

Independent Terminal Evaluation

Environmentally sound management and disposal of Polychlorinated Biphenyls (PCBs) in the Republic of Azerbaijan

UNIDO Project No.: GF/AZE/10/001 - 104030

GEF Project ID: 3543



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

UNIDO INDEPENDENT EVALUATION DIVISION

Independent Terminal Evaluation

Environmentally sound management and disposal of Polychlorinated Biphenyls (PCBs) in the Republic of Azerbaijan

UNIDO Project No.: GF/AZE/10/001 - 104030
GEF Project ID - 3543



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Vienna, November 2017

Distr. GENERAL
ODG/EVQ/IEV/17/R.5
November 2017

Original: English

This evaluation was managed
by the responsible
UNIDO Project Manager
with quality assurance by the
Independent Evaluation Division

The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Mention of company names and commercial products does not imply the endorsement of UNIDO.

The views and opinions of the evaluator do not necessarily reflect the views of the Governments and of UNIDO.

This document has not been formally edited.

Table of Contents

Page

ACKNOWLEDGEMENTS.....	iv
ABBREVIATIONS AND ACRONYMS.....	v
GLOSSARY OF EVALUATION-RELATED TERMS.....	vi
EXECUTIVE SUMMARY.....	vii
I. EVALUATION OBJECTIVES, METHODOLOGY AND PROCESS.....	1
1.1 Evaluation approach and methodology.....	1
1.2 Information sources.....	1
1.3 Encountered limitations.....	2
1.4 Intended use of the evaluation report.....	2
II. COUNTRY AND PROJECT BACKGROUND.....	3
2.1 Geography and population.....	3
2.2 Political profile.....	3
2.3 Economic profile.....	3
2.4 PCBs and electricity sector.....	3
2.5 Institutional and regulatory framework for PCBs.....	4
2.6 Short project overview.....	4
2.7 Deadlines and milestones.....	5
2.8 Project Stakeholders.....	5
2.9 Implementing Arrangements.....	6
III. PROJECT ASSESSMENT.....	8
3.1 Project identification and formulation.....	8
3.2 Project design.....	8
3.3 Implementation performance.....	9
3.4 Relevance.....	21
3.5 Effectiveness.....	22
3.6 Efficiency.....	24
3.7 Assessment of sustainability of project outcomes.....	25
3.8 Project coordination and management.....	26
3.9 Assessment of monitoring and evaluation systems.....	26
IV. CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED.....	32
4.1 Conclusions.....	32
4.2 Recommendations.....	34
4.3 Lessons Learned.....	35
ANNEXES.....	36
Annex 1: List of Interviewees.....	36
Annex 2: List of documents reviewed and appendixes.....	37
Annex 3: List of experts, involved into the process of the Project implementation.....	40
Annex 4: Evaluation matrix.....	41

ACKNOWLEDGEMENTS

The Evaluation Team (ET) acknowledges and thanks the support and information provided by numerous officials from the Government of Azerbaijan and all other persons involved for the planning and support of the data collection during the development of this report. The evaluation was prepared by Mr. Marin Kochov, Independent Evaluation Consultant and Mr. Sahib Mammadov, National Consultant

The Evaluation Team wishes to express sincere thanks to Mr. Baghir Hidayatov, the National Project Coordinator, the staff and experts of the project for clarifying the technical details and questions the Evaluation Team had during its visit in Baku and the logistics provided during the field visit.

This report is the product of independent team acting in its personal capacity. The views and opinions of the Evaluation Team do not necessarily reflect the views of the Government of Azerbaijan, UNIDO or the management of the project.

ABBREVIATIONS AND ACRONYMS

Acronym	Meaning
CM	Cabinet of Ministers
CTA	Chief Technical Advisor
ESM	Environmentally Sound Management
ET	Evaluation Team
GC	Gas Chromatographs
GEF	Global Environment Facility
M&E	Monitoring and Evaluation
MENR	Ministry of Ecology and Natural Resources
MIE	Ministry of Industry and Energy
MIS	Management Information System
NFP	National Focal Point
NGO	Non-Governmental Organization
NIP	National Implementation Plan
NTA	National Technical Advisor
OFP	GEF Operational Focal Point
PCBs	Polychlorinated Biphenyls
PET	Project Expert Team
PIO	Project Implementation Office
PMO	POPs Management Office
POPs	Persistent Organic Pollutants
PPG	Project Preparation Grant
PSC	Project Steering Committee
PSSCC	Project Steering and Stakeholder Coordination Committee
SC	Stockholm Convention
SOP	Standard Operating Procedure
TE	Terminal Evaluation
TOR	Terms of Reference
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization

GLOSSARY OF EVALUATION-RELATED TERMS

Term	Definition
Baseline	The situation, prior to an intervention, against which progress can be assessed.
Effect	Intended or unintended change due directly or indirectly to an intervention.
Effectiveness	The extent to which the development intervention's objectives were achieved, or are expected to be achieved.
Efficiency	A measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results.
Impact	Positive and negative, intended and non-intended, directly and indirectly, long term effects produced by a development intervention.
Indicator	Quantitative or qualitative factors that provide a means to measure the changes caused by an intervention.
Lessons learned	Generalizations based on evaluation experiences that abstract from the specific circumstances to broader situations.
Logframe (logical framework approach)	Management tool used to facilitate the planning, implementation and evaluation of an intervention. It involves identifying strategic elements (activities, outputs, outcome, impact) and their causal relationships, indicators, and assumptions that may affect success or failure. Based on RBM (results based management) principles.
Outcome	The likely or achieved (short-term and/or medium-term) effects of an intervention's outputs.
Outputs	The products, capital goods and services which result from an intervention; may also include changes resulting from the intervention which are relevant to the achievement of outcomes.
Relevance	The extent to which the objectives of an intervention are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donor's policies.
Risks	Factors, normally outside the scope of an intervention, which may affect the achievement of an intervention's objectives.
Sustainability	The continuation of benefits from an intervention, after the development assistance has been completed.
Target groups	The specific individuals or organizations for whose benefit an intervention is undertaken.

EXECUTIVE SUMMARY

This document contains the report of the independent Terminal Evaluation (TE) for the Global Environment Facility (GEF) project entitled “Environmentally Sound Management and Disposal of Polychlorinated Biphenyls (PCBs) in the Republic of Azerbaijan”. UNIDO is the GEF Implementing Agency, and the Ministry of Ecology and Natural Resources (MENR) is the Government Coordinating agency.

The project was approved by GEF in April 2010 and implementation started in May 2010.

The total value of the project is USD 7,380,790 (excluding PPG of USD 106,000) out of which co-financing is USD 5,260,790 and GEF grant is USD 2,120,000 while UNIDO input is USD 100,000 (in-kind).

The terminal evaluation was carried out from 8 June to 7 August 2017 and the field mission in Baku, Azerbaijan took place from 16 to 22 July 2017. Data and evidence were collected based on a participatory mixed-methods approach including the following key instruments: (i) desk review of reports and documents collected prior and during the field mission, (ii) interviews with project staff and stakeholders, (iii) observations from the field.

According to the Project Document, the proposed overall project objective is to create capacity for environmentally sound management (ESM) of PCBs for preventing PCBs releases from electrical equipment, avoiding cross-contamination of electrical equipment and disposing of 540 tons of PCB-containing oil, equipment and wastes. This objective will be achieved through a combination of strategies, including legislative and regulatory development, institutional capacity building, public education, awareness raising, technology transfer, training and technical support.

Key findings

Design

The project document in general is assessed as being of good quality. The design of the project was assessed as adequate. The duration of the project and the budget are considered adequate to achieve the expected outcome of effective and efficient implementation of the SC and NIP.

Environmental Sound Management System and Phasing out of PCB-containing equipment is very well explained throughout the project document and adequately transposed into outputs and activities. In these outputs, it is clearly explained that the treatment and disposal of PCB-containing equipment is the central matter of the project.

The important Key indicator (technical indicator) is final disposal of at least 540 tons of pure PCB oil and PCB-containing equipment and waste and was set correctly. Some soft target indicators were established correctly as SMART indicators in the Logical Framework and some lack the measurable element of being SMART indicators.

Project design is rated as **SATISFACTORY(S)**.

Relevance

Based on the assessment of full project relevance to local and national priorities and policies, full priorities related to relevant international conventions, and to the GEF strategic priorities and objectives, overall project relevance is considered to be **HIGHLY SATISFACTORY (HS)**.

Effectiveness

A new interim storage facility has been built and suitable non-combustion and decontamination technology for PCB-containing oils and equipment has been installed. During commissioning four

batches were processed (15 barrels, 200 l each). Additional 8 tones of oil were decontaminated in 2016/2017.

Effectiveness of Project Outputs is rated **MODERATELY SATISFACTORY (MS)** in view of tangible results.

Efficiency

The terminal evaluation has concluded that there were all efforts undertaken to ensure cost effectiveness of project results both by UNIDO as IA and by MENR as Government Coordinating agency. The efficiency of the project was assessed given the fact that most project outputs were delivered on target, and were implemented in a cost-effective and efficient manner.

However, the cost-effectiveness was impacted by the fact that the project implementation was three years delayed.

Due to the fact that the NIP has not yet obtained the final endorsement of the Cabinet of Ministers of Azerbaijan, the Ministry of Finance could not approve the co-financing of the budget, which was defining the financial obligations of the Republic of Azerbaijan at the signing of the Project document in 2010.

Efficiency is rated **Moderately SATISFACTORY (MS)**.

Sustainability

Financial risks to sustainability

The GEF, UNIDO, MENR and major stakeholders have established all the technical and institutional preconditions including a sustainable relatively low-cost treatment per kg of PCB-contaminated oils with the non-combustion decontamination technology. Over 90 percent of PCB containing capacitors and about 80 percent of PCB-containing transformers are at the facilities of Azerenergy, the key stakeholder in the execution of the project, the owner of the largest amount of PCB-containing equipment and wastes. The two other main stakeholders of the project are SOCAR (The State Oil Company) and Bakielektrikshebeke (the electricity supplier company of Baku, now affiliated with Azerishik Company). There are strong commitments from the three major stakeholders; however additional resources and support will be required for phase-out of PCB-containing equipment by 2025.

The project team developed business model of the sustainability of the project after its termination. In particular, MENR prepared contract with SOCAR for supply of contaminated oil for disposal after phasing out of contaminated transformers. The contract contains schedule of delivery of oil.

On the other hand, there is no possibility to predict the financial conditions and stability of the PCB owner companies, and there with no security on whether their PCB-containing equipment will finally be phased out or not by 2025.

The sustainability of the project is strongly related to the government co-financing the project, which was not fully covered. Therefore, this matter deserves absolute priority.

MENR has contributed significant resources into the Project, as well the three major stakeholders, however there is no financial mechanisms or incentives to support companies with financial difficulties regardless of the relatively low-cost treatment per kg of PCB-contaminated oil technology.

Therefore, the financial risks to sustainability are rated as Moderately Likely (ML).

Sociopolitical risks to sustainability

The project has provided targeted training and awareness raising, including significant technical capacity enhancements through the PCB decontamination facility.

Sociopolitical risks to sustainability are rated Likely (L).

Institutional framework and governance risk to sustainability

Project has built capacity within the MENR. There are reasons to expect that government will honor obligations to conform to the SC for proper PCBs and PCB-containing equipment management.

However, the Cabinet of Ministers is still reviewing the NIP, which has been signed by all concerned Ministries. Due to the fact that the NIP has not yet obtained the final endorsement by the Cabinet of Ministers of Azerbaijan, this situation does not allow the Ministry of Finance to approve the co-financing of the budget, which was defined at the signing of the Project document in 2010.

Institutional framework and governance risk to sustainability is rated Moderately Likely (ML).

Environmental risks to sustainability

Throughout the whole phases of implementation of the project there were no samples from air, underground water and soil from the interim storage and PCB treatment facility.

There are no maximal allowed concentration limits defined by law for soil, air and underground water.

Environmental risks to sustainability is rated **Moderately Likely (ML)**.

The sustainability of this project is rated as **MODERATELY LIKELY (ML)**.

Project coordination and management

The stakeholders at all levels expressed their full satisfaction with Project Implementation Office (PIO) (established under the MENR) and project leadership coordination and management activities. The Project's management, coordination and implementation were considered to be adequate to ensure delivery of most of the outputs.

Project management was rated as **Highly Satisfactory (HS)**.

UNIDO management, quality control and technical inputs were also assessed as **Highly Satisfactory (HS)**. UNIDO was commended for having played a key role in the implementation of the project through its supervisory capacity.

The overall rating for the project based on the evaluation findings is **Moderately Satisfactory (MS)**.

Conclusions and recommendations

This is the first project in the Caucasus Region that aims at the practical establishment of an integrated management of PCB-containing equipment. One of the most important outcomes of the project is the fact that for the first time on the territory of a former Soviet Union was made a successful attempt for implementation of the modern environmentally sound practices of PCB management. Such an experience could be successfully extended to the countries of the former Soviet Union.

The Azerbaijan national project team provided a lot of work to develop necessary technical papers and regulations on PCB management for strengthening legal and regulatory framework for ESM and

disposal of PCB oil, equipment and wastes as well as to improve institutional capacity at all levels of PCB waste management and disposal.

The project has created increased awareness of PCBs among policy makers, stakeholders, professionals, environmental NGOs and media professionals in the Republic of Azerbaijan. The project activities have targeted key stakeholders and vulnerable population groups with direct contacts with PCBs or who live close to PCB contaminated areas.

