.	• Project Team and relevant stakeholders • Project partners • Beneficiaries	• Document and data analysis • Key interviews
Impact: Are there indications that the project has contributed to, or enabled progress toward, reduced environmental stress and/or improved ecological status			

Evaluative Criteria Questions	Indicators	Sources	Data Collection Method
• Have the planned outputs been produced? • Are they likely to contribute to the achievement of the project objective? • What are the main positive and negative impacts of the project?	• Project impacts (e.g. capacity, policy enabling framework, etc.)	• Project documents • GEF focal area tracking tools	• Document analysis • Key Interviews
• How has the project contributed to Global Environmental Benefits or reductions in stress to ecological systems, or is there evidence that the project has put in place processes that will lead to such impact?	• Levels of reduction of POPs release • Systems, structures and capacities that contribute to changes in POPs release	• Project documents • GEF focal area tracking tools	• Document analysis • Key Interviews
Gender equality and women's empowerment			
• How did the project contribute to gender equality and women's empowerment	• Level of progress of gender action plan and gender indicators in results framework	• Project documents • Project staff • Project stakeholders	• Document analysis • Field visits, interviews
• In what ways did the project's gender results advance or contribute to the project's biodiversity outcomes?	• Existence of logical linkages between gender results and project outcomes and impacts	• Project documents • Project staff • Project stakeholders	• Document analysis • Field visits, interviews
Cross cutting and UNDP Mainstreaming Issues			
• How were effects on local populations considered in project design and implementation?	• P:ositive or negative effects of the project on local populations	• Project document, progress reports, monitoring reports	• Document analysis • Field visits, interviews

Annex 3: Terminal Evaluation Mission Schedule and Activities

Date	Time	Details	Location	Participants/Contacts
Saturday, 27th January 2024	23:45	International Consultant arrival	Hotel at Addis Ababa	
Sunday, 28th January 2024		Document review and preparation	Hotel at Addis Ababa	
	16:00 – 17:00	Terminal Evaluation (TE) Preparation		Project Manager
Monday, 29th January 2024	09:30 – 10:30	Kick-off Meeting/Presentation Discussions/interview with UNDP Country Office (CO), and Project Team (update on project activities, achievements, bottlenecks etc.) Reconfirm and finalize mission schedules	UNDP CO and Online	UNDP CO, RTA (online), EPA (former EFCCC, MEFCC), Project Manager, UNITAR (online)
	10:30 – 10:45	Discussion on M&E and Project Risks/SESP		M&E Specialist, UNDP CO
	10:45 – 11:30	Project Implementation, Results Framework, and Gender Equality and Women's Empowerment		Project Manager
	1430:-15:00	Meeting with EPA (formerly EFCCC, MEFCC)	EPA	NPD
Tuesday, 30th January 2024	09:00– 13:00	Meeting with Ethiopian Electric Utility (EEU)	EEU	EEU Management and Technical personnel on PCB
	14:00 – 18:00	Meeting with Ethiopian Electric Power (EEP) and site visits. Visit site of out of service transformer of EEU deposited at EEP facility	EEP and its PCB facilities locations	EEP Management and Technical personnel on PCB
Wednesday, 31st January 2024	09:30 - 12:00	Meeting with Ethiopian Engineering Group (EEG, former Metals and Engineering Corporation, METEC) and its maintenance facilities	EEG facilities location	EEG Management and Technical personnel on PCB

	14:00 – 16:00	Meeting and visit laboratory facilities at Ethiopian Conformity Assessment Enterprise (ECAE)	ECAE	ECAE Management and Technical personnel
Thursday, 1st February 2024	09:00 – 11:00	Discussion on project administrative and financial maters	UNDP CO	UNDP P Financial staff
	11:00 – 12:00	Meeting with members of Project Board	UNDP CO or Online	Members of Project Board
	13:00 – 14:00	Meeting with national consultants and technical experts		National consultants and technical experts on PCB, EEFRI
	14:00 – 16:00	Meeting with remaining relevant national stakeholders (IF needed)		Other relevant/participating national stakeholders not included in previous days' meeting/interviews, CSO(?)
	16:00 – 17:00	Discussion with Istanbul Regional Hub C&W Team	Online	UNDP NCE Regional Technical Advisor (RTA); Programme Associate; Former RTA
Friday, 2nd February 2024	09:00 – 10:00	Discussion with GEF Operational Focal Point	Ministry of Palming and Development	GEF OFP
	10:30 – 12:30	Discussion and review of inventory database	EPA	EPA personnel, ex-EFFRI personnel
	13:00:14:30	Wrap-up Meeting, Presentation of Initial Findings, comments and discussions	UNDP CO and Online	UNDP CO, RTA (online), EPA, Project Manager, Relevant Stakeholders, UNITAR (online)
	20:00	Departure of International Evaluation Consultant		

Note: Online discussion with UNITAR project personnel on training and capacity building activities implemented took place on Wednesday, 24th January 2024 at 5pm Ethiopian time.

Annex 4: List of persons consulted/interviewed during Terminal Evaluation mission (In-person or online)

Name	Position	Male/Female
Environmental Protection Agency (EPA), formerly Environment, Forest, Climate Change Commission (EFCCC); Ministry of Environment, Forest and Climate Change (MEFCC)		
Mr. Girma Gemechu	Lead Executive, Environmental Compliance Monitoring & Enforcement; Project Steering Committee member	Male
Mr. Fasika Bekele	Director of ICT; Project Steering Committee member	Male
Ministry of Planning and Development		
Mr. Kasahun Nikusa	(Title), Ministry of Planning and Development; GEF Operational Focal Point	Male
UNDP Ethiopia Country Office (CO)		
Ms. Wubua Mekonnen	Team Leader, Climate Resilient Environmental Sustainability Unit (CRES)	Female
Mr. Girma Workie	Programme Specialist, GEF	Male
Mr. Getenet Demissie	M&E Officer	Male
Mr. Berhanu Alemu	M&E Specialist	Male
Mr. Bisrat Kurabochow	Programme Finance Analyst	Male
Mr. Ermias Wosenyeleh	Procurement Specialist (online)	Male
UNDP Nature, Climate and Energy (NCE), Istanbul Regional Hub (BRH) (online)		
Ms. Charlotte de Bruyne	Regional Technical Advisor (RTA)	Female
Ms. Livia Buzova	Programme Associate	Female
Mr. Etienne Gonin	Former Regional Technical Advisor (RTA)	Male
Project Management Unit (PMU, Project Team)		
Mr. Mehari Wondimagegn	Project Manager	Male
United Nations Institute for Training and Research (UNITAR)		
Ms. Sofia Schlezak	Training Assistant, Chemicals and Waste Management Programme, Division for Planet	Female
Mr. Mario Mendoza	PCB Expert	Male
Ethiopian Forestry Department (EFD)		
Mr. Alemayehu Esayas	Formerly with the Ethiopian Environment and Forest Research Institute (EEFRI): Project Steering Committee member	Male
Mr. Mohammad Birhanu	Formerly with the Ethiopian Environment and Forest Research Institute (EEFRI): Project Steering Committee member	Male

