

GEF-8 PROJECT IDENTIFICATION FORM (PIF)

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General Project Information

Project Title

Integrated Program for HFC Phasing Down and Sustainable Cooling for Tajikistan

Region

Tajikistan

GEF Project ID

11430

Country(ies)

Tajikistan

Type of Project

FSP

GEF Agency(ies):

UNDP

GEF Agency ID

6738

Executing Partner

Committee for Environmental Protection under the Government of Tajikistan

Executing Partner Type

Government

GEF Focal Area (s)

Chemicals and Waste

Submission Date

10/18/2023

Project Sector (CCM Only)

Taxonomy

Focal Areas, Chemicals and Waste, Influencing models, Transform policy and regulatory environments, Stakeholders, Beneficiaries, Gender Equality, Gender Mainstreaming, Capacity, Knowledge and Research, Capacity Development

Type of Trust Fund

GET

Project Duration (Months)

60

GEF Project Grant: (a)

5,185,900.00

GEF Project Non-Grant: (b)

0.00

Agency Fee(s) Grant: (c)

492,660.00

Agency Fee(s) Non-Grant (d)

0.00

Total GEF Financing: (a+b+c+d)

5,678,560.00

Total Co-financing

36,550,000.00

PPG Amount: (e)

100,000.00

PPG Agency Fee(s): (f)

9,500.00

PPG total amount: (e+f)

109,500.00

Total GEF Resources: (a+b+c+d+e+f)

5,788,060.00

Project Tags

CBIT: No NGI: No SGP: No Innovation: Yes

Project Summary

Provide a brief summary description of the project, including: (i) what is the problem and issues to be addressed? (ii) what are the project objectives, and if the project is intended to be transformative, how will this be achieved? (iii), how will this be achieved (approach to deliver on objectives), and (iv) what are the GEBs and/or adaptation benefits, and other key expected results. The purpose of the summary is to provide a short, coherent summary for readers. The explanation and justification of the project should be in section B “project description”. (max. 250 words, approximately 1/2 page)

While most Ozone Depleting Substances have been phased out, their main alternatives, Hydrofluorocarbons (HFCs), have been growing rapidly over the past decade. HFCs are potent greenhouse gases. Exponential growth of HFC consumption is predicted from 2022 to 2030 in Tajikistan and could represent 7% of total GHG emissions of the country by 2030 in a BAU scenario.

Inefficient cooling systems also present a challenge for energy transition in Tajikistan, where there is pressure on national grids and energy supply in the peak time of use. Energy efficiency is prioritized in the 2030 National Strategic Document of Tajikistan, which envisions policy coherence and alignment and requires engagement with private sectors and financial institutions for improvement of energy efficiency.

Tajikistan ratified the Kigali Amendment on 6 June 2022. The government recently endorsed the regulation of “Hydrofluorocarbon Import and Export Licensing System”. However, due to limited interventions to date, as well as technical and economic challenges, Tajikistan is facing serious challenges to meet its compliance targets.

This initiative will assist Tajikistan to achieve a 70% reduction of HFC consumption by 2029, delivering 921,831 tCO₂e of direct and 740,700 tCO₂ indirect GHG emissions reductions in the same period. The interventions are structured in four components:

- 1) strengthen institutions, policies, and legislations to ensure effective implementation of license system, data collection and reporting, stakeholder coordination, applicable financial instruments, and technical roadmap for HFC phase down.
- 2) capacity building in servicing sector for promotion of best practices, and a mandatory certification system.
- 3) engagement with private sectors for demonstration and replication of low GWP and highly efficient technologies, development of Minimum Energy Efficiency Standard and other measures for energy efficiency.
- 4) awareness raising, gender mainstreaming, knowledge management, monitoring, and evaluation.

Through this process the project will accelerate the green and inclusive transition for sustainable development for Tajikistan.

Indicative Project Overview

Project Objective

To support the government of Tajikistan and stakeholders to phase down 70% of Hydrofluorocarbon (HFCs) consumption by 2029 in cooling and foam sectors from its baseline level in line with the control measures of the Kigali Amendment of the Montreal Protocol on HFCs and reduce environment and climate footprint of cooling sector by improving energy efficiency and life cycle management of refrigerants and products containing them.

Project Components

1. Legislative and policy framework for HFC phasing down, institutional strengthening, and financial instruments

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
900,000.00	4,100,000.00

Outcome:

1.1. Existing legislation and implementing capacity assessed and strengthened. Legal instruments for import and circulation of HFCs endorsed and implemented by the government.

Output:

1.1.1. Policy gap assessed and policy updates in HFC control framework, including promotion of natural refrigerants and energy efficiency in RAC developed and implemented.

1.1.2. Capacity of policy makers and enforcement officers on HFC phase down assessment and built.

1.1.3. An Inter-agency coordination mechanism among concerned institutions strengthened and a dedicated team for effective implementation of the Kigali Amendment in Tajikistan assigned by the Government.

1.1.4. Capacity of customs and their labs enhanced through strengthening partnership with the Institute for Advanced Training of Customs Officers.

1.1.5. HFC data collection, verification and reporting mechanism established and HFCs licensing and quota system updated.

1.1.6. Exchange information and policy measures with domestic stakeholders and other countries strengthened through participating in relevant international and regional network meetings

2. Capacity building and Best Practices in the servicing sector

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
1,130,700.00	8,450,000.00

Outcome:

2.1. Mandatory technician certification system on HFCs and its alternatives

2.2. Measures to reduce emissions of HFCs into the atmosphere and to improve the life cycle management of refrigerants (containment strategy) in servicing sector and Upgrade and reconstruction of training centres

2.3. Smart methods and network for the sustainable management of refrigerants

Output:

2.1.1. Mandatory technician certification programme developed and Training of Trainers to promote international and regional best practices for training centres and RAC Association carried out.

2.1.2. Vocational training systems and certification bodies through revision/improving the refrigeration technicians training programs strengthened (including women as per Gender Action Plan).

2.1.3. Participation of technical staff (at least 25% women) in meetings and conferences related to low-GWP and energy efficient technologies supported.

2.2.1. Training centres for the training of young technicians (including women) upgraded and equipped.

2.2.2. The HFC recycling system supported with advanced equipment and instruments, as well as specialized refrigerant storage and transportation tanks.

2.2.3. Service companies and field technicians in RAC sector equipped with special tools and advanced equipment and portable mobile devices to recover HFCs.

2.2.4. Equipment assembly, installation and bootstrapping sector entities equipped with special equipment and tools.

2.2.5. Retrofitting refrigerants demonstrated in existing refrigeration systems to replace high-GWP HFCs

2.2.6. An ODS and HFC Waste Management Strategy developed and endorsed by the Government.

2.3.1. Inventory of cooling equipment conducted and an online data reporting system for large cooling system to monitor the consumption and emission of refrigerants established.

2.4.2. A remote-control system to reduce HFC leakage and monitor the energy efficiency parameters of the main components of RAC equipment in medium and large facilities piloted.

2.4.3. A business model of "cooling as service" for the sustainable management of refrigerants developed.

3. Demonstration of low-GWP energy efficient alternative technologies and improving energy efficiency for sustainable development of cooling sector.

Component Type	Trust Fund
Investment	GET
GEF Project Financing (\$)	Co-financing (\$)
2,457,000.00	19,100,000.00

Outcome:

- 3.1. Market research to identify local manufacturers and assemblers (using medium to large installations), supporting their transition to natural refrigerants and low-GWP alternatives in foams and other relevant sectors.
- 3.2. Demonstration of energy efficient alternative technologies with low GWP, as well as renewable energy technologies for end users.
- 3.3. Conversion project in thermal insulation materials manufacturing companies to use alternatives substances and enhance performance of products for energy saving
- 3.4. Effective performance of cooling system in the demonstration projects
- 3.5. Operational and effectively functioning inter-agency and inter-sectoral working groups on energy efficiency and sustainable cooling and endorsed National Strategy and Cooling Action Plan by the Government
- 3.6. Operational the Minimum Energy Performance Standard/ Regulation (MEPS) in the country
- 3.7. Funds mobilized from the national financial institutions, MDBs or IFIs to fund the replacement of old and inefficient cooling system, new installations of sustainable cooling system, and upscaling HFC-free, highly efficient and smart cooling solutions.

Output:

- 3.1.1. Market survey to identify local manufactures and assembly companies carried out and their transition to natural refrigerants and low-GWP alternatives in foam and other relevant sectors supported
- 3.2.1. Energy-efficient, low-GWP alternative technologies as well as renewable energy technologies for end-users such as cold chain infrastructure, food processing, hospitals, commercial, public and residential buildings, data centres and industrial plants successfully demonstrated.
- 3.3.1. Manufacturing sector of thermal insulation building materials equipped with updated technologies for sandwich panels, as well as direct thermal insulation of cold rooms and other premises through spraying on the spot
- 3.4.1. M&E system established for performance of cooling system in the demonstration projects, a replication plan of HFC free and efficient technology developed.
- 3.5.1. Inter-agency and inter-sectoral working groups on energy efficiency and sustainable cooling, as well as the implementation of the developed National Strategy and Action Plan for Cooling established.
- 3.6.1. The Minimum Energy Efficiency Standard/ Regulation (MEPS) developed and endorsed by the Government through EE market survey and awareness raising activities
- 3.7.1. Sustainable partnerships with national financial institutions, MDBs or IFIs established, incentive policies developed to support and replace the old and inefficient cooling system with new energy-efficient and smart HFC-free cooling systems.