System for inventory, collection and disposal of PCB-containing oil and equipment was established. The inventory process of transformers is successful thanks to the efforts of the partners and the project team and it is still ongoing. **To achieve a sustainable and safe management of PCBs the inventory should be completed; It is recommended to continue with the inventory of the equipment contaminated with PCB.**

National Center for Waste Management has been established on the landfill (50 hectares) for the disposal of hazardous waste. Non combustion PCB treatment technology container type was selected. It enables the dechlorination of the oil in a wide range of initial PCB concentration by sodium dispersion.

The most important barrier for the implementation of the activities of the project is institutional. PCB waste management in Azerbaijan could be effective and sustainable only when it is supported by the Government's policies and only with this in place impact could be foreseen.

The Cabinet of Ministers is still reviewing the NIP, which has been signed by all concerned Ministers. **It is recommended that the Cabinet signs it as soon as possible to constitute the NIP a legally approved document.**

NIP update is an opportunity to incorporate comments or reservations if any in the draft NIP.

It is imperative that the Ministry of Ecology and Natural Resources continues the monitoring of the PCB inventory and disposal activities. The Stockholm Convention requires regular national reporting on PCB inventory.

The concern of the Evaluation Team is due to the fact that after more than three years of the Project implementation, the budget commitments on the co-financing are still not defined.

The sustainability of the project is strongly related to the government co-financing the project.

I. EVALUATION OBJECTIVES, METHODOLOGY AND PROCESS

Terminal evaluations are required elements of the monitoring and evaluation plan for GEF funded projects according to GEF and UNIDO evaluation policy and practice. A terminal evaluation was foreseen in the Project Document “Environmentally Sound Management and Disposal of Polychlorinated Biphenyls (PCBs)” in the Republic of Azerbaijan. The report will summarize all activities, achievements and outputs of the project, lessons learned, objectives met (or not) including recommendation for any further steps that may need to be taken to ensure sustainability and replicability.

The terminal evaluation was initiated by UNIDO in May 2017, almost three years later than foreseen in the project milestones.

The purpose of this terminal evaluation is to provide a comprehensive and systematic account of the project performance of the completed project by assessing its project design, process of implementation, achievements vis-à-vis project objectives endorsed by the GEF and the relevant evaluation criteria: design, relevance, efficiency, effectiveness, and sustainability. The evaluation assesses project results based on the project objectives.

The terminal evaluation also provides recommendations for follow-up future activities beyond Project completion.

In addition to assessing the main GEF evaluation criteria, the objective of the terminal evaluation is to provide required ratings on key elements of project design and implementation approach as indicated in the Terminal Evaluation TOR.

1.1 Evaluation approach and methodology

The terminal evaluation was carried out in the period from 8 June to 7 August 2017 (21 working days over a period of two months) by an independent international consultant and national consultant, and consisted of the inception report, field mission in Baku Azerbaijan from 16 to 22 July 2017, presentation of initial findings and final report.

The evaluation was carried out using a participatory approach seeking to inform and consult with all key parties associated with the project including following key instruments: (i) desk review of reports and documents collected prior and during the field mission, (ii) interviews with project staff and stakeholders, and (iii) observations from the field.

The evaluation matrix (Annex 4) contains the evaluation questions, sources of verification and relevant indicators that were examined during the terminal evaluation. Guided by the requirements of the GEF and UNIDO, the project is rated based on the overall ratings table comprised of criteria for attainment of project objectives, sustainability of project outcomes, monitoring and evaluation requirements, as well as following the specific UNIDO requirements from the Terminal Evaluation ToR.

1.2 Information sources

Written documents and reports from this project were reviewed in the inception phase. Furthermore, relevant project documents were provided by during the evaluation field mission.

- List of interviewed stakeholders is provided in Annex 1.

- List of Documents Reviewed is given in Annex 2.

A site visit was made to the location of new facility National Centre for Hazardous Waste Management (landfill) in the vicinity of Baku.

1.3 Encountered limitations

The major limitation the Evaluation Team (ET) faced was the duration of 21 days over two months period, out of which the field mission consisted of 7 days including travel; briefing involved 4 days including travel and for debriefing 3 days including travel.

1.4 Intended use of the evaluation report

This terminal evaluation was conducted in accordance with GEF and UNIDO monitoring and evaluation policies and procedures and in line with United Nations Evaluation Group norms and standards.

The intended users of this terminal evaluation are the MENR, UNIDO and the GEF. If relevant, the terminal evaluation report may be disseminated with additional stakeholders to share lessons learned and future recommendations.

II. COUNTRY AND PROJECT BACKGROUND

2.1 Geography and population

The Republic of Azerbaijan is the largest country among the Southern Caucasus Republics. The area of the country is 86,600 km² and the population is 9,872,765 (July 2016 est.). Azerbaijan borders Russian Federation on the north, Caspian Sea on the east, Islamic Republic of Iran on the south, Armenia on the west, Georgia on the north-west and Turkey on the south-west.

2.2 Political profile

The existing constitution of Azerbaijan was adopted in 1995. The state power of the country is divided among legislative, executive and judicial powers. Azerbaijan is a presidential Republic. President is elected and is the head of the state. President appoints Prime Minister and forms the government.

2.3 Economic profile

GDP per capita: 5,496 USD (2015 World Bank)

Gross domestic product: 53.05 billion USD (2015 World Bank)

Oil remains the most prominent product of Azerbaijan's economy. Natural gas and agriculture products contribute to its economic growth over the last five years.

2.4 PCBs and electricity sector

The Republic of Azerbaijan accessed to the Stockholm Convention on POPs on 13 January 2004. Pursuant to Decree No. 329 dated 29 July 2004 by the President of the Republic of Azerbaijan, the Ministry of Ecology and Natural Resources (MENR) was assigned as the National Focal Point for developing the National Implementation Plan (NIP) of the Stockholm Convention on POPs. The NIP was prepared and completed in 2007 reviewing particular POPs issues, considering the provisions of relevant international commitments and developing detailed strategies and action plans, including timetables and costing of their implementation. The NIP identified the elimination of PCBs as one of the key objectives in implementing the country's obligations under the Stockholm Convention. It also identified the need for continued improvement of PCBs inventory, gradually withdrawing the PCBs-containing equipment and their final disposal. The NIP also identified (i) weaknesses of the current hazardous waste management practices, particularly in the storage sites of out of service PCB-containing electric equipment and waste oil, (ii) the need for institutional and regulatory development, (iii) capacity building requirements, and (iv) public awareness in PCBs management in particular POPs management in general.

PCBs have never been produced in Azerbaijan. PCB-containing equipment and oil was mainly imported from Russia. PCB-containing equipment and oil is widely used in the power sector (power generation and transmission). In May 2006, the preliminary inventory of PCBs has identified 6,000 pieces of PCB-containing equipment with a total weight of 384 tons. Over 90 percent of PCB containing capacitors and about 80 percent of PCB-containing transformers are at the facilities of Azerenergy, the key stakeholder in the execution of the project, the owner of the largest amount of PCB-containing equipment and wastes.

The two other main stakeholders of the project are: SOCAR (The State Oil Company) and Bakielektrikshebeke (the electricity supplier company of Baku, now affiliated with Azerishik Company).

To date, the aforementioned merger has led to a change in the results of on-going inventory of PCB-contaminated equipment: during reviewing of the centralized database system for PCB information management (based on the MENR intranet network) it was found that last information input on

inventory results was made in 2013. According to national experts' statements - inventory forms are regularly filled in by experts of the project's stakeholders, but have not yet been added to the database due to the confusion with the ownership of the electrical equipment. None of the initial project stakeholders abandon their commitments.

The quantities of PCBs used in transformers range between 160 to 2,980 kg depending on the size of the transformer and the average quantity of PCBs in capacitors was about 17.2 kg. In the Active Substances Plant, a chemical complex in Sumgait City, an estimated amount of 30 tons PCBs waste oil was stored in underground barrels. Eight tones out of these 30 tones were transported to the National Centre for Hazardous Waste Management for decontamination. The cost of the decontamination was paid by the MENR.

The on-going inventory made after the NIP completion identified additional 3,000 pieces of equipment that contained PCBs. Based on the above figures the project aims at the treatment and final disposal of at least 540 tons of pure PCB oil and PCB-containing equipment and waste.

2.5 Institutional and regulatory framework for PCBs

The institutional framework for environmentally sound management (ESM) of PCBs was initiated during the NIP development. However, there were no specific regulations, standards and guidelines addressing PCBs and management of PCB-containing electric equipment to define a progressive phase-out and elimination plan prior to project implementation. Furthermore, there was a lack of human and technical capacities for PCBs monitoring, especially proper interim storage and decontamination technology for PCB-containing equipment and no laboratory services for PCBs analysis.

2.6 Short project overview

The full-size project was initiated by UNIDO and the Government of the Republic of Azerbaijan. An overview of Project general information is given in the Table below.

Project general information:

UNIDO Project Number	GF/AZE/10/001
Project title	Environmentally Sound Management and Disposal of Polychlorinated Biphenyls (PCBs)
GEF Project ID	3543
Starting date	April 2010
Duration	4 years
Project site	Azerbaijan
Government Coordinating agency	Ministry of Ecology and Natural Resources (MENR)
Counterpart	Ministry of Industry and Energy (MIE)
Implementing agency	UNIDO
Project inputs	USD 2,120,000 (excluding PPG of USD 106,000)
Support cost	USD 222,600
UNIDO input	USD 100,000 (in-kind)
Counterparts inputs	
MENR	USD 386,500 (cash); USD 337,000 (in-kind)
MIE	USD 164,000 (cash); USD 171,320 (in-kind)
Other Government Agencies	USD 104,370 (cash); USD 19,700 (in-kind)
Stakeholder participants	USD 2,040,500 (cash); USD 1,937,400 (in-kind)
Total Co-financing	USD 5,260,790
Grand Total	USD 7,380,790 (excluding support cost and PPG)

2.7 Deadlines and milestones

The information on the main project dates for this project is provided in the table below:

Milestone	Date
Project CEO endorsement/approval date	05 April 2010
Project implementation start date	20 May 2010
Originally expected implementation end date	31 March 2014
Revised expected implementation end date	31 December 2015
Actual implementation end date	30 June 2017
Midterm evaluation	March-May 2013
Project completion	September 2017
Planned terminal evaluation date	May-October 2017

The Project encountered several delays during implementation. The delay is related to the selection process and set-up of the facility for decontamination of PCB-containing equipment. There was a delay of approximately three years in the start of decontamination operations because of the problems at choosing a specific decontamination technology of PCBs.

2.8 Project Stakeholders

The table below lists the main stakeholders and their role in project implementation.

During the project implementation phase four relevant NGO were identified.

Coordinating agency	Ministry of Ecology and Natural Resources (MENR)
Counterpart	Ministry of Industry and Energy (MIE)
GEF Operational Focal Point (OFP)	
National Focal Point (NFP)	Mr. Maharram Mehtiyev Ministry of Ecology and Natural Resources
Project Implementation Office (PIO)	The PIO is under the supervision of NFP and reports through MENR to UNIDO
Project Steering Committee (PSC)	PSC consists of representatives of MENR, MIE, NFP, the PIO, the NTA, the CTA, major stakeholder companies, and the UNIDO project manager
Project Expert Team (PET)	Chief Technical Advisor (CTA), National Technical Advisor (NTA), policy experts, PCBs management and disposal industry experts, chemists, monitoring & evaluation experts and other technical experts to assist the PIO
Azerenergy JSC, Bakielektrikshebeke and Azerishiq OJSC (merger company from 2015 – distribution part)	The largest PCB owners in the country holding over 90 percent of PCB-containing equipment and wastes.
State Oil Company SOCAR	Oil-producing company, which produces 15% of oil and gas on the territory of the Republic of Azerbaijan
Active Substances Plant, a chemical complex in Sumgait City	An estimated amount of 30 tons PCBs waste oil was stored in underground barrels.
Environmental Physics and Chemistry Center (AzEcoLab) of the National Academy of Sciences	The only laboratory in the country that has the accreditation to determine PCBs in oil samples, using chromatographic method.
Environmental Laboratory of MENR	
Azerenergy central laboratory for analysis of transformer oil	

Environmental inspectors	
Customs	The revised PCB-related legislation would require the Custom officers to inspect the movement of all oil-containing electrical devices

2.9 Implementing Arrangements

UNIDO is responsible for project implementation as the GEF Project Implementing Agency. Project focal point (dedicated core staff supervised by a senior professional staff) was established within UNIDO to assist with project execution.

The Ministry of Ecology and Natural Resources (MENR) is the National Focal Point for implementing the National Implementation Plan (NIP) of the Stockholm Convention.

MENR is responsible to coordinate legislative activities and to develop regulations and procedures for POPs related activities; to facilitate cooperation between stakeholders and provide the stakeholders with centralized management; to monitoring the implementation and to report the progress to the relevant governmental authorities and to the Stockholm Convention Secretariat.

Ministry of Industry and Energy is responsible for providing assistance in conducting inventory of equipment contaminated with PCB (in use and out of use).

National Focal Point coordinates and monitors all activities related to the implementation of the Stockholm Convention. The NFP is located and operated at the MENR.

Project Implementation Office (PIO): The Project Implementation Office (PIO) consists of two full-time professional staff and one support staff, with additional support provided by consultants on an as-needed basis. The PIO is under the supervision of NFP and reports through MENR to UNIDO.

Project Steering Committee consists of 8 representatives of major stakeholders and UNIDO project manager. The Steering Committee convened seven times during project implementation.