Project Consultant		
Ms. Rym Ghazzali	Procurement Consultant	Female
Project Participants/Beneficiaries		
Ethiopian Electric Utility (EEU)		
Ms. Dagimhiwot Fantahun	Directorate Director, Environmental, Social, Health and Work Safety	Female
Mr. Thomas Zewdie	Social Analyst	
Ethiopian Electric Power (EEP)		
Mr. Tadesse Biru	Director, Environment, Health & Safety	Male
Mr. Karsa Iaressa	Safety Manager	Male
Ethiopian Engineering Group (EEG)		
Mr. Liosehe Beheru	Officer	Male
Mr. Tewodros Million	Supervisor	Male
Ethiopian Conformity Assessment Enterprise (ECAE)		
Mr. Zerhun Abebe Bejiga	Term Leader, Chemicals Team. Directorate, Biochemical Testing Laboratory	Male
Mr. Eneyew Guadie	Team Leader, Chemical and Mineral Testing	Male

Total Male = 19 (76%)

Total Female = 6 (24%)

Annex 5: List of Document reviewed/Consulted

- Project Information Form(PIF)
- UNDP Initiation Plan
- Final UNDP-GEF Project Document with all annexes
- CEO Endorsement Request
- UNDP Social and Environmental Screening Procedures (SESP)
- Project Inception Workshop Report, 14-16 May 2019
- Mid-Term Review (MTR) Report
- Project Implementation Reports (PIRs), FY2020 2021, 2022, and 2023
- Oversight mission reports (UNITAR)
- Annual Work Plans (AWP), years 2019, 2020, 2021, 2022 and 2023
- Progress reports (quarterly, semi-annual or annual, with associated workplans and financial reports)
- Minutes of Project Steering Committee (Project Board), years 2019, 2020, 2021, 2022 and 2023
- Finalized GEF Focal Area Tracking Tools/Core Indicators at CEO endorsement, midterm and terminal stage
- Project Financial Reports/Combined Delivery Reports (CDRs)
- Co-financing data with expected and actual contributions broken down by type of co-financing, source, and whether the contributions is considered as investment mobilized or recurring expenditures
- Audit reports
- Sample of project communications materials
- List of contracts and procurement items over ~US$5,000 (i.e. organizations or companies contracted for project outputs etc., except in cases of confidential information)
- UNDP Country Programme Document (CPD)
- List and contact details for project staff, key project stakeholders, including Project Board members, RTA, Project Team members, and other partners to be consulted
- Project deliverables that provide documentary evidence of achievement towards project outcomes

Annex 6: Evaluation Ratings Table and TE Rating Scales

Evaluation Ratings Table	
Monitoring & Evaluation (M&E)	Rating[12]
M&E design at entry	
M&E Plan Implementation	
Overall Quality of M&E	
Implementing Agency (IA) Implementation & Executing Agency (EA) 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 sustainability	
Socio-political sustainability	
Institutional framework and governance sustainability	
Environmental sustainability	
Overall Likelihood of Sustainability	

TE Rating Scales	
Ratings for Outcomes, Effectiveness, Efficiency, M&E, IA Implementation/Oversight, IP 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	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

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

not allow an assessment	

Monitoring & Evaluation Rating Scale

Raging	Description
6 = Highly Satisfactory (HS)	There were no shortcomings; quality of M&E design/implementation exceeded expectations
5 = Satisfactory (S)	There were minor shortcomings; quality of M&E design/implementation met expectations
4 = Moderately Satisfactory (MS)	There were moderate shortcomings; quality of M&E design/implementation more or less met expectations
3 = Moderately Unsatisfactory (MU)	There were significant shortcomings; quality of M&E design/implementation was somewhat lower than expected
2 = Unsatisfactory (U)	There were major shortcomings; quality of M&E design/implementation was substantially lower than expected
1 = Highly Unsatisfactory (HU)	There were severe shortcomings in M&E design/implementation
Unable to Assess (UA)	The available information does not allow an assessment of the quality of M&E design/implementation

Implementation/Oversight and Execution Rating Scale

Raging	Description
6 = Highly Satisfactory (HS)	There were no shortcomings; quality of implementation/execution exceeded expectations
5 = Satisfactory (S)	There were no or minor shortcomings; quality of implementation/execution met expectations
4 = Moderately Satisfactory (MS)	There were some shortcomings; quality of implementation/execution more or less met expectations
3 = Moderately Unsatisfactory (MU)	There were significant shortcomings; quality of implementation/execution was somewhat lower than expected
2 = Unsatisfactory (U)	There were major shortcomings; quality of implementation/execution was substantially lower than expected
1 = Highly Unsatisfactory (HU)	There were severe shortcomings in quality of implementation/execution
Unable to Assess (UA)	The available information does not allow an assessment of the quality of implementation and execution

Outcome Rating Scale – Relevance, Effectiveness, Efficiency

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

Sustainability Rating Scale

Raging	Description
4 = Likely (L)	There are little or no risks to sustainability
3 = Moderately Likely (ML)	There are moderate risks to sustainability
2 = Moderately Unlikely (MU)	There are significant risks to sustainability
1 = Unlikely (U)	There are severe risks to sustainability
Unable to Assess (UA)	Unable to assess the expected incidence and magnitude of risks to sustainability

