

United Nations Development Programme
Country: Islamic Republic of Iran
Project Document

Project Title	HCFC Phase-out Management Plan for Iran – UNDP Component: [IRA/PHA/63/INV/199] [IRA/PHA/63/INV/204] [IRA/PHA/63/INV/203]
UNDAF Outcome(s):	Outcome 4.1: Global and national environmental concerns and environmentally sensitive development integrated into national development frameworks and implemented through community-based approaches to the sustainable use of natural resources, capacity building, environmental assessments and the removal of financial, economic, legal, institutional and technological barriers.
Expected CP Outcome(s): <i>(Those linked to the project and extracted from the CPAP/UNDAF Action Plan)</i>	Global environmental commitments integrated into national development planning and implementation capacity developed
Expected Output(s): <i>(Those that will result from the project and extracted from the CPAP)</i>	Achievement of HCFC consumption control targets in Iran for 2013 and 2015 through implementation of HCFC Phase-Out Management Plan (HPMP) for Iran.
Executing Entity:	Department of Environment (DOE)
Implementing Agency:	United Nations Development Programme (UNDP)

Project Summary

The XIXth Meeting of the Parties to the Montreal Protocol in September 2007, through its Decision XIX/6, adopted an accelerated phase-out schedule for HCFCs. The first control is the freeze on production and consumption of HCFCs from 01 January 2013, at the Baseline Level (average of 2009 and 2010 consumption levels). The other control steps are reduction of 10% by 2015, reduction of 35% by 2020, reduction of 67.5% by 2025, reduction of 100% by 2030, allowance of 2.5% of baseline (annual equivalent) for period 2030-2040 and complete phase out by 2040. Iran is a party to the Montreal Protocol and must comply with the above targets.

During the 63rd Meeting of the Executive Committee, HCFC Phase-out Management Plan of Iran – Stage I, addressing 2013 and 2015 targets, was approved by the Executive Committee with UNDP as the lead implementing agency, UNEP, UNIDO and Germany (GIZ) as the cooperating agencies. Total funding approved was US\$10,393,388 for all the agencies. Through the HPMP, Iran Government has committed itself to HCFC freeze in 2013 and 10% reduction in 2015 (Stage-I targets). To achieve these targets, out of the approved amount of US\$10,393,388, funds totalling US\$4,565,746 were allocated to UNDP for assisting the Government in implementing investment projects under UNDP components, and in project management and monitoring for HPMP. Of this, US\$2,242,000 as the first tranche was approved at the 63rd Meeting of the Executive Committee, through a multi-year Performance-based Agreement between the Government of Islamic Republic of Iran and the Executive Committee.

Implementation of the project will assist Government of Islamic Republic of Iran in reducing their HCFC consumption from 398.8 ODP tons in 2010 to **380.5 ODP tons in 2013** and **342.5 ODP tons in 2015**.

Programme Period: 2011 – 2015	Total resources required:	US\$ 4,565,746/-
Key Result Area (Strategic Plan):	Total allocated resources:	_____
Atlas Award ID: 63034	• Regular	_____
Atlas Project ID: 80336	• Other:	_____
Start date: 01 December 2011	o MLF	US\$ 4,565,746/-
End Date: 31 December 2015	Unfunded budget:	_____
Management Arrangements: National Implementation	In-kind Contributions	_____

Agreed by Government:

17th Jan. 2012

Agreed by UNDP:

[Signature]



1. SITUATION ANALYSIS

1. OBJECTIVE

The objective of this project is to assist Government of Islamic Republic of Iran implement projects under UNDP component of HPMP in line with overall strategy and implementation plan outlined in the HPMP document approved by the 63rd Meeting of the Executive Committee. The extract of Annex XXXVII to the report of the 63rd Meeting of the Executive Committee containing the Agreement between the Executive Committee of the Multilateral Fund and Government of Islamic Republic of Iran for Stage I of HPMP is attached in Annex II to this document.

2. BACKGROUND

2.1 Country Profile

Iran is located at the edge of the Middle East and South Asia with a land area of 1.65 million sq. km and a population of about 75.3 million (2011) with an estimated GDP per capita of USD 4,740 (2011). The agricultural sector accounts for 11% of GDP, the industry for 44% and the service sector for 45%. The population density is approx. 45 persons per sq km where urban population represents around 68% of the total population.