Members of Steering Committee

1. Toqiq Yaqubov – Ministry of Transport
2. Natiq Mammadli – Ministry of Economy Development
3. Qasim Aliyev – State Committee of Customs
4. Nuraddin Abdullayev – Ministry of Health
5. Emil Djavadov – State Committee of Standard, Metrology and Patent
6. Fazil Seyidov - “Bakielektrikshebeke” JSC
7. Efsane Javanshirova- “Azerenergy” JSC
8. Kamran Jebrayılov - “Azerenergy” JSC

Project Management Group:

Baghir Hidayatov, Muslum Gurbanov, Gunay Ibrahimova, Teymur Shakaraliyev, Abdulkhalig Heydarov, Maharram Mehtiyev and Ulkar Mammadova.

Project Expert Team is to assist PIO through International Technical Advisor (CTA), National Technical Advisor (NTA), policy experts, PCB management and disposal industry experts, chemists, monitoring and evaluation experts.

The Project Document foresees that the private sector stakeholders will be integrated into the project.

Azerenergy is the main utility company in the country. The company generates and supply electricity in Azerbaijan, owns the largest amount of PCB-containing equipment. Total amount of the transformers in service is about 50,000. The company has transformers, which operate throughout

the Republic of Azerbaijan. Central Laboratory of Azerenergy is located in Baku at the Institute of Energy.

Through contract between UNIDO and UNDP, the services of UNDP's country office are used for financial administration and disbursement of project funds at country level.

III. PROJECT ASSESSMENT

The primary purpose of any independent evaluation is to assess the achievements against the objectives and the expected results, to identify factors that have facilitated the achievements of the projects objectives or in case the factors that hindered the fulfillment of these objectives, to determine which lessons can be learned.

3.1 Project identification and formulation

The project aims to reduce and eliminate the threats to human health and the environment posed by PCBs in the Republic of Azerbaijan by establishing an environmentally sound management (ESM) system for disposal of PCBs and PCB-containing equipment, including legislation, institutional and technical capacity building, awareness raising and assisting in the phase-out process of PCBs-containing equipment.

Overall objective of the project

The project's overall objective is to create capacity for environmentally sound management (ESM) of PCBs for preventing PCBs releases from electrical equipment, avoiding cross-contamination of electrical equipment and disposing of 540 tons of PCB-containing oil, equipment and wastes. This objective will be achieved through a combination of strategies, including legislative and regulatory development, capacity building, public education, technology transfer, training and technical support.

Immediate objective of the project

The immediate objectives of the project are to:

- Strengthen the legal and regulatory framework for ESM and disposal of PCB-containing oil, equipment and wastes;
- Improve institutional capacity at all levels of PCBs waste management and disposal;
- Remove PCBs wastes from targeted contaminated sites and transport them to disposal unit;
- Decontaminate PCB oils in in-service transformers;
- Dispose of wastes in an environmentally sound manner.

3.2 Project design

A wide range of stakeholders were consulted during the design. The design of the project was assessed as adequate. The project document in general is assessed as being of good quality. The duration of the project and the budget are considered adequate to achieve the expected outcome of effective and efficient implementation of the SC and NIP. Funding is considered adequate to achieve standard results.

Environmentally Sound Management System and Phasing out of PCB-containing equipment is very well explained throughout the PD and adequately transposed into outputs and activities.

In these outputs, it is clearly explained that the treatment and disposal of PCB-containing equipment is the central matter of the project.

However, from the project design perspective, the same level of focus in the other main project component in Outcome 3 – Awareness raising among private and public stakeholders for PCB management is missing, though it is very important factor and essential for the project success and effectiveness, especially for the long-term sustainability and ability to replicate the project. The problem of dealing with PCB-containing materials is very much sector-related and applicable to individual groups in terms of direct contamination with PCBs and handling of PCBs (for example people recovering materials from landfill).

The important Key indicator (technical indicator) is final disposal of at least 540 tons of pure PCB oil and PCB-containing equipment and waste and was set correctly. Some soft target indicators were established correctly as SMART indicators in the Logical Framework and some lack the measurable element of being SMART indicators such as Activity 1.2.3 - Train inspectors in PCB inspection obligations and use of electronic PCB database, Activity 1.2.6 - Train worker safety inspectors, Activity 1.2.7 - Hold stakeholder compliance workshops, Activity 3.1.1 - Hold awareness raising workshops.

As a SMART indicator is lacking on how many people exactly or approximately should have been trained from each specific site or institution connected to PCBs, it is impossible to evaluate this outcome of number of trained people.

Another important issue which is missing in the outcomes/outputs is how to secure financial sustainability of the project.

Based on the analysis given above, the **project design is rated SATISFACTORY (S)**.

3.3 Implementation performance

Project outcomes/outputs/activities

The final achievement of Project Objectives within Outcomes 1-4

Outcome 1: Regulatory and institutional capacity building for PCB management
All draft legislation was prepared and presented to MENR for consideration.
Cabinet of Ministers has to endorse the regulatory documents that had been developed.

Outcome 2: Sustainable and safe management of PCB stockpiles and wastes
All outputs related to Outcome 2 were undertaken except the amount of PCB contaminated oil.

Outcome 3: Awareness raising among private and public stakeholders for PCB management
Activities related to Outcome 3 for raising the public awareness were undertaken

Outcome 4: Establishment of Project management structure and monitoring and evaluation
The goal of strengthening the human resources within Outcome 4 was reached by dedicating a full-time National Project Coordinator and Project Coordinator Assistant and Head of the inventory group.

Outcome 1: Regulatory and institutional capacity building for PCB management	
Output 1.1: PCB-related regulations, standards, and norms fulfilling SC requirements developed	
Activity 1.1.1: Legal and regulatory review and revision to ensure alignment with SC	National legal and regulatory acts were reviewed and the gaps concerning to SC requirements were identified; Recommendation were presented to MENR for preparation of needed proposals. (Appendices 1, 2 and 3)
Activity 1.1.2: PCB policy and guidance development	Regulations on PCB containing equipment and waste were prepared and presented to MENR. Order of the Minister of Ecology and Natural Resources on approving of Methodical Indicators on work with PCB containing equipment and wastes ("Guideline for the Treatment of PCB containing equipment and oils") was approved on 18.02.2013. (Appendix 4)

<p>Activity 1.1.3: Revise Administrative Infringement Code to include penalties for improper disposal of PCB-contaminated waste</p>	<p>Proposal for including penalties for improper disposal of PCB-contaminated waste was prepared and presented to MENR. Draft Law with amendments to the Administrative Code of AR was sent to the Cabinet of Ministers. (Appendix 5)</p>
<p>Activity 1.1.4: Develop and distribute guidelines for maintenance of PCB-containing equipment</p>	<p>Guidelines on PCB electric equipment inventory in Azerbaijan Energy System were elaborated and prepared by the inventory group from Azerenergy and legal aspects corrected by the legal experts of the project. Approved by the chief engineer of Azerenergy on 13.09.2012. (Appendix 6)</p> <p>Internal SOCAR guidelines for the management of PCB-containing electricity equipment in the Azerbaijani language, redesigned for the Project on utilization of PCB-containing wastes in the Azerbaijan Republic) has been developed and the information was provided to the deputy minister of MENR. (Appendices 7 and 7a)</p>
<p>Activity 1.1.5: Develop and distribute guidelines for management of PCB-contaminated waste</p>	<p>Guidelines for the management of PCB contaminated waste were developed and presented for approval. Guidelines on safety measures during PCB equipment and liquid (oil) wastes labeling process in stations and substations. Approved by the chief engineer of Azerenergy on 29.10.2012.</p> <p>The same document was created for Bakuelectrichebeke. (Appendices 6 and 7)</p>
<p>Activity 1.1.6: Develop regulations restricting import and export of PCB oil and equipment</p>	<p>List of PCB equipment (transformers, capacitors) was prepared. (Appendix 8)</p> <p>Draft Presidential Degree of AR on amendments related to PCBs to the “Regulations of import- export operations in the AR” was sent to the Cabinet of Ministers. The amendment includes PCB oil and wastes proposed to be added to the “List of the Specific goods export and import operations by the judgment of the relevant state bodies” approved on 24 June, 1997. (Appendix 9)</p>
<p>Activity 1.1.7: Add PCBs to occupational hazards list</p>	<p>Proposal for including of PCBs to occupational hazards list was prepared and presented for approval to government bodies.</p> <p>Draft amendments to the Law on Industry and domestic wastes were sent to the Cabinet of Ministers.</p> <p>Draft amendments to the Law on Protection of Environment were sent to the Cabinet of Ministers. (Appendix 10)</p>
<p>Activity 1.1.8: Add PCBs to eco toxic chemicals list</p>	<p>Proposal for including of PCBs to eco toxic chemical list was prepared and presented for approval. This document is already approved by MENR. (Appendix 10)</p>
<p>Activity 1.1.9: Develop and introduce national standard regulating PCB content in equipment and oil</p>	<p>Proposal for introducing international standards regulating PCB content in equipment was prepared and presented for approval. (Appendix 11)</p> <p>Draft order of the Head of the Committee of Standardization, Metrology and Patents on making amendments to the State standard AZS 391-2010 of Technical terms of T-1500 transformer oil of the Republic of Azerbaijan. Sent to joint sub commission on harmonization of national environmental legislation with EU legislation. This document was recently approved by Committee</p>

	of Standardization, Metrology and Patents. (Appendix 12)
Activity 1.1.10: Develop worker safety guidelines	Worker safety guidelines were developed and presented for approval. (Appendix 7)
Activity 1.1.11: Develop and implement PCB equipment labeling requirement	PCB equipment labeling requirement was developed; It was agreed with the relevant stakeholders and implementation started. Guidelines on safety measures during sampling were approved by the chief engineer of Azerenergy on 16.10.2012. (Appendix 13)
Output 1.2: Measures addressing the SC enforced	
Activity 1.2.1: Develop control system to improve enforcement of regulations for proper disposal of PCB-contaminated wastes	Information letter on responsibility of related departments for control system to improve enforcement of regulations for proper disposal of PCB contaminated waste was sent to Ecology and Environmental Protection Policy Division. The official letter to the Head of the State Statistics Committee of the Republic of Azerbaijan with proposal for including PCBs classification code (wastes) of the State Statistical Report presented by industrial enterprises. (Appendix 14)
Activity 1.2.2: Develop incentive and disincentive programs to promote compliance with PCB requirements	Incentive and disincentive programs to promote compliance with PCB requirements were developed; They are in process to be presented to relevant governmental bodies. At the present time, the list is prepared for early retirement for workers that are dealing with PCB. (Appendix 15)
Activity 1.2.3: Train inspectors in PCB inspection obligations and use of electronic PCB database	<p>The inspectors of MENR and other stakeholders' companies were trained by the UNIDO international expert during the workshop in Baku (on 24-26 November 2011) on how to identify and manage PCB containing equipment, about the PCB obligations and the methods how to use the requirements. The inspectors then trained the personal of the electricity generating supplying companies;</p> <p>The first step for the inspection Programme is providing total inventory for the transformers and capacitors. The inventory forms and inventory numbers for PCB equipment were defined (UNEP Inventory Forms, with some modifications) approved by the main stakeholders of the Project: Azerenergy, SOCAR and Bakielektrikshebeke. The labels which indicate the PCB status were also defined. The examples of such labels were delivered and the labels are of good quality, i.e. they are durable and resistant to the generated temperatures from the transformers and the weather conditions as well; (Appendix 16)</p> <p>Trainings were provided in the building of the Ministry of Ecology and Natural Resources (general information) and in laboratories of SOCAR, Azerenergy, Bakielektrikshebeke and National Monitoring Department of MENR. Local experts from laboratories were trained for work with analyzers. Two experts from each organization in the presence of the international expert provided the test analysis. All trainings were provided in laboratories located in Baku (central laboratories of each organization).</p>

Activity 1.2.4: Support targeted inspections of owners of PCB oil containing equipment	Schedule for the inspections in targeted stakeholder organizations was prepared and information was provided.
Activity 1.2.5: Develop worker safety inspection methodologies	Worker safety inspection methodologies were developed. (Appendix 17)
Activity 1.2.6: Train worker safety inspectors	Worker safety inspectors were trained. Training process for stakeholders were provided according to the manuals presented by international expert Aleksandar Mickovski and translated into Azerbaijan language. On the basis of these manuals and instructions inspectors from the Division of electro-workshop and electric laboratory were trained by national experts of stakeholder's organization. Technicians in substations were trained on safety work with PCB equipment. In total about 1000 workers were trained.
Activity 1.2.7: Hold stakeholder compliance workshops	Stakeholder compliance workshop was held. (Appendix 18)
Output 1.3: Laboratory strengthened with methodologies, procedures and information management systems for analytical data processing	
Activity 1.3.1: Build capacity for certified laboratory analysis and monitoring of PCBs Activity 1.3.2: Provision of PCB monitoring and testing equipment for use by Ministry of Industry & Energy and PCB owners	Five L2000DX analyzers were purchased and distributed among stakeholders (Monitoring Department within the Ministry of Ecology and Natural Resources (MENR), Azerenergy, Bakielektrikshebeke, SOCAR and the Institute of Radiation problems of the Academy of Science). Each institution, which received the L2000DX Analyzer, nominated several persons to be trained on screening procedures. (Appendix 6) Trainings for the laboratory staff were provided by assistance of international expert (Aleksandar Mickovski); Two gas chromatographs (GC) were purchased. One is installed in the laboratory of MENR and another one is installed in the national hazardous waste treatment centre aiming to analyze PCB concentration on site. (Appendix 19)
Activity 1.3.3: Determine sampling and analysis methodology and issue guidance documents	Sampling and analysis methodology guidance were prepared. Equipment producers' manuals on sampling and analyzing was investigated and translated into Azerbaijan language. (Appendix 20)
Output 1.4: Institutional capacity strengthened for environmentally sound management of PCB	
Activity 1.4.1: Creation of PCBs group within MENR	PCBs group within MENR was created {focal point (Gulmali Suleymanov), national coordinator of the SC (Maharram Mehtiyev), National Project Coordinator of the project (Baghir Hidayatov) and representative of legal division of MENR (Teymur Shakaraliyev)}.
Activity 1.4.2: Develop guidance document for Customs PCB management	Guidance document for Customs PCB management was prepared; Letter with information was provided; Official note to the Minister of Ecology and Natural Resources with proposal to making amendments to the "Rules governing imports and exports in the Republic of Azerbaijan" Official note to the Minister of Ecology and Natural Resources