Annex 7: Analytical Assessment of Achievement of Project Outcomes and Project Objective

Table 23: Analytical Assessment of Achievement of Outcome for Project Component 1, Outcome Indicators 1.1 and 1.2

	Objective and Outcome Indicators	Baseline	Mid-term Target	Achievements & Assessment at MTR	End of Project Target	Achievement of End of Project Targets & Assessment	Assumptions
Project Component 1: Strengthening of legal frameworks, administrative processes and technical preparedness for the sound management of PCBs in Ethiopia							
Outcome 1 Legal frameworks, administrative processes and technical preparedness for the sound management of PCBs in Ethiopia strengthened	**(Outcome Indicator 1.1)** Legal framework for PCBs drafted and adopted **(Outcome Indicator 1.2)** Institutional capacity and arrangements for the management of PCBs reviewed, and gaps and overlaps identified and addressed through consultation and coordination processes	No PCB management legislation or regulations and appropriate capacity and cooperation from PCB equipment/waste owners unavailable Lack of coordination regarding PCB management	Comprehensive assessment of the national legal and institutional framework completed Technical assistance to the environmental authorities on the enforcement of the new or amended legislation and technical regulations related to PCBs delivered through specialized trainings and joint participation of project staff and government representatives Project management unit and PSC established and meeting regularly	Assessment of the legal framework on PCBs New Directive on PCB management (pending approval) No progress reported PMU established (2019) PSC established and met 2019, (2020). 2021	New or amended legislation and regulations which includes specific PCB provisions adopted and disseminated to key national stakeholders Advisory support and required technical assistance in the implementation of the national legislation and regulations and guidance on PCBs delivered through continuous project support Technical assistance to the environmental authorities on the enforcement of the law and regulation related to PCBs delivered through joint participation of project staff and government representatives Institutions effectively coordinating implementation of the project	**Outcome Indicator 1.1: Achieved** The *Directive on Phase out the Use of PCB Materials and Contaminated Materials, and Sound Managemen*t has been approved by the Attorney General, and has been signed by the Minister for Ministry of Planning and Development and accepted by the Ministry of Justice. Training sessions by UNITAR were conducted on the Directive and the enforcement actions to federal and regional environmental inspectors, federal and regional Ethiopian Electric Utility (EEU) environmental and social impact assessment experts and technicians, federal Ethiopian Electric Power (EEP) electricians and environment experts, experts of the Ethiopian Engineering Group (EEG), private	A fruitful cooperation among project staff, government, and key stakeholders on technical, legal, and financial matters is ensured so that the new or amended regulatory package is implementable, enforceable, and sustainable

						transformer manufacturing companies and NGOs. **Outcome Indicator 1.2: Achieved** Training sessions conducted by UNITAR on the Directive to phase out use of PCB materials and PCB contaminated materials and chemicals and enforcement actions to federal and regional environmental inspectors, federal and regional EEU, EEP and EEG electricians, technical and environment experts. National technical, management and enforcement capacities of the environmental authorities for PCB management throughout the life cycle have been strengthened to monitor the sample collection process to confirm the collection is in accordance with the Directive.	

Legend (Achievement and Assessment in meeting Indicators and End of Project Targets)

Green represents the target has been achieved,
Yellow indicates progressing satisfactorily and is expected to be achieved with slight delay, and
Red as not on target to be achieved.

Table 24: Analytical Assessment of Achievement Outcome for Project Component 2, Outcome Indicators 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 and 2.7

	Objective and Outcome Indicators	Baseline	Mid-term Target	Achievements & Assessment at MTR	End of Project Target	Achievement of End of Project Targets & Assessment	Assumptions
Project Component 2: Review and strengthening of national capacity for PCB management throughout the lifecycle							
Outcome 2 National capacity for PCB management strengthened throughout the lifecycle	**(Outcome Indicator 2.1)** One consolidated country-wide PCB inventory updated and completed, with appropriate data including sampling dates and analysis results of phased-out and in-use equipment	An incomplete inventory report developed by MEFCC without analytical data and missing equipment from some storage sites Central consolidated PCB database to track inventory and PCB disposal process is not available	Inventory sampling activity plan for 10,000 equipment is well underway at mid-term point. Services for the sampling and analysis of this equipment and establishment of PCB inventory procured, if applicable Sampling and analysis of 6,000 pieces of PCB-suspected equipment carried out, if applicable PCB-containing equipment labelled and entered in the national database	5,231 transformers owned by EEU identified as potentially contaminated 8 PCB analysers procured Task force for inventory of PCB transformers established 800 transformers analysed in the field, and 275 samples taken for confirmatory analysis Data entered into PCB database	10,000 equipment oil samples have been taken and analysed for quantifying PCB concentration, if applicable PCB inventory database established and made available to authorities and PCB holders through a dedicated website with access policies	**Outcome Indicator 2.1: Achieved** PCB-suspected transformers were exanimated, samples collected and analyzed. Based on which National PCB Inventory Database was established and operational. Fron the database, using the criteria of cut-off date of transformers manufactured before 1993 and those without label,, 6,011 transformers were suspected of contaminated by PCB, of which 2,236 samples were collected and screened. 876 samples were tested positive with PCB level equal or higher than 50ppm. 287 of which then went through analysis with the gas chromatography and 98 samples were determined to have concentration higher than 50ppm. The results on concentration indicated that nearly	Owners of PCB-contaminated equipment and waste will facilitate the access to their facilities and the sampling operations Proper chain of custody and quality control procedures is established to ensure the reliability of sampling and analysis operations