2.2 ODS Phase Out in Iran

The table below shows the dates of ratification by Iran of the Montreal Protocol and its amendments:

Agreement	Date of ratification	Entry into force
Vienna Convention	03 October 1990	December 1990
Montreal Protocol	03 October 1990	December 1990
London Amendment	04 August 1997	November 1997
Copenhagen Amendment	04 August 1997	November 1997
Montreal Amendment	17 October 2001	January 2002
Beijing Amendment	Passes the approval of the Parliament in mid 2011	

Iran's Country Programme reflecting the national strategy and action plan for controlling Ozone Depleting Substances (ODSs) under the Montreal Protocol was prepared and approved at the 10th Meeting of the Executive Committee of the Multilateral Fund in June 1993. The action plan presented in the Country Programme outlined policies and proposals for ODS reductions through defining ODS use quotas, taxation on ODS and ODS-based products and gradual reduction of ODS imports, supported by technological and financial interventions to ODS users for transitioning to appropriate substitutes. Through these interventions, Iran made significant progress in ODS phase-out through implementation of technology transfer investment projects, technical assistance, training, institutional strengthening and capacity building.

Iran's National Phase-out Plan for ODS (NPP) was approved in December 2003 aiming to reduce and totally phase-out the remaining consumption of 1,658 ODP metric tonnes of Annex-A Group-I substances (CFCs). In November 2006, I.R. Iran's Terminal Solvent Eradication Phase-out Project was approved to assist the country in the phase-out of 44.7 and 8.63 ODP metric tonnes of Annex-B Groups-II and III substances (CTC and TCA) by 2010 and 2015 respectively. These two projects were implemented through a multi-year performance-based



agreement, aiming to enable Iran to comply with the 2005, 2007 and 2010 control milestones of the Montreal Protocol. Iran has achieved phase-out of all ODSs except Methyl Bromide and HCFCs.

2.3 Evolution of HCFC Phase-out Management Plans

HCFCs, which have Ozone Depleting Potential (ODP) up to 15% of that of CFCs, are also classified as controlled substances under Annex-C, Group-I of the Montreal Protocol. HCFCs, therefore, have use restrictions and would eventually have to be phased-out. Initially, for developing countries, the scheduled phase-out date for HCFCs was 1 January 2040 with an interim control measure of freezing HCFC production and consumption at 2015 levels from 1 January 2016.

During the implementation of the CFC phase-out under the Montreal Protocol, HCFCs were approved as interim substitutes for CFCs in many of the projects and activities supported by the Multilateral Fund. Considering the increasing demand for HCFCs, and considering the imminent restrictions on HCFCs, including the 2016 freeze in consumption for Article-5 countries, it was necessary to address the technology and environmental issues arising from HCFC use reductions. Moreover, it was expected that actions to reduce HCFC consumption needed to be initiated sooner rather than later. Recognizing these challenges, the ExCom approved at its 45th Meeting in 2005, funding for UNDP to carry out HCFC surveys in 12 countries, to assess the HCFC consumption and growth trends in these countries. Iran was one of the countries which requested to be a part of this survey. The key result of this survey was establishing the HCFC consumption profiles and projected growth rates in HCFC consumption in various sectors in Iran until 2015. As established in this survey, which was carried out during 2005-2007, Iran does not produce HCFCs and the domestic demand is entirely met through imports. The total imports of HCFCs in Iran during 2005 were 2,114 metric tonnes. At a conservative growth rates, this was projected to reach about 8,293 metric tonnes by 2015. Section 2.4 provides more details.

The XIXth Meeting of the Parties to the Montreal Protocol in September 2007, through its Decision XIX/6, adopted an accelerated phase-out schedule for HCFCs. The first control is the freeze on production and consumption of HCFCs from 01 January 2013, at the Baseline Level (average of 2009 and 2010 consumption levels). The second control step is the reduction of 10% from the Baseline Levels on 01 January 2015. Subsequent control steps are 35% reduction by 2020, 67.5% by 2025, 97.5% by 2030 and complete phase out from 1st January 2040. The decision also directed the Executive Committee of the Multilateral Fund to assist Article-5 Parties in preparation of HCFC Phase-out Management Plans (HPMP).

2.4 HCFC Phase-out Management Plan of Iran

During the 56th and 57th meetings of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol held in November 2008 and April 2009 respectively, Government of Islamic Republic of Iran received assistance total amounting to US\$198,750 for preparation of HPMP for achieving Stage-I targets (i.e., 2013 freeze and 2015 10% reduction). The Government of Islamic Republic of Iran designated UNDP as the lead agency for preparation of HPMP; and UNEP, UNIDO and Germany (GIZ) were designated as the cooperating agencies.