	<p>with proposal to reviewing of the draft variant of the “Regulations about the procedure and conditions for issuing the Ministry of Ecology and Natural Resources permits for import and (or) export of waste, limited to moving through customs border of the Republic of Azerbaijan on the non-economic reasons”.</p> <p>Submitted to the Cabinet of Ministers for approving. (Appendix 8)</p>
Activity 1.4.3: Build capacity at State Customs Committee to ensure compliance with SC	Relevant information letter to State Customs Committee to ensure compliance with SC was provided (equipment classification –transformers, capacitors etc.). (Appendix 21)
Outcome 2: Sustainable and safe management of PCB stockpiles and wastes	
Output 2.1: PCB inventory strengthened and maintained	
Activity 2.1.1: Development of standardized forms and reporting guidelines for reporting PCB equipment and oil to environmental and statistical agencies	Final versions on PCB inventory manual was provided and approved by MENR. Standardized forms were developed on the base of relevant UNIDO guidelines. (Appendix 22)
Activity 2.1.2: Develop centralized database system for PCB information management	<p>Centralized database system for PCB information management was established (existing within the MENR intranet). (Appendix 23)</p> <p>Updated version of the database is available after 2014 based on web page application.</p>
Activity 2.1.3: Ministry and PCB owner staff capacity building in PCB containing equipment inventory development and maintenance	Seminar on PCB containing equipment inventory and maintenance for MENR and PCB owners was conducted. The staff is trained.
Activity 2.1.4: National PCB-containing equipment inventory	<p>Inventory process is ongoing including identification and labeling of PCB containing equipment;</p> <p>Main part of the inventory was done in 2011-2013 (inventory report). (Appendix 23)</p> <p>In Azenergy the number of analysis of transformers is 1,331. The number of transformers with chlorine above 50 ppm is 163. The oil weight is 375 tons; the total weight of the equipment is 1,295 tons. The number of PCB containing capacitors is 6,074, the weight of oil is 91 tons, and the total weight of the equipment is 231 tons.</p> <p>In SOCAR the number of analysis on transformers is 1,514, the number of transformers with chlorine above 50 ppm is 320. The oil weight is 151,2 tons, the total weight of the equipment is 576,5 tons. The number of PCB containing capacitors is 252, the weight of oil is 4,3 tons, the total weight of capacitors 12,5 tons.</p> <p>In Bakielektrikshebeke labeling of PCB containing equipment (transformers) with more than 20Kv was completed. Number of analysis of transformers is 1,716, the number of transformers with chlorine above 50 ppm is 83, the oil weight is 155,3 tons, the total weight of equipment 584,6 tons.</p>

	<p>In total</p> <p>Number of analysis of transformers - 4561</p> <p>Number of transformers with chlorine above 50 ppm - 566</p> <p>Oil weight (tons) – 681,5</p> <p>Total weight of the equipment (tons) – 2456</p> <p>Number of analysis of capacitors – 6326</p> <p>Total weight of oil (tons) – 95,3</p> <p>Total weight of the equipment (tons) – 243,5</p>
Activity 2.1.5: Fulfillment of SC reporting requirements	UNIDO inventory report is reflecting the inventory results.
Output 2.2: Maintenance of PCB equipment undertaken	
Activity 2.2.1: Develop SOP and contingency plans for PCB-containing equipment	Existing in the form of SOP documents – available in the Project Office on the Landfill. Appendix 24
Activity 2.2.2: Technology transfer for PCB containing equipment decontamination	<p>Training study-tour for Project team, partners and stakeholders (20.03.2011 – 27.03.2011 Italy - Sea Marconi/Polyeco, France – Tredi).</p> <p>Participants – Baghir Hidayatov, National Project Coordinator), M. Gurbanov (project expert), Z. Guliyev (Chief engineer of BakuElektrikshebeke), E. Nezereliyev (Ecological Department of Azerenergy), N. Zamanov (SOCAR Electrical Department).</p> <p>Seminar with participation of international PCB treatment companies was conducted on November 23, 2010 during the Inception Meeting with participation of UNIDO experts (Valentin Ishchenko, Aleksandar Mickovski, Gerasymos Spyrtos), invited representatives of international PCB companies (Vander Tumiatti (General Partner and President), Alessandro Capo (Commercial and Sales Department Head Manager) – “Sea Marconi” company; Karakolis Giannis (Chemical Engineer, Regional Manager for South Europe), Athanasios Polychronopoulos (COE) - POLYECO; Dirk Jan Hoogendoorn (CEO) – Orion company; Christoph Rittersberger - TREDI; Luciano Gonzalez (Project Manager) – Kinetrics company) local participants from MENR, from Ministry of Transport, Ministry of Economic Development, Ministry of Health, State Committee of Customs, State Committee of Standards, Metrology and Patents, project experts from Azerenergy, SOCAR and Bakielektrikshebeke, environmental NGO. Total – 25 participants.</p> <p>The equipment was purchased by UNIDO and commissioned. (Appendix 24a)</p>
Activity 2.2.3: Technical training for PCB containing material end users	<p>Technical training for PCB containing material end users was provided; Training study-tour to Philippines (19.03.2012 – 24.03.2012 - Philippines National Oil Company – Alternative Fuels Corporation). Participants:</p> <p>Mr. Z. Guliyev (Chief engineer of BakuElektrikshebeke), Mr. B. Hidayatov (National Project Coordinator).</p> <p>Number of trained workers at the facility – 3</p>
Output 2.3: Phase-out of PCB-containing equipment carried out	

<p>Activity 2.3.1: Develop guidelines for PCB equipment phase out</p>	<p>Order of the Minister of Ecology and Natural Resources on approving of Methodical Indicators on work with PCB containing equipment and wastes. Approved on 18.02.2013</p> <p>And Draft Decision of the Cabinet of Ministers on making amendments to the Inventory guidelines of wastes formed during production process. Sent to the Cabinet of Ministers. (Appendix 17)</p>
<p>Activity 2.3.2: Stakeholder training for PCB equipment phase out</p>	<p>Workshop on PCB management in Azerbaijan on November 11-12, 2012, Baku and June 2012 (Appendices 25, 26 and 27)</p> <p>Participants: International experts on PCB waste management and disposal, UNIDO Consultant Team, Representatives of stakeholders (Azerenergy, Bakielektrikshebeke, SOCAR, Environmental Pollution Monitoring Center, Center of Climate Change and Ozone.</p> <p>The main goal is formulation of a suggested solution for the treatment of PCBs in Azerbaijan. Key issues:</p> <ul style="list-style-type: none"> – Technologies – Operating entity (permit, resources, facilities) – Disposal cost and pricing – Disposal timeframe <p>Preparation of the draft TORs for acquisition of PCB treatment facilities.</p>
<p>Activity 2.3.3: Develop PCB equipment phase-out plans</p>	<p>UNIDO Azerbaijan national expert group proposed to create such plans (to be approved by Cabinet of Ministers firstly).</p> <p>SOCAR has already prepared internal action plan in 2016. (Appendix 28) Bakuelectricshebeke is merged to Azerishik and the ownership is still not clear, never the less they are committed to proceed with the phase-out plan. Azerenergy is preparing the phase-out plan.</p>
<p>Activity 2.3.4: Initially implement PCB phase-out plan</p>	<p>No equipment was phased-out. All contaminated transformers are still in-service and there is no need to phase them out.</p>
<p>Activity 2.3.5: Introduce dedicated oil reclamation equipment for use with PCB-clean transformers</p>	<p>Mobile decontamination equipment was installed and commissioned. (Appendix 24a)</p>
<p>Output 2.4: Decontamination and disposal of PCB-containing equipment and waste implemented</p>	

<p>Activity 2.4.1: Create facilities for environmentally sound PCB contaminated material transportation and interim storage</p>	<p>The project was developed, proposed and accepted on the basis of the originally identified inventory of PCB containing wastes. Given the fact that the inventory of PCBs in Azerbaijan is greater than the 540 tons originally estimated, the country needed to establish local capacity for PCB decontamination/disposal, that would be operational during the project implementation and after the closure of the project.</p> <p>The National Centre for Hazardous Waste Management (landfill) in the vicinity of Baku has been selected by MENR where the disposal facility was established. Landfill site is also dedicated for the central storage of PCB containing equipment. Owner and operator of the landfill is private company "Hazardous Wastes" LLC set up by the MENR. Company has a set of standard operational procedures (SOPs) that are compliant with good international practice for environmental protection and the management of health and safety as well as environmentally sound management (ESM) of PCBs. Non combustion PCB treatment technology container type was selected. It enables the dechlorination of the oil in a wide range of initial PCB concentration by sodium dispersion. The system is a joint project of the Canadian company Kinetrics and the Russian company NPO Dekanter LLC. The technology for PCB decontamination by Kinetrics is recognised as the most economic and environmentally friendly technology, recommended by the SC on POPs as best available technology for disposal of PCB in transformer oil.</p> <p>Performance testing of the equipment was carried out by Dekanter (after guarantee service) in the presence of international working group (UNIDO national and international experts)</p> <p>The facility will be used as a centralised temporary storage and decontamination of the PCB containing equipment. PCB contaminated oil will be regenerated if economically feasible.</p> <p>During commissioning four batches were processed (15 barrels, 200 l each). Additional 8 tons of contaminated oil was decontaminated in 2016/2017. Report to the MENR is in the Appendix 29.</p> <p>Sufficient amount of PCB containing transformer oil will be needed on regular basis.</p> <p>Contractor's liability for the equipment is valid for four years after the commissioning of the installation.</p>
<p>Activity 2.4.2: Train facility staff in environmentally sound PCB contaminated material transportation and storage</p>	<p>There are 11 employees working at the national hazardous waste treatment center. One technician was specifically designated to operate the PCB disposal facility. Another two was trained to be responsible for PCB sampling and testing.</p>

Activity 2.4.3: Select PCB disposal technology	Report from the study tour was prepared and presented to MENR. Meetings with stakeholders and decision makers (01-06 June, 2012). Goal of the meetings - selection of Treatment Technology of PCBs, national specifications and principles of selection; Participants: UNIDO, representatives of Ministry of Industry and Energy, SOCAR, Azerenergy, Bakielektrikshebeke, Ministry of Transport, Ministry of Health and national project experts. Bidding procedure was initiated in Vienna in 2014 with participation of national expert group and the technology was selected.
Activity 2.4.4: PCB contaminated waste disposal	3 tons of contaminated oil during the commissioning of the equipment and 8 tons from August 2016 to July 2017.
Activity 2.4.5: Train facility staff in environmentally sound PCB contaminated material decontamination and/or disposal	Training was provided after commissioning of the facilities. 3 technicians were trained.
Activity 2.4.6: Implement safety guidelines and conduct training for workers having direct contact with PCBs	11 workers were trained.
Outcome 3: Awareness raising among private and public stakeholders for PCB management	
Output 3.1: Increased awareness amongst concerned stakeholders for PCB management	
Activity 3.1.1: Hold awareness raising workshops	Number of workshops was held, conducted in 8 substations in Baku in total 24 participants.
Activity 3.1.2: Establish PCB Information Center	Project Implementation Office played the role of PCB Information Center.
Activity 3.1.3: Awareness raising and information dissemination to environmental NGOs and media professionals	There are several NGOs (Ruzigar, Ecoil, REC, For the healthy life) that cover environmental issues, and the Ministry of Ecology and Natural Resources has good cooperation with them. Some of these NGOs were present at the Inception Meeting organized on 23 November, 2010. Due to their immediate communication with the public and companies, especially in the public awareness activities, involvement of the NGOs is valuable for the wider dissemination of the POPs and PCB issue. On February 2013 in Baku, the national inventory expert Mr. Muslum Gurbanov made a presentation at the seminar organized by MENR and GIZ on PCB potential in Azerbaijan and its environmental and health impacts. Numerous journal articles and presentations for various Ministers (MENR, Emergency Situations) and companies (SOCAR) in 2014, 2015 (Appendix 32); Two booklets (Appendices 30 and 31), TV presentations, Newspaper articles; One PhD doctoral thesis (Appendix 33 - title); 14 scientific articles on Conferences and International journals.