						all PCB contaminated oil will be treated locally (using the dechlorination technology) Samples will be taken from the remaining transformers and go through the screening and analysis procedures to determine the total volume of PCB oil and contaminated equipment to be included in the disposal/dechlorination process	
	(Outcome Indicator 2.2) National PCB management plan is drafted and approved	No national PCB management plan developed or available to guide action on addressing PCB matters in the country No industry-wide coordinated action is taken to address the ESM of PCBs	National PCB management plan drafted First update of the National PCB management plan at midterm based on inventory data Facility-level PCB management plans drafted where appropriate At least 10 contaminated sites management plans developed	Training on preparation of PCB management plans and the chemical registry database National Management Plan for PCBs 2019-2022 drafted and distributed EEU PCB management plan drafted and promulgated Training workshop on the preparation of facility-level PCB management plans Training workshop on sustainable management of PCB contaminated sites	National PCB management plan reviewed and adopted Second update of the National PCB Management Plan based on updated inventory data	**Outcome Indicator 2.2: Achieved** The National PCB Database system was established taking inventory data from the three PCB-contaminated equipment holders (EEU, EEP and EEG) and was made operational. Comprehensive training conducted to 22 Task Force members in January 2024 to ensure their effectiveness and focus on the assigned tasks. The National PCB Management Plan was diligently reviewed, and will be updated upon completion of laboratory analysis.	Government-led communication strategy on national PCB-related effort (legislation, technical regulations, PCB equipment inventory and phase-out/ disposal/decontamination) is in place and implemented to ensure better support from PCB equipment/waste owners and other stakeholders A fruitful cooperation among project staff, government, and key stakeholders on technical, legal, and financial matter is ensured so that the

						One draft PCB contaminated sites management plan has also been developed.	PCB management plan is implementable and sustainable
	(Outcome Indicator 2.3) Number of operators/technical staff in the electric sector and in MEFCC trained on and confident in practically applying the ESM system for PCBs **(Outcome Indicator 2.4)** Number of technical and procedural guidance documents compliant with Stockholm Convention and national regulations completed and endorsed	No or insufficient technical level guidance materials exist on ESM for PCB management No training on ESM of PCBs issued delivered to operators/technical staff in the electric sector countrywide Lack of awareness and technical knowledge about POPs in general and PCB issues in particular	Guidance drafted for sampling of online and offline equipment, operation and maintenance of PCB-contaminated equipment, identification and labelling procedures, handling, transportation, temporary storage, and disposal discussed in 5 dedicated workshops Using the guidance material, at least 8 training sessions covering 80 operators/technical staff of the electric sector implemented Procedural and guidance documents drafted for environmental authorities on Stockholm and Basel Conventions, and BAT and BEP for PCB treatment and disposal operations and discussed in a dedicated workshop 5 training sessions covering at least 25 officers from the relevant ministries and research institutions carried out Training on chemical (PCB) response procedures and mechanisms undertaken and piloted at one site	Guidance on identification, sampling and labelling of PCB equipment in the PCB management plan drafted and distributed Train-the-trainers workshop on inventories, sampling and screening of PCB transformers 3 follow-up training workshops for total 126 operators/ technicians from the main PCB transformer owners Awareness raising meeting on PCB and other chemicals in regions (September 2020) Training sessions on PCB treatment and disposal for 25 officers from the relevant ministries and research institutions Document on chemical response procedures and mechanisms	Guidance for sampling of online and offline equipment, operation and maintenance of PCB-contaminated equipment, identification and labelling procedures, handling, transportation, temporary storage, and disposal adopted 25 training sessions covering at least 340 equipment operators (engineers and technicians) in the electric power sector Procedural and guidance documents for environmental authorities on Stockholm and Basel Conventions, and BAT and BEP for PCB treatment and disposal operations adopted 7 training sessions for at least 50 officers from the relevant ministries and institutions carried out	**Outcome Indicator 2.3: Achieved** UNITAR as the contracted implementation partner, is tasked with the responsibilities on training and capacity building activities. Training on PCB transformers inventories, sampling and screening provided to technicians, electricians, Environment, Health and Safety experts. A comprehensive training workshop on PCB Management, Handling, Transport, Storage, and Elimination Strategy was conducted in 2023 for various project partners, including Federal EPA and EEU, EEP, EEG. A total of 22 individuals participated in the training, consisting of five females (23%). Overall, UNITAR conducted more than 16 training sessions and technical	Prospects for adoption of technical guidance are high, and related consultations initiated and ongoing Equipment operators willing to attend training and apply knowledge practically in joint work with the project Trainers have extensive experience in the field of PCB management

						workshops conducted for a total of 134 male and 40 female (23%) participants, while no record of gender segregation was made at 4 training sessions. **Outcome Indicator 2.4: Achieved** Overall, UNITAR has conducted more than 16 training sessions and technical workshops conducted for a total of 134 male and 40 female (23%) participants, with no segregation of male/female participants not available on 4 training sessions.	
	(Outcome Indictor 2.5) National PCB tracking system developed and operational	No effective mechanism in place to prevent illegal importation of equipment likely to contain PCBs	Terms of reference for national PCB tracking system to prevent illegal importation of equipment likely to contain PCBs operational	4 back-to-back workshops on software for the national chemicals database system PCB management database for inventory of transformers	Periodic technical visits to the PCB holders undertaken and technical support and advice provided to purchase PCB-free transformers, capacitors, and related equipment	**Outcome Indicator 2.5: Achieved** The PCB Management Database was established and serves as a tool to track PCBs and chemicals. Under a separate project, The PCB Management Database was established and serves as a tool to track PCBs and chemicals	Owners of transformers and capacitors will facilitate access to their facilities and records
	(Outcome Indicator 2.6 Awareness raising strategy developed and implemented,	Low levels of awareness on the adverse effects of POPs, especially PCBs, leading to	An awareness raising strategy developed, and awareness materials such as brochures, project cards, meeting banners and posters, for different	Awareness raising meeting for regions Communication Strategy for the Control and	Awareness materials disseminated at different levels: communities,	**Outcome Indicator 2.6: Achieved** Awareness creation meeting on PCB and	Trainings and dissemination of awareness raising materials considered as key to strengthen