M&E

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
451,300.00	3,135,000.00

Outcome:

- 4. Gender, Communication, KM, Monitoring, Evaluation
 - 4.1. Social and Environmental Standards and gender dimension effectively mainstreamed in all project activities
 - 4.2. Increased public awareness on the Kigali Amendment requirements and sustainable cooling
 - 4.3. Monitoring and Evaluation

Output:

- 4.1.1. Gender mainstreaming roadmap on women’s empowerment in the RAC and other relevant sectors revised and effectively implemented.
- 4.1.2. Social and Environmental Standards and gender inclusive approach integrated in all project activities.
- 4.2.1. Market research to explore the most effective tools for public and stakeholders’ awareness conducted, and awareness plan developed and implemented.
- 4.2.2. Communications and Visibility Plan on HFC Phase Down developed and integrated into relevant economic sectors.
- 4.2.3. New technologies in compliance with international and national regulations supported for end-users in the RAC sector on
- 4.2.4. Various seminars and forums to disseminate policy and legal frameworks, program information, knowledge and the results of projects conducted.
- 4.3.1. Monitoring and evaluation reporting, mid-term and terminal evaluation, field visits, etc.
- 4.3.2. Lessons learned and best practices developed and replicated at the national and oblast levels.

Component Balances

Project Components	GEF Project Financing (\$)	Co-financing (\$)
1. Legislative and policy framework for HFC phasing down, institutional strengthening, and financial instruments	900,000.00	4,100,000.00
2. Capacity building and Best Practices in the servicing sector	1,130,700.00	8,450,000.00
3. Demonstration of low-GWP energy efficient alternative technologies and improving energy efficiency for sustainable development of cooling sector.	2,457,000.00	19,100,000.00
M&E	451,300.00	3,135,000.00
Subtotal	4,939,000.00	34,785,000.00
Project Management Cost	246,900.00	1,765,000.00
Total Project Cost (\$)	5,185,900.00	36,550,000.00

Please provide justification

PROJECT OUTLINE

A. PROJECT RATIONALE

Briefly describe the current situation: the global environmental problems and/or climate vulnerabilities that the project will address, the key elements of the system, and underlying drivers of environmental change in the project context, such as population growth, economic development, climate change, sociocultural and political factors, including conflicts, or technological changes. Describe the objective of the project, and the justification for it. (Approximately 3-5 pages) see guidance here

The Republic of Tajikistan ratified the Montreal Protocol (MP) and all its subsequent amendments, and consistently upholds its commitment to the international agreement and the protection of the ozone layer. Tajikistan belongs to a group of countries in economic transition that have an advanced phase-out schedule than other developing countries (A5 countries in the definition of the Montreal Protocol). Notably, Tajikistan successfully eliminated the use of chlorofluorocarbons (CFCs) by 2005, five years ahead of A5 countries. By 2021, Tajikistan has completed the phase-out of Hydrochlorofluorocarbons (HCFCs), nine years ahead of A5 countries. However, like other countries in the world, CFCs and HCFCs in Tajikistan were largely replaced by HFCs. HFCs aren't ozone depleting substances, but like the ODS they replaced, this group of chemicals are greenhouse gases that can be hundreds to thousands of times more potent than carbon dioxide in contributing to climate change.

The Kigali Amendment and Tajikistan's HFC baseline calculation

The Kigali Amendment of the Montreal Protocol was adopted in October of 2016 for phasing down more than 80% of HFCs globally. Developed countries were required to reduce 10% of production and consumption of HFCs beginning in 2019, 40% in 2024, 70% in 2029, and 85% in 2036, while countries in the transition of economy including Tajikistan, Belarus, Russian Federation, Kazakhstan, and Uzbekistan will need to reduce 5% of HFCs in 2020, 35% reduction in 2025, 70% in 2029 and 85% in 2036. Implementation of the Kigali Amendment will avoid more than 80 billion metric tons of carbon dioxide equivalent emissions by 2050—avoiding up to 0.5° Celsius warming by the end of the century—while continuing to protect the ozone layer^[1]. As of September 2023, 155 countries ratified the Kigali Amendment. On June of 2022, the government of Tajikistan ratified the Kigali Amendment and endorsed Hydrofluorocarbon (HFC) import and export licensing system in 2023.

The 2023 data collection and analysis report outline the present scenario and future trajectory of HFC consumption across sectors and delves into the possibilities and challenges of adopting low-GWP alternatives to HFCs. Based on the annual average of HFC consumption between 2011 to 2013, which was 392,162 tCO₂eq – considering 25% of the baseline HCFC consumption of 54,432 tCO₂eq - the finalised official HFC consumption baseline for Tajikistan under the Kigali Amendment stands at 446,600 tCO₂eq.

Hence, based on the above the calculation of HFC consumption baseline for 2011-2013 looks as follows: able 1. Calculation of HFC consumption baseline data (2011 – 2013)

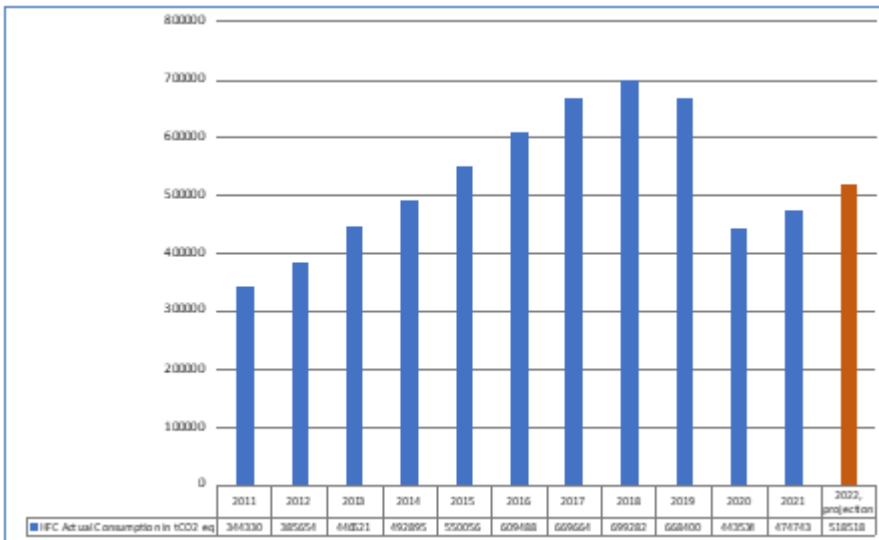
Regulated Substances	2011, HFC Consumption in metric tons	2011 HFC Consumption in tCO ₂ -eq	2012 HFC Consumption in metric tons	2012 HFC Consumption in tCO ₂ -eq	2013 HFC Consumption in metric tons	2013 HFC Consumption in tCO ₂ -eq	2011–2013, annual average in metric tons	HFC GWP	2011–2013 HFC Consumption in tCO ₂ -eq
HFC 134a	85,657	122,490	92,510	132,289	105,125	150,329	94,431	1,430	135,036
HFC 404a	20,052	78,645	20,589	80,751	21,962	86,135	20,868	3,922	81,843
HFC 407c	4,515	8,010	4,876	8,650	5,541	9,830	4,977	1,774	8,830
HFC 410a	35,224	73,548	38,042	79,432	43,230	90,264	38,832	2,088	81,081
HFC 507c	0,685	2,729	0,751	2,992	0,792	3,156	0,743	3,985	2,959
HFC 365mfc/227fa	53,119	58,909	73,525	81,539	96,310	106,808	74,318	1,109	82,419
Total HFC Consumption in tCO₂-eq		344,330		385,654		446,521		HFC Baseline 2011–2013	392,168
								25% HCFC Baseline	54,432
								Final Kigali Amendment Baseline	446,600

Regulated Substances	2011, HFC Consumption in metric tons	2011 HFC Consumption in tCO ₂ -eq	2012 HFC Consumption in metric tons	2012 HFC Consumption in tCO ₂ -eq	2013 HFC Consumption in metric tons	2013 HFC Consumption in tCO ₂ -eq	2011–2013, annual average in metric tons	HFC GWP	2011–2013 HFC Consumption in tCO ₂ -eq
HFC 134a	85,657	122,490	92,510	132,289	105,125	150,329	94,431	1,430	135,036
HFC 404a	20,052	78,645	20,589	80,751	21,962	86,135	20,868	3,922	81,843
HFC 407c	4,515	8,010	4,876	8,650	5,541	9,830	4,977	1,774	8,830
HFC 410a	35,224	73,548	38,042	79,432	43,230	90,264	38,832	2,088	81,081
HFC 507c	0,685	2,729	0,751	2,992	0,792	3,156	0,743	3,985	2,959
HFC 365mfc/227fa	53,119	58,909	73,525	81,539	96,310	106,808	74,318	1,109	82,419
Total HFC Consumption in tCO₂-eq		344,330		385,654		446,521		HFC Baseline 2011–2013	392,168
								25% HCFC Baseline	54,432
								Final Kigali Amendment Baseline	446,600

HFC Consumption Data Analysis (2011 – 2022)

