Independent Evaluation Division
Office of Evaluation and Internal Oversight

INDEPENDENT TERMINAL EVALUATION

INITIATION OF THE HCFC PHASE OUT IN THE REPUBLIC OF AZERBAIJAN

UNIDO ID: 100321

GEF ID: 4602

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Distr. GENERAL

ODG/EIO/IED/21/R.2

September 2021
Distr. GENERAL

This evaluation was managed
by the responsible
UNIDO Evaluation Officer

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Acronyms and Abbreviations

A/C	Air-Conditioning
AWP	Annual Work Plan
CCOC	Climate Change and Ozone Centre
CEIT	Countries with Economies in Transition
CEO	Chief Executive Officer
CEP	Committee for Environmental Protection
CFC	Chlorofluorocarbon
CIS	Commonwealth of Independent States
CO	Country Office (UNIDO)
DIM	Direct Implementation Modality
ECA	Europe Central Asia
EOL	End of Life
FSP	Full Size Project
GEF	Global Environment Facility
GHG	Green House Gases
GWP	Global Warming Potential
HCFC	Hydrochlorofluorocarbon
HFC	Hydrofluorocarbon
LTAs	Long Term Agreements
M&E	Monitoring and Evaluation
MIE	Ministry of Industry and Energy
MLF	Multilateral Fund (of the Montreal Protocol)
MENR	Ministry of Ecology and Natural Resources
MP	Montreal Protocol
MPU	Montreal Protocol Unit (UNIDO)
MT	Metric Tonne
MTR	Mid Term Review
MOP	Meeting of the Parties
MOU	Memorandum of Understanding
NIM	National Implementation Modality
NOU	National Ozone Unit
PIC	Prior Informed Consent
PIMS	Project Implementation Management System
PIR	Project Implementation Review
PM	Project Manager
PU	Polyurethane (foam)
ODP	Ozone Depleting Potential
ODS	Ozone Depleting Substance
RAC	Refrigeration and Air-Conditioning
SCC	State Customs Committee
UNIDO	United Nations Industrial Development Organisation
UNEP	United Nations Environment Programme

Glossary of Evaluation-related Terms

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

Acknowledgement

The evaluation team would like to express sincere gratitude to all project stakeholders for their cooperation, in particular for timely provision of information that contributed to smooth conduct and successful completion of the evaluation. Special thanks are extended to UNIDO's Environmental Department, the Montreal Protocol Division, and the Office for Independent Evaluation that provided information on the project implementation and valuable feedback on preliminary findings of this evaluation. Further appreciation is extended to the UNIDO project team in Azerbaijan for assistance with arrangement of on-line interviews, as well as for logistical support and arrangement of key site visits to the project beneficiary companies.

The evaluation team was composed of one international evaluation consultant acting as the team leader, Dalibor Kysela, and one national evaluation consultant, Muslum Gurbanov. The tasks of each team member are specified in the job descriptions annexed to the Terms of Reference (Annex 1).

EXECUTIVE SUMMARY

Project Description

The GEF-funded project "Initiation of the HCFC phase out in the Republic of Azerbaijan" was designed to phase out all remaining consumption of hydrochlorofluorocarbons (HCFCs) in the Republic of Azerbaijan by means of two major components. The first component was designed to strengthen institutional capacity for the implementation of ODS legislation, including monitoring and reporting on control of HCFC imports and consumption. The second component was designed to facilitate the phase out of HCFC-22 and HCFC-141b through the conversion of polyurethane foam manufacturing and commercial refrigeration manufacturing as well as technical assistance to the refrigeration servicing sector.

Summary of findings

The project contributed to re-vitalization of the institutional and regulatory frameworks that had been established under previous projects on CFC phase-out and through support for development and promulgation of new legislative and regulatory measures for HCFC control helped the country to stay in compliance with the accelerated schedules of the Montreal Protocol. It has also strengthened capacities of various institutional stakeholders through a comprehensive training programme and provision of equipment for customs and environmental officers engaged in control of the import of HCFCs.

The project organized training courses was organized for participants from the Climate Change and Ozone Centre (CCOC) within the Ministry of Ecology and Natural Resources (MENR), from PU foam manufacturing companies, and from refrigeration servicing companies for improving understanding of the importance of HCFC phase-out and the required cooperation between relevant institutions.

The project provided resource materials on tracking HCFCs, developing a national database and updating ODS licensing mechanisms to the key national agencies, including the CCOC and the customs authorities. Consequently, the national licensing system for ODS imports was duly reviewed and updated for effective tracking of HCFCs, collection of relevant data and reporting to the Ozone Secretariat.

The project procured 20 refrigerant analysers and organized a training workshop for customs officers on identification of ODS. The refrigerant analysers were deployed to 18 customs posts throughout the country and the MENR sent an official communication to the customs authorities requesting to implement the obligations in respect to control of HCFC under the Montreal Protocol and ensure effective enforcement of the national measures for control of ODS import.

In addition to support for introduction of new regulations for ODS control, the project provided direct financial support for technology conversion and phase-out of HCFC-141b in the PU foam

and refrigeration manufacturing sectors. Moreover, the project helped to establish a new facility for formulation, testing, and production of pre-blended polyol using the methylformate foaming agent.

The project provided direct support for establishment of a centre for training specialists from the refrigeration sector. The centre has training equipment, tools and library for educational purposes that allow to teach and practice key skills for leak detection and refrigerant recovery. An e-learning platform was also established that offers on-line training courses including online assessment and registration to in-person training courses.

Furthermore, the project assisted in strengthening capacities of a sizeable number of RAC servicing companies for recovery and recycling of refrigerants including HCFC-22. However, the size of the official RAC servicing sector in Azerbaijan is not known as the sector is not formally organized through an association of RAC service companies. Also, no information is being collected about refrigerant leak control and quantities of refrigerants recovered.

Summary of recommendations

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

No.	Recommendation
1.	The Government should provide the necessary support for submission of a GEF project on assistance for ratification and implementation of the Kigali Amendment to the Montreal Protocol in Azerbaijan.
2.	The Government should consider adoption of necessary steps towards regulations supporting establishment of an official certification of Refrigeration and Air-Conditioning (RAC) service technicians.
3.	The Government with cooperation of the main companies in the RAC sector should encourage establishment of a national RAC Association.
4.	The Climate Change and Ozone Centre within the Ministry of Ecology and Natural Resources (MENR) should approach the UNEP ECA network for access to available standards and codes of good practice in the RAC sector.
5.	The Climate Change and Ozone Centre within the Ministry of Ecology and Natural Resources (MENR) should consider development of outreach activities aiming at the end-users of RAC equipment to explain risks and disadvantages of engagements with the informal servicing sub-sector.

Recommendation for future programming on HFC phase-down

No.	Recommendation
6.	In the future projects for HFC phase-down, UNIDO should include sensitisation of the highest level of Government officials about the benefits of prioritization of legislative updates for HFC control.
7.	In the future projects for HFC phase-down, UNIDO should include activities on demonstration of economic benefits of refrigerant recycling and reuse.
8.	In the future projects for HFC phase-down, UNIDO should include importers and distributors of HFC refrigerants and equipment in training and awareness raising activities.
9.	In the future projects for HFC phase-down, UNIDO should ensure that indicators and targets are included in the project results framework for measurement and reporting on effectiveness of the national system for ODS control, e.g. indicators and targets for measurement of adherence to good practices in RAC servicing and for reporting of actual quantities of refrigerant recovery, re-use, and reclamation.
10.	For future projects for HFC control, UNIDO should use the existing LTAs and eventually develop additional LTAs for procurement of equipment items of recurrent demand in order to reduce workload on administration of the procurement events and the time needed for acquisition of procured items.

Recommendations to improve UNIDO programming and preparation of projects

No.	Recommendation
11.	For future GEF projects on ODS control, UNIDO should identify national partners in order to comply with the requirement for separation of the implementation and execution functions for the projects as stipulated in the GEF Updated Policy on Minimum Fiduciary Standards.
12.	UNIDO should pay due attention to proper formulation of the indicators and targets in the project results framework in order to facilitate M&E of the project.
13.	UNIDO Management should ensure that for projects on ODS control a management response to the recommendations of Mid-term Reviews is prepared similar to the provisions of the UNIDO Evaluation Policy for independent evaluations.

Evaluation objectives, scope, methodology and approach

Introduction

In line with the GEF Evaluation Policy, a Terminal Evaluation (TE) is undertaken at completion of the GEF-funded projects to assess their performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability. It is conducted to provide a comprehensive and systematic account of the performance of a completed project by assessing its design, implementation, and achievement of objectives. TE is also expected to promote accountability and transparency, facilitate synthesis of lessons learned, and provide feedback to allow the GEF to identify issues that are recurrent across the GEF portfolio.

This document presents results of the Terminal Evaluation of the UNIDO/GEF project "Initiation of the HCFC phase out in the Republic of Azerbaijan". As a standard requirement for all projects financed by GEF, this terminal evaluation has been initiated by the Lead Implementing Agency, in this case the UNIDO Independent Evaluation Division (IED).

Evaluation objective

The objective of the TE is to provide the project partners i.e. GEF, UNIDO and the Government of Azerbaijan with an independent assessment of the key achievements of the project as compared to the original Project Document for the implementation period of the project. TE will assess the expected outcomes and their sustainability through measurements of the changes in the set indicators, summarize the experiences gained, identify and highlight lessons learned, and make recommendations for the future.

The Terms of Reference for the Terminal Evaluation is provided as Annex 1 to this report.

Evaluation scope and methodology

The evaluation was conducted in accordance with the GEF Monitoring and Evaluation Policy[1], the Guidelines for GEF Agencies in Conducting Terminal Evaluations[2], the UNIDO Evaluation Guidance for GEF Financed Projects and the UNIDO Evaluation Policy[3]. [4]

The evaluation covers all activities undertaken in the framework of the project. The time scope of the evaluation was the project implementation period from February 2015 through June 2021. The geographic scope of the evaluation was Azerbaijan.

[1] The GEF Monitoring and Evaluation Policy, Global Environmental Facility, November 2010
[2] Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects, GEF, 2017
[3] Evaluation Manual, UNIDO IED, 2018
[4] The evaluation was conducted from April to July 2021

The evaluation used a participatory and consultative approach to inform and consult with all key stakeholders associated with the project, in particular the Government counterparts, the GEF operational focal point, the UNIDO, the National Project Team, the UNIDO Technical Adviser, representatives of the project ultimate beneficiaries, and others.

The evaluation used the primary evaluation criteria listed in the Terms of Reference for the evaluation, i.e. relevance, effectiveness, efficiency, sustainability and impact, and coherence[5]. Since it may take some time for the impacts to be realized, the evaluation aimed at determining the level of progress towards realization of planned impacts.

Structure of the evaluation report

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

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

Evaluation ethics

The evaluation was conducted in accordance with the ethical principles outlined in the UNEG Ethical Guidelines for Evaluations, namely the four guiding ethical principles for evaluation: Integrity, Accountability, Respect, and Beneficence[6].

[5] As per new DAC evaluation criteria: https://www.oecd.org/dac/evaluation/daccriteriaforevaluatingdevelopmentassistance.htm

[6] UNEG Ethical Guidelines for Evaluation, 2020

Limitations of the evaluation

Since visit of the international consultant to Azerbaijan was not possible due to the COVID-19 travel restrictions, interviews with selected project stakeholders were conducted remotely through digital platforms. This limited the ability of the evaluation team to use direct observation at the stakeholder and beneficiary institutions for gathering additional information, triangulating previously obtained information, and getting a broader picture of the stakeholders' activities.

Despite efforts of the Climate Change and Ozone Centre within the MENR, the evaluators could not get first-hand information about the participation of the State Customs Committee in the project as no representative of the latter was available for interview. Therefore, the Terminal Evaluation did not obtain information on the impact of the project on the national customs service and could not make conclusions about the status and preparedness of the customs for future control of HFC import.

PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

Project start and duration

The project was approved for as a 4-year full-size GEF project. The signature of the Project Document by the Government of Azerbaijan on 13 February 2015 officially marked the start of the project implementation. The original planned completion date was 9 February 2019.

Development Context

Hydrochlorofluorocarbons (HCFCs), a group of ozone-depleting chemicals, are used in a variety of applications such as refrigerants, foam-blowing agents, solvents, fire extinguishers and aerosols. The use of HCFCs is controlled by the Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol or MP).

The Montreal Protocol was designed to reduce the production and consumption of ozone depleting substances in order to reduce their abundance in the atmosphere, and thereby protect the earth's fragile Ozone Layer. The original Montreal Protocol was agreed on 16 September 1987 and entered into force on 1 January 1989. The Montreal Protocol includes a unique adjustment provision that enables the Parties to the Protocol to respond quickly to new scientific information and agree to accelerate the reductions required on chemicals already covered by the Protocol. The Parties to the Montreal Protocol have amended the Protocol to enable, among other things, the control of new chemicals and the creation of a financial mechanism to enable developing countries to comply. Specifically, five Amendments – the London Amendment (1990), the Copenhagen Amendment (1992), the Montreal Amendment (1997), the Beijing Amendment (1999), and the Kigali Amendment (2016) have been made to the Protocol. Amendments must be ratified by countries before their requirements are applicable to those countries.

As a Party to the Montreal Protocol, Azerbaijan must comply with a number of international obligations defined therein: not to exceed the annual quota for the consumption of controlled substances; to ensure the implementation of controls (import / export licensing and substance control) and annual reporting, as well as to implement the decisions of the Meeting of the Parties to the Protocol.

The Copenhagen Amendment of the Montreal Protocol stipulated that Article 2 countries need to reduce their HCFC consumption to 65% of their baseline in 2004, to 35% of that level in 2010, to 10% by 2015, to 0.5% in 2020 and finally achieve full phase out in 2030. The Beijing Amendment extended the control measures for HCFCs to production with a freeze in production by 2004 at the baseline. The Decision XIX/6 of the Meeting of the Parties (MOP) to the Montreal Protocol requires Article 2 countries to accelerate reduction of both HCFC consumption and production to 10% of their baseline by 2015, 0.5% in 2020 and achieve full phase out in 2030.

A number of GEF Countries with Economies in Transition (CEIT), including Azerbaijan, fall under Article 2 of the Montreal Protocol and are generally eligible for GEF funding in support of HCFC phase out, subject to having ratified the Copenhagen and Beijing Amendments.

Problems that the project sought to address

The official baseline for HCFCs consumption in Azerbaijan reported in line with Article 7 of the MP is 14.9 ODP tonnes (2010 baseline). However, surveys and site investigations carried out at the preparatory stage for the project indicated that the total use for 2009-10 was at least 19 ODP tonnes, significantly higher than the official data.