	which targets government, public and private sector, civil society, local communities and community leaders **(Outcome Indicator 2.7)** Gender dimension study in the context of PCB issues in Ethiopia completed and strategies for better gender mainstreaming in POPs-related activities identified Number of women involved in project implementation	mismanagement of PCB-containing equipment No gender dimension study carried out on POPs in Ethiopia	target groups, developed and disseminated Gender dimension study completed Dissemination of project objectives and midterm results through establishment of a website, broadcasting, and workshops, and enhancement of gender related issues	Management of Polychlorinated Biphenyls (PCBs) and other Hazardous Chemicals in Ethiopia (2020-2025) Gender dimension study for the project completed EEU specific structure to address women adopted Environment Forests and Climate Change Commission (EFCCC) website with PCB portal	technicians, and policy-makers Media briefing events both at mid-level managers (facility managers) and high-level (ministers, members of parliament and chief executives) planned and executed Local communities have access to awareness raising materials in their own local languages and trainings for the community leaders are organised Dissemination of project objectives and midterm results through establishment of a website, broadcasting, and workshops, and enhancement of gender related issues	other hazardous chemicals was given to different stakeholders. To promote awareness on adverse effects of PCB chemical on environmental and health and familiarize the objective of ongoing PCB management project in Ethiopia; the Project Management Unit has published awareness raising information through the national gazette in order to reach the wider segment of the society **Outcome Indicator 2.7: Achieved** Gender dimension study for the project completed. An excellent Gender Analysis and Action Plan was developed, but the gender action plan was not fully implemented in terms of engaging a women society organization and organizing the communication that will specifically reach women. EEU specific structure to address women adopted.	the ESM of PCBs at national level

						It is note that the Project Steering Committee was co-chaired by both women. The fact that women have sound decision making in the PSC meeting and held lead position in environment, safety and health has given women opportunity to take into consideration all aspects of gender and the adverse effect of PCB chemical to women. Efforts were made make gender balance at every workshop.	

Legend (Achievement and Assessment in meeting Indicators and End of Project Targets)

Green represents the target has been achieved,
Yellow indicates progressing satisfactorily and is expected to be achieved with slight delay, and
Red as not on target to be achieved.

Table 25: Analytical Assessment of Achievement of Outcome for Project Component 3, Outcome Indicators 3.1, 3.2 and 3.3

	Objective and Outcome Indicators	Baseline	Mid-term Target	Achievements & Assessment at MTR	End of Project Target	Achievement of End of Project Targets & Assessment	Assumptions
Project Component 3: ESM of PCBs liquids and equipment in use or out of service							
Outcome 3 ESM of PCBs liquids and equipment in use or out of service implemented	**(Outcome Indicator 3.1)** Temporary storage facilities are upgraded and monitored under the project for the safe storage of PCB equipment/oils/waste pending final disposal or decontamination procedures	Storage facilities available in industrial sites need checking and upgrading and, in some cases, are contaminated by PCBs	Storage facilities for the temporary storage of PCB-contaminated equipment are identified Upgrading of safety and emergency response in selected storage facilities PPE equipment for personnel is available to ensure safe operations Monitoring of quality of storage over time is ensured by enforcement authorities	Follow-up work in progress on identification and required size of PCB storage sites It is reported that site and facility for temporary storage for PCB waste will be determined after getting full inventory data PPE for personnel of EEU, EEP and EEG provided	At least 2 storage facilities have been upgraded to ensure safe storage of PCB-contaminated equipment and waste in fulfilment of national and international rules on PCBs	**Outcome Indicator 3.1 Achieved** The High Level Project Steering Committee determined that there is a need for electrical companies to enhance their PCB storage facilities. As a result, an agreement was reached with the holders of PCBs to construct two proper storage facilities. A legal contract agreement was signed between the EPA and the EEU and EEP to facilitate upgrades to the storage two facilities. A budget of USD 100.000 (5,253,700 Ethiopian Birr) was released to the two electric companies (EEU and EEP), demonstrating their commitment to improving the storage facilities. This signifies that efforts to upgrade the facilities are underway. At time of TE mission, ESIA has been prepared	Storage facilities need only limited intervention to ensure the increase of their safety up to the required standards Storage facilities can be upgraded and permitted within planned budget and timeframe

						and submitted only by EEU to EPA for review and approval, no upgrading work has been carried out. It was evaluated at that time that this target was unlikely to be achieved by the operational completion date of 1 May 2024. Expedited actions were undertaken, and in view of the requested second extension of the project completion. Bidding took place and contract was signed 29 April 2024 with Basal Consulting to conduct EIA/ESIA for all three facilities (EEU, EEG and EEP) and on potential environmental and social impacts during transportation and elimination. The treatment of PCB contained in materials that are out of service, despite of ownership, will be done at one location (in the EEU compound) with which agreement was signed (between EEU and EPA) for construction of temporary shed. For in service transformers, the location is at the Awash facility.	

						ESIA assessment was completed and report was submitted in June 2024 While ESIA for the three location was completed. Completion of physical upgrading is not clear. Commitment letters with statement dated 15 October 2024 were provided by the three PCB equipment holders committing to complete the upgrading by "30 November 2024" and "as soon as possible". However, in the absence of a report on actual progress, the actual completion of the upgrade by 30 November 2024 or the project closure of 1 January 2025, cannot be ascertain.	
	(Outcome Indicator 3.2) Documentary and direct evidence that environmentally sound technologies or services for PCBs disposal/dechlorination have been identified, assessed, and procured	No PCB disposal technology available in the country to address pure PCB oils/waste No PCB dechlorination technology is available in the country to address cross-contaminated PCB oils No PCB-contaminated soil remediation technology is available in the country	Identification and technical-economic feasibility analysis of disposal options based on the amount of pure and low-concentration PCBs identified Drafting of TORs for the procurement of PCBs disposal/decontamination service and equipment EIA process regarding decontamination plants carried out to enable technology to operate locally, if applicable	Initial discussion of available technologies for PCB elimination strategy It is reported that the type of technology will be determined upon completion of the inventory and establishment of concentrations of PCBs in the transformers	PCB dechlorination technology is rented/installed in the country to treat low-concentrated PCB oils, if applicable and appropriate	**Outcome Indicator 3.2 Achieved** In a training on PCB Management, Handling, Transport, Storage and Elimination Strategy, 35 experts (32 male and 3 females) drawn from to all project partners and EPA, all PCB elimination strategy and technology and relevant facilities were presented.	UNDP and UNITAR experts and national stakeholders establish cooperation so that the technical specification and identification of proper technologies are appropriately suited to the specific country situation and needs Technologies for the safe disposal of waste with high PCB