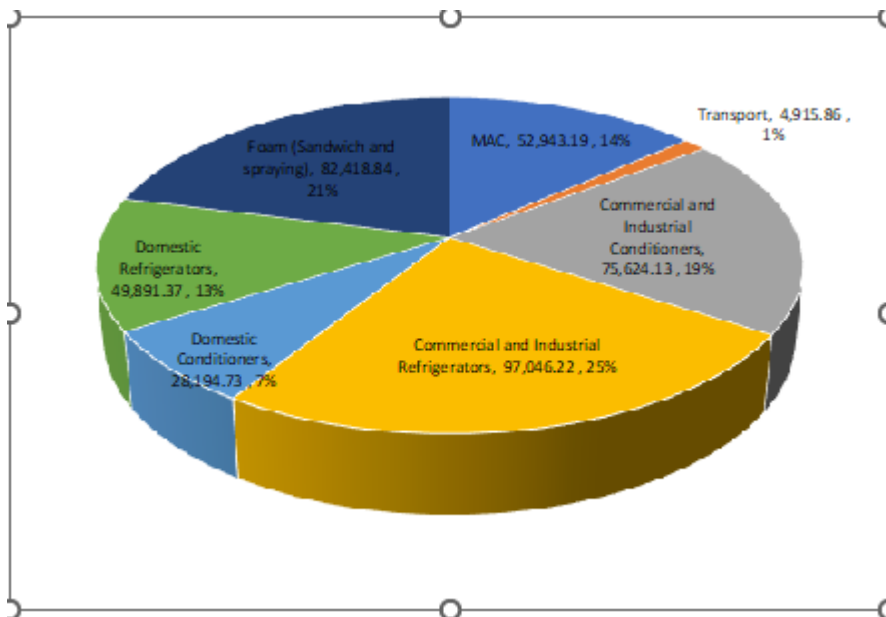
Based on historical data analysis for the period 2011 – 2022 (Figure 1), the HFC consumption was increased annually by 10-12% before 2019. In 2018, HFC consumption in Tajikistan amounted to 699.282 tCO₂-eq. However, from 2020, due to COVID-19 pandemic, there was a sharp decrease in the consumption of all types of HFCs. The preliminary data for 2022 show that HFC consumption was 518,518 tCO₂ eq.

Figure 1. Actual HFC Consumption from 2011-2022 (tCO₂ eq.)



In 2022, servicing, assembly and foam sectors account for 74%, 14% and 12% of the total consumption respectively in CO₂-eq. Figure2 showcases the consumption of HFCs by type of equipment. About 44% of HFCs imported into the country were used for commercial and industrial refrigeration and air conditioning equipment.

Figure2: Consumption of HFCs in 2022



Although the consumption of HFCs in 2022 was slightly lower than the baseline of the Kigali Amendment, it didn't reflect the reasonable level of consumption. In a "Business as Usual" (BAU) scenario, the consumption of HFCs will rebound quickly after the pandemic and could grow to 1.2 million CO₂-eq by 2029 in line with Tajikistan's industrial development, general population growth and improved prosperity. As such, the transition of HFCs in Tajikistan is very challenging.

Targets of the HFC phasing down and main barriers

The first target of 5% reduction by 2020 has passed already. The second reduction of 35% by 2025 is extremely challenging due to the limited time left for intervention. The objective of this initiative is to support a sustainable phasing down of HFCs in Tajikistan and meet 70% reduction target by 2029. The refrigeration and air conditioning (RAC) industry plays an important role in economic growth, health, and food security. It is important that HFC phase down would not hinder the economic recovery after the pandemic. The target should also include policies and actions to stimulate the transition to highly efficient technologies based on natural or low GWP refrigerants to amplify the positive impacts on combatting climate change.

Table2: Steps of HFCs phase down for Tajikistan

	Non- Article 5: Belarus, the Russian Federation, Kazakhstan, Tajikistan & Uzbekistan		tCO ₂ eq
Baseline Years	2011, 2012, 2013		
Baseline Calculation	Average production/consumption of HFCs in 2011, 2012 & 2013		392,168
	plus 25% of HCFC baseline production/consumption		153,850
Total Kigali Amendment Baseline (tCO ₂ eq)			546,018
HFC Phase Down Steps			
Step 1	2020	5%	518,717
Step 2	2025	35%	354,912
Step 3	2029	70%	163,806
Step 4	2034	80%	109,204
Step 5	2036	85%	81,903

	Non-Article 5: Belarus, The Russian Federation, Kazakhstan, Tajikistan and Uzbekistan		tCO ₂ -eq.
Baseline Years	2011, 2012 и 2013		
Baseline Calculation	Average Production/Consumption of HFCs in 2011, 2012 and 2013		392,168
	Plus 25% of HCFC baseline Production/Consumption		54,432
Total Kigali Amendment Baseline (tCO₂-eq)			446,600
HFC Phase Down Steps			
Step 1	2020	5%	424,270
Step 2	2025	35%	290,290
Step 3	2029	70%	133,980
Step 4	2034	80%	109,204
Step 5	2036	85%	66,990

The main challenges for the HFC phase down in Tajikistan include:

- Inadequate institutional capacity to coordinate and develop the national strategy and technology roadmap for various sectors, implementation of the license system on HFCs and its blend, and monitoring the progress

- Lack of awareness, training, and coordination among stakeholders for the HFC phasing down

- Lack of economic incentives for market transformation to low GWP and highly efficient alternative technologies

- Lack of awareness at ender-users on the requirement of the Kigali Amendment and its implications on the choice of technologies

- Lack of adequate training to technicians for safely handling the flammable alternatives and a mandatory certification system

- Lack of tools of monitoring the emissions of refrigerants in the servicing sector

- Lack of domestic expertise on advanced replacement technologies to HFCs

- Lack of necessary demonstration projects in different type of RAC system
- lack of policies, regulations and standard on energy efficiency of cooling products
- Lack of coherent policy for refrigerant transition and improvement of energy efficiency
- lack of programme for early retirement of HFC-based and inefficient products
- Lack of a knowledge platform for stakeholders and private sectors to exchange information
- Limited time left for the implementation to achieve dramatic reduction in the short period
- Challenges of potential illegal trade of HFCs

Scenario for Tajikistan to achieve compliance on HFC Phase down

Over the past decade, Tajikistan has demonstrated strong economic performance, with growth rates exceeding 7 percent on average. Sustained economic growth has led to improved living standards, with the poverty rate falling from 32 percent in 2009 to 13.4 percent in 2022. Despite significant progress, Tajikistan remains vulnerable to external shocks due to its high dependence on remittances from labour migrants and a lack of diversified economy. In addition, the private sector is small, accounting for only 15 percent of total investment, 30 percent of industrial production, and about 13 percent of formal employment. While government debt is resilient, due to upcoming Eurobond redemptions, the risk of a debt crisis remains high.

Tajikistan has high economic growth potential, including a young and growing population, water and hydropower potential, agriculture and food processing, minerals, tourism, and more. The Government has set an ambitious goal of increasing domestic revenues by 2-3.5 times between 2016 and 2030, which will require a new & novel growth model based on a vibrant private sector that is motivated to invest and create jobs for a rapidly growing population. Such transition requires important structural reforms focusing on the efficiency and transparency of the public sector, improving the investment environment, and increasing competition.

According to the IMF, in 2021 Tajikistan's GDP amounted to 8.47 billion US dollars. The Second National Determined Contribution (NDC) intends to reduce 65–75% of GHG emission density by 2030 from the 1990 baseline level. HFCs are not specifically mentioned in Tajikistan's Second NDC. However, reducing emissions of HFCs would greatly contribute to Tajikistan's goal of curbing the growth rate of GHG emissions density per capita.

While the country successfully phased out CFCs and HCFCs, its cooling markets are dominated by high GWP HFCs and probably continue to grow in the near future. As per forecasts, the increase of HFC consumption over this period can go up to 9.9% annually and reach to 832,216 tCO₂-eq in 2027. This indicates the importance of the cooling sector for the economic growth in the country.

An alternative scenario requires strict control on import of HFCs and rapid transformation of local market to the low GWP alternatives. The barriers of market transformation must be addressed through a comprehensive strategy and programme including policy and regulatory reform, strengthened capacities of government's institutions and associations for the implementation of the Kigali Amendment at national and sector level, necessary demonstration projects in all relevant sectors, incentives for the public and private entities to adopt alternative technologies, extensive awareness and training for stakeholders, technicians and end users, along with the establishment of a policy framework on energy efficiency and tools to monitor progress. Given that many alternative refrigerants are flammable, it is important to build a sound training and certification system in the servicing sector to ensure safe handling of flammable refrigerants. The components in this initiative are designed to facilitate structural transformation, market change, and capacity building.

The HFC phase-down process at the national level requires the support and action of key stakeholders. The roles of relevant stakeholders are described below:

- Committee for Environmental Protection (CEP): Develop and implement policies for environmental protection, conservation of biodiversity and sustainability of natural resources. It is responsible for implementation of multilateral environmental agreements, sound chemicals and waste management.
- Department of Agriculture and Environmental Protection of the Administration of the President of the Republic of Tajikistan: This department will be involved in promoting the legislative reforms on HFCs.
- Customs Service and Institute: Customs regulates the export and import of chemicals and toxic waste and is a close partner for ODS and HFC phase-out. This institution will be involved in import and export management through license and quota system, training programs for customs personnel to ensure the enforcement of concerned policy and prevent illegal trade.
- Ministry of Justice: This Ministry will carry out governmental registration of all normative-legal statements related to chemical management.