The HPMP of Iran was prepared and submitted for the consideration of the 62nd Meeting of the Executive Committee after due review and endorsement by the Government. In its 62nd meeting, the Committee decided to defer the consideration of HPMP to the 63rd Meeting as they felt the need for more consultations on individual projects proposed in Iran. Following this, HPMP of Iran was resubmitted for the consideration of 63rd meeting of the Executive Committee held in April 2011 and approved in that meeting as a Multi-year Performance-based Agreement for achieving Stage-I targets.

The Executive Committee approved HPMP of Iran for Stage-I at a funding level of US\$10,393,388 through its decision 63/56 of the 63rd Meeting of the Executive Committee. Of this, the total funds approved for UNDP component amounts to US\$4,565,746. In the 63rd meeting of the Executive Committee, funding for first tranche that amounts to US\$2,242,000 was approved for implementation of UNDP components.

For implementation of HPMP, a Multi-year Performance Based Agreement was signed between the Government of Islamic Republic of Iran and the Executive Committee. Through this agreement, the Government of Islamic Republic of Iran has agreed to reduce HCFC consumption levels from 398.8 ODP tons in 2010 to 380.5 ODP tons in 2013 and 342.5 ODP tons in 2015. The funds approved for Stage-I under this agreement would be disbursed through a performance based mechanism during the period 2011-2015 in four tranches i.e., in the year 2011, 2012, 2013 and 2015.

ii. STRATEGY FOR HPMP IMPLEMENTATION

The Government of Islamic Republic of Iran has designated UNDP to be the lead implementing agency for the HCFC phase-out management plan of Iran. The current agreement relates to achieving Stage-I targets, i.e., HCFC phase-out targets for 2013 and 2015, for Iran. As the lead agency for this project, UNDP will work closely with the National Ozone Unit, Department of Environment, Iran (NOU/DOE) and other cooperating agencies, UNEP, UNIDO and Germany (GIZ), to assist the Government of Iran achieve HPMP Stage I targets i.e., 2013 and 2015 targets.

The HCFC Phase-out Management Plan for Iran proposes to address 2013 and 2015 targets through a combination of project interventions in prioritized industries for phasing-out HCFCs and “constrained growth” in HCFC supply and use in the country. An overview of specific interventions that would be adopted is given below:

- Implementation of projects for converting industries using HCFC-141b in foam sector that includes companies manufacturing continuous and discontinuous sandwich panels, domestic refrigeration equipment insulation foam, integral skin foam manufacturers and other rigid foam manufacturers, to HCFC free alternatives. The enterprises will be adopting HC based alternatives;
- Conversion of one systems house from HCFC-141b to feasible low-GWP alternatives;
- Conversion of one domestic air-conditioning manufacturer to R-410A in manufacturing residential air-conditioners;
- Development and enforcement of regulatory interventions to control HCFC import levels to the targeted limit, thus, constraining growth of HCFCs and reduce dependence on HCFCs. This will include, amongst others, quota system for HCFC imports, restriction /prohibition on manufacturing products and/or setting-up and expansion of

capacities for manufacturing products using HCFCs, import restrictions on import of HCFC using air-conditioning and refrigeration equipment;

- Training for (a) servicing sector enterprises on good servicing practices and retrofit of HCFC based equipment with HCFC free alternatives, for reducing service demand of HCFCs, and (b) enforcement officers for controlling and monitoring HCFC imports and use;
- Awareness and information outreach programmes targeting consumers and other identified national stakeholders for achieving HCFC phase-out; and
- Project Management and Coordination for sector plans and monitoring implementation of HPMP under the supervision of NOU/DOE.

Performance Verification will be undertaken by independent Verification Entity engaged by UNDP, the Lead Implementing Agency, as required under Para 5(b) of the Agreement for HPMP Stage-I between the Government of Islamic Republic of Iran and the Executive Committee of the Multilateral Fund.