Outcome 4: Establishment of Project management structure and monitoring and evaluation	
Output 4.1: Project management structure established	
Activity 4.1.1: Establish Project Implementation Office (PIO) and appoint project leadership staff	Project Implementation Office (PIO) was established and project leadership staff was appointed. National Project Coordinator – Baghir Hidayatov Project Coordinator Assistant – Gunay Ibrahimova
Activity 4.1.2: Establish Project Steering and Stakeholder Coordination Committee (PSSCC)	Project Steering and Stakeholder Coordination Committee (PSSCC) - PSSCC was established. Members of the PSSCC: Tofiq Yagubov – Ministry of Transport Natig Mammadli - Ministry of Economy Development Gasim Aliyev – State Committee of Customs Nuraddin Abdullayev – Ministry of Health Emil Djavadov – State Committee of Standards, Metrology and Patents Fazil Seyidov – Bakielektrikshebeke JSC Efsane Cavanshirova – Azerenergy JSC The Project Steering and Stakeholder Coordination Committee (PSSCC) meet annually with participation of all relevant parties to review and decide the activities of the project.
Activity 4.1.3: Recruit Chief Technical Advisor (CTA), National Technical Advisor (NTA), policy experts, and technical experts in POPs waste management, evaluation, and program development	Experts of the project were selected based on the experience of the initial inventory process on POPs during 2006-2007 and were recruited by the UNIDO project manager. Islam Mustafayev – chief technical advisor Inventory experts (Muslum Gurbanov, Abdulkhalik Heydarov, Meherrem Mehtiyev, Ulker Mammadova, Vugar Heydarov) Legal experts (Teymur Shakaraliyev, Ruslan Salmanov) Database expert - Bariz Mehdiyev
Activity 4.1.4: Hold project management training for project management staff	Training for project management staff was conducted
Activity 4.1.5: Work with stakeholder project participants to establish PIO within organization and sign project participation contracts	Implemented, contracts signed.
Activity 4.1.6: Establish project management information system (MIS), including a project website to disseminate information to stakeholders	Database exists inside the MENR intranet network. PMO played the role of MIS. All documents are available for interested parties.
Output 4.2: Project results monitored and reported	
Activity 4.2.1: Prepare and hold Inception Workshop	Inception Workshop was held in 2010. (Appendices 34, 35 and 36)
Activity 4.2.2: Measure impact indicators	Measureable impact indicators are taken from the Project Document.
Activity 4.2.3: Carry out annual project financial audits	No financial audit took place since UNIDO is responsible for the financial matters.

Activity 4.2.4: Prepare Annual Project Reports and Project Implementation Reports	Four reports were prepared and submitted to UNIDO (June 2011, June 2012, July 2013 and March 2015 covering the period 2014-2015 (June 2011 and March 2015).
Activity 4.2.5: Hold annual tripartite review meetings	The meetings were on the occasion of holding workshops and seminars when the tripartite representatives were present.
Activity 4.2.6: Carry out mid-term external evaluation	Mid-term evaluation was carried out (May 2013)
Activity 4.2.7: Carry out final external evaluation	Ongoing
Activity 4.2.8: Complete Project Terminal Report	

Rating of project objectives and results

Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

- Satisfactory (S): The project had minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Moderately Satisfactory (MS): The project had moderate shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Moderately Unsatisfactory (MU): The project had significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Unsatisfactory (U) The project had major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Highly Unsatisfactory (HU): The project had severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Please note: Relevance and effectiveness will be considered as critical criteria. The overall rating of the project for achievement of objectives and results **may not be higher** than the lowest rating on either of these two criteria. Thus, to have an overall satisfactory rating for outcomes a project must have at least satisfactory ratings on both relevance and effectiveness.

Ratings on sustainability

Sustainability will be understood as the probability of continued long-term outcomes and impacts after the GEF project funding ends. The evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits beyond project completion. Some of these factors might be outcomes of the project, i.e. stronger institutional capacities, legal frameworks, socio-economic incentives /or public awareness. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes.

Rating system for sustainability sub-criteria

On each of the dimensions of sustainability of the project outcomes will be rated as follows.

- Likely (L): There are no risks affecting this dimension of sustainability.
- Moderately Likely (ML). There are moderate risks that affect this dimension of sustainability.
- Moderately Unlikely (MU): There are significant risks that affect this dimension of sustainability
- Unlikely (U): There are severe risks that affect this dimension of sustainability.

All the risk dimensions of sustainability are critical. Therefore, overall rating for sustainability will not be higher than the rating of the dimension with lowest ratings. For example, if a project has an Unlikely rating in either of the dimensions then its overall rating cannot be higher than Unlikely, regardless of whether higher ratings in other dimensions of sustainability produce a higher average.

Ratings of project M&E

Monitoring is a continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing project with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds. Evaluation is the systematic and objective assessment of an on-going or completed project, its design, implementation and results. Project evaluation may involve the definition of appropriate standards, the examination of performance against those standards, and an assessment of actual and expected results.

The Project monitoring and evaluation system will be rated on ‘M&E Design’, ‘M&E Plan Implementation’ and ‘Budgeting and Funding for M&E activities’ as follows:

- Highly Satisfactory (HS): There were no shortcomings in the project M&E system.
- Satisfactory(S): There were minor shortcomings in the project M&E system.
- Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system.
- Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system.
- Unsatisfactory (U): There were major shortcomings in the project M&E system.
- Highly Unsatisfactory (HU): The Project had no M&E system.

“M&E plan implementation” will be considered a critical parameter for the overall assessment of the M&E system. The overall rating for the M&E systems will not be higher than the rating on “M&E plan implementation.”

All other ratings will be on the GEF six-point scale.

HS	= Highly Satisfactory	Excellent
S	= Satisfactory	Well above average
MS	= Moderately Satisfactory	Average
MU	= Moderately Unsatisfactory	Below Average
U	= Unsatisfactory	Poor
HU	= Highly Unsatisfactory	Very poor (Appalling)

Project focus

Project activities, in general, are well-focused on the major issues of PCB-containing electrical equipment – transformers in this case - with PCB-containing oils in the electricity sector in Azerbaijan, which seem to be the main source of PCB contamination and are potent to generate significant improvement of PCB phase out for the country, as well as to fulfill the requirements of the Stockholm Convention. The project goals and outcomes may be defined within a broader context but the activities should be clear and precise, otherwise it will be difficult to implement and monitor.

Project risk identification

Project risks are well identified in the Project Document with appropriate mitigation measures.

Participatory identification and preparation of the project

UNIDO, during the enabling activities phase obtained in-depth knowledge about the complexity of the PCB-related problems, established proper contacts at different levels of the Government

agencies and industries/PCBs owners and started working out jointly with local specialists the details of implementation of the Stockholm Convention in the PCBs sector.

Key impact indicators

The most important Key Impact Indicator is treatment and final disposal of at least 540 tons of pure PCB oil and PCB containing equipment and waste.

3.4 Relevance

The assessment of project relevance takes into consideration the project's contribution to the achievement of national objectives, implementation of the Stockholm Convention obligations, GEF strategic priorities, and the project's relevance to the UNIDO mandate.

Relevance to national priorities

The Republic of Azerbaijan accessed to the Stockholm Convention on POPs on 13 January 2004 and committed to reduce the use and phase out POPs on its territory, in order to mitigate environmental degradation and adverse consequences to human health. The NIP was prepared and completed in 2007. The NIP identified the elimination of PCBs as one of the key objectives in implementing the country's obligations under the Stockholm Convention. It also identified the need for continued improvement of PCBs inventory, gradually withdrawing the PCBs-containing equipment and their final disposal.

Furthermore, the NIP also identified (i) weaknesses of the current hazardous waste management practices, particularly in the storage sites of out of service PCB-containing electric equipment and waste oil, (ii) the need for institutional and regulatory development, (iii) capacity building requirements, and (iv) public awareness in PCBs management in particular and POPs management in general.

All project stakeholders, including Government of Azerbaijan find the project fully relevant for solving the current issues of PCB contamination.

Relevance to GEF priorities and Stockholm Convention

The project was found fully consistent with GEF Strategic Objectives. The projects goals and objectives are entirely in line with the obligations under the Stockholm Convention. The project will strengthen the management and disposal of PCB-containing equipment and wastes in an environmentally sound manner and eliminate the risk of PCBs to human health and the environment.

Relevance to UNIDO's mandate

The project is fully in line with UNIDO's mandate. UNIDO's comparative advantage as GEF's implementing agency in the POPs sector is to strongly support the implementation of the Stockholm Convention.

Based on the assessment of full project relevance to local and national priorities and policies, priorities completely related to relevant international conventions, and to GEF's strategic priorities and objectives, **overall project relevance is considered to be HIGHLY SATISFACTORY (HS).**

3.5 Effectiveness

Project effectiveness is evaluated against the evidence that shows to what extent the project outcomes are likely to be achieved and do they contribute to the achievement of project objective, based on the final implementation results.

The terminal evaluation of the effectiveness of the project “Environmentally Sound Management and Disposal of Polychlorinated biphenyls (PCBs) in the Republic of Azerbaijan” has been a demanding task, mainly due to the deficient framework of indicators. The logical framework of this project has little baseline information or quantitative targets, except for Key Impact Indicator - treatment and final disposal of at least 540 tons of pure PCB oil and PCB containing equipment and waste.

In order to partially overcome this problem, the PD was used as a source of information about the project outputs and outcomes to form a more comprehensive analysis of project effectiveness. This was possible since the PD explained in details the outputs / project components, their outcomes and the activities that should be undertaken.

Assessment of project effectiveness per project outputs

Outcome 1: Regulatory and institutional capacity building for PCB management
Output 1.1: PCB-related regulations, standards, and norms fulfilling SC requirements developed
National legal and regulatory acts were reviewed and the gaps concerning to SC requirements were identified; Regulations on PCB containing equipment and waste were prepared; Proposal for including penalties for improper disposal of PCB-contaminated waste was prepared; Guidelines for the management of PCB contaminated equipment and waste were developed; List of PCB equipment (transformers, capacitors) was prepared; Proposal for including of PCBs to occupational hazards list was prepared; Proposal for including of PCBs to ecotoxic chemical list was prepared; Proposal for introducing international standards regulating PCB content in equipment was prepared; Worker safety guidelines were developed; PCB equipment labeling requirement was developed and it was agreed with the relevant stakeholders and implementation started. All of the above was prepared and presented to MENR for consideration. Cabinet of Ministers has to endorse the regulatory documents that had been developed.
Output 1.2: Measures addressing the SC enforced
Information letter on responsibility of related departments for control system to improve enforcement of regulations for proper disposal of PCB contaminated waste was sent to Ecology and Environmental Protection Policy Division; Incentive and disincentive programs to promote compliance with PCB requirements were developed; The inspectors of MENR and other stakeholders companies were trained by the UNIDO international experts during the workshops in Baku on how to identify and manage PCB containing equipment, about the PCB obligations and the methods how to use the requirements. The inspectors then trained the personnel of the electricity generating supplying companies; Schedule for the inspections in targeted stakeholder organizations was prepared; Worker safety inspection methodologies were developed; Worker safety inspectors were trained.
Output 1.3: Laboratory strengthened with methodologies, procedures and information management systems for analytical data processing
Five L2000DX analyzers were purchased and distributed among stakeholders; Trainings for the laboratory staff were provided by assistance of international expert; Two gas chromatographs (GC) were purchased. One is installed in the laboratory of MENR and another one is installed in the national hazardous waste treatment centre aiming to analyze PCB concentration on site; Sampling and analysis methodology guidance were prepared

Output 1.4: Institutional capacity strengthened for environmentally sound management of PCB PCBs group within MENR was created; Guidance document for Customs PCB management was prepared;

Outcome 2: Sustainable and safe management of PCB stockpiles and wastes

Output 2.1: PCB inventory strengthened and maintained

Standardized forms and reporting guidelines for reporting of PCB equipment and oil to environmental and statistical agencies were developed; Centralized database system for PCB information management was established; Seminar on PCB containing equipment inventory and maintenance for MENR and PCB owner was conducted; Inventory process is ongoing including identification and labeling of PCB containing equipment;

Output 2.2: Maintenance of PCB equipment undertaken

Technology transfer for PCB containing equipment decontamination through study-tour for Project team, partners and stakeholders in Italy and France and training study-tour to Philippines; Seminar with participation of international PCB treatment companies; The strategy for conducting the inventory of PCB containing equipment and waste was proposed during the Inception Meeting including training for screening of the samples with L2000DX Analyzer and Chlor-N-oil test kits;

Output 2.3: Phase-out of PCB-containing equipment carried out

Agreement with stakeholders on developing guidelines for PCB equipment phase-out including training;

Developed PCB equipment phase-out plans;

Output 2.4: Decontamination and disposal of PCB-containing equipment and waste implemented
--

The National Centre for Hazardous Waste Management (landfill) in the vicinity of Baku has been selected by MENR where the disposal facility was established. Landfill site is also dedicated for the central storage of PCB containing equipment. Non combustion PCB treatment technology container type was selected. The system is a joint project of the Canadian company Kinetrics and the Russian company NPO Dekanter LLC. The technology for PCB decontamination by Kinetrics is recognised as the most economic and environmentally friendly technology, recommended by the SC on POPs as best available technology for disposal of PCB in transformer oil. Performance testing of the equipment was carried out by Dekanter in the presence of international working group (UNIDO national and international experts).

During commissioning four batches were processed (15 barrels, 200 l each). Additionally 8 tones of oil were decontaminated in the period from August 2016 to July 2017 received from the Active Substances Plant, a chemical complex in Sumgait City.

Outcome 3: Awareness raising among private and public stakeholders for PCB management

Output 3.1: Increased awareness amongst concerned stakeholders for PCB management

Stakeholders are aware of the treat of the PCB and are supportive to mitigate the health impact. There are several NGOs that were present at the Inception Meeting; Involvement of the NGOs is valuable for the wider dissemination of the POPs and PCB issue.