During the project preparation, the actual use of HCFCs in Azerbaijan was re-assessed by field visits that identified 10-12 companies manufacturing commercial refrigeration equipment, 3 medium-size manufacturers of insulated panels and 8-10 other small companies manufacturing rigid polyurethane insulation foam for domestic and commercial refrigeration equipment. Furthermore, the preparatory activities mapped a highly dispersed refrigeration service sector with around 60-70 small companies servicing mainly commercial and residential air-conditioners and around 5-7 larger service centres associated with international equipment suppliers.

The project was designed to address three main barriers to a complete phase out of HCFC-141b used in the foam sector and the ban of the import of HCFC-141b, namely

- lack of institutional capacity to monitor and control HCFC consumption,
- lack of technical and financial capacity to phase out HCFCs in manufacturing and servicing sectors, and
- lack of stakeholder engagement and commitment.

Institutional capacity barriers: Prior to the approval of the project, there was insufficient institutional capacity of the Government of Azerbaijan to undertake the steps necessary to correct Article 7 data reporting, in particular with relation to the special requirements for a revision of the 2010 baseline. After the completion of the CFCs phase out programme in 2006, the institutional capacity related to the monitoring and control of ODS in Azerbaijan was significantly depleted. The legislation covering the import of HCFCs and equipment containing HCFCs was not supported by any robust monitoring or control processes. A national quota system appeared to be ineffective as anecdotal evidence gathered during preparation of the project showed wide discrepancies in the HCFCs permits issued in comparison to actual HCFCs imports.

Specifically, the use of HCFC-141b in preblended polyols was not recorded and there was no effective monitoring or control of the import and distribution of pre-blended polyol systems using HCFC-141b. Evidence also hinted at significant movement of unauthorized goods and illegal trade exacerbated by the prevalence of disposable cans for the distribution of refrigerants used in the refrigeration and air-conditioning (RAC), in particular HCFC-22.

Technical and financial capacity barriers: In addition to improved regulatory frameworks, Azerbaijan also required urgent support in the development and implementation of technical actions for reduced HCFC consumption. Although the baseline level of technology in use in the manufacturing and service sectors was relatively low, external support was required as there was no local technical know-how regarding conversion of foam manufacturing facilities and implementation of best practices in refrigeration servicing required to minimise leakage and reduce service intervals.

Stakeholder engagement barriers: The overall pre-project stakeholder engagement in the HCFC phase-out was low. This was partly due to very competitive economic conditions in which investment in new technology was considered commercially unviable and partly due to lack of communications from the Government towards industry stakeholders for acceptance and commitment of stakeholders the need for HCFC-phase out.

Project summary

Project Information Table

Project Title	Initiation of the HCFC phase out in the Republic of Azerbaijan
UNIDO Project ID	100321
GEF Project ID	4602
Country	Republic of Azerbaijan
Focal Area	Ozone Depleting Substances
GEF Agency	UNIDO
Project Grant Amount	US$ 2,620,000
Project Co-financing	US$ 6,550,000
GEF Period	GEF-5
National Implementing Partner	Climate Change and Ozone Centre (CCOC) at the Ministry of Ecology and Natural Resources of Republic of Azerbaijan (MENR),
CEO Endorsement Date:	17 Dec 2014
Planned Duration	48 Months
Implementation Start Date	13 February 2015
Planned completion Date	9 February 2019
Midterm Review completion date:	June 2017

The project has an objective to phase out 90% of the total 18.95 ODP tonnes of HCFC-22 and HCFC-141b by 2015 and 99.5% by 2020 and at the same time promote use of low GWP alternatives to HCFC-22 in the refrigeration sector.

The project intends to achieve the objective through implementation of the following two substantive components:

Component 1: Legislation, Policy framework and institutional capacity building

The expected outcome is a strengthened institutional capacity of the Climate Change and Ozone Centre (CCOC) to support legislation, control and phase out of HCFC through delivery of the following outputs:

- Adoption of legislation related to control and phase out of HCFC,

- Development of a formal HCFC phase out Strategy and National Action Plan,
- Elaboration of a quota and licensing systems as well as certification and reporting schemes,
- Upgrade of customs processes and capability to control the import and export of HCFCs.

Component 2: Conversion of manufacturing process involving HCFC-22 and HCFC-141b and Assistance to the RAC service sector

The expected outcome is the phase out of HCFC- 22 and HCFC-141b in the manufacturing sector and the reduction of demand of HCFC-22 in servicing sector. The following outputs are envisaged:

- Conversion of key HCFC based manufacturing sectors; technology transfer; engineering services, capital equipment and instrumentation;
- Improved RAC service practice (including technician certification);
- National Recovery, Recycling and Reclamation scheme.

The investment component of the project focuses on the refrigeration manufacturing and servicing sectors and the foam manufacturing sector. Although the project did not envisage increase of the production capacity of the converted plants, the project intervention logic also include socio-economic benefits to be achieved through provision of more reliable equipment capable of producing goods of higher quality and enable Azeri companies to enhance their competitiveness in the local market in relation to imported goods.

The standard approach (based on the original HCFC phase-out guidance of the MLF) for the conversion of manufacturing was based on selection of the least costly technically acceptable technology for ODS phase-out. However, later it was internationally recognized that such conversion does not necessarily provide the optimum overall climate benefits when taking into account the global warming potential of alternative substances without considering energy efficiency over and above the mere cost of replacing HCFC-22. There is a widespread agreement that the cost of a second conversion of a facility to improve energy efficiency after a conversion from ODS would be higher than the incremental cost of making the changes related to energy efficiency at the same time as the HCFCs phase out.

Main project stakeholders and key partners involved

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

The Project Document does not contain analysis of the project stakeholders and their roles at the project inception. However, key stakeholders are listed under the Management Arrangement albeit some of them only in generic terms.

Table 1 below provides a list of main project stakeholders identified at the project preparatory phase as well as their respective areas of responsibility.

Table 1: Key project stakeholders and their responsibilities

Stakeholder	Responsibility
Ministry of Economic Development (MED)	Strategic planning of the country's development
Ministry of Ecology and Natural Resources (MENR)	Strategic planning for the implementation of the commitments of the Vienna Convention and the Montreal Protocol on the Management of Ozone-Depleting Substances
State Administration of Expertise under MENR	Issuance of import-export licenses for ozone-depleting substances
Centre for Climate and Ozone Change under MENR	Monitoring compliance with the obligations of the Vienna Convention and the Montreal Protocol, preparing reports and proposals for the use of ozone-depleting substances
State Customs Committee (SCC)	Control and regulation of the amounts of imports and exports of ozone-depleting substances
Technical University Baku	Research and development of new technologies for refrigeration
Counterpart manufacturing companies	Conversion of manufacturing activities and system houses and establishment of technical training centre
National and international consultants and experts	Facilitation of capacity building, engagement activities, workshops and training

PROJECT ASSESSMENT

Project Design

Azerbaijan was originally part of a submission for a regional project "Preparing for HCFC phase out in CEITs: needs, benefits and potential synergies with other MEAs" that included 14 CEITs and three implementing agencies: UNEP, UNDP and the World Bank. The above project was later split into a regional project prepared by UNDP for implementation in Belarus, Tajikistan, Uzbekistan, Ukraine and two country projects prepared by UNIDO for Azerbaijan and the Russian Federation.

The project design is based on a standard package recommended by the Multilateral Fund for Implementation of the Montreal Protocol (MLF) for development of an overarching strategy that would allow Article 5 countries to meet the reduction levels in HCFC consumption as agreed in Decision XIX/6 of the Parties to the Montreal Protocol. The above referenced Decision encouraged the Parties to promote the selection of alternatives to HCFCs that minimize environmental impacts, in particular impacts on climate, and meet other health, safety and economic considerations.

Analysis of the project results framework

This section makes an assessment of the Project Results Framework (PRF) in terms of clarity, feasibility and logical sequence of the project outcomes/outputs and their links to the project objective. It also examines the specific indicators and their target values in terms of the SMART[7] criteria.

The PRF comprises 2 substantive components and total 5 outcomes and 9 outputs. For measurement of progress towards the planned results, there are 29 indicators formulated at all levels. About half (16) indicators are defined as qualitative that do not show numeric measures as such and describe the desirable status of the planned results in qualitative terms.

While almost all indicators are specific, relevant, attainable, and implicitly time-bound (by the end of the project), several quantitative indicators are not measurable as they do not have a set target value to be achieved. Insufficiencies in the PRF are summarized in Table 2 below.

[7] SMART stands for Specific, Measurable, Attainable, Relevant, Time-bound.

Table 2: Analysis of the PRF indicators

Project result	Indicator	Comments
Objective: to phase out all remaining HCFC consumption in the Republic of Azerbaijan	Volume of sales of non-HCFC goods per enterprise	Not suitable for measurement of achievement, no target value given
Outcome 1.1b. Institutional capacity of Climate Change and Ozone Center (CCOC) strengthened to support legislation, control and phase out of HCFC	More accurate data and control of import, export, consumption, and authorized movements of HCFCs	Vague indicator definition without specific target value
Output 1.b.(i): National database and tracking process (updated ODS licensing mechanisms) are in place	Number of CCOC staff trained to provide support to legislation, control and phase out of HCFC	No target value provided
Output 1.1b.(iii) Training programme for decision makers, concerned government ministries and CCOC covering legislative and regulatory actions for HCFCs phase out implemented	Satisfactory performance of CCOC, government ministries and relevant institutions	Vague indicator definition without specific target value
Outcome 1.2b. Customs processes and capability upgraded to control import and export of HCFCs	% of trained custom officers report that they have improved capability to control HCFC import/export as a result of the project	No target value provided

The structure of the PRF is not easily understandable as it does not follow the usual hierarchy of presentation of the different results. Outputs are not presented under the outcomes to which they belong but at the end of the PRF table and the numbering of outputs is confusing and inconsistent.

Description of the project's Theory of Change

A project's theory of change provides a basis for evaluation of the project resources, activities and results. The terminal evaluation will assess description of the project's theory of change including description of the project's outputs, outcomes, intended long-term environmental impacts of the project, causal pathways for the long-term impacts as well as implicit and explicit assumptions.

There is no explicit Theory of Change in the Project Document that would demonstrate the relation between the project activities, outputs and outcomes. However, the project intervention logic is based on a standard package of interventions recommended by the MLF for preparation of Stage I HCFC Phase-out Management Plans (HPMP) for Article 5 countries of the MP. The package is based on a parallel support in the following areas:

- Legislative and policy measures needed to strengthen HCFCs control and phase out
- Institutional capacity building
- Conversion of manufacturing process involving HCFC-22 and HCFC-141b
- Assistance to the RAC service sector

The rationale for the project is therefore based on assistance with development of legislative and institutional frameworks, support to the foam manufacturing facilities for technology conversion using low GWP alternatives to HCFC-141b, and support to the RAC service sector for reduction of demand for HCFC-22 through improved service and maintenance practices on the RAC equipment.

Assumptions and risks

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

The Project Document provides a list of 6 risks with the risk level rating and corresponding mitigation measures. In addition, the annual Project Implementation Reviews (PIRs) for 2017 and 2018 include newly identified risks and reporting on progress in management of tall identified risks.

Table 3 below provides a summary of the risks identified at the project inception and through the implementation phase.

Table 3: The project risks**,** their rating and corresponding mitigation measures

Risks in the Project Document	Level	Mitigation Measures
1. The change of the Parliamentary schedule	Low	Goodwill and commitment of the Government to support and prioritize any legislation that has been generated by this project.
2. Lack of interest/cooperation from companies and difficulties in adoption of new technology at the local market	Medium	Support will be provided by the Government and suppliers through public awareness and communication, to introduce alternative technologies available for HCFCs and raise more interest by the companies. Under the guidance and coordination of PMO the international expert and suppliers will actively participate in awareness and providing additional information on new technologies.
3. Risk of job losses for conversion projects due to economic changes	Low	Safety net (government subsidy) provided to cover job losses.
4. Implementation delays cause non-compliance beyond 2010, 2015 (90%) total phase out (99,5%) by 2020	Low	Goodwill and commitment of the Government to support and prioritize any legislation that has been generated by this project.
5. Customs is not capable to monitor and control	Low	Goodwill and commitment of the targeted sector to respect the legislation.
6. Non-sustainability of HCFC phase-out after project funds are disbursed	Low	Focus on establishing mechanisms to self-sustain the activities required for the phase-out, such as integrating best practice training for customs officers and technicians into the curriculum of professional training institutes; establishing a self-sustained technicians' certification scheme supported by regulation; introducing commercial mechanisms for refrigerant recovery, recycling and reclamation; adopting regulations and standards to allow the introduction and safe operation of low-GWP (hydrocarbon, HC) technologies; adopting regulations banning import of HCFCs (including HCFC-141b contained in pre-blended polyols and pure, or HCFC-based equipment) and new manufacturing capacity using HCFCs; establishing a monitoring mechanism for converted enterprises; and strengthening the institutions in charge for enforcing these controls.
Additional risks	**Level**	**Mitigation Measures**
7. Inadequate national support to enhance the related legislation	Medium	Under the guidance and coordination of PMO the civil societies and public institutions involved are actively participating in all stages of the implementation including elaboration of legislative documents.
8. There is a risk that the market will be considered too "risky" for manufacturers to take up the opportunity to develop and market higher energy efficiency products which might have a higher initial cost even if lifecycle costs are lower.		The project provided visible demonstrations of the most appropriate technology for the phase out of HCFCs and the improvement of energy efficiency in the refrigeration and air-conditioning sectors in the Russian Federation. Significant, communication and information dissemination contributed to the widespread knowledge and understanding of how these demonstration projects can be replicated in similar enterprises.

A majority of the identified risks are related to the insufficiencies in the legislative and institutional frameworks that are under control of the Government. The project designers and

the implementing team apparently paid less attention to technology-related risks where the mitigation measures are more under control of the project. The experience from implementation of the HCFC phase-out projects implemented by UNIDO teaches that one of the major risks of such projects is the risk of replacement of HCFCs with hydrofluorocarbons (HFCs) that have zero ozone depleting potential (ODP) but high global warming potential (GWP). Although this risk was not identified in the project risk matrix, it was addressed through emphasis on non-HFC alternatives in the design of training activities under the project.

The evaluators conclude that both the risk identification at the project inception as well as the risk reporting and management during implementation were performed thoroughly and critical risks were monitored and reported in the PIRs. However, some of the proposed risk mitigation measures (for risks No. 1,3,4 and 5) are in fact assumptions and not risk mitigation measures as planned interventions by the project implementers.

Lessons from other relevant projects incorporated into project design

The UNIDO Montreal Protocol Division has over 20 years of experience in phasing out of ozone depleting substances at global level and the following relevant lessons learnt were reportedly included in the project preparation and design.