						The Identification and technical-economic feasibility analysis of disposal options is exclusively depending on the identification of the level of concentration of PCB oil in each transformer. This is done through laboratory analysis which at time of Terminal Evaluation has not been completed and thus the total quantities of pure and contaminated oil cannot be determined While the PCB disposal technologies have been identified, an international consultant working with UNITAR is preparing the TOR. Pending information on the total quantities of PCB, for a procurement consultant to prepare the bidding documents for PCB disposal/decontamination services. Procurement for the disposal/dechlorination services was contracted on 30 April 2024 with completion date of 30 November 2024. The entity contracted to perform the disposal/ dechlorination services	content (up to 60%) and for the treatment of equipment with low PCB content (up to a few thousand ppm) are commercially available and vendors of these technologies will submit bids to UNDP tenders

						will further help to build the technical capacity..	
	(Outcome Indicator 3.3) Amount of equipment or waste containing or contaminated by PCB disposed in an environmentally sound manner	No equipment containing PCBs or PCB-contaminated soil disposed of	For pure PCBs, existing qualified service providers informed and invited and tender for hazardous waste handling If applicable, the selected PCB decontamination technologies demonstrated in action as part of procurement activity for their reliability, environmental performance, and compliance with national regulation, Stockholm and Basel Conventions' requirements Associated sub-contracts for export of pure PCB waste and decontamination of low-concentrated in place (if applicable), and pre-bid conferences for interested bidders held to improve quality of received bids	No progress: It is reported that this part to be implemented in 2022	Destruction/treatment of 150 tons of PCB-contaminated equipment in progress with disposal certificates obtained	**Outcome Indicator 3.3: Progressing partially with delay.** **While progress being made to achieve PCB disposal but the estimated total quantities expected to be disposed by the (twice) extended project completion dated of 1 January 2025 but will fall short of the planned target (120.96 tons against the planned target of 150 tons)** The delay in completing PCB inventory due to security issues, and the further delay in the procurement and customs clearance of the reagents and required inputs to conduct laboratory analysis of the samples collected from the suspected transformers, caused the delay in determining the total quantities of pure and contaminated oil to be disposed. TOR is being finalized for the preparation of bidding document for procurement of the	UNDP and UNITAR use experience from other projects to ensure the effectiveness and reliability of technology's choice for both pure/high-concentrated and low-concentrated wastes Selected vendors already familiar with the requirements and activities related to testing of their technologies PCB-contaminated equipment and waste are identified, safely stored, and secured to their disposal under the project No PCB waste transit limitations are in place to block waste export operations EIA/SIA assessments are completed to allow PCB dechlorination technology to be put into operation for low-concentrated PCB-containing oils, if applicable and economically feasible

						disposal/decontaminated services. A purchase order was singed 30 April 2024 for the disposal/ dechlorination services with completion date of 30 November 2024. 77.96 tons of PCB-contaminated equipment and waste will be transported and disposed abroad. However, the preliminary preparatory phase of the contract due to complete by 30 June was not accomplished until end September 2024. As the finalization of the TE Report by end October 2024, UNDP is not able to obtain a confirmation from the contractor on the date the contractor will return to undertake the actual disposal process, due to be completed by 30 September 2024, as per contract term. In the absence of a report on actual progress, and a confirmed date of the contractor returning to Ethiopia to undertake actual disposal, The actual completion date of disposal cannot be ascertained, despite the contractor's	

						commitment to complete the contract, inclusive of remaining disposal and post-disposal activities, by 30 November 2024. A new bidding was advertising 3 September 2024 with closing date of 2 October 2024 that was extended to 24 October 2024. Should the contract be concluded and disposal action be commenced immediately, it is not certain that the disposal of the estimated 43 tons can be physical disposed by the (twice) extended project closure date of 1 January 2025, with the two months remaining. Therefore, the total estimated quantities expected to be disposed by the (twice) extended project closure will be 190.96 tons, which still falls short of the 15o tons target.	

Table 26: Analytical Assessment of Achievement of Outcome for Project Component 4, Outcome Indicator 4.1

	Objective and Outcome Indicators	Baseline	Mid-term Target	Achievements & Assessment at MTR	End of Project Target	Achievement of End of Project Targets & Assessment	Assumptions
Project Component 4: Monitoring, evaluation and replication							
Outcome 4 Monitoring, evaluation and replication ensured	**(Outcome Indicator 4.1)** Documentary evidence that the project's results sustained and replicated through proper M&E and knowledge management actions	N/A	Inception activities carried out, project management structure implemented, knowledge management system including project website established (to be completed in the first year of project implementation)	Inception workshop organized Environment Forests and Climate Change Commission (EFCCC) website with PCB portal Information database developed		**Outcome Indicator 4.1 achieved** **sessions conducted Training and knowledge and experience documented and shared with key** stakeholders. Activities and reporting required on project implementation functions were carried out, reports submitted in a timely manner	All the relevant stakeholders well aware of GEF/UNDP rules as well as national obligations under the Stockholm Convention, and willing to cooperate in the timely establishment of project management structures
		N/A	Project reporting and planning established and implemented	2 PIRs prepared and submitted Annual work plans prepared MTR initiated and conducted	Project reporting and planning continued until project end	Annual workplans (AWP) were prepared as basis for annual budget allocation and approval of project activities implementation. Progress reports and mandatory Project Implementation Reports (PIRs) were timely prepared and submitted.	Project reporting and planning mechanisms and templates communicated in a timely manner and agreed with project management staff at all levels
		N/A	Midterm evaluation and auditing activities carried out		Terminal and auditing activities carried out; terminal reporting completed and submitted to Government of Ethiopia, UNDP, and GEF	External Audit for 2019 – 2022 conducted and an Unmodified Audit Report was issued March 21, 2023. Mid-Term Review conducted with overall rating of Moderately	Project stakeholders actively cooperating in all evaluation and auditing activities Evaluation and auditing are carried out in an independent and

						Unsatisfactory (MU).. Project duration was extended for one year with project operational completion date extended to 1 May 2024. Terminal Evaluation was initiated in December 2023, with original TE completed end March 2024. However, in view of TE Consultant's initial determination that two critical Outcome Indicators would not have been met, expedited procurement efforts and further extension of project closure were recommended. With a second extension of project closure by 8 months, TE duration was extended to September 2024	professional way, with the purpose to enhance project activities and generate recommendations for project success and sustainability after project closure

Legend (Achievement and Assessment in meeting Indicators and End of Project Targets)

Green represents the target has been achieved,
Yellow indicates progressing satisfactorily and is expected to be achieved with slight delay, and
Red as not on target to be achieved.