Outcome 4: Establishment of Project management structure and monitoring and evaluation
--

Output 4.1: Project management structure established
--

Project Implementation Office (PIO) was established and project leadership staff was appointed; Project Steering and Stakeholder Coordination Committee (PSSCC) - PSSCC was established; The Project Steering and Stakeholder Coordination Committee (PSSCC) meet annually with participation of all relevant parties to review and decide the activities of the project; Inventory, legal and database experts for the project were selected based on the experience of the initial inventory

process on POPs during 2006-2007 and were recruited by the UNIDO project manager; Training for project management staff was conducted;
Output 4.2: Project results monitored and reported
Inception Workshop was held; Four progress reports from National Project Coordinator - June 2011, June 2012, July, 2013 and March 2015 covering the period 2014- 2015; Experts reports were also submitted in due time. Mid-term evaluation was carried on (May 2013).

The project's overall objective is to create capacity for environmentally sound management (ESM) of PCBs for preventing PCBs releases from electrical equipment, avoiding cross-contamination of electrical equipment and disposing of 540 tons of PCB-containing oil, equipment and wastes. Four batches of PCB containing oil were processed (15 barrels, 200 l each) during commissioning of the equipment. Additional 8 tones of oil were decontaminated in the period 2016-2017.

Consequently, **the effectiveness of the project objective and fulfilled outcomes at time of project closure is rated as MODERATELY SATISFACTORY (MS).**

3.6 Efficiency

The assessment of efficiency should answer whether the project was cost-effective and the least-cost option. It needs to consider if the project was delayed, and if yes did the delay affect cost-effectiveness. Efficiency also considers adequacy of contributions of government.

Nearly three years delay of project implementation will be taken into consideration for the terminal evaluation in the Efficiency rating in view of the tangible results of delivered planned activities. The cost and financing information was provided by UNIDO and by the national project team during the field mission to Baku. The Following Table presents the overall expenditure of the project.

The Total Budget of GEF was USD 2,120,000 (excluding PPG of USD 106,000)

BLs	Description	Released Budget USD	Expenditures USD
11-00	Staff & Inter. consultants	172,821.26	172,914.37
15-00	Local travel	23,855.38	17,607.48
17-00	National consultants/staff	706,010.47	721,210.83
21-00	Contractual services	788,616.39	788,616.39
30-00	Training	20,724.87	20,724.87
45-00	Equipment	391,146.11	370,571.13
51-00	Other direct costs	16,825.52	16,825.52
Total		2,120,000.00	2,108,470.59

Cost effectiveness

Information and data available for the terminal evaluation from the desk review and interviews with project staff and stakeholders indicate that UNIDO and the project team have taken all possible efforts to ensure project cost-effectiveness. The project financial management is carried according to UNIDO rules and procedures, including contracting and procurement. All indications are that the project is implemented along financial norms and standards for international development projects.

Least cost option for the project solution

The project solution with installing of the non-combustion and decontamination technology was found to be the least-cost option by the economic analysis in choosing the BAT.

The non-combustion and decontamination technology amounted to USD 788,840

Taking into consideration that the amount of PCB-containing oil, equipment and wastes in Azerbaijan is 540 tons, this is the least-cost sustainable option for fulfilling the obligations under the SC.

Co-financing

Since the Cabinet of Ministers did not endorse the regulatory documents that had been developed co-financing did not take place in full scale. MENR has utilized substantial amount of internal resources (estimated at 850,000 USD) for construction of the storage and disposal facility and for decontamination of the oil.

The terminal evaluation has concluded that there were all efforts undertaken to ensure cost-effectiveness of project results both by UNIDO as IA and by MENR.

The cost-effectiveness was impacted by the fact that the project implementation was three years delayed.

Reviewing the final results from project management and financial management at time of project closure, the **project efficiency is rated MODERATE SATISFACTORY (MS)**.

3.7 Assessment of sustainability of project outcomes

The important aspect of sustainability of GEF projects is the sustainability of project results, as well as the likelihood of continued benefits after the GEF project ends. The implication for GEF projects is that results should be sustained indefinitely. The terminal evaluation should assess at minimum “likelihood of sustainability at project termination, and provide a rating for this”.

The assessment should explain how the risks to project outcomes will affect continuation of benefits after the GEF project ends. Based on GEF evaluation policies and procedures, the overall rating for sustainability cannot be higher than the lowest rating for any of the individual components.

Financial risks to sustainability

MENR has contributed significant resources into the Project, as well the three major stakeholders, however there is no financial mechanisms or incentives to support companies with financial difficulties regardless of the relatively low-cost treatment per kg of PCB-contaminated oil technology.

Therefore, the financial risks to sustainability are rated as Moderately Likely (ML).

Sociopolitical risks to sustainability

The project has provided targeted training and awareness raising, including significant technical capacity enhancements through the PCB decontamination facility.

Sociopolitical risks to sustainability are rated Likely (L).

Institutional framework and governance risk to sustainability

Project has built capacity within the MENR, stakeholders and Governmental institutions. There are reasons to expect that government will honor obligations to conform to the SC for proper PCBs and PCB-containing equipment management.

However, the Cabinet of Ministers is still reviewing the NIP, which has been signed by all concerned Ministries. Due to the fact that the NIP has not yet obtained the final endorsement by the Cabinet of

Ministers of Azerbaijan, this situation does not allow the Ministry of Finance to approve the co-financing of the budget, which was defined at the signing of the Project document in 2010.

Institutional framework and governance risk to sustainability is rated Moderately Likely (ML).

Environmental risks to sustainability

Throughout the whole phases of implementation of the project there were no samples from air, underground water and soil from the interim storage and PCB treatment facility.

There are no maximal allowed concentration limits defined by law for soil, air and underground water.

Environmental risks to sustainability is rated **Moderately Likely (ML)**.

Therefore, the overall sustainability rating for the Project for this terminal evaluation is **MODERATELY LIKELY (ML)**.

3.8 Project coordination and management

The Project management unit was established and placed within MENR. All resources required from UNIDO were provided in a timely manner. In the light of terminal evaluation evidence on project management, the project can be rated as **HIGHLY SATISFACTORY (HS)**.

Stakeholder involvement

Interviewed representatives of stakeholders all demonstrate understanding of the project and show full support to the project team. The project involved all relevant stakeholders in information sharing and consultation. The project implemented appropriate outreach and public awareness campaigns through publishing of brochures, handbooks, manuals, newspapers articles, CD and TV programmes. There was a positive feedback in the community for this project, as it contributes to the improvement of the quality of the environment.

Stakeholder involvement is rated SATISFACTORY (S).

3.9 Assessment of monitoring and evaluation systems

Monitoring and Evaluation (M&E) design

The PD contains M&E plan, outlining specific M&E activities, responsible parties, budgets, and timeframes. The activities outlined in the M&E plan meet GEF minimum standards for M&E, and the budget of USD89,000 is adequate for a full-sized project. The PD sufficiently identifies various review and evaluation processes, specific reporting requirements, and responsibilities. Therefore, the **M&E design for Environmentally Sound Management and Disposal of Polychlorinated biphenyls (PCBs) in the Republic of Azerbaijan can be considered as SATISFACTORY (S)**.

Monitoring and Evaluation (M&E) implementation

The assessment found several deficiencies time wise in the implementation of the M&E system.

Mid-term independent evaluation - May 2013, old - satisfactory

Four progress reports from National Project Coordinator - June 2011, June 2012, July, 2013 and March 2015 covering the period 2014- 2015;

Mission reports from international consultant (Aleksandar Mickovski - November 2010 and May 2011), old but very comprehensive and informative.

Mission reports from international consultant in PCB waste management & disposal (Sergey SERYY) - (June 2015, March 2016 and August 2016) – very informative.

Final report (June 2015) from international consultant in PCB waste management & disposal (Sergey SERYY) - limited to analysis of the situation with the supply and commissioning of a mobile processing unit of PCB-containing transformer oil in Azerbaijan in the context of the entire project. Mission report (Zhengyou PENG, Valentin ISHCENKO and Yunrui ZHOU - July 2016) – Limited according the purpose of the mission - To urge national stakeholders to dispose PCB and other activities within the deadline of the project and to present the concept of cement co processing technology to the national counterpart in Azerbaijan.

Records related to meetings of the project Steering committee (including ordinary meetings and extraordinary meetings) – very short information.

For all these reasons, the **implementation of M&E is rated MODERATELY SATISFACTORY (MS).**

Budgeting and Funding for M&E activities

The budget provided for M&E of USD89,000 at the planning stage was sufficient. Adequate funding has been provided for M&E activities during the project implementation, and the necessary monitoring activities have been undertaken. **The aspect of funding M&E is rated HIGHLY SATISFACTORY (HS).**

Overall rating for Monitoring and Evaluation is MODERATELY SATISFACTORY (MS).

Financial Planning

The project had a well-prepared budget with means committed per project activity as stated in the TOR for Terminal Evaluation UNIDO was responsible for financing and determination of means from GEF funding and this was done in a responsible and cost-effective manner. **Financial Planning is rated HIGHLY SATISFACTORY (HS).**

Co-financing and project outcomes and sustainability

During the field mission, ET made attempts to clarify the details of co-financing from the Azerbaijan Government and other project stakeholders.

The Cabinet of Ministers is still reviewing the NIP, which has been signed by all concerned Ministers. Due to the fact that the NIP has not yet obtained the final endorsement by the Cabinet of Ministers of Azerbaijan, this situation does not allow the Ministry of Finance to approve the co-financing of the budget, which was defined at the signing of the Project document in 2010.

Besides the situation the cost for National Centre for Hazardous Waste Management (landfill – 50 hectares) in the vicinity of Baku was covered by MENR. The site has been identified and MENR built the facilities for PCBs cleaning decontamination. Landfill site is also dedicated for the central storage of PCB containing equipment. All the expenses for the infrastructure were paid by MENR, while the expenditures for the installation, transport and training of operators were paid out of the budget of the project.

Also, the Cabinet of Ministers did not endorse the regulatory documents that had been developed. The terminal evaluation has concluded that there were all efforts undertaken to ensure cost-effectiveness of project results both by UNIDO as IA and by MENR.

Co-financing of the project (In-kind) taken from the mid-term evaluation:

Ministry of Ecology and Nature Resources:

- All the expenses for establishing the Center and running the decontamination of the oil
- Salary of four recruited employees
- Office expenses (room, the internet connection, furniture, stationery)

SOCAR

- Salary of five recruited employees
- Office expenses (room, the internet connection, furniture, stationery)
- Travel expenses
- Transportation expenses

“Azerenergy” OJSC

Salary of seven recruited employees

Office expenses (room, the internet connection, stationery)

Travel expenses

Transportation expenses

“Bakuelektrikshebeke” OJSC

Salary of eleven recruited employees

Office expenses (room, the internet connection, stationery)

Transportation expenses

(Approximately 850,000 USD)

The Co-financing and project outcomes and sustainability is rated MODERATELY SATISFACTORY (MS).

Delay of the project implementation

Project implementation start date was in May 2010 and originally expected implementation end date was March 2014. The project implementation was delayed by more than three years.

Mid-term evaluation was carried on (May 2013). The terminal evaluation was initiated by UNIDO in May 2017, almost three years later than foreseen in the project revised milestones.

The Delay of the Project Implementation is rated as MODERATELY UNSATISFACTORY (MU).

UNIDO’s Involvement

Quality at entry / Preparation and Readiness

The Project has clear strategic relevance focusing on phasing out of PCBs in the electricity sector. Rationale for GEF and UNIDO intervention is very well explained. The Project design phase included participatory stakeholder and beneficiary consultation process. The choice of the Ministry of Ecology and Natural Resources (MENR) as the main implementing institution was correct, considering their responsibility for fulfilling obligations to the SC.

The Project has a detailed cost plan and the budget is clearly linked with the activities.

Primarily because of the clear strategic relevance of the project with participatory stakeholder and beneficiary consultation process and the choice of MENR of Azerbaijan as implementing institution, **Quality at Entry and Readiness for Implementation is rated SATISFACTORY.**

Implementation approach

The implementation approach gave the Azerbaijan counterparts – MENR, NFP, PIO the primary responsibility for carrying out the Project activities, with UNIDO providing a dedicated focal point – Project Manager, technical and financial advice and backstopping when needed. The terminal evaluation considers this approach to have been appropriate.

Implementation Approach is rated Highly Satisfactory (HS).

UNIDO Supervision and backstopping

The rating for UNIDO’s supervision and backstopping is primarily based on regular presence of the Project Manager from IA in the country at crucial times of project implementation. It must be noted that the Project Manager provided regular and dedicated in-country assistance to the PIO.

UNIDO supervision and backstopping is rated Highly Satisfactory (HS).