For preparation of this project, the UNIDO team has reviewed the available documentation relating to previous and ongoing projects in Azerbaijan and the region. The lessons learned from previous activities were drawn from the regional Institutional Strengthening project[8] and the regional project on preparation for HCFC phase-out in CEITs[9]. Documents from these projects described the extent of work carried out in Azerbaijan and particularly what worked well and what did not work.

The lessons learned comprised the following topics:

- Good communication and engagement of all stakeholders is extremely important and should include manufacturers, suppliers, the service community as well as consumer facing agents and systems designers;
- It is important to allow counterpart companies access to information and expertise in all technology options to allow them to make informed decisions about phase out;
- In addition, it is also important to have a medium and long-term plan for the activities in the service sector where it can take significant time to update long standing practices.

Based on the experience from previous projects, the project includes a standard range of activities in the four main areas essential to achieve effective HCFC phase out:

- Institutional Capacity building for preparation of legislative and policy measures on HCFCs control, including communication, awareness raising and stakeholder engagement;
- Investment in PU foam manufacturing sector including technical assistance;

[8] "Continued Institutional Strengthening Support for CEITs to meet the obligations of the Montreal Protocol" (implemented by UNEP 2009-2011)
[9] Preparing for HCFC Phase-out in CEITs: Needs, Benefits and Potential Synergies with other MEAs" (implemented by UNDP, UNEP, UNIDO and the World Bank in 2009-2013)

- Investment in RAC equipment manufacturing sector including technical assistance;
- Technical assistance and training to the RAC service sector.

It was also noted that the previous projects had achieved good impact but suffered from poor post-project sustainability. Therefore, one of the tasks for this project was to assess how to prevent the repetition of the previous shortcomings.

Planned stakeholder participation

The Project Document provides a brief outline of the planned participation of the project direct beneficiaries, namely legislators, decision-makers and other institutional stakeholders from the key Government agencies (MENR, MIE, SCC) in the training, awareness and capacity-building activities under Component 1, and the foam and RAC equipment manufacturing enterprises, owners of industrial and commercial HCFC-based installations as well as RAC servicing companies in the investment and technical assistance activities under Component 2.

The Project Document also calls for participation of consumers as the project peripheral stakeholders through communication and awareness programmes, however, no indicators and targets to measure this participation were included in the project results framework. It should be emphasized that the technology conversion under the project is targeting the private commercial sector and therefore opportunities for broader consumer involvement are limited, particularly in the foam and RAC manufacturing sectors. The RAC service sector that deals with the residential segment offers possibilities for a more extensive involvement of consumers.

The Project Document also mentioned involvement of vocational schools with curricula for refrigeration and air-conditioning technicians. The possibility for such involvement is doubtful as evaluation of past projects in CEITs found that the system of vocational education and training of RAC servicing technicians ceased to exist in CEITs after the USSR breakdown.

Replication approach

Since the project was designed to phase out all remaining HCFC consumption in Azerbaijan, the institutional capacity building and conversion of foam and RAC equipment manufacturers does not have potential for replication in the country. The experience and best practices identified under the project have replication potential in the countries where UNIDO lead implementation of HCFC phase-out projects.

UNIDO comparative advantage

UNIDO has years of experience in development and implementation of national and sector-wide ODS phase-out plans in developing countries and economies in transition to ensure their compliance with the Montreal Protocol. Since 1992, UNIDO has completed over 1,300 MP projects under funding from the MLF, the GEF and bilateral contributions in about 70 countries and has helped in the phasing out of more than one-third of ODS in the developing world.

Furthermore, UNIDO has been supporting numerous countries to achieve sizeable climate impacts as the UNIDO MP projects directly reduce emissions of refrigerant gasses with high GWP that both deplete the ozone layer and contribute to climate change. One example of such interventions leading to climate impact are projects focusing on the RAC servicing sector that include provision of necessary equipment to reduce refrigerant leakages accompanied with training in good RAC service practices. Additionally, the improved service methods have a positive impact on energy consumption in sectors that usually account for substantial energy consumption.

One of the greatest comparative advantages of UNIDO in comparison with other UN agencies implementing ODS reduction projects has been its detailed knowledge of ODS alternative technologies and promotion of sustainable industrial solutions by converting and upgrading production lines in companies of all sizes. As a result, the Organization brings technological innovations to private industries while supporting in parallel improved productivity and competitiveness of the beneficiary industries.

Linkages between the project and other interventions within the sector

The Project Document suggested to establish links with another GEF-funded UNIDO-implemented project entitled "Environmentally Sound Management and Disposal of Polychlorinated Biphenyls (PCBS). Although the focus of the above project was on sound management of chemical waste rather than conversion of manufacturing and servicing companies, it aimed at strengthening the institutional capacities similar in nature to the capacities for management and control of HCFCs and targeted the same government agency, namely the CCOC.

Gender responsiveness of the project design

The project was prepared after the issuance of the GEF Policy on Gender Mainstreaming[10] that expresses GEF's commitment to enhancing the degree to which the GEF and its implementing agencies promote the goal of gender equality through GEF-funded projects. However, at the time of the project preparation UNIDO did not have experience with implementation of the above cited policy and the project did not include any specific activities on gender empowerment and equality.

Although there was no specific gender strategy, project design took into consideration the GEF's guidance on gender mainstreaming at the basic level consisting of monitoring participation of females in trainings and awareness workshops. While promotion of gender is fairly feasible for the institutional strengthening component, it is difficult to increase women's participation in the component that focuses on technology conversion. The nature of work particularly in the foam and RAC manufacturing sectors and to a great extent in the servicing sector is the main reason why these sectors are not attractive for females.

[10] Policy on Gender Mainstreaming, Global Environmental Facility, May 2012

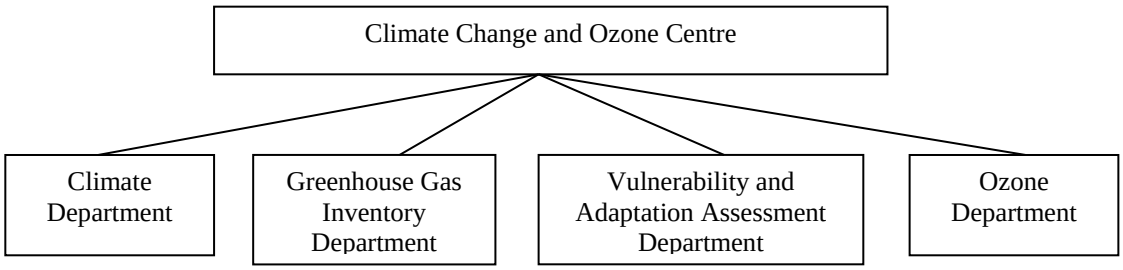
Furthermore, the Project Document hinted at possible cooperation with the Azerbaijan Gender Information Centre and the Gender Focal Point in the Ministry of Environment, as well as other relevant stakeholders involved in gender issues.

The project design is rated **Moderately Satisfactory.**

Management arrangements

The project was implemented by the UNIDO Montreal Protocol Division with support from the Climate Change and Ozone Centre (CCOC), part of the National Hydrometeorological Department of the Ministry of Ecology and Natural Resources (MENR) as the designated national Focal Point for the Montreal Protocol. In the initial 3 years of the project implementation, the CCOC consisted of four departments as shown on Display 1 below.

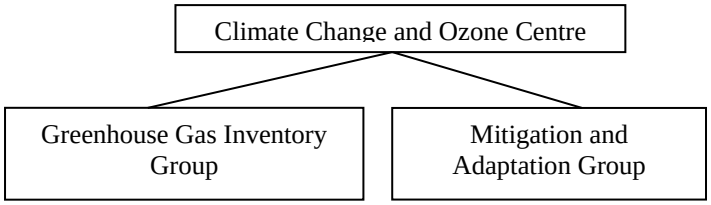
Display 1: Structure of the Climate Change and Ozone Centre (as of 2015)



In the first 3 years of the project, the Ozone Department was responsible for inventory of ODS and mandatory reporting to the Ozone Secretariat according to Article 7 of the MP as well as for development of action plans to implement the decisions of the Montreal Protocol.

In 2019, the National Hydrometeorological Department of MENR was renamed to the National Hydrometeorological Service and the CCOC underwent reorganization, and the current organigram is shown on Display 2 below.

Display 2: Structure of the Climate Change and Ozone Centre (as of 2019)



At the project Inception Workshop in March 2015, the participants agreed by mutual consent to establish a special Working Group (WG) to oversee the implementation of the Project and assigned representatives and alternates for this purpose. The WG included the Director of the COCC, the national MP Coordinator, the UNIDO Project Manager from UNIDO HQ, the national UNIDO Coordinator, as well as representatives of two major companies from the manufacturing sector.

The Project Team at the UNIDO HQ was responsible for procurement of goods and services supported by the UNIDO Procurement Department. The COCC established a National Programme Office for implementation of the project under the direction and supervision of the UNIDO Project Manager. The main role of the NPO was to regularly collect data for reporting purposes and provide support to the project implementation through coordination with relevant agencies of the Government and other stakeholders.

It follows from comparison of Displays 1 and 2 that the prominence and visibility of the control of the ozone depleting substances was somewhat reduced as a result of the 2019 restructuring. In the original structure, the Ozone Department was responsible for the ODS inventory and reporting as well as for the implementation of the GEF project. Following the restructuring, the two functions were separated. The inventory and reporting function was assigned to the HGH Inventory Group while the implementation of the project was responsibility of the Mitigation and Adaptation Group.

Project Steering Committee

The Project Steering Committee was never established and was effectively replaced by the WG described above. The WG meetings were not held on a regular basis but rather ad-hoc and minutes of the meetings were not prepared consistently. Therefore, information was not available about the issues discussed at the individual WG meetings and decisions made related to the project implementation.

The evaluators found the actual project management arrangements in line with the UNIDO model of implementation used in the MLF-funded HCFC phase-out projects but in deviation from the arrangements described in the Project Document. However, the interviewed members of the WG were satisfied with the actual management arrangements functioned to their satisfaction and ensured smooth implementation of the project.

Project Implementation

Adaptive management

GEF evaluations assess adaptive management in terms of ability to direct the project implementation through adapting to changing political, regulatory, environmental and other conditions outside of control of the project implementing teams.

Application of adaptive management was particularly required for reestablishment of the National Ozone Unit (NOU) in Azerbaijan. The NOU had been established under the regional project implemented by UNEP in 2007-2010[11] as part of the Climate Change and Ozone Centre (CCOC) within the MENR. Due to insufficient support from the Government many activities during the UNEP project were implemented by national consultants funded by the UNEP project. However, the capacities established under the latter project for ODS control and reporting were not sustained and the NOU was not functional soon after the closure of the UNEP project.

Due to the weak institutional capacities for ODS control, Azerbaijan faced a challenge to enforce the HCFC licensing and quota system. In 2011, the country was declared in non-compliance with the HCFC phase out schedule. The Implementation Committee under the Non-Compliance Procedure for the Montreal Protocol by its recommendation 50/8 requested Azerbaijan to submit a plan of action for ensuring prompt return to compliance. According to the 2012 report to the UNEP Ozone Secretariat (OS), Azerbaijan returned to compliance but acknowledged the existing lack of expertise in the tracking the HCFC consumption by end-users and later submitted a plan of action within the framework of this project with UNIDO as the implementing agency.

Due to lack of capacities and experience in the NOU, the UNIDO project team assumed a coordination role and facilitated communication between the NOU and the Ozone Secretariat (OS). This assistance was instrumental for timely and effective reporting of the NOU to the OS.

Several adaptive management interventions were also required in relation to very long periods of response of the Government to all proposals related to improvements of the legislative frameworks for control of HCFC. With the active involvement of the UNIDO project team, all legislative proposals developed under the project were finally incorporated into Government decrees and decisions on implementation of the Montreal Protocol.

An adaptive management approach was required in relation the establishment of the new system house for preparation of formulations for PU foaming based on the methylformate blowing agent as this activity was not included in the approved Project Document.

[11] Continued Institutional Strengthening Support for CEITs to meet the obligations of the Montreal Protocol (UNEP-GEF, 2009-2012)

Actual stakeholder participation and partnership arrangements

The actual participation of project stakeholders was based on the expert and consultative networks that had been established under the component of the GEF-4 regional project implemented by UNDP[12].

The key institutional stakeholders that actively participated in the project included the CCOC, the State Customs Committee (SCC) and the State Office of Examination (SOE). The CCOC provided interface between the UNIDO project team and other institutional and corporate stakeholders and facilitated their involved through participation in the workshops and awareness raising events. The private sector stakeholders were also involved through the technology conversion projects where they provided sizeable co-financing contributions.

Project finance and co-finance

The GEF grant for this project was approved at US$ 2,620,000 and together with expected co-financing of US$ 6,550,000 the total cost of the project at inception was US$ 9,170,000. Table 4 below displays the comparison of the project budget and actual expenditures from the GEF grant by the project components.

Table 4: Planned and actual disbursement of the GEF funds by components

Project Component	Budget (US$)	Expenditures (US$)	%
100321-1-01-01	103,500	102,782.75	99.31%
100321-1-03-01	88,853	88,852.72	100.00%
100321-1-04-01	2,221,172	2,221,172	100.00%
100321-1-51-01	206,475	206,475	100.00%
Total	2,620,000	2,619,282.46	99.97%

It follows from Table 4 that the total expenditure from the GEF funds at the project operational closure was US$ 2,619,282.46, that is 99.97 % of the total GEF grant.

Table 5 below provides breakdown of actual payments from the GEF grant by years of the project implementation.

[12] Preparing for HCFC phase out in CEITs: needs, benefits and potential synergies with other MEAs (UNDP-GEF, 2008-2013)

Table 5: Payments by years of the project implementation (as of 30 June 2021)

Project Component	Payments (US$)							
	2015	2016	2017	2018	2019	2020	2021	2015-2021
100321-1-01-01	6,027.99	32,853.95	45,900.64	1,196.15	-	(243.27)	17,047.29	102,782.75
100321-1-03-01	26,669.98	54,002.49	8,180.25	-	-	-	-	88,852.72
100321-1-04-01	60,295.52	573,850.84	1,477,650.66	4,164.07	6,090.31	99,120.71	-	2,221,172.11
100321-1-51-01	85,886.59	59,098.36	23,056.82	13,025.47	25,407.64	-	-	206,474.88
Total	**180,895.08**	**721,821.64**	**1,556,805.37**	**20,403.69**	**33,516.95**	**100,897.44**	**19,068.29**	**2,619,282.46**
%	**6.9**	**27.6**	**59.4**	**0.8**	**1.3**	**3.9**	**0.7**	

The data in Table 5 show the dynamics of the project implementation. A majority of the GEF funds (93.9%) was spent in 2015-2017, i.e. during the first three years of the project implementation.