Table 27: Analytical Assessment of Achievement of Project Objective

	Objective and Outcome Indicators	Baseline	Mid-term Target	Achievements & Assessment at MTR	End of Project Target	Achievement of End of Project Targets & Assessment	Assumptions
Project Objective: This project aims at strengthening the capacity of national stakeholders to manage PCBs as well as to achieve PCBs elimination, as identified as a priority in the National Implementation Plan for Persistent Organic Pollutants for Ethiopia - a first Phase	(**Objective Indicator 1)** National environmentally sound management (ESM) system of PCB chemicals and waste drafted and implemented by 2020	People and workers are currently exposed to the risk posed by PCB-containing equipment stored or in-use No PCB management legislation or regulations and appropriate capacity and cooperation from PCB equipment/waste owners unavailable No national PCB management plan prepared and comprehensively implemented No comprehensive ESM system is in place to address the national PCB situation, and power equipment is exposed to continuous cross-contamination	Comprehensive national PCB inventory is completed ESM guidance materials drafted and an initial training of PCB holders undertaken The risk for the population surrounding plant and storage facilities containing PCBs is minimized as a result of safety measures preventing PCB release in the environment	Inventory of all transformers owned by EEU Guidance on handling and maintenance of PCB equipment, PCB chemical emergency response, and on the PCB inventory process supported by training workshops No visible risk reduction for the population surrounding plant and storage facilities containing PCBs Awareness limited to few workers at the PCB holder institutions	Existing storage facilities for transformers are assessed and upgraded to international standards to allow PCB removal/ decontamination operations The risk for the population surrounding plant and storage facilities containing PCBs is minimized through the sound disposal of at least 150 tons of PCB-contaminated equipment and waste	**Achieved** Agreement reached January 2023 with the three PCB-contaminated equipment holders to construct/upgrade their PCB temporary storage facilities. Two sites for storage selected at EEU and EEP respectively, subject to ESIA screening and approval. Risk assessment would be conducted and monitored. Contract to conduct ESIA for the three locations was signed on 29 April 2024 and work was completed by 14 June 2024.with assessment report on the three sites and assessment on transportation and disposal options. Commitment letters with statement dated 15 October 2024 were provided by the three PCB equipment holders committing to complete the upgrading by "30 November 2024" and "as soon as possible". However, in the	Identified PCB-contaminated equipment is under control and secured for disposal until technologies or service delivered by the project are available Handling of PCB equipment and disposal activities are carried out in an environmentally safe way without any harm to the environment and the health

						absence of a report on actual progress, the actual completion of the upgrade by 30 November 2024 or the project closure of 1 January 2025, cannot be ascertain. National PCB inventory considered completed, as remaining two regions unreachable due to security issues. National PCB inventory database established available at website http://www.pcb.efccc,gov.et A consolidated PCB management database status report was prepared to provide current status and on challenges of PCB data management in Ethiopia. A first update of the National PCB Management Plan will be prepared with the support of UNITAR. There is no visible PCB risk to population surrounding plant and selected storage facilities.	
	(Objective Indicator 2) Amount of PCB equipment identified and listed in the national PCB inventory and	A systematic PCB inventory, including PCB identification and labelling is missing	6,000 pieces of equipment expected to be tested to verify their PCB content, out of which PCB-containing equipment is identified and labelled for future	5,231 PCB suspected transformers identified and about 800 of them analysed by field screening method	10,000 pieces of equipment expected to be tested to verify their PCB content, if applicable PCB-containing equipment is identified	**Achieved.** National PCB inventory is considered completed in all possible areas, except for two regions with security concerns	Potential PCB owners are willing to facilitate sampling and analysis of their equipment The capacity of Ethiopia to carry out

	included in the national PCB management plan		treatment or disposal, if applicable National PCB inventory database established and maintained to help with priority decision-making	275 samples set aside for confirmatory analysis National PCB inventory database established and run operational	and labelled for future treatment or disposal Measures to prevent release of PCBs in the environment are in place	where electrical transformers were left uncollected. Based on data provided by the three PCB-contaminated equipment holders, out of the identified 32,000 transformers in operation and 4,000 out-of-service transformer, a total of 6,011 transformers were suspected as containing or contaminated with PCB. 2,236 samples were collected from the transformers and screened, 876 samples were determined containing PCB concentration equal or exceeding 50ppm. 287 samples were then subject to detailed analysis using the gas chromatograph (G out of which 98 samples were determined to have PCB oils higher than 50ppm. The remaining samples will continue to be screened and tested to identify the exact quantities of PCB oil and contamination. As temporary storage facilities for PCB-containing equipment have not been constructed/upgraded, PCB oil barrels and	sampling and analysis of dielectric oil and waste for PCB quantification is developed and reliable enough to timely carry out sampling and analysis activities