The table below provides a summary of project components that would be undertaken by individual implementing agencies for implementing HPMP over the period 2011 to 2015:

Agency	Sector/sub-sector	Funding (US\$)	Phase-out (ODP tonnes)		
			Total	HCFC-141b	HCFC-22
1	2	3	4	5	6
UNDP	Residential air-conditioning (Mehr Asl Co.)	3,860,246	29.3	0.0	29.3
	Residential air-conditioning (Technical support)	90,000	0.0	0.0	0
	Foams systems house conversion (USC)	225,500	0.0	0.0	0
	Project Management	390,000	0.0	0.0	0
	Sub-total (UNDP)	4,565,746	29.3	0.0	29.3
Germany (represented by GIZ)	Foam (continuous panels)	1,725,240	24.5	24.5	0.0
	Foam (rigid)	377,575	6.2	6.2	0.0
	Foams Sector (Technical Assistance)	280,000	0.0	0.0	0.0
	Servicing sector	503,000	6.1	0.0	6.1
	Sub-total (Germany)	2,885,815	36.8	30.7	6.1
UNIDO	Foam (discontinuous panels)	1,273,897	17.3	17.3	0.0
	Foam (integral skin)	840,105	7.6	7.6	0.0
	Foam (domestic refrigeration)	565,825	7.1	7.1	0.0
	Sub-total (UNIDO)	2,679,827	32.0	32.0	0.0
UNEP	Servicing sector	262,000	3.2	0.0	3.2
	Sub-total (UNEP)	262,000	3.2	0.0	3.2
Grand Total		10,393,388	101.3	62.7	38.6

All agencies would work in a coordinated manner with the NOU/DOE of Iran to ensure synchronised and timely completion of HPMP. Inter-Agency Coordination Agreement for formal project coordination among agencies (UNDP, UNIDO, UNEP and Germany) for HPMP of Iran would be signed.

The NOU/DOE will be overall responsible for project management and supervision of HPMP activities. NOU/DOE, wherever necessary, would work closely with Provincial Ozone Cells on HPMP projects.

III. TIME FRAME/MONITORING MILESTONES

Overall time plan for implementation of the programmes is given in the table below:

MILESTONE/TIME FRAME	Half-Years (HY) beginning 1 July 2011								
	2011		2012		2013		2014		2015
	HY-1	HY-2	HY-3	HY-4	HY-5	HY-6	HY-7	HY-8	HY-9
Conversion of one residential AC manufacturer to R-410A									
Finalisation of overall implementation plan									
Finalisation of Agreement between NOU/DOE and manufacturer									
Project completion									
Monitoring implementation against agreement milestones									
Conversion of one systems house to manufacturing polyols with HCFC free blowing agent									
Finalisation of overall implementation plan									
Finalisation of Agreement between NOU/DOE and manufacturer									
Project completion and closure									
Monitoring implementation against agreement milestones									
Project Management and Monitoring									
Finalisation of Implementation Plan for Project Management and Monitoring									
Project implementation and monitoring									
Verification of 2013 and 2015 targets *									

*Achievement of 2015 HPMP targets will be verified in 2016.



IV. RESULTS AND RESOURCES FRAMEWORK

Applicable Goal (UNDAF):	Outcome 4.1: Global and national environmental concerns and environmentally sensitive development integrated into national development frameworks and implemented through community-based approaches to the sustainable use of natural resources, capacity building, environmental assessments and the removal of financial, economic, legal, institutional and technological barriers. Indicator: Number of national implementation plans developed and integrated into the fifth NDP.				
ATLAS Award ID:	00063034				
ATLAS Project ID:	00080336				
Intended Outputs	Output Targets for 2011 to 2015	Indicative activities	Responsible Parties	Inputs (US\$ 000)	
<p>Output: Iran's HCFC compliance targets for 2013 and 2015 achieved through HPMP implementation</p> <p>Baseline: Need for implementing HPMP for compliance with the 2013/2015 control targets for HCFCs</p> <p>Indicator: Reduction of HCFC consumption to 380.5 ODP tons in 2013 and 342.5 ODP tons in 2015.</p>	<p>Targets : November 2011-December 2011 Agreements signed between NOU/DOE and beneficiary enterprises for project implementation in residential ac manufacturer and systems house for conversion to HCFC free alternatives.</p> <p>Targets : January 2012 – December 2013 Submission and approval of Implementation Report for 2011 and Plan for 2012 and release of 2012 Tranche.</p> <p>Submission and approval of Implementation Report for 2012 and Plan for 2013 and release of 2013 Tranche.</p> <p>Targets : January 2014 – December 2015 Submission and approval of Implementation Report for 2013 and Plan for 2014 and Verification Report for 2013.</p> <p>Submission and approval of Implementation Report for 2014 and Plan for 2015 and Verification Report for 2014. Release of 2015 Tranche</p>	<p>1. Investment Project – Conversion of one residential Air Conditioners manufacturer to manufacture R-410A based residential ACs</p> <ul style="list-style-type: none"> - Signature of a Memorandum of Agreement with beneficiary enterprise - Organization of bidding and procurement of equipment - Shipment, customs clearance and delivery of equipment at the beneficiary units - Installation and commissioning of the new equipment - Decommissioning of the HCFC based machinery and completion of the project - Technical assistance for project implementation - Project monitoring and progress reporting on a half yearly basis - Completion of conversion to HCFC free alternatives 	UNDP/ NOU/DOE	3,950.2	
			<p>2. Investment Project – Conversion of one systems house to manufacture HCFC free polyol systems</p> <ul style="list-style-type: none"> - Signature of a Memorandum of Agreement with beneficiary enterprise - Organization of bidding and procurement of equipment - Shipment, customs clearance and delivery of equipment at the beneficiary units - Installation and commissioning of the new equipment - Decommissioning of the HCFC based machinery and completion of the project - Technical assistance in implementing project component - Project monitoring and progress reporting on a half yearly basis - Completion of conversion to HCFC free polyol systems 	UNDP/ NOU/DOE	225.5
			<p>3. Project Management and Monitoring</p>	NOU/DOE	