The project was designed to attract co-financing from several stakeholders. Table 6 below compares the planned co-financing at the project inception with the actually realized co-financing at the operational completion of the project.

Table 6: Comparison of planned and actual co-financing by source

Source	Type	Planned (US$)	Actual (US$)
MENR	in-kind	200,000	200,000
UNIDO	cash	50,000	50,000
Baku Chinar Refrigerators	cash	100,000	0
Fayton Ltd.	cash	950,000	1,100,000
Frigo Market Ltd	cash	600,000	0
TG Chemical Ltd.	cash	0	350,000
Titan Service Ltd.	cash	0	600,000
TG Chemical Ltd.	cash	0	200,000
A&K (Aliyev & Co.)	cash	0	350,000
Baku Chinar Refrigerators	in-kind	500,000	0
Fayton Ltd.	in-kind	2,400,000	2,400,000
Frigo Market Ltd	in-kind	1,750,000	0
Titan Service Ltd.	in-kind	0	400,000
TG Chemical Ltd.	in-kind	0	700,000
A&K (Aliyev & Co.)	in-kind	0	500,000
Total		**6,550,000**	**6,850,000**

The figures in Table 6 show that the total of the realized co-financing contributions slightly exceeded the total amounts committed at the project inception.

Monitoring and evaluation

The Monitoring & Evaluation (M&E) Framework outlined in the Project Document consists of the Project Inception Workshop, meetings of the Project Steering Committee and the Technical Committee, regular monitoring of project progress, annual Project Progress Reports (APRs) and Project Implementation Reviews (PIR), the Mid-term Review and the Terminal

Evaluation. The total indicative cost for the project M&E plan (excluding UNIDO project team staff time) was US$ 117,000, that is 4.5 % of the GEF grant.

The design of M&E framework followed the standard M&E template for projects of this size and complexity. Overall, the evaluator found the M&E design adequate for monitoring the project results and tracking the progress toward achieving the objectives, with the exception of the deficiencies in the project results framework discussed in the section "Analysis of the project results framework" above.

For the assessment of the implementation of the M&E framework, the evaluators reviewed some of the project documentation related to monitoring and reporting.

Inception Workshop (IW): The IW was conducted on 10 March 2015 with participation representatives from UNIDO, MENR, CCOC and two principal beneficiary companies (Titan Group and A&K).

Project Steering Committee (PSC): The IW is normally considered the 1st meeting of the PSC. The Project Document stipulated that the PSC would meet twice a year and be responsible for the overall strategic and policy guidance required for implementation of the project. However, by decision of the Implementing Partners reached at the IW, the PSC was not created and was replaced by a special Working Group on project management with representation of relevant departments of the MENR and the UNIDO project team.

Annual Project Reports/Project Implementation Reviews (APRs/PIRs): The most important tool for monitoring of implementation progress were the Project Implementation Reviews (PIRs) prepared regularly with annual periodicity at the end of each GEF fiscal year (July to June). The PIRs were prepared for the fiscal years 2016, 2017 and 2018 and one Project Final Report was prepared in 2020. The format of the PIRs was slightly changed during the project implementation period. The 2016 PIR was provided as a series of MS Excel sheets while the 2017 and 2018 PIRs were elaborated under a MS Word template.

Mid-Term Review (MTR): In line with the GEF and UNIDO evaluation policies, the MTR was conducted in April – May 2017 and consisted of obtaining and reviewing the available documentation, conducting meetings and interviews with key project stakeholders, the UNIDO Project Manager, consultants, and field visits to the project beneficiaries in Baku.

The MTR produced total 7 recommendations as summarized in Table 7 below.

Table 7: Summary of MTR recommendations

No.	Recommendation
1	The remainder of the programme should concentrate on ensuring that the institutional capacity is in place to maintain control of ODS imports and usage, and to assist the Government of Azerbaijan in adopting the proper institutional controls and legislative framework on which the ODS phase out is based and continuing to develop stakeholder engagement, particularly through the formation and establishment of a refrigeration association. It will be particularly important to ensure the effectiveness and sustainability of the project outcomes, such as improved service practice and implementation of a technician certification scheme.
2	Whilst the project does not directly address the issue of HFC avoidance or phase down, it does seek to improve service practice and the level of education of service technicians and installers. It appears from the outline training specification seen by the reviewer that the issues of HFC and non-HFC alternatives will be addressed in the training programmes that will take place from the end of 2017. It is recommended that this element of the project is enhanced, if funding allows, as this would provide a good baseline for technical capacity, on which future activities related to HFC phase down could be built upon.
3	The gender component of the project has been limited to encouraging female experts and technicians to take part in the training and development components. Once the training center is fully established the project team might consider using/recruiting a female trainer and/or using the centre to promote refrigeration and air-conditioning courses for young people via open days or links with the schools, this might provide an opportunity to promote the sector, and technical training in general, to young women at formative stage in their education.
4	Sustainability of training of technicians can become an issue once the project is over. The training provider should present a business plan to show how it will recover costs from future trainees or provide another mechanism for sustainability.
5	The efforts made to establish a refrigeration association should be strengthened, as this will be a key driver in delivering the institutional and technical capacity required to achieve the sustainability of the project.
6	Close follow-up should be maintained on the implementation of the Recovery/Recycling centres to find out how they are operating and have them report on the quantities recovered and recycled on a quarterly/half yearly basis.
7	The last phase of the project should also concentrate on putting in place the monitoring and reporting processes and systems required to allow the CCOC and other Government agencies to maintain control after the project has finished.

While the recommendations are in line with the a majority of criteria for quality of evaluation recommendations[13], they are not actionable as they do not identify the target group for each recommendation.

Although the UNIDO Evaluation Policy promulgates the requirement to prepare a management response sheet (MRS) as a follow-up to independent evaluations[14], there is no information about the management response to the above listed MTR recommendations.

Terminal Evaluation: The Project Document stipulated TE to be conducted three months prior to the project completion date. The TE preparation started in early 2021 and the TE was conducted in April – July 2021.

Although the M&E individual stages were implemented more or less correctly, there was insufficient feedback from the MTR. Therefore, rating of the quality of M&E is **Moderately Satisfactory (MS).**

UNIDO and implementing partner implementation / execution

Although the actual management arrangements did not follow the project governance structure presented in the Project Document, the level of communication between the key project stakeholders was sufficient to ensure effective and timely project implementation.

UNIDO ensured that tenders for procurement of equipment and services were in line with international tendering procedures and standards and warranted transparency, thorough technical and economic evaluation as well as proper documentation of all procedures, particularly those in tenders for major pieces of PU foam equipment. Through its networks and databases, UNIDO facilitated access to qualified international experts and ensured thorough management of the project finances.

[13] UNEG Quality Checklist for Evaluation Reports, UN Evaluation Group, 2012
[14] UNIDO Revised Evaluation Policy, DGB/2018/08, 01 June 2018, p. 13

The CCOC located at MENR as the designated national Focal Point for implementation of the Montreal Protocol was instrumental for facilitation of communication and coordination with the key national governmental and private sector stakeholders and ensured that the less formal management structure (compared to the structure in the Project Document) worked effectively for delivery of planned results. However, as was pointed out in the MTR report, the less formal arrangements were not supported by keeping of records of the meetings organized and decisions taken during the project implementation.

The quality of UNIDO and the national partner implementation/execution is rated Satisfactory (S).

Relevance

The project is aligned with the obligations of Azerbaijan as Party to the Montreal Protocol and assists to meet the commitment of phasing out HCFCs within the accelerated schedule of the Montreal Protocol. Since Azerbaijan is the so-called Article 2 country under the MP, the following part of the Decision XIX/6 of the Meeting of the Parties, applies:

For Parties operating under Article 2 of the Protocol (Article 2 Parties) to have completed the accelerated phase-out of production and consumption in 2020, on the basis of the following reduction steps:
(a) by 2010 of 75 per cent;
(b) by 2015 of 90 per cent;
(c) while allowing 0.5 per cent for servicing the period 2020–2030;

Since the implementation period of the project was 2015-2021, the project was relevant for achievement of the second HCFC phase-out milestone in 2015 as well as for setting Azerbaijan on track towards meeting the third milestone on 1 January 2020.

Since the Article 2 Parties to MP are not eligible to receive funding from the Multilateral Fund for the Implementation of Montreal Protocol (MLF), this project is considered very relevant to the national priorities of Azerbaijan as the only systematic development assistance from the international community to Azerbaijan for fulfilment of its international obligations under the MP.

The project is also relevant for UNIDO as the GEF Implementing Agency. UNIDO long-term involvement in HCFC phase-out focuses on conversion of key industrial sectors in developing and transition countries while at the same time enabling targeted industries to achieve increased productivity and improved economic performance. The assistance takes the form of transfer of new, technologies, upgraded production lines with brand new equipment and the dissemination of adequate training on technology and industrial safety, including human health aspects. Not only does this assistance allow for better access to new markets, it also helps sustain businesses in the long term through lower operating costs, reduced maintenance and higher product quality and reliability.

Although GEF as the donor to this project is not linked formally to the Montreal Protocol, it actively supports its implementation as under the terms of the MP the Countries with

Economies in Transition (CEIT) are not eligible for the multilateral funding. The GEF-5 strategy for chemicals consolidated the previously (under GEF-4) separated Focal Areas (FA) for persistent organic pollutants and ozone layer depletion. The latter FA was the GEF operational response to the Montreal Protocol and its Adjustment and Amendments with the strategic objective to protect human health and the environment by assisting countries to phase out their consumption and production of ozone-depleting substances, including phasing out HCFCs.

In 2010, the GEF's Evaluation Office (EO) commissioned a meta-evaluation of GEF financing in the ozone portfolio of projects in CEITs[15] that provided several recommendations for future GEF support, including:

- Investment projects helping the governments and private sector recover and recycle HCFCs and increase the market penetration of non-ODS or low or zero global warming potential alternatives in the refrigeration and foam sectors, and
- Capacity development for national ozone units and customs authorities to function more effectively, including further support to update legislation and policy, provisions of ODS and non-ODS refrigerant detection equipment, and training and technical assistance to improve enforcement of existing ODS control measures.

To the CEITs, the GEF EO evaluation recommended drafting new or updating existing legislation and policies on all aspects of ozone layer protection as essential parts of ODS consumption phaseout and for market transformation through introduction of alternative technologies and refrigerants, in particular the following:

- ODS recovery, recycling, and reporting
- Establishing private enterprise standards and requirements, particularly in refrigeration and air conditioning servicing sectors,
- Introduction of import bans for ODS and ODS-containing equipment, and/or licensing and quotas for ODS imports and exports,
- Establishing and promoting the activities of professional refrigeration associations.

It clearly follows from the above text that the project is relevant for GEF priority areas for reduction of ODS in CEITs.

Coherence

The project fits well within the efforts of the Government of Azerbaijan to reduce negative environmental impacts while improving competitiveness of local industries. Although the project reports did not explicitly mention links to activities under projects under the GEF Climate Change Focal Area, the focus of this project on selection of ODS alternatives with low GWP also contributed to Azerbaijan's commitments for reduction of GHG emissions under

[15] Evaluation of GEF-Funded UNEP and UNDP Projects that Phased Out Ozone-Depleting Substances in Countries with Economies in Transition: Report to the UNEP Evaluation and Oversight Unit, 2010

UNFCCC. Externally, the project design was coherent with the standard approach of the international community towards phase-out of HCFCs and paved way for future efforts on phase-down of HCFs under the Kigali Amendment of the Montreal Protocol.

Table 8 below summarizes relation of the ODS reduction interventions to the UN Sustainable Development Goals (SDGs).

Table 8: Relation of ODS reduction to UN SDGs[16]

Sustainable Development Goals	Linkage with ODS reduction
SDG 1: End poverty in all its forms everywhere	Support for industrial enterprises to successfully transition to new technologies that do not deplete the ozone layer allows countries to meet the objectives of the Montreal Protocol, while retaining and often creating jobs, maintaining competitiveness and increasing productivity and innovation.
SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Phasing out ODS that often are also powerful greenhouse gases (GHGs) protects the productivity of agricultural lands and oceans. Support for the refrigeration sector is key for sustainable food production systems through in extending the shelf life of food products and permitting their long-range transport. Introduction of environmentally friendly alternatives to methyl bromide, an ODS and hazardous pesticide, also contributes to food security.
SDG 3: Ensure healthy lives and promote well-being for all at all ages	Support to ODS reduction contributes to reducing the number of deaths and illnesses from ozone layer depletion (melanoma skin cancer eye cataracts, suppression of the immune system and premature skin aging). Supports to the refrigeration sector allows for cold chain management for medicines and vaccines.
SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all	Phasing-out ODS brings improved energy efficiency in buildings by promoting investments in new heating and cooling systems; household refrigerator replacement programmes; and better thermal insulation. These programmes also reduce costs for energy consumers, freeing up funds for other primary needs.
SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	Interventions for ODS phase-out allow small-scale enterprises to connect to existing and new markets, retain and improve their competitiveness, create or sustain jobs and ensure business continuity. As such, they contribute directly to a country's GDP growth and industry's share of employment.
SDG 12: Ensure sustainable consumption and production patterns	Introduction of safe and energy-efficient alternatives to ODS contained in consumer products, such as refrigerators and air conditioning units, ensures that rapidly increasing use of such products will not cancel the past achievements of the Montreal and Kyoto Protocols through promotion of new natural refrigerants, and recovery and recycling of old refrigerants.
SDG 13: Take urgent action to combat climate change and its impacts	The phase-out to date of most ODS has not only led to the regeneration of the ozone layer but also significant reductions in GHG emissions as most ODS are also powerful GHGs.

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

Effectiveness

The information presented in this section was sourced from the various project implementation reports and verified with information collected through interviews with key informants. Additional sources of information were various studies and technical reports produced by the project. The list of documents consulted is provided as Annex 4 to this report.

The principal questions to be discussed in this section are whether and how the project outcomes as well as its objective have been achieved and whether the project results have been delivered with the least costly resources possible. The further text will also highlight positive and negative, foreseen and unforeseen changes and effects produced by the project intervention.

[16] Compiled from the leaflet "The Sustainable Development Goals (SDGs) and the Montreal Protocol on Substances that Deplete the Ozone Layer", UNDP Montreal Protocol/Chemicals Unit, 2015

In the series of tables below, the project results and achievements have been summarized and compared against the target indicators listed in the project's logical framework. The initial information about the project results/achievements was extracted from the project's PIRs and verified and updated through interviews and meetings held during the data collection phase. Additional information was supplemented from the project-related documentation provided by PMU.