						contaminated equipment are not fully protected from leakage and release.	
	(Objective Indicator 3) 50 tons of pure PCBs and 100 tons of low-concentrated PCBs/related waste are safely managed and disposed of/decontaminated by the end of the project, thus reducing global and local environment from exposure to these hazardous wastes	No equipment/oil containing PCBs identified or sent abroad for disposal No PCBs disposal/ decontamination technology available in the country	Based on final inventory amounts, temporary storage locations identified and upgraded to meet international standards Pure PCB waste is prepared for export to HTI plants for final disposal, and PCB-contaminated oil is treated via rented or purchased dechlorination technology (if applicable) or also exported for disposal Appropriate EIA/SIA procedures for making the rented/procured technology operational are completed, and location to host the technology selected and confirmed (if applicable)	Proposal on possible temporary storage drafted but final decisions pending on completion of the PCB inventory Selection of the methods for PCB equipment treatment and disposal pending on completion of the inventory and results of the assessment of technological and economic options	At least 150 tons of equipment containing PCB (in pure and contaminated forms) are treated or disposed of in compliance with Stockholm Convention and Basel Convention requirements Disposal/cleaning certificates obtained	**Partially achieved but falls short of the end-of-project target (120.96 tons against target of 150 tons disposed)** Currently total volume of PCB oil collected and entered into the database from EEU is 388,160 litres or 388 tons. Total volume of PCB suspected oil from EEP is 729,532 Liters or 729.5 tons. At EEG, total volume of PCB suspected oil is 29,400 litres, or 29.4 tons. All the suspected PCB oil were stored in not so optimal condition, and are ready for analysis and disposal. Due to the COVID-19 pandemic and other supply chain reasons, the delay in procurement, shipment and customs clearance of PCB analysis reagents and other necessary inputs caused cascading delay in the laboratory analysis and identification of PCB concentration, to determine accurate volume of PCB contamination oil.	Identified PCB-containing equipment and waste amount to at least 150 tons and is properly stored for treatment or disposal under the project The technology or service for the disposal of PCB equipment and waste (within the country or abroad) will be selected and procured/rented in a cost-effective manner to stay within the project's budget and timing constraints Disposal of 150 tons of PCB equipment can be completed within project and budget constraints

						Delay in the procurement and customs clearance processes of the reagents and inputs materials caused the delay in laboratory analysis to determine the accurate estimated total volume of PCB pure oil and oil in contaminated equipment. While the identification of the disposal technologies has been completed, the delay in laboratory analysis also delayed the finalization of the TOR for the preparation of the procurement document for bidding on PCB disposal/ decontamination service. It was determined that this end-of-project target would not be met on the (extended) project completion of 1 May 2024. (Updated) Purchase Order with the contract for disposal/ dechlorination services were finally signed on 30 April 2024 for work to be completed by 30 November 2024. Preparatory work has been completed, contract will come to	

						Ethiopia end September for preliminary assessment, followed by importing equipment necessary for draining PCB oil and packing of PCB-contaminated equipment and waste for transport for disposal overseas. It is expected that 77.96 tons will be disposed. However, the preliminary preparatory phase of the contract due to complete by 30 June was not accomplished until end September 2024. As the finalization of the TE Report by end October 2024, UNDP is not able to obtain a confirmation from the contractor on the date the contractor will return to undertake the actual disposal process, due to be completed by 30 September 2024, as per contract term. In the absence of a report on actual progress, and a confirmed date of the contractor returning to Ethiopia to undertake actual disposal, The actual completion date of disposal cannot be ascertained, despite	

						the contractor's commitment to complete the contract, inclusive of remaining disposal and post-disposal activities, by 30 November 2024. A new bidding is advertised 2 September 2024 for new contract to dispose an estimated 43 tons of PCB-contaminated equipment and waste. .Should the contract be concluded and disposal action be commenced immediately, it is not certain that the disposal of the estimated 43 tons can be physical disposed by the (twice) extended project closure date of 1 January 2025, with the two months remaining In total, 120.96 tons of PCB will be disposed. Short of the 150 tons target.	

Annex 8: Signed UNEG Code of Conduct for Evaluators

Independence entails the ability to evaluate without undue influence or pressure by any party (including the hiring unit) and providing evaluators with free access to information on the evaluation subject. Independence provides legitimacy to and ensures an objective perspective on evaluations. An independent evaluation reduces the potential for conflicts of interest which might arise with self-reported ratings by those involved in the management of the project being evaluated. Independence is one of ten general principles for evaluations (together with internationally agreed principles, goals and targets: utility, credibility, impartiality, ethics, transparency, human rights and gender equality, national evaluation capacities, and professionalism)

Evaluators/Consultants:

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.
8. Must ensure that independence of judgement is maintained, and that evaluation findings and recommendations are independently presented.
9. Must confirm that they have not been involved in designing, executing or advising on the project being evaluated and did not carry out the project's Mid-Term Review.

Evaluation Consultant Agreement Form

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

Name of Evaluator: Yiu Chiu William Kwan (Mr.)

Name of Consultancy Organization (where relevant): The Norris Group

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

Signed at New York, USA on 30 October 2024

Signature: _____

Annex 9: Terminal Evaluation Report Clearance Form

Terminal Evaluation Report for the project "***PCB Management in Ethiopia to meet the 2025 Stockholm Convention deadline – Phase 1***", *UNDP PIMS ID 5861, GEF Project ID 9669* **Reviewed and Cleared By**:

Commissioning Unit (M&E Focal Point)

Name: _____

Signature: _____ Date: _____

Regional Technical Advisor (Nature, Climate and Energy, Chemicals and Waste Hub

Name: Charlotte De Bruyne (Ms.)

Signature: _____ Date: _____

Annex 10: Terminal Evaluation Audit Trail

The following is a template for the TE Team to show how the received comments on the draft TE report have (or have

The following shows how the TE Consultant has (or has not) incorporated into the final TE Report on comments received on the draft TE Report submitted to the Commissioning Unit on 20 September 2024. The completed Audit Trail is listed as Annex 10 to the Final TE Report, but is submitted as a separate document to the Commissioning Unit, not attached to this Final TE Report.

To the comments received on3 October 2024 from the Terminal Evaluation of UNDP-support, GEF-financed project entitled PCB Management in Ethiopia to meet the 2025 Stockholm Convention deadline – Phase 1" (UNDP PIMS5861)

The following comments were provided to the draft TE report; they are referenced by institution/organization (do not include the commentator's name) and track change comment number ("#" column):

Institution/Organization	#	Para No./ comment location	Comment/Feedback on the draft TE Report	TE Team response and actions taken

Annex 11. Photos Taken during the Terminal Evaluation mission

PCB-contaminated Equipment at Ethiopian Electric Power (EEP)

Barrels containing PCB Oil stored at Ethiopian Engineering Group EEG)

PCB-containing Equipment at Ethiopian Engineering Group (EEG)

PCB-containing Equipment at Ethiopian Engineering Group (EEG)

Plant location of Ethiopian Electric Power (EEP)

PCB-contaminated Equipment at Ethiopian Electric Power (EEP)

PCB-contaminated Equipment at Ethiopian Electric Power (EEP)

PCB-contaminated Equipment at Ethiopian Electric Power (EEP)