- Agency for Standardization, Metrology, Certification, and Trade Inspection: This Agency approves technical regulations, standards, including safety standard of alternatives to HFCs as well as MEPS and labelling system. And it monitors their implementation.
- The Committee on Women and Family Affairs: This is a state executive body to protect the rights of women, and achieve gender equality.
- Ministry of Education: This ministry oversees the formulation and adoption of training and education curricula to build capacity in society for alternative technologies to HFCs.
- Agency on Statistics under the President of the Republic of Tajikistan: All reporting on import/export use of HFCs is done through this agency.
- Refrigeration Association: It brings together main players in the servicing and assembly sector and works to advocate, disseminate experiences, and best practices for the transition.
- Private sector (maintenance, equipment assembly): These are the ones who will be primarily affected in the HFC phase-down. Their collaboration and support are essential to achieve the progress.

[1] <https://ozone.unep.org/news/kigali-story>

B. PROJECT DESCRIPTION

Project description

This section asks for a theory of change as part of a joined-up description of the project as a whole. The project description is expected to cover the key elements of good project design in an integrated way. It is also expected to meet the GEF's policy requirements on gender, stakeholders, private sector, and knowledge management and learning (see section D). This section should be a narrative that reads like a joined-up story and not independent elements that answer the guiding questions contained in the PIF guidance document. (Approximately 3-5 pages) see guidance here

Intervention pathways

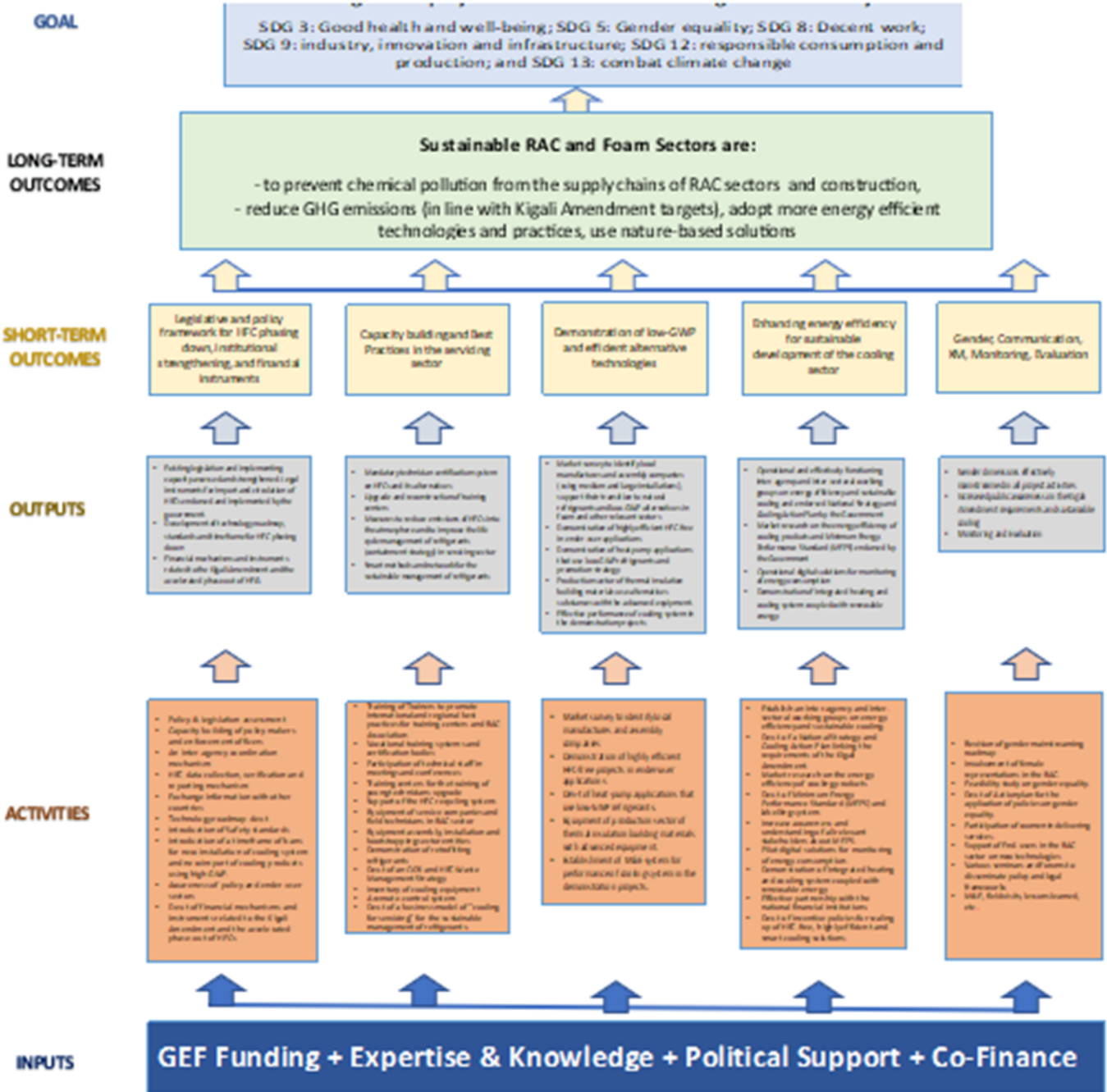
This project intends to achieve a systemic transformation of HFC related sectors and will assist the country to achieve a 70% reduction of HFC consumption by 2029. This transition will contribute also to the reduction of indirect greenhouse gas emissions through enhancing energy efficiency, and HFC waste generation. The theory of change for the proposed alternative scenario is depicted in Figure 3. It is centred around enabling activity and capacity building, knowledge management, and technological, financial, and business model innovations.

The first pathway focuses on creating an enabling environment in the country for phasing down HFCs and necessary capacity building. This includes analysis of policy and regulatory gaps to guide the reform of regulatory and institutional frameworks and capacity building of stakeholders for the effective coordination and enforcement of regulations and policies. The project will support capacity building and best practices in servicing and assembly sectors, enhance technicians' knowledge and skills, build a mandatory certification system, develop new training programs and modules, and implement control measures to reduce HFC emissions to the atmosphere.

The technical and economic pathway aims to build knowledge and capacity of private sectors. This will be achieved by conducting market research to identify local manufacturers and assembly companies, supporting their transition to efficient and sustainable technologies. Activities include the introduction of alternatives to HFCs through demonstration projects. The transition will be supported through the establishment of an inter-ministerial working group on promotion of the sustainable technologies, the implementation of the energy efficiency standard, and the introduction of incentive schemes to promote the market transformation. The interventions will enable public and private entities, individuals to make decisions on the adoption of new technologies inspired by the pilot projects and business models developed under the project.

The third pathway through communication, awareness, knowledge management, and evaluation aims to strengthen project implementation, information exchange, transparency, and sustainability. Efforts will be made to develop necessary tools to monitor the progress, enhance adaption ability, and promote replication and scaling up of best practices.

Figure 3. Theory of Change of the Project "Integrated program for HFC phasing down and sustainable cooling for Tajikistan".



Pathways:

1. Enabling environment pathway
2. Techno – economic pathway
3. Gender, monitoring, knowledge management & dissemination, replication and scaling up pathway

Assumptions:

1. No delay in fund mobilization (GEF and Co-finance), funds are well managed, required expertise is secured and on time and continued political support and stability in the country
2. New regulations and policy incentives are adopted and implemented by all stakeholders and there is continued political commitment
3. RAC and Foam Sectors are willing to adopt novel solutions and embrace new finance & business models, technicians can grasp and implement the solutions
4. M&E efforts provide quick and actionable feedback; there is adequate expertise to implement adaptive management; all stakeholders embrace and act on the findings of knowledge management activities
5. New financial and business models ensure the availability of resources for replication and scaling up, enhanced knowledge, availability of policy and regulatory incentives and successful demonstration of solutions attract other players to invest in the RAC sector solutions implemented to benefit women and youths

Word version of the ToC has been also uploaded to the document section of GEF portal.

By implementing, replicating, and scaling the interventions, the HFC phasing down will contribute to the green transition and achievement of the Sustainable Development Goals (SDGs) in Tajikistan. This encompasses SDG 3: Good Health and Well-being; SDG 5: Gender Equality; SDG 8: Decent work and Economic Growth; SDG 9: Industry, Innovation, and Infrastructure; SDG 12: Responsible Consumption and Production; and SDG 13: Climate Action.

The three pathways, in their entirety, should be able to achieve the intended results. Necessary technical and economic support from the international communities and unwavering political willingness of the government of Tajikistan to facilitate the transformation are critical for the success.

Project Components

The project proposes to support the government of Tajikistan and stakeholders in phasing down 70% of Hydrofluorocarbon (HFCs) consumption by 2029 in the cooling and foam sectors from its baseline level, in line with the control measures of the Kigali Amendment of the Montreal Protocol on HFCs. The goal is to reduce the environment and climate footprint of the cooling sector by transitioning to green technology, improving energy efficiency and life cycle management of refrigerants and the products that contain them.

Component 1: Legislative and policy framework for HFC phasing down, institutional strengthening, and financial instruments.

The goal of the Component 1 is to establish an enabling policy, institutional environment and enforcement capacity to phase down HFCs in the country in accordance with the Kigali Amendment.