Tables 9-11 list the individual project outputs and indicators for measurement of their achievement, summarize the delivery status at the Terminal Evaluation and provide rating for the output delivery status. Each table contains an overview of the actually achieved project outputs in bullet points followed by a short narrative with additional insight and details on how and why the outputs have or have not been achieved. At the end, the narrative also explains the basis for rating of each project output. The text following each table summarizes some important facts that could not be captured in the tables but were considered important for the justification of the rating of the delivery status.

Table 9: Delivery status for Component 1 - Legislation, policy framework and institutional capacity building

Result	Indicators	Status at TE	Rating
Outcome 1.1a. Legislation related to control and phase out of HCFC adopted	Strategy and National Action Plan endorsed by Parliament Regulatory systems and processes enacted in legislation for: -quota system; -licensing system; -certification scheme; -reporting system; - resource materials for use by CCOC	See below under outputs	S
Output 1.1a.(i) Formal HCFC phase out Strategy and National Action Plan developed	Strategy and National Action Plan formulated and completed, ready for formal endorsement by the Parliament	Review of the relevant national legislation and ODS monitoring and reporting Strategy and National Action Plan developed	S
Output 1.1a.(ii): Quota system, licensing system, certification scheme for technicians, reporting systems, resource materials for use by CCOC, customs authorities and other stakeholders and government agencies covering the legislative and regulatory actions required for HCFC phase out in place	Documents necessary for updating regulatory systems and processes are prepared for: -quota system; -licensing system; -certification scheme; -reporting system; -resource materials for use by CCOC	Assessment of responsibilities of MENR for HCFC control 3 proposals for amendment of the legislation developed and submitted to the Government	S
Outcome 1.1b. Institutional capacity of Climate Change and Ozone Center (CCOC) strengthened to support legislation, control and phase out of HCFC	More accurate data and control of import, export, consumption, and authorized movements of HCFCs	Timely reporting of dataunder Article 7 of the MP	S
Output 1.1.b.(i): National database and tracking process (updated ODS licensing mechanisms) are in place	Number of CCOC staff trained to provide support to legislation, control and phase out of HCFC Official communications and correspondence between CCOC and stakeholders and consumers Working relationship between CCOC and customs officials	Essential CCOC staff trained Official communication from MENR to SCC on implementation and enforcement of the national control measures Basic working relationships between CCOC and SCC established	S
Output 1.1b.(ii): HCFCs consumption patterns and scenario plans developed. Analysis of the level of residual HCFC demand after 2014 and 2019, including assessment of OD equipment banks	Report on HCFCs consumption patterns and scenario plans	Review of the national licensing system for ODS imports and exports Guidance document "Import and export licensing systems for ozone-depleting substances"	S
Output 1.1b.(iii): Training programme for decision makers, concerned government ministries and CCOC covering legislative and regulatory actions for HCFCs phase out implemented	At least 20 representatives from the concerned institutions trained (men and women) Satisfactory performance of CCOC, government ministries and relevant institutions	Training workshop for 21 participants on legislative and regulatory actions for HCFCs phase out (2017) No information about measurement of performance of the CCOC and relevant ministries	MS
Outcome 1.2b.: Customs processes and capability upgraded to control import and export of HCFCs	Customs processes for control of HCFC are adopted and in place % of trained custom officers report that they have improved capability control HCFC import/export as a result of the Project	No information from customs available	MU
Output 1.2b.(i): Training programme and necessary equipment for customs officers and environmental officers	At least 40 customs officers trained (men and women) Necessary equipment provided	Training seminar for 21 customs officers (February 2016) 20 refrigerant analysers procured and distributed (2016)	S

Outcome 1.1a: Implementation of this outcome started with a comprehensive review of the relevant legislation, including the national monitoring and reporting system on consumption of ODS and cross-border movement of ODS and products containing ODS. Following the review, three proposals with a list of amendments to draft regulations were submitted to the drafted and Ministry of Ecology and Natural Resources (MENR).

The proposed amendments included the following requirements:

- To recover HCFC refrigerant prior to discarding end-of-life (EOL) equipment,
  To develop a system for reporting on used, stored, recycled and destroyed ODS to be managed by MENR;
- To oblige legal entities to keep records of ODS consumption for annual submission to MENR;
- To ban the use of non-refillable refrigerant containers;
- To collect reserve stocks of ODS before January 2019 for the purpose of disposal;
- To develop by January 2018 requirements for the certification of companies and personnel involved in installation and servicing of stationary RAC systems x;
- To calculate by January 2018 the HFC baseline for ratification of the Kigali Amendment.

Outcome 1.1b: Implementation of this outcome started with identification of responsibilities of relevant MENR departments that were included in the "Order on the execution of international commitments with respect to ozone depleting substances" and summarized in Box 1 below.

Box 1: Responsibilities of MENR departments for ODS control

Department	Responsibilities
The National Hydrometeorological Department	Prepare the proposals regarding the activity of all institutions using ozone depleting substances in the country, regardless of their property and organizational-legal form, within two (2) months and submit it the Ministry in accordance with the established procedure; Ensure the collection of information and application of reports on the use, maintenance, recycling/reclamation and disposal of ozone depleting substances; Organize the calculation of a baseline of hydrofluorocarbons (HFC) consumption prior to the approval of Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer; Prepare a report based on the information received from entities and submit to the Ministry; Ensure these activities are implemented in coordination with relevant bodies and entities;
The Environmental Protection Department	Strengthen the control over the burial of products containing ozone depleting in waste polygons without being neutralised; Request annual reports from enterprises and organizations, regardless of their property and organizational-legal form, on the protection of atmosphere air and the use of ozone depleting substances; Maintain registry of ODS that were used, stored, reclaimed, re-processed and destroyed by all enterprises, offices and organizations during the past year regardless of their property and organizational-legal form as of 1 November 2018 and submit the relevant report to the Ministry
The Environmental Expertise Department	Strengthen the control of imports of hydrochlorofluorocarbons (HCFCs) as ozone depleting substances along with the State Customs Committee Ensure storage of ozone depleting substances is allowed only in reusable containers (with the exception of storage of ODS used for laboratory and analytical works in containers of max. 3 litres)

The activities were conducted in line with the guidelines "National survey and collection of baseline data for development of a national strategy outline of HCFC phase out from consumption sectors of Azerbaijan", that had been developed under the GEF-4 regional project implemented by UNEP[17].

[17] Preparing for HCFC phase out in CEITs: needs, benefits and potential synergies with other MEAs, UNEP/GEF, 2009-2011.

In 2017, a training course was organized for total 21 participants, including 7 participants from the Centre for Climate Change and Ozone, 4 participants from manufacturing companies, 6 participants from servicing companies, 2 independent experts and 2 representatives of a national environmental NGO. The training aimed at improving understanding of the importance of ODS phase-out and the required cooperation between relevant institutions.

Furthermore, the project appointed several national experts for development of HCFCs consumption patterns and scenarios, projections of future demand for HCFCs as well as assessment of ODS equipment banks. The deliverables from this work included the following:

- Compilation of information on HCFC import/export and channels of distribution among the consuming sectors;
- Collection of technical and commercial baseline information from HCFC end-users to assess the demand for HCFCs from the manufacturing industries as well as the RAC servicing sector;
- Verification of data on the demand for HCFCs in the servicing sector, in particular the service demand for residential and commercial air-conditioning;
- Dissemination of information to HCFC end-users on ozone depleting potential (ODP) and global warming potential (GWP) of available alternative refrigerants and blowing agents and technologies.

The project provided resource materials on tracking HCFCs, developing a national database and updating ODS licensing mechanisms to the CCOC, the customs authorities and other stakeholders. Consequently, the national licensing system for ODS imports and exports was duly reviewed and updated for effective ODS tracking and collection of relevant data.

The project produced a guidance document on "Import and export licensing systems for ozone-depleting substances" for assistance at the level of companies. The guidance describes the procedure for import HCFCs and defines the set of the documents a legal or physical person importing ODS is obliged to submit to the State Expertise Office of the MENR.

Outcome 1.2b: In January 2016, 20 refrigerant analysers were procured under the project and delivered to Azerbaijan. A training seminar for refrigeration technicians and customs officers was held on 11-12 February 2016. The theoretical part featured presentations on overview of the legislative framework in Azerbaijan for the protection of the ozone layer, classification of ozone-depleting substances, occupational safety of work with ODS and use of refrigerant gas analysers. The practical part focused on hands-on training on the use of refrigerant gas analysers.

Following the training programme, the refrigerant analysers were deployed to 18 customs posts throughout the country and the MENR sent an official communication to the SCC requesting to implement the obligations in respect to control of HCFC (Annex C, Group 1 substances) under the Copenhagen Amendment and ensure effective enforcement of the national control measures for control of ODS import.

Overall Assessment of Component 1: The project contributed to re-vitalization of the institutional and regulatory frameworks that had been established under previous projects on CFC phase-out and through support for development and promulgation of new legislative and regulatory measures for HCFC control helped the country to stay in compliance with the accelerated MP schedules. It has also strengthened capacities of various institutional stakeholders through a comprehensive training programme and provision of equipment for customs and environmental officers engaged in control of the import of HCFCs. However, effectiveness of the support could not be measured in a manner similar to the support provided by the MLF to the Article 5 countries of the MP.

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

Table 10: Deliverables for Component 2 - Conversion of manufacturing process involving HCFC-22 and HCFC-141b and assistance to the RAC service sector

Result	Indicator	Status at TE	Rating
Outcome 2.1: Phase out of HCFC-22 and HCFC- 141b in the manufacturing sector	All supported factories converted and use non-ODS technologies Phase-out of 18.95 ODP tonnes of HCFC-22 and HCFC-141b	3 factories converted to non-ODS technologies Zero HCFC consumption reported to Ozone Secretariat in 2019	S
Output 2.1 (i): Conversion of key HCFC based manufacturing sector (approximately 10-14 sub-'projects); Technology transfer, engineering services, capital equipment and instrumentation required for conversion of manufacturing facilities	10-14 participating factories No. of non-ODS technologies are demonstrated to 10-14 participating factories Engineering services and equipment provided List of capital items procured	Continued sandwich panels line at Fayton factory converted to cyclopentane Discontinued PU foam line at refrigeration production at A&K company converted to cyclopentane A system house able to provide preblended polyol using methylformate for PU foam manufacturing	S
Outcome 2.2: Reduction of demand of HCFC-22 in servicing sector (reduced GHG emissions)	90 % reduction in demand of HCFC-22 in servicing sector by 2015	1.24 ODP tonnes of HCFC-22 reported in 2015 (equals to 93.5% reduction from the baseline)	S
Output 2.2 (i): Improved RAC service practice (including technician certification)	At least 200 certified technicians (men and women) 2-3 of installed demonstration projects and log of visitors	Guidelines on Development of the Physical Infrastructure of the Training Centre (2016) Training centre for technicians/ HVAC&R service-companies (2017) Train-the-trainers course (2017) 208 technicians trained in the training courses (2017-2019) Training website and e-learning platform established (2018) No demonstration projects on low GWP refrigerants	MS
Output 2.2 (ii): National Recovery, Recycling and Reclamation scheme	Collection and transportation logistics in place	No national RRR scheme operational	U

Outcome 2.1: The PU foam manufacturing companies identified as part of the project baseline during the project preparatory phase are shown in Box 2 below.

Box 2: Baseline data for foam manufacturing enterprises

Company name	Equipment type (year of installation)	Average HCFC consumption (tonnes)
Aliyev and Co.	Насос – Миксер high pressure polyurethane machine (1995)	88
Arktika Plus MMC	Alkomak high pressure polyurethane machine (2000)	30
Fayton Ltd.	Cannon ASYS 100 polyurethane machine (1992) Euro Poliuretan H300 polyurethane machine (2004)	96

	GAMA polyurethane machine (2005)	
Titan Group	G-140 h polyurethane spray machine(2009) VEB Plasttechnik GH-100 polyurethane machine (1980) VEB Plasttechnik GN-25-12 polyurethane machine (1989) BCM 20725887 Polyurethane machine (??)	97
Emil-Ko Ltd.	Ekolmak Qplus2000 high pressure polyurethane machine (1995)	33
Frigo Market Ltd.	Ekolmak Qplus1500 high pressure polyurethane machine (1999)	25

Out of the 6 originally identified PU foam manufacturing companies, three companies were not operational at the inception of the project hence assistance was rendered to the remaining 3 companies. Additionally, assistance was also provided to a newly established system house for formulation, testing and production of pre-blended polyol formulations for PU foam manufacturing.

Summary of procurement of the conversion of the three foam companies are in Box 3 below:

Box 3: Summary of procurement for PU foam manufacturing companies

Company	Conversion type and main equipment items procured	Contribution (US$)	
		GEF grant	Co-financing
Fayton Ltd.	Conversion of a continuous PU sandwich panel line from HCFC- 141b to n-pentane blowing agent • Foaming machine with n-pentane HP dosing unit and 2 HP metering units for catalysts • Five flow metering units with electronic evaluation devices • One temperature conditioning unit for n-pentane • Electrical control system for dosing unit • Pentane safety monitoring system at the pentane tank farm	367,386	
Titan	Conversion of discontinuous rigid PU foam lines for production of refrigerators and freezers to n-pentane blowing agent • Pre-mixing unit to serve all discontinuous foaming operations • Buffer tank for polyol blended with cyclopentane to serve all discontinuous foaming operations • Foaming machine with two mixing heads for the discontinuous foaming operation of sandwich panels • Foaming machine with two mixing heads for the discontinuous foaming operation of commercial refrigerators • Foaming machine with one mixing head for the discontinuous foaming operation of doors and display cabinet sections	957,425	3,500,000
A&K	Conversion of discontinuous sandwich panels to methylformate blowing agent Foaming machine with one horizontal mixing head	99,800	850,000
TG Chemicals	Set of equipment required for industrial implementation of PU technologies based on methylformate blowing agent • Vertical tank for collection and homogenization of the final product • Dispenser for dosage of methylformate and other additives in the mixing process • Diaphragm pump for downloading methyl formate into dispenser • Cabinet for heating the raw materials before loading into the reactor • Industrial chiller for preparation of cold water • Cold water tank • Chamber for cooling methylformate drums	294,579	1,200,000

Outcome 2.2: A centre for training specialists from the refrigeration sector (Ecoinstall Centre) was established in 2017 cooperation with the TITAN Service company. The centre has training equipment, tools and library for educational purposes that allow to teach and practice key skills for leak detection and refrigerant recovery.