Applicable Goal (UNDAF):	Outcome 4.1: Global and national environmental concerns and environmentally sensitive development integrated into national development frameworks and implemented through community-based approaches to the sustainable use of natural resources, capacity building, environmental assessments and the removal of financial, economic, legal, institutional and technological barriers. Indicator: Number of national implementation plans developed and integrated into the fifth NDP.			
ATLAS Award ID:	00063034			
ATLAS Project ID:	00080336			
Intended Outputs	Output Targets for 2011 to 2015	Indicative activities	Responsible Parties	Inputs (US\$ 000)
		<ul style="list-style-type: none"> - Monitoring project implementation - Providing Technical, Financial and operational management - Project progress reporting and coordination support 		
		Grand total		4,565.7



V. ANNUAL WORK PLAN

Overall budget break-up for HPMP for the period 2011-2015 is given in Annex-IV to this document. The table below presents the budgets for the first tranche available under the project:

AWARD ID	00063034								
PROJECT ID	00080336								
Project Title	Implementation of HPMP of Islamic Republic of Iran – UNDP Component								
Executing Agency	Ozone Layer Protection Unit, Department of Environment (NOU/DOE)								
ATLAS Activity	Responsible Party	Source of funds	ATLAS Code	ATLAS Budget Description	2011	2012	2013	Total	
Activity 1 : Investment Project – phase-out of HCFC-22 in one residential AC manufacturer	UNDP	63030	71200	International experts	2,500	7,500	5,000	15,000	
	NOU/DOE	63030	71300	National consultants	2,500	7,500	5,000	15,000	
	NOU/DOE	63030	72100	Contractual Services (Investment Project)	750,000	1,000,000	22,500	1,772,500	
	UNDP	63030	74500	Miscellaneous (contingencies)	0	0	46,000	46,000	
	NOU/DOE	63030	75700	Workshops and consultative meetings	10,000	60,000	20,000	90,000	
	Sub-Total				765,000	1,075,000	98,500	1,938,500	
Activity 2 : Investment Project – phase-out of HCFC- 141b in one systems house	UNDP	63030	71200	International experts	5,000	5,000		10,000	
	NOU/DOE	63030	72100	Contractual Services (Investment Project)	40,000	135,000	20,000	195,000	
	UNDP	63030	74500	Miscellaneous (contingencies)	0	20,500	-	20,500	
	Sub-Total				45,000	160,500	20,000	225,500	
Activity 3 : Project Management and Monitoring	NOU/DOE	63030	72100	Contractual Services (Project Management)	78,000	0	0	78,000	
	Sub-Total				78,000			78,000	
Total					888,000	1,235,500	118,500	2,242,000	



VI. MANAGEMENT STRUCTURE FOR HPMP IMPLEMENTATION

6.1 Implementation Modality

The project will be managed in accordance with National Implementation Modality (NIM). The Government of Islamic Republic of Iran through its National Ozone Unit, Ozone Layer Protection Unit, Department of Environment, Environmental Research Center ("NOU/DOE") will be implementing project with support from UNDP. NIM has been chosen as the Government has capacity to undertake implementation of the project with technical support from UNDP. The UNDP Country Office has consulted the Government and agreed with the Government on the implementation modality.