Activity 1.1. Existing legislation and implementing capacity assessed and strengthened. Legal instruments for import and recycle and recovery of HFCs endorsed and implemented by the government. The project will support the assessment of the institutional capacity and develop the work plan to fill the gap. It will also continue to strengthen an inter-agency coordination mechanism among respective institutions. A dedicated team for effective implementation of the Kigali Amendment will be assigned by the governments to collect data, monitor the progress and formulate the annual work plan. The Institute for Advanced Training of Customs Officers will be engaged to improve the curriculum and provide training. The project will support the NOU and related institutions to establish effective HFC import quota system and allocate annual HFC quota in line with phase down targets and the “Hydrofluorocarbon (HFC) Import/Export Licensing System” under decision number #376. Through a partnership with the Green Customs network and the Europe and Central Asia network, supported by the UNEP, customs officers will engage in exchanging information and participate in capacity building activities. *The Government of Tajikistan has established a quota system and is starting enforcement. The “Licensing System for the Import/Export of Hydrofluorocarbons (HFCs)” was adopted by the Decree of the Government of the Republic of Tajikistan dated August 29, 2023, No. 376 “On additional measures for the implementation of the Vienna Convention for the Protection of the Ozone Layer and the Kigali Amendment to the Montreal Protocol on substances that destroy the ozone layer.” This resolution also established quotas for the import of HFCs for 2023 and 2024: 2023 – 424,270 tCO₂-eq and 2024 - 424,270 tCO₂-eq.*

Activity 1.2. Development of technology roadmap, standards, and timeframe for HFC phasing down. This activity will focus on the development of a technology roadmap in the relevant sectors to facilitate the uptake of alternative technologies in different applications. The project intends to facilitate the introduction of safety standards and relevant regulations for the safe handling of natural refrigerants and other low-GWP alternatives within the country. In addition, it will establish a timeline for prohibiting the installation of cooling systems using high-GWP HFCs, and similarly, a timeline for the bans of imports of cooling products containing high GWP HFCs. To ensure comprehensive understanding and adoption, the project will also support initiatives that raise awareness of the stakeholders and end-user sectors.

Activity 1.3. Assess and develop financial mechanisms and instruments related to the Kigali Amendment and the accelerated phase-out of HFCs. The aim of this activity is to establish partnerships with both national and international financial institutions, including the Asian Development Bank, World Bank Group, European Bank for Reconstruction and Development, among others. These partnerships aim to mobilise investments for implementing energy-efficient technologies that have zero-ODP and low-GWP. Such efforts will also enable the scaling up of initiatives and ensure the long-term sustainability of the phase out of HFCs. Various financing mechanisms for the transition away from HFCs will be examined. These include taxes on imported HFCs and products containing HFCs, the EPR (Extended Producer Responsibility) scheme, green procurement, eco-labelling, and distinct business models that finance energy efficiency. To ensure effective strategy execution, an international financial expert will be recruited. This expert’s role will be to provide guidance for the development of the business models and incentive mechanisms tailored for investment proposals, which will be directed to national banks, IFIs, MDBs, and other potential investors.

Component 2: Capacity building and Best Practices in the servicing sector

This component is focused on building the capacity of technicians in the RAC. The initiative will continue to foster partnerships with the Ministry of Education and Science, Ministry of Labor, Migration and Employment and the Agency on Statistics, as well as the Committee on Women and Family Affairs.

Activity 2.1: Assess and build a mandatory technician certification system. A training programs are developed and implemented. The project will aim to develop and sustain the mandatory certification system to deal with HFCs and alternatives that will be introduced, including natural refrigerants. The most basic requirement is to ensure capacity to maintain and service existing HFC equipment applying good practices to ensure sound operation and avoid emissions. The project will equip and upgrade training centres to deliver training courses needed. A “Training of Trainers” approach will be undertaken to promote international and regional best practices for training centres and the RAC Association, with the goal of phasing down HFCs, promoting energy efficiency, and encouraging the use of natural and low-GWP refrigerants. The project will strengthen vocational training systems and certification bodies through revising/improving the refrigeration technician training and test programs including women as per Gender Action Plan. This will encompass topics related to reducing refrigerant emissions into the atmosphere, minimizing energy consumption, and addressing safety concerns associated with the flammability or toxicity. The project will also support participation of domestic stakeholders and experts to participate in regional or international meetings for information exchange and capacity building.

Activity 2.2 Develop measures aimed to reduce emissions of HFCs into the atmosphere and to improve the life cycle management of refrigerants (containment strategy) in servicing sector. The project will reinforce and equip refrigerant recovery centres with advanced equipment and instruments. This includes specialized refrigerant storage and transportation tanks to support the HFC recycling system. Additionally, the project will provide service companies and field technicians in the RAC sector, including MAC service technicians, with specialized tools, advanced equipment, and portable devices for the containment, recovery and recycling of HFCs. As part of this activity, the project will demonstrate the retrofitting of refrigerants in existing refrigeration systems when necessary for the compliance, aiming to replace high-GWP HFCs with feasible lower-GWP alternatives while maintaining system performance. Furthermore, an ODS and HFC Waste Management Strategy will be developed and subsequently endorsed by the Government of Tajikistan.

Activity 2.3. Build smart methods and network for the sustainable management of refrigerants. The project will conduct an inventory of cooling equipment and establish an online data reporting system for large cooling system to monitor the consumption and emission of refrigerants. Specialized training sessions will be organized to educate the National Ozone Unit staff on operating this data and M&E system. Representatives from the RAC Association will also participate in these training sessions. The training package will include the pilot of a digital tools aimed at reducing HFC leakage and monitoring the energy efficiency parameters of key components in medium to large refrigeration or air conditioning equipment facilities. Once operational, a business model titled “cooling as service” might be introduced to enhance the sustainable management of refrigerants. This model will be developed and endorsed by the Government.

Component 3: Demonstration of low-GWP and energy efficient alternative technologies for sustainable development of cooling and foam sectors.

Activity 3.1. Market research to identify local manufacturers and assemblers and support their transition to natural refrigerants and low-GWP alternatives in foams and other relevant sectors.

Activity 3.2. Demonstration of energy efficient technologies with low GWP in relevant assembly enterprises and end user applications. In line with updated policy framework related to energy transition, the project will pilot alternative technologies in typical applications such as cold chain infrastructure, food processing, hospitals, commercial, public and residential buildings, data centres and industrial plants, based on gained knowledge and experiences within and outside of the country.

Activity 3.3. Carry out conversion projects in thermal insulation material manufacturing sector to adopt environmentally friendly alternatives, with efforts of enhancing the product performance for energy saving.

Activity 3.4. Performance monitoring and evaluation. The project will support Monitoring and Evaluation activities to assess the performance of technologies in the demonstration projects and develop knowledge products and replication plan to promote market uptake of effective technologies and practices.

Activity 3.5. Support inter-agency and inter-sectoral working groups to develop National Strategy and Cooling Action Plan for endorsement by the Government. Based on successful experience of HCFC phase out project, the project will maintain support for the inter-agency and inter-sectoral working groups to promote sustainable cooling technologies and policy framework on energy efficiency. The Government of Tajikistan has limited laws on energy efficiency. The specific laws and standard in cooling sector are still lacking. This gap could be filled by the development and implementation of National Strategy and Cooling Action Plan.

Activity 3.6. Operational the Minimum Energy Performance Standard/ Regulation (MEPS and labelling) in the country. As the country lacks a Minimum Energy Performance Standard (MEPS) and labelling system, this activity will support market research about the energy efficiency of main cooling products in the market and fill the policy gaps in this area. This activity will also encompass efforts to increase awareness and understanding of relevant stakeholders about MEPS, labelling and its

environment and economic benefits. Training of competent entity for the MEPS and labelling will build capacities for the compliance.

Activity 3.7. Funds mobilized from the national financial institutions, MDBs or IFIs to fund the replacement of old and inefficient cooling system, new installations of sustainable cooling system, and upscaling HFC-free, highly efficient and smart cooling solutions. As previously highlighted, one of the project's strategic interventions is to mobilise resources to scale up application of energy efficient technologies with zero-ODP and low GWP. The project aims to partner with financial institutions to achieve synergies of programs and develop business models of blended financing for the green transition. This will focus on the replacement of old, inefficient cooling systems, introducing new sustainable cooling systems, and scaling up of HFC-free, highly efficient, and smart cooling solutions.

Component 4: Gender, Communication, KM, Monitoring, Evaluation

This component aims to mainstream gender dimensions into all project activities, develop Knowledge Management and Communication plans, as well as strengthen monitoring and evaluation mechanisms to ensure the effective implementation of the project.

Activity 4.1. Social and Environmental Standards and gender dimension effectively mainstreamed in all project activities. The project will support the assessment and development of a strategy for gender equality and women's empowerment. This includes encouraging female student participation in technical and vocational trainings and fostering partnerships of relevant institutions. The goal is to ensure at least 40% female engagement in project activities. This study will. Based on the collected information, the project will develop and implement an action plan aligning with the GEF/UNDP gender mainstreaming policy and the national policy on the inclusion of vulnerable social groups, particularly women. Participation of women and other vulnerable groups will be encouraged in all procurement process in the implementation.

Activity 4.2. Increased public awareness on the Kigali Amendment requirements and sustainable cooling. Under this activity, the project will conduct a market study to explore the most effective tools for raising public and stakeholders' awareness. Based on the findings, a communication plan will be formulated. The project will also conduct end-users' awareness to ensure that they are well-informed before making decisions on the procurement. Communication will also aim to increase transparency and visibility of GEF program and related policy, legal, technical and finance innovation.