A training programme was initiated with a 'train-the-trainer' course for 6 master trainers and cascaded down in the subsequent years through a series of training courses titled "Specialist in installation, maintenance and repair of refrigerating equipment" for total of 208 RAC technicians, and managers of RAC service companies. The course, supported by several technical manuals developed under the project, contains modules on national legislative framework on ODS control, contribution of HCFCs to ozone depletion and climate change,

theoretical and practical sessions on RAC service operations, as well as information on alternative technologies based on natural refrigerants. Practices and techniques for refrigerant recovery, recycling and reclamation were also included in the training courses in the form of a comprehensive theoretical model on refrigerant recycling as well as opportunity to practice refrigerant recovery operations on the equipment procured under the project.

In addition to the in-person training programme, a comprehensive e-learning platform was developed that allows users to study the theory, watch training videos and interactive presentations, and benefit from links to recommended literature for additional study. The platform also provides tools for online knowledge assessment and registration to in-person training courses[18].

The training courses offered by the Centre are aligned with the EU Regulation 2015/2067 and offer an internationally recognized certificate to the trainees. A proposal for establishing a new certification scheme was developed in 2017 and presented to the Interstate Technical Committee of Associations and Working Groups of the RAC sector from Armenia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Ukraine, Tajikistan, Azerbaijan and Turkmenistan.

The Project Document envisaged development of a mandatory certification scheme for refrigeration technicians, but the Government finally decided not to pursue this plan. Although it is widely accepted that certification is necessary for proper functioning of the servicing sector, it could constitute a barrier for development of the sector in case that high costs of the certification make it unaffordable for many service technicians. Mandatory certification was therefore considered to impede further development of small and medium RAC service workshops and limit creation of new jobs in the sector.

The Project Document also envisaged activities on containment of HCFC refrigerants, namely establishment of a national Recovery, Recycling and Reclamation (RRR) scheme with the objective to ensure that obsolete ODS-containing equipment is decommissioned in a responsive manner, in particular that refrigerants are not vented into the atmosphere during repair and maintenance services but recovered or recycled and made available for use in servicing of appliances that have not yet reached the end-of-life.

To provide an adequate RRR infrastructure to allow RAC technicians and end users to comply with regulations and codes of good practice, the project procured 100 recovery units for hydrocarbon and halogenated refrigerants and distributed them together with other servicing equipment and tools to 37 RAC service companies. With the recovery machines provided, the beneficiary RAC service workshops could conduct the recovery of refrigerants for their own purpose.

Moreover, the project procured 2 reclamation machines for Titan Service Company. Reportedly, the latter provided recycling of HCFC-22 free of charge for their clients but did not record and report the recycled quantities. There were no reported activities either on quantities of recovered or recycled refrigerants stored at recycling centers and reentering the

[18] http://ecoinstall.center/

market hence it is also not known to what extent the recycling and reclamation of refrigerants would make economic sense.

Overall Assessment of Component 2: Through harmonized introduction of new regulations and direct financial support for technology conversion, the project helped to complete the phase-out of HCFC-141b in the PU foam and refrigeration manufacturing sectors. Moreover, the project helped to establish a new facility for formulation, testing, and production pre-blended polyol using the methylformate foaming agent. However, as the two main manufacturers of PU foam insulation panels and refrigeration equipment were converted to hydrocarbon technologies, it is not clear how will the new facility assist the national PU foam and refrigeration manufacturing sectors.

Furthermore, the project assisted in strengthening capacities of a sizeable number of RAC servicing companies for recovery and recycling of refrigerants including HCFC-22. However, economic and environmental impacts of the project assistance are not known. The size of the official RAC servicing sector in Azerbaijan is not known as the sector is not formally organized through an association of RAC service companies. Also, no information is collected about refrigerant leak control and quantities of refrigerants recovered that according to some reports can represent up to 40 % of savings in use of virgin refrigerants.

A critical success factor for phasing-out ODS is the development of partnerships and relations with the private sector and customs. While there is evidence about partnerships created with the PU foam and RAC service companies, information about relations with the custom service is scarce.

Based on the above, the achievement of Outcome 2 is rated Moderately Satisfactory (MS).

Achievement of the Project Objective

The project was designed to assist Azerbaijan to follow the accelerated HCFC phase-out schedule that requires the Article 2 countries to phase-out 99.5% of the HCFC consumption by 2020 while leaving a 0.5% consumption tail for use by the RAC service sector until 2030.

Status of achievement of the Project Objective is summarized in Table 11 below.

Table 11: Status of achievement of the Project Objective

Project Objective	Indicator	Status at TE	Rating
Objective: The project is designed to phase out all remaining HCFC consumption in the Republic of Azerbaijan	Phase-out of 18.95 ODP tonnes of HCFC-22 and HCFC-141b by 2015 (90%) and total phase out (99,5%) by 2020 Volume of sales of non-HCFC goods per enterprise	Phase-out of HCFCs achieved in 2019 (based on mandatory reports to the Ozone Secretariat) Information not collected (the indicator is not suitable for measurement of the achievement of the Objective – see Table 3 above)	HS

Table 12 below provides breakdown of the HCFC baseline consumption by refrigerants and sectors.

Table 12: Use of HCFC by sectors in Azerbaijan (2010 baseline)

Refrigerant	Sector	Consumption MT	Consumption (ODP tonnes)
R-141b	Foam manufacturing (using HCFC bulk as well as imported preblended polyols)	81.48	8.96
R-22	Commercial refrigeration manufacturing	47.24	2.60
	RAC service	138.18	7.39
Subtotal R-22		185.42	9.,99
All HCFCs	**All sectors**	**266.90**	**18.95**

Table 13 below summarizes the reported HCFC consumption based on mandatory reports according to Article 7 of the MP.

Table 13: Reported HCFC consumption in Azerbaijan (in ODP tonnes)[19]

Year	HCFC consumption	Control limit
2014	1.76	3.7
2015	1.24	1.5
2016	0.48	1.5
2017	0.3	1.5
2018	0.18	1.5
2019	0	1.5

It follows from Tables 12 and 13 that the project assisted in phase-out of 8.96 ODP tonnes (81.48 MT) of R-141b in the foam manufacturing sector and 9.99 ODP tonnes (185.42 MT) of R-22 in the refrigeration manufacturing and RAC service sector. However, it has to be emphasized that economic downturn in the country to some extent contributed to the reduced demand for HCFCs (particularly in the foam manufacturing sector) as three smaller companies counted in the project baseline merged with other companies or totally discontinued their operations. Contribution of the smaller companies was about 20 % of the reported baseline consumption of HCFC-142b that equals to about 10% of the total ODS baseline consumption. Therefore, a majority (up to 90%) of the HCFC phase-out remains as the direct project contribution through assistance to the remaining PU foam companies and the RAC manufacturing and service sectors.

The accelerated HCFC phase-out schedule allowed Azerbaijan to keep a 0.05% HCFC consumption tail for use by the RAC service sector by 2030 (i.e. about 0.095 ODP tonnes of R-22). Therefore, the project was designed to assist with phase-out of 18.86 ODP tonnes of HCFC by 2020. Data from Article 7 reports in Table 13 show that total phase-out was already achieved in 2019 as zero HCFC consumption was reported for 2019. The project therefore exceeded its target of the amount of HCFC phased-out.

However, data in Table 13 as well as data from surveys on HFC use as well as absence of an official recycling and reuse scheme show that HCFC-22 is no longer needed in the country. This suggests that the phase-out of 7.39 ODP tonnes of HCFC-22 in the RAC service sector was achieved through substitution of HCFC-22 with HFC blends (mainly R-404, R-407 and R-410).

[19] Data taken from the webpage of the Ozone Secretariat

Overall, the complete phase-out of the HCFC consumption is the indicator of success of the project. This was achieved by simultaneous establishment of the policy and regulatory frameworks, transfer of technologies for conversion in the PU foam and refrigeration manufacturing sectors as well as by capacity building in the RAC service sector. This is a prove of a good project strategy based on multiple elements mutually supporting or reinforcing the others.

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

Efficiency

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

The Project was approved for implementation by GEF CEO on 17 December 2014 for a period of 48 months. The signature of the Project Document by the Government on 13 February 2015 officially marked start of the project implementation with the original closure date of the project in February 2019.

The main bulk of activities under the project, including the investment part (Component 2) was conducted in the first three years of the project (2015-2017) with the exception of procurement of equipment for conversion of the A&K company that was initiated in 2018 and completed in 2020.

In order to complete all planned activities, the project was extended until end of 2020.

Based on the above findings, the efficiency of the project implementation is rated **Moderately Satisfactory (S).**

Country ownership

To examine country ownership, GEF evaluations are required to find evidence that the project fits within stated sector development priorities, and that outputs, such as new legislative and regulatory measures, were developed with involvement from the governmental officials and have been adopted into national strategies, policies and legal codes.

As shown in under the section Relevance above, the project had clear and direct linkages to the obligation of the Government as the Party to the MP. This together with the project design based upon consultations with the key Government and private sector stakeholders ensured strong ownership of the project by all key national stakeholders.

There is evidence available that the Government attached a priority to this project and supported the CCOC during the implementation of the project. It also demonstrated a satisfactory level of commitments and ownership in supporting the implementation of training activities, development and promulgation of new legislative and regulatory measures for control of ODS, as well as necessary cooperation for obtaining custom clearance for import of equipment procured under the project.

Gender Mainstreaming

The focus of this section is to discuss to what extent gender issues had been taken into account in project design and implementation and in what way has the project contributed to greater consideration of gender aspects.

The project was prepared after the issuance of the GEF Policy on Gender Mainstreaming[20] that expresses GEF's commitment to enhancing the degree to which the GEF and its implementing agencies promote the goal of gender equality through GEF-funded projects.

UNIDO launched its Policy on gender in November 2015,[21] i.e. after the preparation of the project. Although there was no specific gender strategy, the project did make basic efforts to include gender perspectives. During creation of the National Project Management team, the gender balance was taken into consideration and the project encouraged women to apply for the advertised positions and the female experts and technicians to take part in the training and awareness-raining events. In reality, there are very few female technicians or experts in the RAC sector in the region, this is symptomatic of the lack of women who take up academic and practical studies in these areas.

The annual PIRs contain only general statements about consideration of gender mainstreaming but no concrete gender disaggregated data. In 2018, the project made a basic gender analysis through collection of gender disaggregated data from the main national project stakeholders that are shown in Table 14 below.

Table 14: Gender analysis of the main project stakeholders

Project stakeholder	Number of employees	Number of females (in executive positions)	% of women employed
CCOC	18	15 (3)	83.3
Fayton company	138	35 (5)	25.4
Titan Service company	5	2 (0)	40.0
TG Chemical company	2	2(1)	100.0
A&K company	141	25 (4)	17.7

No further analysis or gender data collection was undertaken and the 2020 project completion report does not contain any information that would summarize the gender mainstreaming efforts conducted under the project.

Sustainability

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

Institutional framework and governance risks to sustainability:

[20] Policy on Gender Mainstreaming, Global Environmental Facility, May 2012
[21] Policy on Gender Equality and the Empowerment Of Women, UNIDO/DGB/(M).110/Rev.2 , 27 November 2015

Azerbaijan has a licensing and quota system in place established through legislation and regulations and has adopted policies related to the phase-out of HCFCs such as bans on import of HCFCs and HCFC-containing equipment. Therefore, standard direct measures for control of HCFC are in place and operational. Indirect measures such as codes of practice and standards for alternatives to HCFCs have not been developed.

The project has revitalized the National Ozone Office and strengthened institutional capacities as a result of the training and awareness raising events conducted under the policy component. However, sustainability of the institutional capacities depends on continued support to the national structures for control of ozone depleting substances. However, the 2019 reorganization of the Climate Change and Ozone Centre apparently downgraded the visibility of the National Ozone Office. Azerbaijan as the CEIT country is not eligible to receive continued support from the Multilateral Fund for Montreal Protocol (MLF) in the form of so-called Institutional Support projects hence lack of support from the Government could negatively affect the ability to sustain the existing institutional capacities for ODS monitoring and reporting beyond the current project.

Sustainability of the existing institutional and policy/regulatory infrastructures for ODS control with the associated human resources will be critical for taking early policy measures for implementation of the HFC phase-down under the Kigali Amendment of the MP. However, as already discussed, there is a risk that the existing capacities of the Ozone Department of the CCC might not be fully sustained without external funding in the near future.

Sustainability of the training programme for RAC service technicians was enhanced through the project support for establishment of the training centre in Titan Service company. This is very important as vocational education and training of RAC service technicians in the country ceased to exist in after the breakdown of the Soviet Union. Previously, a number of inadequately trained refrigeration servicing personnel caused insufficient control of ODS emissions in the process of repair and maintenance of RAC equipment. The technicians trained under the project receive a voluntary certification of their competence and could therefore be distinguished from the informal servicing sector. The sustainability of training would be further enhanced with mandatory certification. Unfortunately, there is a general lack of commitment from the Government to restore the national system of training and retraining of refrigeration servicing personnel and consequently promote mandatory certification of the trained technicians.

Based on the above, the sustainability of the institutional framework and governance is rated: **Moderately Likely (ML).**

Financial risks to sustainability: The financial sustainability is judged by the commitment of the project stakeholders for continued support for sustaining the already realized project benefits.

There are no major risks to financial sustainability in the foam and RAC equipment manufacturing sectors as the HCFCs were replaced by low ODP and low GWP refrigerants (pentane and methylformate) hence it is the final transition. The incremental capital costs were paid by the GEF project and the operation costs of the conversion technologies are in general

lower than the operation cost of the original HCFC technologies. Also, availability of HCFC in these sectors is now restricted by policy measures adopted at national and world-wide level, through ban on import of R-141b and conversion of the R-141b production facilities. There could be some issues of quality of the produced foams (foams produced with pentane/methylformate as blowing agents could have lower thermal and mechanical properties than foams produced with HCFCs). Overall, adoption of the alternative technologies is accompanied by economic benefits for the recipient enterprises contribute towards sustainability of these achievements.

Different situation is in the servicing sector where HCFCs were substituted with HFCs and HFC blends (R-134, R-404, R-407, R-410) that are transition chemicals. This project could be considered as a foundation for future interventions on HFCs that will have to be phased out in 10–20 years under the schedules of the Kigali Amendment of the MP. In order to receive financial support for the HFC phase-out, Azerbaijan as Article 2 country of the MP will have to rely on support from GEF and bilateral sources.

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

Socio-economic risks to sustainability: Azerbaijan as the Party to the MP is bound by the set of obligations that have to be fulfilled in order to stay in compliance with the MP schedules hence there has been continued political support to the project. The main socio-economic benefits of the project are embedded in provision of job security in the RAC manufacturing and service sectors. Without the project, local manufacturers would be forced to either convert production at their own cost or to stop manufacturing the products that would lead to job losses. In case of conversion to hydrocarbon foam blowing agents, an additional economic benefit is reduced operating costs thus further enhancing competitiveness of the manufacturers. No concrete information about the socio-economic impact of the project was collected by the project team.