Project terminal evaluation ratings

Table 1. Rating criteria for quality of project identification and formulation process (LFA Process)

Evaluation issue	Evaluator's comments	Ratings
1. Extent to which the situation, problem, need/gap is clearly identified analyzed and documented (evidence, references)	The Project design phase included participatory stakeholder and beneficiary consultation process. The choice of the Ministry of Ecology and Natural Resources (MENR) as the main implementing institution was correct, considering their responsibility for fulfilling obligations to the SC.	S
2. Adequacy and clarity of the stakeholder analysis (clear identification of end-users, beneficiaries, sponsors, partners, and clearly defined roles and responsibilities in the project).		S
3. Adequacy of project monitoring and evaluation (M&E) design.		S
4. Overall LFA design process		S

Table 2. Quality of project design

Evaluation issue	Evaluator's comments	Ratings
1. Clarity and adequacy of outcome (clear, realistic, relevant, addressing the problem identified). Does it provide a clear description of the benefit or improvement that will be achieved after project completion?	The design of the project was assessed as adequate. The project document in general is assessed as being of good quality, containing relevant and concise information. The duration of the project and the budget are considered adequate to achieve the expected outcome of effective and efficient implementation of the SC. Funding is considered adequate to achieve standard results. The most important Key impact indicator (technical indicator) is removal of 540 tons of PCB-containing oil, equipment and wastes.	S
2. Clarity and adequacy of outputs (realistic, measurable, adequate for leading to the achievement of the outcome).		S
3. Clarity, consistency and logic of the objective tree, and its reflection in the LFM results hierarchy from activities to outputs, to outcome and to overall objective		S
4. Indicators are SMART for Outcome and Output levels.		S
5. Adequacy of Means of Verification and Assumption (including important external factors and risks).		S
6. Overall LFM design quality		S

Table 3. Quality of project implementation performance

Evaluation criteria	Rating
1. Ownership and relevance	HS
2. Effectiveness	MS
3. Efficiency	MS
4. Impact	MS
5. Likelihood of/risks to sustainability	L
6. Project management	HS
7. M&E	MS

Summary

Criteria	Evaluator's summary comments	Evaluator's rating
Attainment of project objectives and results (overall rating)		MS
Project implementation	Project implementation was three years delayed	MS
Effectiveness	Project effectiveness is moderately satisfactory	MS
Relevance	The project is fully relevant to the local and national environmental priorities and policies, and to GEF strategic priorities in the POPs focal area.	HS
Efficiency	Project efficiency is moderately satisfactory as all efforts were undertaken to ensure cost-effectiveness of project results and choosing of least-cost project option.	MS
Sustainability of project outcomes (overall rating)		ML
Financial risk	There are moderate risks that could affect financial sustainability after the project ends.	ML
Sociopolitical risks	There are some limited risks to socio-political sustainability.	L
Institutional framework and governance risks	There are moderate risks to institutional and governance sustainability.	L
Environmental risks	There are no serious potential risks to environmental sustainability.	L
Monitoring and evaluation (overall rating)		MS
M&E Design	The activities outlined in the M&E plan meet GEF minimum standards for M&E, and the budget is adequate for a full-sized project. The PD sufficiently identifies various review and evaluation processes, specific reporting requirements, and responsibilities.	S
M&E Plan implementation (use of adaptive management)	M&E frameworks and their implementation are crucial for project success, because almost all aspects of the project rated weakly can be directly or indirectly tied back to the M&E framework. The assessment showed that the National Project Coordinator (NPC) prepared two short reports (June 2011 and March 2015) that provided periodical achievements of the project. Two mission reports from international consultant (Mr. Aleksandar Mickovski - November 2010 and May 2011), old but very comprehensive and informative. Mission reports (June 2015, March 2016 and August 2016) – very informative, and final report (June 2015) from international consultant in PCB waste management & disposal (Sergey SERYY)-limited to analysis of the situation with the supply and commissioning of a mobile processing unit of PCB-containing transformer oil in Azerbaijan in the context of the entire project. Mission report (Zhengyou PENG, Valentin ISHCENKO and Yunrui ZHOU - July 2016) – Limited according the purpose	MS

Criteria	Evaluator's summary comments	Evaluator's rating
	of the mission - To urge national stakeholders to dispose PCB and other activities within the deadline of the project and to present the concept of cement co processing technology to the national counterpart in Azerbaijan. Tripartite Reviews were not undertaken. Proper Monitoring and Evaluation could have minimized the three years delay for the outputs of regulation adoption and acquiring the equipment for PCB decontamination.	
Budgeting and Funding for M&E activities	The budget provided for M&E at the planning stage was sufficient. Adequate funding has been provided for M&E activities during the project implementation.	HS
Project management – UNIDO specific ratings		
Quality at entry/Preparation and readiness	The Project has clear strategic relevance focusing on phasing out of PCBs in the electricity sector. Rationale for GEF and UNIDO intervention is very well explained. The Project design phase included participatory stakeholder and beneficiary consultation process. The choice of the Ministry of Ecology and Natural Resources (MENR) as the main implementing institution was correct, considering their responsibility for fulfilling obligations to the SC.	S
Implementation approach	The implementation approach gave the Azerbaijan counterparts – MENR, NFP, PIO the primary responsibility for carrying out the Project activities, with UNIDO providing a dedicated focal point – Project Manager, technical and financial advice and backstopping when needed. The terminal evaluation considers this approach to have been appropriate.	HS
UNIDO supervision and backstopping	The rating for UNIDO's supervision and backstopping is primarily based on regular presence of the Project Manager from IA in the country at crucial times of project implementation. It must be noted that the Project Manager provided regular and dedicated in-country assistance to the PIO.	HS
Project management	Project management has been successfully carried out by the National Project Coordinator accompanied by a dedicated support from UNIDO's Project Manager.	HS
Gender mainstreaming	No issues with gender mainstreaming or lack thereof were evidenced and this does not appear to be a concern in Azerbaijan. The ET informally verified that the demographics of the country seem to be reflected in the composition of the enterprises visited. Azerbaijan population is composed approximately of 0.98 male to 1 female Life expectancy is about 68.9 years for male and 75.3 for female.	

IV. CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED

4.1 Conclusions

The project has aimed at solving long-term problems with the PCB management. The Stockholm Convention requires the elimination of PCBs by 2025. Therefore, the construction of a pilot system for PCBs elimination will be a good example of how to solve problems in the framework of international protocols and conventions.

This is the first project in the Caucasus Region that aims at the practical establishment of an integrated management of PCB-containing equipment. One of the most important outcomes of the project is the fact that for the first time on the territory of a former Soviet Union was made a successful attempt for implementation of the modern environmentally sound practices of PCB management. Such an experience could be successfully extended to the countries of the former Soviet Union.

PCBs group at MENR was created consisting of the focal point of POPs, the national coordinator of the SC, national coordinator of the project and a representative of the legal division of the MENR.

The project team has developed the necessary legal documents that need to be endorsed by the Government of Azerbaijan. These documents were sent to the Cabinet of Ministries and are waiting for the approval.

The Azerbaijan national project team provided a lot of work to develop necessary technical papers and regulations on PCB management for strengthening legal and regulatory framework for ESM and disposal of PCB oil, equipment and wastes as well as to improve institutional capacity at all levels of PCB waste management and disposal.

The project has helped the Government in overcoming the lack of appropriate legislation, standards, and guidelines.

The project has created increased awareness of PCBs among policy makers, stakeholders, professionals, environmental NGOs and media professionals in the Republic of Azerbaijan. The project activities have targeted key stakeholders and vulnerable population groups with direct contacts with PCBs or who live close to PCB contaminated areas.

System for inventory, collection and disposal of PCB-containing oil and equipment was established.

One of the most important prerequisites of adopting BAT/BEP for PCB management is the adequate inventory, which has been developed during the project. This experience might be used in neighboring countries.

The project has created a system of management of PCBs in the power grid companies. All transformers from which samples were taken have been labelled.

The inventory process of transformers is successful thanks to the efforts of the partners and the project team and it is still ongoing. The project, with the support of some international experts provided by UNIDO, has provided specific technical training. The staff has been trained, the documents and regulations have been produced, and laboratory equipment was provided especially the gas chromatograph that can be used to identify other chemical compounds.

Total inventory
Number of analysis of transformers - 4561
Number of transformers with chlorine above 50 ppm - 566
Oil weight (tons) – 681,5
Total weight of the equipment (tons) – 2456,1
Number of analysis of capacitors – 6326
Total weight of oil (tons) – 95,3
Total weight of the equipment (tons) – 243,5

Database is a very useful tool for the processing of data gained during the inventory process in order to be able to prepare a risk assessment related to the PCB equipment and prioritization for disposal. The database enables to search for different reports using different parameters. It is an ideal tool to estimate the overall amount of PCB in the country. In addition, each party of the Stockholm Convention is obliged to provide a report to the Conference of the Parties (COP) every five years on the progress in eliminating PCBs. Therefore, a function of the database should cover the recording and printout of all eliminated equipment in a given period.

The general capacity has been established for the environmentally sound management of PCBs through the adoption of international standards and practices. Technical awareness on ESM concerning PCBs has been created among the national technical stakeholders. The project provided capacity building by developing and delivering training modules. The training modules have been developed together with international experts, and have involved local staff. They will be able to serve as resource persons for training beyond the project life, assuring in this way the project sustainability. Owners of PCB-containing equipment have been made aware, through specific training, of their obligations for inventory, phase-out, and disposal.

The project has developed a control system to improve the enforcement of regulations for proper disposal of PCB-contaminated wastes. The PCB containing waste is transported and disposed of with appropriate tracking documentation. Inspectors have been trained in PCB inspection obligations and use of electronic PCB database. Worker safety inspectors were trained and guidelines established. Periodical inspections of owners of PCB oil containing Equipment have been conducted.

National Center for Waste Management has been established for the disposal of hazardous waste. Non-combustion PCB treatment technology container type was selected. It enables the dechlorination of the oil in a wide range of initial PCB concentration by sodium dispersion.

The project has created the conditions for scientific research in the field of recycling of PCB-containing equipment, using the scientific potential of specialists and specialized institutions such as the Academy of Sciences of Azerbaijan.

The most important barrier for the implementation of the activities of the project is institutional. PCB waste management in Azerbaijan could be effective and sustainable only when it is supported by the Government's policies.

The Cabinet of Ministers is still reviewing the NIP, which has been signed by all concerned Ministers. It is very important that the Cabinet signs it as soon as possible to constitute the NIP a legally approved document. It was found that Ministry of Finance would not allow the co-financing of the project budget without approval of the NIP by the Cabinet of Ministers of Azerbaijan, which was

defining the financial obligations of the Republic of Azerbaijan at the signing of the Project document in 2010. The sustainability of the project in the future depends on continued financing of the Government and the capability to retain trained staff.

4.2 Recommendations

<ul style="list-style-type: none"> • The Cabinet of Ministers is still reviewing the NIP, which has been signed by all concerned Ministers. It is recommended that the Cabinet signs it as soon as possible to constitute the NIP a legally approved document.
<ul style="list-style-type: none"> • The Azerbaijan national project team provided a lot of work to develop necessary technical papers, regulations and legislative documents on PCB management for strengthening legal and regulatory framework for ESM and disposal of PCB oil, equipment and wastes as well as to improve institutional capacity at all levels of PCBs waste management and disposal. At various times these documents were sent to the Cabinet of Ministries and most of them still waiting for the approval. It is recommended to the competent responsible government authorities of the Republic of Azerbaijan to accelerate the approval of these documents in a full scope.
<ul style="list-style-type: none"> • The National Centre for Hazardous Waste Management (landfill) in the vicinity of Baku has been selected by MENR where the disposal facility was established. Non combustion PCB treatment technology container type was selected. Also the facility will be used as a centralised temporary storage and decontamination of the PCB containing equipment. During commissioning four batches were processed (15 barrels, 200 l each). Additional 8 tones of oil were decontaminated from 2016 to 2017.
<ul style="list-style-type: none"> • It is strongly recommended to proceed with the decontamination of the equipment containing PCB oil and waste.
<ul style="list-style-type: none"> • It is strongly recommended to the facility operational team to provide samples of treated oil (PCB free) to an independent laboratory to verify the quality of the oil.
<ul style="list-style-type: none"> • Sufficient amount of PCB containing transformer oil will be needed on regular basis. It is highly recommended the three major stakeholders (SOCAR, Azerenergy, Bakielektrikshebeke) to provide sufficient amount of transformer oil in order disposal facility to operate on a continuous mode.
<ul style="list-style-type: none"> • To achieve a sustainable and safe management of PCBs the inventory should be completed; It is recommended to continue with the inventory of the equipment contaminated with PCB.
<ul style="list-style-type: none"> • Due to the large number of transformers that are to be inventoried, it is suggested to continue providing data by the projects stakeholders to the database on the regular basis.
<ul style="list-style-type: none"> • It is imperative that the Ministry of Ecology and Natural Resources continues the monitoring of the PCB inventory and disposal activities. The Stockholm Convention requires regular national reporting on PCB inventory.
<ul style="list-style-type: none"> • The inventory has to report and include information on PCB contaminated equipment and wastes in order to allow tracking of those materials until disposal, so as to ensure management and disposal in accordance with SC requirements.

<ul style="list-style-type: none"> • Cement co-processing is a new component of waste treatment that could recover both energy and raw materials from waste and reducing waste and CO2 emission. According to the waste management hierarchy, cement co-processing ranks higher in comparison to incineration and landfill. It is recommended to consider cement co-processing technology as an option for hazardous waste disposal.
<ul style="list-style-type: none"> • The three biggest stakeholders (Azerenergy, Bakielektrikshebeke and SOCAR, state-owned companies) expressed their commitment to participate and cooperate with the Ministry of Ecology and Natural Resources on the PCB issues. For other companies, in order to gain their cooperation on a voluntary basis, since the legislation is not officially in place, it is suggested to offer them free screening and free disposal of some of their PCB containing transformers.
<ul style="list-style-type: none"> • It is recommended to establish PCB information center and provide awareness raising and information dissemination to the environmental NGOs and media professionals as foreseen in Outcome 3.
<ul style="list-style-type: none"> • It is recommended that in the future PIO/MENR should organize a specialized training for all people involved in PCB management and handling of PCB-containing equipment including monitoring of environmental media (air, underground water, soil) at the interim storage
<ul style="list-style-type: none"> • It is recommended for the Ministry of Health to find a solution for monitoring of exposure of employees on PCBs.
<ul style="list-style-type: none"> • It is recommended to UNIDO to allocate more time for selection of decontamination technology and purchasing of the equipment.