Activity 4.3. Monitoring and Evaluation. This activity will ensure that the project is implemented according to established targets and timeframes. Recommendations from the independent mid-term evaluation will be undertaken by the project team and relevant institutions to improve effectiveness and relevance. Recommendations will be made in the terminal evaluation report for consideration in the next phase of HFC phasing down after 2029. Throughout the project, lessons learned, and best practices will be documented and disseminated among both stakeholders and the general population.

Global Environmental Benefits and co-benefits.

The Government of Tajikistan has ratified Kigali Amendment and strives to mobilise internal and external resources to phase down HFCs and contribute to mitigate climate change as part of its commitment for the Montreal Protocol and Paris Agreement.

Based on previous successful experience of phasing out CFCs and HCFCs, this project will support the Government of Tajikistan and stakeholders to phase down 70% of Hydrofluorocarbon (HFCs) consumption by 2029 in cooling and foam sectors from its baseline level in line with the control measures of the Kigali Amendment of the Montreal Protocol on HFCs and reduce environment and climate footprint of cooling sector by improving energy efficiency and life cycle management of refrigerants and products containing them. The project will strengthen legislative, policy and regulation framework, institutional and financial mechanisms, build capacity of RAC servicing and educational sectors, demonstrate low-GWP and energy efficient alternative technologies as well as enhance energy efficiency for sustainable development of the cooling sector.

Through mobilising private sector and training program, it is estimated that more than 2,000 additional green jobs in cooling sector (including 35% female) will be created. For instance, implementation of innovative energy efficiency of free cooling equipment in Tajik Cell Phone companies (Babilon-Mobile, Megafon and Tcell) demonstrated long-term impact of the project. 33 mobile stations were equipped with free cooling equipment which resulted in reduced energy bills. After completion of the project, these mobile companies continued free cooling best practice and have equipped over 1,000 stations out of 5,000 across the country resulted to reduce 10,000t CO₂eq a year. The project will continue strong partnership with the Ministry of Labour and Social Protection to involve young people (at least 40% female) in RAC and Energy Efficient certification schemes and produce educational manuals on application of energy efficiency in the cooling sector.

According to Agency for Statistics under the President of Tajikistan, the main consumer of electricity is the housing sector that accounts for almost 47% of all electricity produced in 2022. Therefore, the Government included energy efficiency and renewable energy sources (RES) as integral part of the National Strategic Document 2030. All development banks and private sector institutions are encouraged by the Government to support implementation of this strategy. This project will play a key role at the institutional level to support harmonisation of policy regulatory framework and building capacity and awareness of policy makers on sustainable cooling concepts and practices. The expected results include energy saving which can ease

pressure on the fluctuating electricity generation capacity and grid of the country while meeting growing demands for cooling from the people and industries.

The Global Environment Benefit (GEB) of direct emission reduction of HFCs is estimated at minimum of 921,831 tCO₂-eq as per projected consumption in 2029 minus maximum consumption required by the Kigali Amendment. According to World Bank (2022), Tajikistan has an average of 1.5 million households connected to national grid and this figure will be increased up to 1.7 million in 2029. Each household has an opportunity to save up to 300-340 kWh of electricity per year. Through energy saving and application of energy efficient technologies and financial mechanisms energy saving can make 544 million kWh annually by 2029 (435,200 tCO₂-eq household sector and 740,700 tCO₂ including other economic sectors). Additional indirect socio-economic co-benefits include improved health and the creation of green jobs and livelihoods.

Innovation and sustainability toward broader transformation

This project encompasses a range of new solutions, including innovations spanning technology, business, finance and policy aspects. It will introduce a novel approach to develop supportive legal and regulatory frameworks and standards to facilitate the transition. By including all stakeholders in this process, the project will help address inconsistencies and gaps in national legislation, laying the foundation for a new institutional framework for the green transition.

Within the project's framework, innovative technological solutions include: 1) the introduction of natural cooling methods and heat recovery in data centres; 2) the introduction of inverter-driven cooling and air conditioning systems; 3) the launch of low-temperature commercial and industrial refrigerators that utilise a hot vapor defrost process; 4) the introduction of cascade refrigeration units tailored for the agricultural produce storage and processing sectors, as well as shopping centres; 5) the implementation of systems that integrate digital tools, both to reduce HFC leaks and monitor the energy efficiency of key components in large-scale refrigeration and air conditioning facilities.

Financial innovations within the project include a variety of instruments designed to support the transition to HFC alternatives, include: 1) import duties on HFCs and products containing them; 2) implementing the Extended Producer Responsibility (EPR) scheme; 3) advancing green procurement practices; 3) promoting eco-labelling initiatives; and 4) developing business models that focus on energy efficiency financing, which can be presented as investment proposals to national banks, IFIs, MDBs or other potential investors.

The project aims to shift the behaviour of key stakeholders towards sustainable development. The successful implementation of new business models will also contribute to the change of behaviour in the cooling value chain. In addition, by integrating training and capacity building into every project component, the project aims for a wide reach.

During stakeholder consultations on the development of this project, a number of development financial institutions such as World Bank Group, Asian Development Bank, European Bank of Reconstruction and Development expressed their strong interest to participate in the project. This is associated with their commitment to the Government of Tajikistan to support national efforts to combat climate change. Similarly, development partners such as UNICEF and USAID through their ongoing projects and pipeline will join forces for energy efficiency. This project will strengthen public and private partnership and collaboration among development partners.

The RAC Association will bring together the main participants in the RAC service and assembly. The private sector is a major consumer of HFCs. Their collaboration is critical to the progress of the project. They represent several sectoral market participants, including the service sector (small, medium and large commercial companies for the installation and maintenance of refrigeration and air conditioning equipment), the assembly sector (including the assembly and commissioning of large commercial and industrial refrigeration and air-conditioning chillers) and others such the foam sector (SMEs, including sandwich panels and spraying for thermal insulation of cold rooms, small residential and industrial buildings). Other private sector players in the sector are distributors, retailers, and local and foreign investors.

Coordination and Cooperation with Ongoing Initiatives and Project.

Does the GEF Agency expect to play an execution role on this project?

If so, please describe that role here. Also, please add a short explanation to describe cooperation with ongoing initiatives and projects, including potential for co-location and/or sharing of expertise/staffing

The project will continue to leverage the established collaboration between UNDP and the UNEP Ozone Action program to create regional networks and share experiences with other countries. This has proven effective during the GEF and MSF programs on the CFC and methyl bromide phase, and the regional GEF-UNDP HCFC Project Phase 1 and national GEF-HCFC Project Phase 2;

There are several ongoing projects in Tajikistan from other agencies related to the development of alternatives to HFCs and the RAC sector, as well as energy efficiency, climate change mitigation and adaptation, with which this project will collaborate and can improve the efficiency of HFC management:

- UNICEF project - GAVI CDS - within the framework of this project, equipment for a cold chain system for the transportation and storage of vaccines in medical institutions is to be purchased and installed (USD 3,399,618);
- UNICEF project - GAVI TCA - within the framework of this project, maintenance, repair and training of cold chain equipment for vaccines throughout the country is planned; (USD 1,400,000);
- UNICEF-GAVI CCEOP-2 project - within the framework of this project, monitoring, inventory, procurement, implementation, training and maintenance of cold chain equipment for vaccines in remote regions of the country is planned; (USD 1,200,000);
- ADB projects on renewable energy and energy efficiency for climate change mitigation and adaptation:
 - ❖ Grant 0417-TAJ: Wholesale Metering and Transmission Reinforcement Project

❖ Grant 0778-TAJ: Power Sector Development Program

Core Indicators

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO₂e (direct)	921831	0	0	0
Expected metric tons of CO₂e (indirect)	0	0	0	0

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO₂e (direct)				
Expected metric tons of CO₂e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO₂e (direct)	921,831			
Expected metric tons of CO₂e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)				

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
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Indicator 9 Chemicals of global concern and their waste reduced

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
482.00	0.00	0.00	0.00

Indicator 9.1 Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)

POPs type	Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
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Indicator 9.2 Quantity of mercury reduced (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.3 Hydrochlorofluorocarbons (HCFC) Reduced/Phased out (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
482.00			

Indicator 9.4 Number of countries with legislation and policy implemented to control chemicals and waste (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)

Indicator 9.5 Number of low-chemical/non-chemical systems implemented, particularly in food production, manufacturing and cities (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)

Indicator 9.6 POPs/Mercury containing materials and products directly avoided

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
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Indicator 9.7 Highly Hazardous Pesticides eliminated

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.8 Avoided residual plastic waste

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 11 People benefiting from GEF-financed investments

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	8,750			
Male	16,250			
Total	25,000		0	0

Explain the methodological approach and underlying logic to justify target levels for Core and Sub-Indicators (max. 250 words, approximately 1/2 page)

Considering the analysis of overall dynamics, the projected total consumption of HFCs in Tajikistan could be 1,055,811 tCO₂-eq by 2029. The GEB of direct emission reduction of HFCs is 921,831 tCO₂-eq as per projected consumption in 2029 minus maximum consumption required by the Kigali Amendment by 2029.

Through energy saving and application of energy efficient technologies and financial mechanisms energy saving can make 544 million kWh annually by 2029 (435,200 tCO₂-eq household sector and 740,700 tCO₂ including other economic sectors).

Risks to Project Preparation and Implementation

Summarize risks that might affect the project preparation and implementation phases and what are the mitigation strategies the project preparation process will undertake to address these (e.g. what alternatives may be considered during project preparation—such as in terms of consultations, role and choice of counterparts, delivery mechanisms, locations in country, flexible design elements, etc.). Identify any of the risks listed below that would call in question the viability of the project during its implementation. Please describe any possible mitigation measures needed. (The risks associated with project design and Theory of Change should be described in the “Project description” section above). The risk rating should reflect the overall risk to project outcomes considering the country setting and ambition of the project. The rating scale is: High, Substantial, Moderate, Low.