Based on the above socio-political sustainability is rated **Likely (L).**

Environmental risks to sustainability: The replacement of HCFCs produces clear environmental benefits in terms of reduction of both ODP and GWP. The technology conversion in the PU foam and refrigeration manufacturing sectors was based on promotion of low GWP alternative refrigerants. There is no risk of returning to the original production methods with use of HCFC due to the legislative measures implemented with the assistance of the project. The environmental benefits will be therefore sustained over the longer term.

Since 1 January 2020, the production of HCFC-22 has been phased-out and the only available sources are its stockpiles and recovered, recycled, or reclaimed refrigerant from existing devices. Absence of the operational national RRR scheme in Azerbaijan suggests that the reduced demand for virgin HCFC in the RAC service sector was achieved mainly through substitutions with alternatives such as HFC blends with high GWP. Recent surveys and estimates of HFC consumption trends confirm increased HFC consumption in Azerbaijan over the last few years. This constitutes not only risk of negative environmental effects in case of leakages or venting of HFCs due to poor servicing and maintenance but also challenges to fulfil obligations under the Kigali Amendment of the MP.

Based on the above, the environmental sustainability is rated **Moderately Likely (L).**

The overall rating for sustainability is **Moderately Likely (L).**

Exit strategy

An exit strategy is explicitly linked to sustainability in that it considers means of ensuring sustainability of the project achievements after the end of the technical and financial support by the donor. A sound exit strategy is planned early in a project implementation and based on established partnerships, developed human capacities and on mobilization of local and external resources.

Based on the announcement that the GEF-7 replenishment had established a funding window of US$ 23 million for implementation of the Kigali Amendment to the Montreal Protocol in the seven eligible CEIT countries (including Azerbaijan), UNIDO prepared a project titled "Enabling activities for the ratification and implementation of the Kigali Amendment to the Montreal Protocol in the Republic of Azerbaijan" with the purpose to assist with preparation of a National Action Plan on HFC Phase-down, to enhance the existing institutional arrangements and facilitate early ratification of the Kigali Amendment by Azerbaijan.

It is doubtful whether Azerbaijan would be ready for early ratification of the KA as However, it was put on hold as the GEF Secretariat requires a supporting letter from the Government confirming readiness to ratify the KA. Without adopting early policy options on HFC control, the ratification of the KA could get the country immediately into non-compliance with the KA schedules for Article 2 countries[22]. It is therefore not clear whether Azerbaijan would be ready for early ratification of the KA.

Under the technology conversion component, operators of PU foam lines received on the job training as part of installation and commissioning of the new equipment and a number of RAC service technicians were trained. However, the only information available in the project PIRs and completion report reports are the number of training events organized and the number of people trained. It would be desirable to measure impact of the training provided on improvement of individual capacities of the people trained.

Lessons learned and good practices

A critical success factor for phasing-out ODS was the development of effective partnerships with the private sector and the customs service.

The process from design to promulgation of any new policy or regulation at the national level is a complicated process that takes at minimum 1-2 years. Interventions in this field must be prioritized in order to development realistic implementation schedules. In this regard, awareness-raising of political decision makers is of great value for promotion of political

[22] Under the Kigali Amendment to MP? Azerbaijan belongs to the main group of the non- Article 5 Parties with the first two steps for HFC phase-down – 10% reduction by 2019 and 40% reduction by 2024.

relevance of the regulations under development that could accelerate the national consultation and enactment processes.

The main barriers to adoption of low-GWP alternative technologies to HCFCs include lack of knowledge and local expertise in the new technology, higher cost of the technology, and limited or no availability of equipment and servicing tools in the local market.

There are also special lessons learned from the experience with the remote modality for this evaluation. The Covid-19 pandemic has put some constraints on the evaluative activities, in particular to conduct field mission for data collection and limited possibilities for triangulation of results obtained during desk reviews through observation and direct contact with project stakeholders and beneficiaries.

In a normal situation, it is usually possible to organize all planned face-to-face meetings with project stakeholders and beneficiaries during a period of a standard one-week field mission of an international consultant. The remote conduct of this evaluation proved to be more demanding for timely organization of the planned virtual meetings as some stakeholders felt more freedom of choice that resulted in postponement of some interviews. Active involvement of UNDP MCO proved to be an important factor for organization of virtual meetings as the UN office can more easily convince national stakeholders and beneficiaries to adhere to the planned schedule of meetings with the evaluation team. Obviously, the assistance of the Implementing Agency should be restricted only to organization of meetings and not to data collection that would compromise independence of the evaluation.

CONCLUSIONS AND RECOMMENDATIONS

This section contains conclusions as judgements based on the findings provided in the previous section. A short summary of relevant finding precedes each conclusion that is followed by a recommendation as a corrective action proposed to be taken by relevant project stakeholders to address the deficiencies identified in the findings and conclusions.

This Terminal Evaluation makes three types of recommendations. The first type are recommendations for immediate follow-up and reinforcement of the benefits from this project for consideration of the relevant agencies of the Government of Azerbaijan in order to ensure the project results are consolidated and sustained by relevant project stakeholders. These recommendations are suggested for implementation as soon as possible using the existing institutional capacities and frameworks that have been created by the current project.

Based on the experience acquired from implementation of this project, the second type recommendations are provided for using the existing institutional and human capacities for ODS monitoring and control in programming of future interventions on HFC phase-down under the Kigali Amendment of the Montreal Protocol.

Third type of recommendations are provided for improvement of programming and evaluation of UNIDO projects in general.

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

Conclusion 1: The project supported establishment of institutional and regulatory infrastructure including related human resources that created enabling environment for completion of HCFC phase-out. It will be of critical importance to preserve the existing infrastructure and networks for phase-down of HFCs with further assistance of GEF funding.

> ***Recommendation 1*****:** *The Government should provide the necessary support for submission of a GEF project on assistance for ratification and implementation of the Kigali Amendment to the Montreal Protocol in Azerbaijan.*

Conclusion 2: Certification of service technicians is the best method for verification of competence of personnel handling refrigerants and to ensure the correct installation, maintenance, repair and dismantling of RAC equipment. The demand for RAC equipment has been growing and the RAC service sector is one of the major HFC consuming sectors. Therefore, establishment of an official certification scheme for technicians and companies in the RAC service sector would substantially improve management of HFC refrigerants through adopting good practices for the servicing and maintenance of RAC equipment. At the same time, an official certification system would provide an opportunity for preservation of existing employment and creation of new jobs.

> ***Recommendation 2****: The Government should consider adoption of necessary steps towards regulations supporting establishment of an official certification of Refrigeration and Air-Conditioning (RAC) service technicians.*

Conclusion 3: Despite previous efforts, the internationally funded projects to date did not succeed to establish the national Refrigeration and Air-Conditioning (RAC) Association in Azerbaijan. A functional RAC association would be an important element and a key stakeholder for preparation and implementation of enabling activities for HFC phase-down, conduct of ODS alternatives surveys and equipment inventories and sustainability of national technical training and certification systems.

Recommendation 3*: The Government with cooperation of the main companies in the RAC sector should encourage establishment of a national RAC Association.*

Conclusion 4: Providing access of the RAC sector to approved standards and codes of good practice helps to increase the compliance with the standards and consequently it also facilitates implementation of the certification schemes.

Recommendation 4: *The Climate Change and Ozone Centre within the Ministry of Ecology and Natural Resources (MENR) should approach the UNEP ECA network for access to available standards and codes of good practice in the RAC sector.*

Conclusion 5: There is a need for a more focused approach on the informal RAC servicing sub-sector, since the imminent advent of flammable and toxic alternatives to HCFCs and HFCs into the markets make the activities of the informal sub-sector a matter of public safety.

Recommendation 5*: The Climate Change and Ozone Centre within the MENR should consider development of outreach activities aiming at the end-users of RAC equipment to explain risks and disadvantages of engagements with the informal servicing sub-sector.*

Recommendations for future programming in HFC phase-down

Conclusion 6: Experience from this project shows that update of ODS legislation is a time-consuming process. Therefore, update of the policy, legal and regulatory frameworks for HFC phase-down should be initiated as early as possible. Barriers for early action could be overcome through sensitization activities regarding the need for legislation updates at the highest level of the Government in order to expedite the approval process and provide adequate political and financial support at the national level.

Recommendation 6: *In the future projects for HFC phase-down, UNIDO should include sensitisation of the highest level of Government officials about the benefits of prioritization of legislative updates for HFC control.*

Conclusion 7: The project provided equipment for refrigerant recovery, recycling and reclamation (RRR) but did not succeed in establishment of a functional RRR scheme. Main barriers preventing establishment of a RRR scheme lack of information about viable business models adapted to local market conditions for RRR systems.

Recommendation 7*: In the future projects for HFC phase-dowwn, UNIDO should include activities on demonstration of economic benefits of refrigerant recycling and reuse.*

Conclusion 8: Refrigerant and equipment importers and distributors should become specific targets of awareness and information activities as they are important agents of change in the future efforts to phase-down of HFCs.

> ***Recommendation 8:*** *In the future project for HFC phase-down, UNIDO should include importers and distributors of HFC refrigerants and equipment in training and awareness raising activities.*

Conclusion 9: Although there was a satisfactory level of monitoring and reporting during the course of the project, there is a risk the level would not be maintained once the project is closed.

> *Recommendation 9: In the future projects for HFC phase-down, UNIDO should ensure that indicators and targets are included in the project results framework for measurement and reporting on effectiveness of the national system for ODS control, e.g. indicators and targets for measurement of adherence to good practices in RAC servicing and for reporting of actual quantities of refrigerant recovery, re-use, and reclamation.*

Conclusion 10: Projects on capacity building of the ODS control enforcement agencies and the RAC service sector envisage procurement of portable refrigerant identifiers and service tool kits for which there is significant and recurrent demand over a relatively long period of time. For such procurement events, Long Term Agreements (LTAs) are preferable as they provide volume leverage and allow to obtain volume price discounts.

> ***Recommendation 10:*** *For future projects on HFC control, UNIDO should use the existing LTAs and eventually develop additional LTAs for procurement of equipment items of recurrent demand in order to reduce workload on administration of the procurement events and the time needed for acquisition of procured items.*

<u>Recommendations to improve the design, monitoring and evaluation of UNIDO projects on ODS reduction</u>

Conclusion 11: For implementation of future GEF projects, UNIDO has to demonstrate full compliance with the GEF Updated Policy on Minimum Fiduciary Standards[23]. This requirement will have some effect on the implementation modality of the prepared GEF project on HFC control.

> ***Recommendation 11:*** *For future GEF projects on ODS control, UNIDO should identify national partners in order to comply with the requirement for separation of the implementation and execution functions for the projects as stipulated in the GEF Updated Policy on Minimum Fiduciary Standards.*

[23] GEF/C.57/04/Rev.02 December 19, 2019

Conclusion 12: The project results framework contained several indicators and end-of-project targets that were poorly defined and did not facilitate monitoring of progress and evaluation of achievements.

> ***Recommendation 12:*** *In preparation of the project on HFC control, UNIDO should pay due attention to proper formulation of the indicators and targets in the project results framework in order to facilitate M&E of the project.*

Conclusion 13: The Mid-term Review of the project provided 7 recommendations for actions and directions to underline the main objective of the project and enhance sustainability of the results. Preparation of a management response helps to ensure that evaluation results are used by the implementing teams and contribute to organizational effectiveness, learning and accountability.

> ***Recommendation 13:*** *UNIDO Management should ensure that for projects on ODS control a management response to the recommendations of Mid-term Reviews is prepared similar to the provisions of the UNIDO Evaluation Policy for independent evaluations.*

Annex 1: Evaluation Terms of Reference

https://www.unido.org/sites/default/files/files/2021-02/TOR_GFAZE-100321_GEF%20ID-4602_FinalDraft_210212.pdf

Annex 2: Evaluation Matrix

Evaluative Criteria Questions	Indicators	Sources	Methodology
Relevance: How does the project relate to the main objectives of the GEF focal area, and to the environment and development priorities at the local, regional and national levels?			
• Does the project relate to the GEF focal area Depletion of Ozone Layer and has it been designed to deliver global environmental benefits in line with relevant international objectives?	• The project includes the relevant GEF outcomes, outputs and indicators • The project makes explicit links with global climate action goals	• Project Document • GEF-5 Focal Area Strategy	• Desk Review of Documents
• Is the project aligned to national development objectives, broadly, and to national priorities specifically?	• The project design includes explicit links (indicators, outputs, outcomes) to the national development policy/national obligations under the Montreal Protocol	• Project Document • National development strategy,	• Desk Review of Documents
• Is the project's results framework relevant to the development challenges have the planned results been achieved?	• The project indicators are SMART • Indicator baselines are clearly defined and milestones and targets are included • The results framework is comprehensive and demonstrates systematic links to the theory of change	• Project Document • PIF	• Desk Review of Documents
• Have the relevant stakeholders been adequately identified and have their views, needs and rights been considered during design and implementation?	• The stakeholder mapping and associated engagement plan includes all relevant stakeholders and appropriate modalities for engagement. • Planning and implementation have been participatory and inclusive	• Project Document • Inception report • Quarterly Reports • Annual Reports (PIR)	• Desk Review of Documents • Stakeholder Interviews
• Have the interventions of the project been adequately considered in the context of other development activities being undertaken in the same or related thematic area?	• A partnership framework has been developed that incorporates parallel initiatives, key partners and identifies complementarities	• Project Document • Quarterly Reports • Annual Reports (PIR) •	• Desk Review of Documents • Stakeholder Interviews

Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?			
• Has the project achieved its output and outcome level targets?	• The project has met or exceeded the output and outcome indicator end-of-project targets	• Quarterly Reports • Annual Reports (PIR) • Site visit/field reports	• Desk Review of Documents • Interviews with project team, stakeholders and beneficiaries
• Have lessons learned been captured and integrated into project planning and implementation?	• Lessons learned have been captured periodically and/or at project end	• Validation Workshop Minutes *(if available)* • Quarterly Reports • Annual Reports (PIR)	• Desk Review of Documents • Interviews with project team, stakeholders and beneficiaries
• Has the M&E plan been well-formulated, and has it served as an effective tool to support project implementation?	• The M&E plan has an adequate budget and was adequately funded • The logical framework was used during implementation as a management and M&E tool • There was compliance with the financial and narrative reporting requirements (timeliness and quality) • Monitoring and reporting has been at both the activity and results levels •	• Project Document • M&E Plan • AWPs • FACE forms • Quarterly Narrative Reports • Site visit reports	• Desk Review of Documents • Interviews with project team and government stakeholders
• Were relevant counterparts from the Government and civil society involved in project implementation, including as part of the Project Board?	• The Project Board participation included representatives from key project stakeholders	• Project Board Minutes *(if available)*	• Interviews with project staff, stakeholders and beneficiaries
• How effective were the partnership arrangements under the project and to what extend did they contribute to achievements of the project results?	• A partnership framework has been developed that ensured coordination of parallel initiatives, involvement of key partners and identification of complementarities	• Annual Reports (PIR) • Quarterly reports	• Desk Review of Documents • Interviews with project team, stakeholders and other donors