The HPMP agreement for Stage-I between the Executive Committee and Government of Islamic Republic of Iran is a **Performance based agreement** whereby the annual funding tranches for the periods 2012 to 2015 will be approved by the Executive Committee after examining the project performance. This will require achievement of specific HCFC phase-out milestones and for this, the enterprises assisted by the Government through this project need to achieve specific milestones to convert to HCFC free alternatives in a time-bound manner. Therefore, the projects will be implemented through the Performance Based Payment (PBP) mechanism. Under this, for each of the projects, specific verifiable milestones will be defined and payments will be made based on achievement of the milestones for the various components as given below.

- **Investment project components** would be executed through Performance-based Memorandum of Agreement (MoA) between the Government and beneficiary for specific performance milestones that will form a part of the project component. On achievement of agreed milestones duly endorsed by the Government, payment would be released to the beneficiaries by UNDP.
- **Project management and monitoring** would be executed through a performance-based mechanism. On completion of milestones, disbursements will be made by UNDP in accordance with agreed schedule given in Annex-V to this document.

UNDP will work closely with and assist the NOU/DOE during the course of project implementation. UNDP will be responsible for financial management and result-based project monitoring. Performance verification and reporting will be carried out in accordance with the Agreement for HPMP Stage-I between the Government of Islamic Republic of Iran and the Executive Committee of the Multilateral Fund.

For coordination among agencies during implementation of HPMP, Inter-agency Coordination Agreement would be signed between the agencies. UNDP will also provide necessary support in line with its commitments under inter-agency coordination agreement.



6.2 Roles and responsibilities

The roles and responsibilities of National Ozone Unit and UNDP would be:

National Ozone Unit, Ozone Layer Protection Unit, Department of Environment, Environmental Research Center (NOU/DOE)

- Coordination of overall project implementation and monitoring.
- Convening inter-agency coordination meeting or equivalent on project progress review and planning on an annual basis.
- Reviewing and taking necessary steps for timely project implementation including signature of enterprise level agreement with beneficiary enterprises, project implementation review consultations, monitoring implementation of HPMP.
- Coordinating with national stakeholders including different Government organisations and private sector enterprises (including service agencies) on project components including signature of relevant enterprise level agreements, monitoring arrangements etc.
- Coordinating review of policy/regulatory framework among related Government agencies and national stakeholders and evolving consensus on the same for implementation.
- Endorsement of Implementation Report for previous year and Implementation Plan current year for HPMP.
- Endorsement of Verification Report for the relevant years as per the Agreement with the Executive Committee.
- Reporting of consumption levels of HCFCs under Article 7, CP Progress Report and report for implementation of HPMP to Ozone Secretariat and Multilateral Fund Secretariat.

UNDP

UNDP will provide the following assistance to NOU/DOE under this project.

- Ensuring that disbursements/payments relating to UNDP components are made to Government and beneficiaries in accordance with the respective agreements.
- Providing technical and policy inputs relating to UNDP project components, upon request.
- Ensuring Performance Verification in accordance with the terms of the Agreement between the Executive Committee and Government of Islamic Republic of Iran for achieving HPMP Stage-I targets.
- Assisting the Government of Islamic Republic of Iran in preparation Implementation Reports and Implementation Plan as required under the Agreement between the Executive Committee and Government of Islamic Republic of Iran for achieving HPMP Stage-I targets.
- Carrying out supervision missions as required for Iran's compliance with the Agreement between Executive Committee and the Government of Islamic Republic of Iran for achieving HPMP Stage-I targets.
- Financial monitoring and reporting to NOU/DOE on a regular basis. However, considering the fact the payments should be made base on achievement of milestones under each component, half yearly reports would suffice



VII. MONITORING FRAMEWORK AND EVALUATION

7.1 Monitoring and Reporting

The reporting with respect to the project shall include the following reports:

- Implementation Report and Plan and Verification Report as specified in the Agreement between Executive Committee and the Government of Islamic Republic of Iran;
- Progress of Implementation of Country Programme (including HCFCs); and
- Article 7 ODS Data Report (including HCFCs).

Monitoring will include a continuous review of the various project components and will be intended to (i) measure the progress towards meeting the overall project objectives, and (ii) alert implementing partners to potential problems in implementation and propose corrective measures.