Risk Categories	Rating	Comments
Climate	Low	Risks: Extreme climate events such as floods and drought could impact project implementation, especially demonstration activities. Mitigation measures: To mitigate this, climate

		consideration will be included in the selection criteria for demonstration activities. Further, training on managing climate impacts will be included in the capacity-building aspects of the HFC Phase Down project.
Environment and Social	Moderate	<p>Risk: Potential to have impact on biodiversity and ecosystem services</p> <p>Mitigation measures: The PIF team and UNDP will closely collaborate with the National Ozone Unit and the Biodiversity and Biosafety Centre to ensure that the project will add value to biodiversity conservation and ecosystem services.</p> <p>Risk: Women may not show interest in career in RAC sector due to lack of knowledge and understanding</p> <p>Mitigation measures: Improved partnerships within the government to increase attention to bring more gender supportive approach in this sector, partnerships between the private sector and vocational training institutions on internships and job placements are designed in to ensure gradual transition away from traditional way of looking at the RAC sector. Backed by awareness raising to change wrong perceptions of RAC sector among women; seeking strong support in changing perceptions of organizations, dealing with women's promotion, the project is on a right track to achieve considerable positive results.</p>
Political and Governance	Moderate	<p>Risk: Government of Tajikistan lost interest in the implementation of national obligations under Kigali Amendment to the Montreal Protocol</p> <p>Mitigation measures: The project will continue to involve political decision makers in the development</p>

		of PIF and keeps them informed on the development progress.
Macro-economic	Low	<p>Risks: The Government of Tajikistan decides to change its prioritization of the energy efficiency and RAC & Foam sectors for economic development, thereby affecting commitment to the project.</p> <p>Mitigation measures: The likelihood of this happening is relatively low. However, this project will start generating knowledge on the socio-economic benefits of implementing sustainable cooling sector, which will continue to strengthen the understanding of the sector's importance to the country's economy.</p>
Strategies and Policies	Moderate	<p>Risk: Bureaucratic and logistical hurdles could delay project preparation and implementation</p> <p>Mitigation measures: A milestone and timeline will be agreed upon with the country's stakeholders at the PPG stage, which considers the bureaucratic and logistical hurdles specific to the country. With this, the project will seek the commitment of the stakeholders to these milestones and timelines.</p>
Technical design of project or program	Moderate	<p>Risks: (1) Required expertise for design and implementation not secured (or delayed); (2) Difficulty in acquiring required data, which could affect the design and implementation of the project.</p> <p>Mitigation measures: The identification and engagement of expertise for the project has already begun and will go into top gear immediately after approval. The project will collaborate with relevant ongoing GEF projects to tap into existing expertise, including data collection. The data challenge is</p>

		already recognized and will be part of the project activities.
Institutional capacity for implementation and sustainability	Low	<p>Risk: Inter-agency coordination is ineffective, and members lost interest to attend the project design phase.</p> <p>Mitigation measures: The PIF team and UNDP work closely with Development Partners, Banks and Government Departments and Private Sector to identify their contribution and ensure ownership and all key partners are onboard. They will use existing coordination mechanisms such as Donor Coordination Council and Technical Working Groups to keep partners informed</p>
Fiduciary: Financial Management and Procurement	Low	<p>Risks: (1) Project funds are not adequately managed (2) delay in the mobilization of co-finance Mitigation measures: GEF fiduciary guidelines, as well as that of the agency, will be followed in fund management. This will also be part of the frequent monitoring and evaluation activity of the project.</p>
Stakeholder Engagement	Low	<p>Risks: (1) Stakeholders do not engage appropriately, leading to inadequate project design and implementation, adversely impacting project outcomes; (2) sudden drop out of important stakeholders.</p> <p>Mitigation measures: The risk of stakeholder disengagement will be prevented through effective frequent communication with all identified stakeholders and developing and agreeing on a stakeholder engagement plan. Further, the HFC Down project will ensure that all stakeholders have specific roles to ensure continued involvement. The Dedicated Working Group on RAC and Energy Efficiency would also</p>

		comprise all relevant stakeholders ensuring their continued engagement.
Other		
Financial Risks for NGI projects		
Overall Risk Rating	Moderate	The overarching risk to this project is low-moderate. Close monitoring of the identified risks and effective implementation of mitigation measures will ensure that the risks do not adversely impact the success and durability of the project.

C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES

Describe how the proposed interventions are aligned with GEF- 8 programming strategies and country and regional priorities, including how these country strategies and plans relate to the multilateral environmental agreements.

Confirm if any country policies that might contradict with intended outcomes of the project have been identified, and how the project will address this.

For projects aiming to generate biodiversity benefits (regardless of what the source of the resources is - i.e., BD, CC or LD), please identify which of the 23 targets of the Kunming-Montreal Global Biodiversity Framework the project contributes to and explain how. (max. 500 words, approximately 1 page)

The HFC Phase Down project aligns with both the national and global priorities and will complement the Government's efforts (including NDS 2030, Enhanced NDCs, and the National Strategy for the Development of the Green Economy for 2023-2037). It will facilitate structural change, policy coherence, stakeholder and private sector engagement for a healthy planet and people. The project aims for integrated interventions to amplify the impacts of social, economic and environmental benefits. The project will also contribute to the GEF's objectives in the area of chemicals and waste to protect the human health and the environment by reducing and eliminating harmful chemicals in products.

D. POLICY REQUIREMENTS

Gender Equality and Women's Empowerment:

We confirm that gender dimensions relevant to the project have been addressed as per GEF Policy and are clearly articulated in the Project Description (Section B).

Yes

Stakeholder Engagement

We confirm that key stakeholders were consulted during PIF development as required per GEF policy, their relevant roles to project outcomes and plan to develop a Stakeholder Engagement Plan before CEO endorsement has been clearly articulated in the Project Description (Section B).

Yes

Were the following stakeholders consulted during project identification phase:

Indigenous Peoples and Local Communities: Yes

Civil Society Organizations: Yes

Private Sector: Yes

Provide a brief summary and list of names and dates of consultations

During the PIF design phase a number of consultation workshops and meetings were conducted in order to discuss the project concept idea and stakeholders' engagement in the implementation of the project. More than 100 stakeholders (35% female) were consulted in the PIF design phase including:

1. Non-governmental organizations:

- NGO Association of Workers of the Refrigeration Sector “Center of Artificial Refrigeration of the Republic of Tajikistan”: The Association of Workers of the Refrigeration Sector gathers the main participants in the equipment service and assembly sector and serves to disseminate experience and best practices in this sector, performs the functions of representation, organization and protection of customer interests.

Members are involved in the installation, design, supply, maintenance of refrigeration and air conditioning equipment;

- NGO “National Association of Small and Medium Businesses of the Republic of Tajikistan (NAM and SB RT)”:

Members of the Association expressed interest on the one hand, as employers, on the other, as producers of goods and services, as well as the interests of small and medium-sized businesses in general, NAM and the Security Council of the Republic of Tajikistan actively take part in the public and political life of the state.

This includes the preparation and implementation of the most important legislative initiatives on the protection of the ozone layer and climate change, affecting business development in the Republic of Tajikistan, in order to improve the business environment and improve the country's rating.

- NGO “National Association of Business Women of Tajikistan”: women entrepreneurs are gathered into a single network to exchange experiences, establish business connections and promote women's entrepreneurship both in general and in the RAC sector. It also supports women to improve both professional and personal skills including strengthening of potential, increase knowledge and skills to develop their own business and improve economic well-being.

2. Private commercial sector:

- RAC service companies (maintenance, equipment assembly):

Rembyttehnika Khujand LLC, EKAUD LLC, Vostok LLC, Realtex LLC, Armon LLC, Shodrutz LLC and other private enterprises

- Foam sector companies (producing foam materials):

LLC 'Nurplast', LLC 'Farovon' and other private enterprises

- Large users of products and equipment containing HFCs:

- Industrial enterprises for food processing and storage

- Agricultural enterprises for storage and processing of products.

- Shopping centers and supermarket chains for storing and selling food products.

- Mobile cellular communications enterprises, large banks - stations, servers and offices.
- Cinema and concert facilities, Hotel facilities, Sports complexes

These sectors are the main consumers of HFCs, products and equipment containing HFCs, resulting in the country's complete dependence on these high-GWP chemicals. These are primarily influencing the HFC phase-out, and their cooperation is essential to the progress of the project

- Companies and entities importing/exporting HFCs and products containing them:

Tamiri Yakhdon LLC, Visol LLC, Tekhnokhol LLC and other private enterprises

These entities are the main suppliers of HFCs and products/equipment containing HFCs, which also influence the consumption of HFCs in terms of quotas and illegal import/export of both new HFCs and products containing them and recovered HFCs.

The table below indicates dates and consulted sectors.