• Efficiency: Was the project implemented efficiently, in-line with international and national norms and standards?			
• Did the project adjust dynamically to reflect changing national priorities/external evaluations during implementation to ensure it remained relevant?	• The project demonstrated adaptive management and changes were integrated into project planning and implementation through adjustments to annual work plans, budgets and activities • Changes to AWP/Budget were made based on mid-term or other external evaluation • Any substantive changes (outcome-level changes) approved by the Project Board and donor, as required	• Annual Work Plans • Inception Workshop Minutes • Annual Reports (PIR) • Project Board meeting minutes *(if available)*	• Desk Review of Documents • Interviews with project team stakeholders and beneficiaries
• Was the process of achieving results efficient? Did the actual or expected results (outputs and outcomes) justify the costs incurred? Were the resources effectively utilized?	• The project achieved the planned results in an efficient manner • Funds used for project implementation were utilized affectively and contributed to achievement of project results	• Annual Workplans • Project document	• Desk Review of Documents • Interviews with project team, stakeholders, beneficiaries
• What were the strengths and weaknesses of the implementation modality?	• The project implementation followed the division of responsibilities between the project implementing partners in an efficient manner	• Annual Reports (PIR) • Quarterly reports	• Desk Review of Documents • Interviews with project team, stakeholders, beneficiaries
• Was co-financing adequately estimated during project design (sources, type, value, relevance), effectively tracked during implementation? Which were the reasons for any differences between expected and realised co-financing?	• Co-financing was realized in keeping with original estimates • Co-financing was tracked continuously throughout the project lifecycle and deviations identified and alternative sources identified • Co-financiers were actively engaged throughout project implementation	• Annual Work Plans (AWPs) • Inception Workshop Minutes *(if available)* • Annual Reports (PIR)	• Desk Review of Documents • Interviews with project team stakeholders, other donors and beneficiaries

• Was the level of implementation support provided by UNDP adequate and in keeping with the implementation modality and any related agreements?	• Technical support to the Executing Agency and project team were timely and of acceptable quality. • Management inputs and processes, including budgeting and procurement, were adequate	• Project support documents (• Quarterly Reports • Annual Reports (PIR)	• Desk Review of Documents • Interviews with project team,
• Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results?			
• Are there political, social or financial risks that may jeopardize the sustainability of project outcomes?	• The exit strategy includes explicit interventions to ensure sustainability of relevant activities	• Program Framework Document • Risk Log •	• Desk Review of Documents
• What are the factors that will require attention in order to improve prospects of sustainability and potential for replication?	• The exit strategy includes explicit interventions to ensure sustainability of relevant activities and identifies relevant factors requiring attention in the future	• Program Framework Document	• Desk Review of Documents
• Do the legal frameworks, policies, and governance structures and processes within which the project operates pose risks that may jeopardize sustainability of project benefits?	• The exit strategy identifies relevant socio-political risks and includes explicit interventions to mitigate same	• Program Framework Document • Risk Log	• Desk Review of Documents
• Have key stakeholders identified their interest in project benefits beyond project-end and accepted responsibility for ensuring that project benefits continue to flow?	• Key stakeholders are assigned specific, agreed roles and responsibilities outlined in the exit strategy	• Program Framework Document • Risk Log	• Desk Review of Documents
• Are there ongoing activities that may pose an environmental threat to the sustainability of project outcomes?	• The exit strategy identifies relevant environmental risks and includes explicit interventions to mitigate same	• Program Framework Document • Risk Log	• Desk Review of Documents
Impact: Are there indications that the project has contributed to, or enabled progress toward, reduced environmental stress and/or improved ecological status?			
• Are there verifiable improvements in ecological status, or reductions in ecological stress, that can be linked directly to project interventions?	• The project has contributed directly to improved ecological conditions, including through reduced GHG emissions for energy generation	• Quarterly Reports • Annual Reports (PIR)	• Desk Review of Documents

Annex 3: List of People Interviewed

Name	Organization	Position
Jeyhun Hasanov	Climate Change and Ozone Centre/MENR	Director
Jamila Mammadova	Climate Change and Ozone Centre/MENR	Focal Point / Chief engineer
Yashar Karimov	MENR	Chief of Sector
Imran Abdulov	MENR	Focal Point of Vienna Convention
Yuri Sorokin	UNIDO	Project Manager
Risto Ojala	UNIDO	International Foam Consultant
Maharram Mehtiyev	UNIDO	National Consultant
Rahib Memmedov	Fayton Ltd.	General Director
Mahir Mammadov	Titan Service Ltd.	Director
Vadim Obukhov	Titan Service Ltd.	Engineer
Huseyin Ibrahimov	TG Chemical	Director
Asker Aliyev	Aliyev & Co.	President
Garibov Janpolad	Rafad LLC	Service engineer
Rafet Dzharchiev	Estet LLC	Service engineer
Azer Tagiyev	AFM Group OOO	Installation service engineer
Anar Gurbanov	Alten LLC	Service engineer
Arif Bagirov	NEP Engineering LLC	Service engineer
Elchin Shemiyev	NEP ENGINEERING LLC	Installation service engineer
Elshad Agaev	AVM GROUP LLC	Service engineer
Yusif Abbasov	EUROCLIMA	Head of Project and Contracts
Gunay Babayeva	Aliyev&Co.	Sales Manager
Niyam Aliyev	Aliyev&Co.	Production Manager
Islam Karimov	Baku service company	Director
Metin Aliyev	Gafgaz Hotel	Administration
Elchin Muradov	Baku Automobile Inspection	Engineer
Elshan Askerov	Marcond company	Service director
Vusal Mammadyarov	Euroclima company	General manager
Zakir Jabrailov	Euroclima company	specialist
Damir Garibov	Neftchiler hospital	Service engineer
Emil Sultanov	Soliton engineering	Manager
Cavid Rzayev	Soliton engineering	Engineer
Gulbala Ismayilov	Frescond company	President

Annex 4: List of Documents Consulted

1. Initiation of the HCFC phase out in the Republic of Azerbaijan, Project Document, UNIDO, 2014
2. Minutes of the meetings of the project stakeholders, CCOC/UNIDO, 2015 and 2016
3. Initiation of the HCFC phase out in the Republic of Azerbaijan, MTR Report, UNIDO, 2017
4. Initiation of the HCFC phase out in the Republic of Azerbaijan, Project Implementation Reports, UNIDO, 2016, 2017, 2018
5. Initiation of the HCFC phase out in the Republic of Azerbaijan, Final Report, UNIDO, 2020
6. Back-to-Office Mission Report Summary, Risto Ojala, 2016
7. Back-to-Office Mission Report Summary, Alexander Gavrilushkin, 2016
8. Back-to-Office Mission Report Summary, Alexander Lyubeshkin, 2016
9. Final Report from Individual Service Agreement, Maharram Mehdiyev, 2018
10. Final Report, Individual Service Agreement, Jamila Mammadova, 2018
11. Technical Evaluation of ITB 7000001208, UNIDO Inter-Office Memorandum, 2015
12. Technical Evaluation of ITB 7000001292, UNIDO Inter-Office Memorandum, 2015
13. Minutes of Meeting, Fayton/Titan Group/UNIDO, 2016
14. Technical Evaluation of ITB 7000001633, UNIDO Inter-Office Memorandum, 2015
15. Technical Evaluation of ITB 7000002011, UNIDO Inter-Office Memorandum, 2015
16. Conversion of Rigid PU foam- Overall concept of conversion and division of work, Titan Group/Afros Cannon/UNIDO, 2016
17. Technical Evaluation of ITB 7000002727, UNIDO Inter-Office Memorandum, 2018
18. The Sustainable Development Goals (SDGs) and the Montreal Protocol on Substances that Deplete the Ozone Layer, UNDP, 2015
19. Summary report on co-financing by the recipient companies, UNIDO, 2021
20. Enabling activities for the ratification and implementation of the Kigali Amendment to the Montreal Protocol in Azerbaijan, GEF Project Identification Form, UNIDO, 2020
21. Enabling activities for the ratification and implementation of the Kigali Amendment to the Montreal Protocol in Azerbaijan, Endorsement Letter, Ministry of Ecology and Natural Resources, 2020
22. Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects, GEF, 2017
23. Evaluation Policy, UNIDO DG Bulletin, 2018/08
24. Evaluation Manual, Independent Evaluation Division, UNIDO, 2018
25. Glossary of Key Terms in Evaluation and Results Based Management, OECD, 2010
26. Ethical Guidelines for Evaluations, UN Evaluation Group, 2020
27. GEF Updated Policy on Minimum Fiduciary Standards, GEF Council, 2019

Annex 5: Project Results Framework (at the Project Inception)

Expected results	Indicators	Means of Verification	Risks	Assumptions
Objective: The project is designed to phase out all remaining HCFC consumption in the Republic of Azerbaijan	Phase-out of 18.95 ODP tonnes of HCFC-22 and HCFC-141b by 2015 (90%) and total phase out (99,5%) by 2020 Volume of sales of non-HCFC goods per enterprise	Ozone Secretariat Report	None	None
COMPONENT 1. Legislation, Policy framework and institutional capacity building				
Outcome 1.1a. Legislation related to control and phase out of HCFC adopted	Strategy and National Action Plan endorsed by Parliament Regulatory systems and processes enacted in legislation for: -quota system; -licensing system; -certification scheme; -reporting system; - resource materials for use by CCOC	Government Gazette notices (official records)	The change of the Parliamentary schedule	Goodwill and commitment of the Government to support and prioritize any legislation that has been generated by this project
Output 1.1a.(i) Formal HCFC Phase out Strategy and National Action Plan developed	Strategy and National Action Plan formulated and completed, ready for formal endorsement by the Parliament	Project Implementation Review (PIR) Report	None	None
Output 1.1a.(ii) Quota system, licensing system, certification scheme for technicians, reporting systems, resource materials for use by CCOC, customs authorities and other stakeholders and government agencies covering the legislative and regulatory actions required for HCFC phase out in place	Documents necessary for updating regulatory systems and processes are prepared for: -quota system; -licensing system; -certification scheme; -reporting system; -resource materials for use by CCOC	Project Implementation Review (PIR) Report	None	None

Expected results	Indicators	Means of Verification	Risks	Assumptions
Outcome 1.1b. Institutional capacity of Climate Change and Ozone Center (CCOC) strengthened to support legislation, control and phase out of HCFC	More accurate data and control of import, export, consumption, and authorized movements of HCFCs Updated ODS licensing mechanisms in place CCOC staff able to maintain HCFC consumption projection and bank estimate	CCOC Inspection report Project Implementation Review (PIR) Report	None	None
Output 1.b.(i) National database and tracking process (updated ODS licensing mechanisms) are in place	Number of CCOC staff trained to provide support to legislation, control and phase out of HCFC Official communications and correspondence between CCOC an stakeholders and consumers Working relationship between CCOC and customs officials			
Output 1.1b.(ii) HCFCs consumption patterns and scenario plans developed. Analysis of the level of residual HCFC demand after 2014 and 2019, including assessment of OD equipment banks	Report on HCFCs consumption patterns and scenario plans	Project Implementation Review (PIR) Report	None	None
Output 1.1b.(iii) Training programme for decision makers, concerned government ministries and CCOC covering legislative and regulatory actions for HCFCs phase out implemented	At least 20 representatives from the concerned institutions trained (men and women) Satisfactory performance of CCOC, government ministries and relevant institutions	• Training evaluation reports and training certificates issued	None	None
Outcome 1.2b. Customs processes and capability upgraded to control import and export of HCFCs	Customs processes for control of HCFC are adopted and in place % of trained custom officers report that they have improved capability control HCFC import/export as a result of the Project	Official Customs data import records, wholesale sales figures, company consumption records	None	None
Output 1.2b.(i) Training programme and necessary equipment for customs officers and environmental officers	At least 40 customs officers trained (men and women) Necessary equipment provided	Training evaluation reports and training certificates issued List and specification of equipment provided	None	None

Expected results	Indicators	Means of Verification	Risks	Assumptions
COMPONENT 2. Conversion of manufacturing process involving HCFC-22 and HCFC-141b and assistance to the RAC service sector				
Outcome 2.1. Phase out of HCFC-22 and HCFC- 141b in the manufacturing sector	All supported factories converted and use non-ODS technologies Phase-out of 18.95 ODP tonnes of HCFC-22 and HCFC-141b	Ozone Secretariat Report Project site visits Project Implementation Review (PIR) Report	Implementation delays cause non- compliance beyond 2010, 2015 (90%) total phase out (99,5%) by 2020	Goodwill and commitment of the Government to support and prioritize any legislation that has been generated by this project
Output 2.1 (i) Conversion of key HCFC based manufacturing sector (approximately 10-14 sub-'projects); Technology transfer, engineering services, capital equipment and instrumentation required for conversion of manufacturing facilities	10-14 participating factories No. of non-ODS technologies are demonstrated to 10-14 participating factories Engineering services and equipment provided List of capital items procured	Verification reports Satisfactory for operational converted factories	Lack of interest/cooperation from companies and difficulties in adoption of new technology at the local market Risk of job losses for conversion projects due to economic changes	Support will be provided by the Government and suppliers through public awareness and communication, to introduce alternative technologies available for HCFCs and raise more interest by the companies. Under the guidance and coordination of PMO the international expert and suppliers will actively participate in awareness and providing additional information on new technologies. Safety net (government subsidy) provided to cover job losses.
Outcome 2.2 Reduction of demand of HCFC-22 in servicing sector (reduced GHG emissions)	90 % reduction in demand of HCFC-22 in servicing sector by 2015	Official Customs data, import records, wholesale sales figures, company consumption records Project site visits Project Implementation Review (PIR) Reports	Customs is not capable to monitor and control	Goodwill and commitment of the targeted sector to respect the legislation
Output 2.2 (i): Improved RAC service practice (including technician certification)	At least 200 certified technicians (men and women) 2-3 of installed demonstration projects and log of visitors	Register of trained and certified technicians Verification report by visits to the demonstration sites	None	None
Output 2.2 (ii) National Recovery, Recycling and Reclamation scheme	Collection and transportation logistics in place		None	None

Annex 6: Performance Rating of GEF Projects

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

Outcome ratings

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

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

Sustainability Ratings

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

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

Monitoring and Evaluation Ratings

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

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

Implementation and Execution Rating

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

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