4.3 Lessons Learned

<ol style="list-style-type: none"> 1. During the formulation of a project particular attention should be paid to the quantitative figures of the outputs to be accomplished. Unrealistic indicators may indicate that the logical framework of the project was planned in a way too optimistic or too pessimistic. The project document should always include precise indicators for the outputs to be produced, in order to facilitate the monitoring of the achievements.
<ol style="list-style-type: none"> 2. Long-term approach is needed to achieve full application of the concept of PCBs elimination and disposal according to the Stockholm Convention.
<ol style="list-style-type: none"> 3. Project Implementation Office (National Project Coordinator and Project Assistant) is the key factor for implementing the Project.
<ol style="list-style-type: none"> 4. Effective and efficient implementation modality of the Project has to be arranged through Implementing Agency and national execution authority well advance before the start of the implementation of the Project (NIP has to be endorsed and signed before the startup of the implementation).
<ol style="list-style-type: none"> 5. Integrating the objectives of the project into national, environmental and social development plans would give a good opportunity to mobilize financial support and high level of co-financing.

ANNEXES

Annex 1: List of Interviewees

Institution	Person	Position
UNIDO	Mr. Zhengyou Peng	Industrial Development Officer, Project manager
UNIDO	Ms. Tamara Babayan- Bohdjalian	Senior Project assistant
	Mr. Valentin Ishchenko	International consultant
UNIDO	Ms. Thuy Thu Le	Evaluation officer
	Mr. Aleksandar Mickovski	International consultant
	Mr. Sergey Seryy	International Consultant in PCB waste management & disposal
MENR	Mr. Baghir Hidayatov	National Project Coordinator
MENR	Ms. Gunay Ibrahimova	Project Assistant
Institute of Radiation problems NASA	Mr. Muslum Gurbanov	Head of Project Inventory group
Azerenergy	Kamran Jabrailov	National Expert
Azerenergy	Vuqar Heydarov	National Expert
MENR	Sabina Mammadova	Monitoring Specialist, GC
MENR	Shahla Latifova	Monitoring Specialist, GC
REC Caucasus Azerbaijan Office	Bariz Mehdiyev	Director
Ecology, Science Department of SOCAR	Maharram Mehtiyev	Director
MENR	Ruslan Salmanov	National Expert on Legal issues
MENR Facility	Chingiz Mehdiyev	Head of "TT" Ltd.
Azerlshiq OJSC	Umud Agayev	Cable and Insulation service

Annex 2: List of documents reviewed and appendixes

Document Title	Author	Date of Document
Project Document “Environmentally Sound Management and Disposal of Polychlorinated Biphenyls (PCBs) in the Republic of Azerbaijan” - Appendix 37	GEF, UNIDO	April 2010
National Implementation Plan (NIP) of the Stockholm Convention on POPs - Appendix 38	MENR, GEF, UNIDO	2007
Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects - Appendix 39	GEF	April 2017
Guidelines on Technical Cooperation Programmes and Projects - Appendix 40	UNIDO	August 2006
Evaluation Policy - Appendix 41	UNIDO	March 2015
Terms of Reference for Independent Terminal Evaluation - Appendix 42	UNIDO	May 2017
Mid-term independent evaluation - Appendix 43	Mr. Mario Marchich - Team Leader, Mr. Vladimir A. Maryev	May 2013
Progress reports from National Project Coordinator - Appendices 44, 45, 46 and 47	Mr. Baghir Hidayatov	June 2011 June 2012 July 2013 March 2015 (covering the period 2014- 2015)
Mission reports from international consultant – Appendices 48 and 49	Mr. Aleksandar Mickovski	November 2010 May 2011
Mission reports from international consultant – Appendices 50, 51 and 52	Mr. Sergey Seryy	June 2015 March 2016 August 2016
Final report from international consultant - Appendix 53	Mr. Sergey Seryy	June 2015
Mission report - Appendix 54	Mr. Zhengyou Peng, Mr. Valentin Ishchenko Mr. Yunrui Zhou	July 2016
Records related to meetings of the project Steering Committee - Appendix 55	Mr. Baghir Hidayatov	February 2011 – November 2015

Appendixes

Appendix 1	National legal and regulatory acts
Appendix 2	National legal and regulatory acts
Appendix 3	National legal and regulatory acts
Appendix 4	Guideline for the Treatment of PCB containing equipment and oils
Appendix 5	Proposal for including penalties for improper disposal of PCB contaminated waste
Appendix 6	Guidelines on PCB electric equipment inventory in Azerbaijan Energy System

Appendix 7	SOCAR guidelines for the management of PCB containing electricity equipment in the Azerbaijani language
Appendix 7a	Information provided to the deputy minister of MENR
Appendix 8	List of PCB equipment (transformers, capacitors)
Appendix 9	Presidential Degree of AR on amendments related to PCBs to the “Regulations of import export operations in the AR”
Appendix 10	Proposal for including of PCBs to occupational hazards list; Proposal for including of PCBs to eco toxic chemical list
Appendix 11	Proposal for introducing international standards regulating PCB content in equipment
Appendix 12	Draft order of the Head of the Committee of Standardization, Metrology and Patents on making amendments to the State standard AZS 391 2010 of Technical terms of T 1500 transformer oil of the Republic of Azerbaijan.
Appendix 13	Guidelines on safety measures during sampling
Appendix 14	The official letter to the Head of the State Statistics Committee of the Republic of Azerbaijan with proposal for including PCBs classification code (wastes) of the State Statistical Report
Appendix 15	List is prepared for early retirement for workers that are dealing with PCB
Appendix 16	Labels which indicate the PCB status
Appendix 17	Worker safety inspection methodologies
Appendix 18	Stakeholder compliance workshop held
Appendix 19	Gas chromatographs
Appendix 20	Equipment producer’s manuals on sampling and analyzing translated into Azerbaijan Language
Appendix 21	Letter to State Customs Committee to ensure compliance with SC
Appendix 22	PCB inventory manual
Appendix 23	Centralized database system for PCB information management
Appendix 24	SOP documents
Appendix 24a	Mobile decontamination equipment purchased by UNIDO and commissioned
Appendix 25	Workshop on PCB management
Appendix 26	Workshop on PCB management
Appendix 27	Workshop on PCB management
Appendix 28	SOCAR internal action plan
Appendix 29	Report to the MENR for decontaminated oil
Appendix 30	Booklet
Appendix 31	Booklet
Appendix 32	Presentations for different Ministers and companies (SOCAR)
Appendix 33	PhD doctoral thesis

Appendix 34	Inception Workshop
Appendix 35	Inception Workshop
Appendix 36	Inception Workshop
Appendix 37	Project Document “Environmentally Sound Management and Disposal of Polychlorinated Biphenyls (PCBs) in the Republic of Azerbaijan”
Appendix 38	National Implementation Plan (NIP) of the Stockholm Convention on POPs
Appendix 39	Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full sized Projects
Appendix 40	Guidelines on Technical Cooperation Programmes and Projects
Appendix 41	Evaluation Policy
Appendix 42	Terms of Reference for Independent Terminal Evaluation
Appendix 43	Mid-term independent evaluation
Appendix 44	Progress reports from National Project Coordinator
Appendix 45	Progress reports from National Project Coordinator
Appendix 46	Progress reports from National Project Coordinator
Appendix 47	Progress reports from National Project Coordinator
Appendix 48	Mission reports from international consultant
Appendix 49	Mission reports from international consultant
Appendix 50	Mission reports from international consultant
Appendix 51	Mission reports from international consultant
Appendix 52	Mission reports from international consultant
Appendix 53	Final report from international consultant
Appendix 54	Mission report
Appendix 55	Records related to meetings of the project Steering Committee

Annex 3: List of experts, involved into the process of the Project implementation

Name	Institution	Title
Mr. Baghir Hidayatov	UNIDO Project	National Project Coordinator, responsible for the Project implementation
Ms. Gunay Ibrahimova	UNIDO Project	Project coordinator assistant
Mr. Muslum Gurbanov	UNIDO Project	Head of Inventory Group, Phd – degree in chemistry, more than 8 years involved in different international Projects
Mr. Gulmali Suleymanov	Ministry of Ecology and Natural Resources (MENR)	Director of Climate Change and Ozone Centre at MENR Official Focal Point of Stockholm Convention on POPs
Mr. Abdulkhalik Heydarov	Azerenergy Stakeholder Consultant	Main national expert, more than 30 years experience in the electricity supplying companies
Mr. Vugar Heydarov	Azerenergy Stakeholder Consultant	National expert, more than 10 years experience in electricity supplying companies
Mr. Ruslan Salmanov	UNIDO Project	National Legal Expert
Mrs. Ulkar Mammadova	Bakuelektronet	National Inventory expert of Bakuelectronet. More than 10 years activity in electricity supplying companies
Mr. Maharram Mehtiyev	SOCAR	National Inventory Expert, SOCAR Focal Point – Chief of Science and technical division of SOCAR (State Oil Company of Azerbaijan Republic)
Mr. Etibar Guliyev	SOCAR	Specialist on safety in Ecological Department
Mr. Mehdiyev Chingiz	National Center for hazardous Waste Management	Director of the hazardous Waste Management Center at Landfill in Perekishkul. Responsible for the waste management in the landfill, he had to organize the place for the equipment of the Project to be installed at the landfill.
Mr. Eldar Hametov	Bakuelectricity	Chief of Laboratory and cable testing department. More than 30 years experience in the electricity supplying companies.
Mr. Vasif Aliyev	MENR Laboratory of Environmental Pollution Monitoring Center	Director of the Environmental Pollution Monitoring Center. The place, where the gas-chromatograph, supplied from the Project budget is delivered.

Annex 4: Evaluation matrix

EVALUATION CRITERIA: Project relevance			
Evaluation Questions	Indicators	Sources	Data Collection Method
Did the project objective fit within national priorities?	Level of coherence between project objective and national policy priorities and strategies, as stated in official documents	National policy documents, such as National Implementation Plan (NIP) of the Stockholm Convention	Desk review Interviews with government representatives and project stakeholders
Did the project objective fit GEF strategic priorities (focal areas / operational programme strategies)?	Level of coherence between project objective and GEF strategic priorities	GEF strategic priority documents for period when project was approved Current GEF strategic priority documents	Desk review
Are the project objectives in line with the UNIDO mandate?	Linkages between project objective and UNIDO mission	UNIDO mission and thematic priorities	Desk review
Did the project consider gender dimensions of its interventions?			N.A. at that time
EVALUATION CRITERIA: Project design			
Evaluation Questions	Indicators	Sources	Data Collection Method
Was the project adequate to address the immediate problems?	Adequacy of proposed and implemented project measures	Project documents, National policy documents	Desk review Field Mission Interviews
Was a participatory project identification process applied and was it instrumental in selecting problem areas and national counterparts?	Level of involvement of local and national stakeholders in project origination and development	Project staff Local and national stakeholders Project documents	Field Mission Interviews
Did the project have a clear thematically focused development objective, the attainment of which can be determined by a set of verifiable indicators?	Existence of clearly defined project outputs that are attainable and well linked with the project goals	Project documents Project staff	Desk review Interviews with project staff

Was the project formulated with the participation of national counterpart and/or target beneficiaries?	Level of involvement of national counterparts in project origination and development	Project staff National counterparts Project documents	Desk review Interviews with national counterparts
How and to what extent has the project helped raise awareness among policy makers, stakeholders and other target populations on the social and health benefits of PCB phase-out?			Desk review Interviews with national counterparts
EVALUATION CRITERIA: Effectiveness			
Evaluation Questions	Indicators	Sources	Data Collection Method
Were the project objectives met? To what extent they were met?	Level of progress toward project indicator targets relative to expected level at current point of implementation	Project documents Project staff Project stakeholders	Field Mission Interviews Desk review
Have the planned outputs been produced? Have they contributed to the project outcomes and objectives?	Level of project implementation progress relative to expected level at current stage of implementation Existence of logical linkages between project outputs and outcomes/impacts	Project documents Project staff Project stakeholders	Field Mission Interviews Desk review
What were 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	Field Mission Interviews Desk review
Were the target beneficiaries reached?	Number of beneficiaries reached within the project implementation in comparison to planned	Project documents Project staff	Field visit Interviews Desk review
EVALUATION CRITERIA: Project Efficiency			
Evaluation Questions	Indicators	Sources	Data Collection Method

Was the project cost-effective?	Quality and adequacy of financial management procedures	Project documents Project staff	Desk review Interviews with project staff
Has the project produced results (outputs and outcomes) within the expected time frame?	Key impact indicator (technical indicator) is removal of 540 tons of PCB oil, PCB-containing equipment and wastes in an environmentally sound and cost-effective manner.	Project documents Project staff	Desk review Interviews with project staff
Was the project implementation delayed? If so, did that affect cost-effectiveness?	Project milestones in time Required project adaptive management measures related to delays	Project documents Project staff	Desk review Interviews with project staff
What was the contribution of cash and in-kind co-financing to project implementation? Was it timely and adequate to meet the project requirements?	Level of cash and in-kind co-financing relative to expected level, timeline of contributions	Project documents Project staff	Desk review Interviews with project staff
To what extent did the project leverage additional resources?	Amount of resources leveraged relative to project budget	Project documents Project staff	Desk review Interviews with project staff
To what extent did the UNIDO support the project implementation?	Resources and time dedicated to project implementation	Project documents Project staff	Desk review Interviews with project staff
What were the main barriers, if any, encountered during project implementation?			Interviews with project staff
To what extent were project progress reports updated/recorded systematically?			Interviews with project staff