Date	Activity	Location	Remarks
20 June – 12 th July 2023	Target agency consultation meetings	Dushanbe	Series of one to one (PIF Design team to Gov agency) meetings to introduce the HFC Phase Down project to core national government agencies and gain initial feedback on concept note and key areas of interest from agencies. Meetings held with: CoEP, Ministry of Labour, Statistics, and Customs Agency.
17 – 20 July 2023	Target agency consultation meetings with RAC sector and Civil Society Organizations	Dushanbe/Republican Struggle Districts	Two consultation meetings with RAC service sector and HFC importers on the concept note and key areas of interest from these companies. All participations are interested in the new alternative technologies and gaining knowledge and strengthening capacity in the use of these advanced technologies.
30 August 2023	Meeting with International Financial Institutions	Dushanbe	Meetings to introduce the HFC Phase Down project to core national government agencies and gain initial feedback on concept note and key areas of interest from the ADB.

Stakeholder Engagement Plan is attached to this PIF.

(Please upload to the portal documents tab any stakeholder engagement plan or assessments that have been done during the PIF development phase.)

Private Sector

Will there be private sector engagement in the project?

Yes

And if so, has its role been described and justified in the section B project description?

Yes

Environmental and Social Safeguard (ESS) Risks

We confirm that we have provided indicative information regarding Environmental and Social risks associated with the proposed project or program and any measures to address such risks and impacts (this information should be presented in Annex D).

Yes

Overall Project/Program Risk Classification

PIF	CEO Endorsement/Approval	MTR	TE
Medium/Moderate			

E. OTHER REQUIREMENTS

Knowledge management

We confirm that an approach to Knowledge Management and Learning has been clearly described in the Project Description (Section B)

Yes

ANNEX A: FINANCING TABLES

GEF Financing Table

Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non-Grant	GEF Project Grant(\$)	Agency Fee(\$)	Total GEF Financing (\$)
UNDP	GET	Tajikistan	Chemicals and Waste	Ozone Depleting Substances	Grant	5,185,900.00	492,660.00	5,678,560.00
Total GEF Resources (\$)						5,185,900.00	492,660.00	5,678,560.00

Project Preparation Grant (PPG)

Is Project Preparation Grant requested?

true

PPG Amount (\$)

100000

PPG Agency Fee (\$)

9500

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non- Grant	PPG(\$)	Agency Fee(\$)	Total PPG Funding(\$)
UNDP	GET	Tajikistan	Chemicals and Waste	Ozone Depleting Substances	Grant	100,000.00	9,500.00	109,500.00

Total PPG Amount (\$)		100,000.00	9,500.00	109,500.00
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Please provide justification

Sources of Funds for Country Star Allocation

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Sources of Funds	Total(\$)
Total GEF Resources					0.00

Indicative Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing(\$)	Co-financing(\$)
CW-1	GET	5,185,900.00	36550000
Total Project Cost		5,185,900.00	36,550,000.00

Indicative Co-financing

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Recipient Country Government	Committee for Environmental Protection under the Government of the Republic of Tajikistan	In-kind	Recurrent expenditures	600000
Recipient Country Government	Committee for Environmental Protection under the Government of the Republic of Tajikistan	Grant	Investment mobilized	350000
Recipient Country Government	Agency for Standardization, Metrology, Certification and Trade Inspection (Tajikstandard) under the Government of the Republic of Tajikistan	In-kind	Recurrent expenditures	500000
Recipient Country Government	Customs Service under the Government of the Republic of Tajikistan	In-kind	Recurrent expenditures	700000
Recipient Country Government	Customs Service under the Government of the Republic of Tajikistan	Grant	Investment mobilized	200000

Recipient Country Government	Committee on Women's Affairs under the Government of the Republic of Tajikistan	In-kind	Recurrent expenditures	100000
Recipient Country Government	Ministry of Labor, Migration and Employment of the Republic of Tajikistan	In-kind	Recurrent expenditures	400000
Recipient Country Government	Ministry of Health and Social Protection of the Population of the Republic of Tajikistan	In-kind	Recurrent expenditures	350000
Recipient Country Government	Ministry of Health and Social Protection of the Population of the Republic of Tajikistan	Grant	Investment mobilized	750000
Recipient Country Government	Ministry of Industry and New Technologies	In-kind	Recurrent expenditures	500000
Recipient Country Government	Ministry of Industry and New Technologies	Grant	Investment mobilized	500000
Recipient Country Government	Ministry of Energy and Water Resources	In-kind	Recurrent expenditures	200000
Recipient Country Government	Ministry of Energy and Water Resources	Grant	Investment mobilized	200000
Recipient Country Government	Ministry of Education and Science of the Republic of Tajikistan	In-kind	Recurrent expenditures	250000
Recipient Country Government	Agency for Statistics under the President of the Republic of Tajikistan	In-kind	Recurrent expenditures	100000
Civil Society Organization	RAC Association (Main Technical Centre No. 1 and Training Centre No. 2)	In-kind	Recurrent expenditures	1250000
Civil Society Organization	RAC Association (Main Technical Centre No. 1 and Training Centre No. 2)	Grant	Investment mobilized	200000
Civil Society Organization	Republican Association of Entrepreneurs of the Republic of Tajikistan	In-kind	Recurrent expenditures	650000
Civil Society Organization	Republican Association of Entrepreneurs of the Republic of Tajikistan	Grant	Investment mobilized	200000

Private Sector	RAC Service Companies LLC "Vostok", LLC Tamiri Yakhdon, LLC Ekaud	In-kind	Recurrent expenditures	2100000
Private Sector	RAC Service Companies LLC "Vostok", LLC Tamiri Yakhdon, LLC Ekaud	Grant	Investment mobilized	1050000
Private Sector	Mobile and Server Companies	In-kind	Recurrent expenditures	2400000
Private Sector	Mobile and Server Companies	Grant	Investment mobilized	450000
Private Sector	Agricultural/processing companies and the commercial food storage sector; Supermarkets, Food storage warehouses, shopping malls; Hotels, etc.	Grant	Investment mobilized	5000000
Private Sector	Agricultural/processing companies and the commercial food storage sector; Supermarkets, Food storage warehouses, shopping malls; Hotels, etc.	Grant	Investment mobilized	5850000
Others	Hospitals and educational institutions: Demonstration of the application of advanced energy efficient technology of new renewable energy sources in refrigeration and/or air conditioning systems (solar energy for cooling); 1-2 units	In-kind	Recurrent expenditures	700000
Others	Hospitals and educational institutions: Demonstration of the application of advanced energy efficient technology of new renewable energy sources in refrigeration and/or air conditioning systems (solar energy for cooling); 1-2 units	Grant	Investment mobilized	100000
Donor Agency	UNICEF	Grant	Investment mobilized	4800000
Donor Agency	World Bank	Grant	Investment mobilized	1300000
Donor Agency	EBRD	Grant	Investment mobilized	1300000
Donor Agency	ADB	Grant	Investment mobilized	3500000
Total Co-financing				36,550,000.00

Describe how any "Investment Mobilized" was identified

Investment of USD 25.55 million is expected to be mobilized from international financial institutions and private sector companies such as HFC importers and RAC service sector (small, medium and large commercial companies for the installation and maintenance of refrigeration and air conditioning equipment), the assembly sector (including the assembly and commissioning of large commercial and industrial refrigeration and air-conditioning chillers) and others such as the foam sector (SMEs, including

sandwich panels and spraying for thermal insulation of cold rooms , small residential and industrial buildings) for scaling up and replication of demo projects on promotion of energy efficient technologies with low GWP, modification/replacement of equipment with efficient alternative technologies, as well as demonstration of integrated heating and cooling system in combination with renewable energy sources across the country.

ANNEX B: ENDORSEMENTS

GEF Agency(ies) Certification

GEF Agency Type	Name	Date	Project Contact Person	Phone	Email
GEF Agency Coordinator	Pradeep Kurukulasuriya	10/18/2023	Xiaofang Zhou		xiaofang.zhou@undp.org

Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

Name	Position	Ministry	Date (MM/DD/YYYY)
Bahodur Sheralizoda	Chairman	Committee of Environmental Protection under the Government of the Republic of Tajikistan	9/29/2023

ANNEX C: PROJECT LOCATION

Please provide geo-referenced information and map where the project interventions will take place

The target landscape for this HFC Phase Down integrated program is all regions (oblasts) of the Republic of Tajikistan such as Sughd, Khatlon, Gorno-Badakhshan Autonomous oblasts, Districts of Republican Subordination. The current project design aims to work closely with HFC importers, RAC service sector (small, medium and large commercial companies for the installation and maintenance of refrigeration and air conditioning equipment), the assembly sector (including the assembly and commissioning of large commercial and industrial refrigeration and air-conditioning chillers) and others such the foam sector (SMEs, including sandwich panels and spraying for thermal insulation of cold rooms, small residential and industrial buildings).

Figure 2. Map of Tajikistan



ANNEX D: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING

(PIF level) Attach agency safeguard screen form including rating of risk types and overall risk rating.

Title

Environmental and Social Safeguards Screen

ANNEX E: RIO MARKERS

Climate Change Mitigation	Climate Change Adaptation	Biodiversity	Land Degradation
Significant Objective 1	Significant Objective 1	No Contribution 0	No Contribution 0

ANNEX F: TAXONOMY WORKSHEET

Level 1	Level 2	Level 3	Level 4
Influencing Models	Transforming policy and regulatory environment	(multiple selection)	(multiple selection)
Stakeholders	Beneficiaries	(multiple selection)	(multiple selection)
Capacity, Knowledge and Research	Capacity Development	(multiple selection)	(multiple selection)
Gender Equality	Gender mainstreaming	(multiple selection)	(multiple selection)
Focal Area/Theme	Chemicals and Waste	(multiple selection)	(multiple selection)