UNDP will be responsible for financial monitoring and reporting on all their disbursements in the programme and will ensure continued reporting to the Government of Islamic Republic of Iran and Multilateral Fund Secretariat (Refer to the ExCom-Iran Agreement and Inter-agency Coordination Agreement).

7.2 Quality Management for Project Results

Quality management for project results is presented in the table below.

OUTCOME: Iran's compliance with the 2013 HCFC consumption freeze at 380.5 ODP tons and 2015 10% reduction in HCFC consumption to 342.5 ODP tons, achieved.		
OUTPUT: The following projects contribute to achieving the outcome above.		
<ul style="list-style-type: none"> • Conversion of Ms. Mehr Asl Manufacturing Corporation (Mehr Asl) to R-410A in manufacturing residential air-conditioners achieved contributing to phase-out of 29.3 ODP tons. • Conversion of Urethane Systems Company (USC) to HCFC free low-GWP alternative foam blowing agent. • Planning, monitoring & reporting on project implementation. 		
Result I	Investment Project – Conversion of one residential AC manufacturer to manufacture R-410A based residential air-conditioners	Start Date: 1December2011 End Date : December 2013
Purpose	Convert Ms. Mehr Asl Manufacturing Corporation (Mehr Asl) to R-410A (refrigerant) technology in manufacturing residential air-conditioners	
Description	<ul style="list-style-type: none"> • Finalise Memorandum of Agreement (MoA) with Mehr Asl for implementation of conversion project. • Technical inputs, including assistance from technical experts, for project implementation. • Monitor project implementation. 	
Quality Criteria	Quality Method	Date of Assessment
MoA between NOU/DOE and Mehr Asl signed	Signed MoA between NOU/DOE and beneficiary enterprise	December 2011
Technical inputs required for implementing project provided	Report on project progress	December 2012
Commercial production of HCFC free residential air-conditioning equipment at Mehr Asl	Commencement of commercial production of HCFC free residential air-conditioners physically verified	December 2013

Result 2	Investment Project – Conversion of one systems house to manufacture HCFC free polyol systems	Start Date: 1December2011 End Date : December 2013
Purpose	Convert Urethane Systems Company (USC) for production of polyol systems with HCFC free low-GWP alternative foam blowing agent.	
Description	<ul style="list-style-type: none"> Finalise Memorandum of Agreement (MoA) with USC for implementation of conversion project. Technical inputs, including assistance from technical experts, for conversion for project implementation. Monitor project implementation. 	
Quality Criteria	Quality Method	Date of Assessment
MoA between NOU/DOE and USC signed	Signed MoA between NOU/DOE and beneficiary enterprise	December 2011
Technical inputs required for implementing project provided	Report on project progress	December 2012
Commercial production of polyol systems which are HCFC free with low-GWP alternative foam blowing agent	Commencement of commercial production of polyol systems with HCFC free low-GWP alternative blowing agent physically verified	December 2013

Result 3	Project Management and Monitoring	Start Date: 1December2011 End Date : December 2015
Purpose	Ensuring smooth technical and operational management of project, build partnership with project stakeholders and monitor performance	
Description	<ul style="list-style-type: none"> Technical, Financial and Operational management Coordination and consultation with national stakeholders Monitoring and reporting 	
Quality Criteria	Quality Method	Date of Assessment
Positive performance of project on technical and operational aspects	Project performance report by NOU/DOE	31 January of following year
Project implemented as planned	Timely submission of Implementation Report and Plan, and Performance Verification Report (as required) to the Executive Committee.	Due date for submission to the relevant Executive Committee Meeting



VIII. LEGAL CONTEXT

Standard Text: Supplemental Provisions to the Project Document: The Legal Context

General Responsibilities of the Government, UNDP and the Implementing Partner

1. The Government, assuming its overall responsibility, shall designate the Government Co-operating Agency named in the cover page of this document (hereinafter referred to as the "Co-operating Agency") which shall be directly responsible for the implementation of the Government contribution to the project.
2. The Project Document, and the term as used in this Annex, includes the Country Programme Action Plan (CPAP), signed by the Government of Iran (the Government) on (signing date of the current CPAP), and the Annual Work Plan (AWPs), together with this Annex attached to the AWPs.
3. UNDP project activities shall be carried out in accordance with the relevant and applicable resolutions and decisions to the competent UNDP organs, and subject to the availability of the necessary funds to UNDP. In particular, decision 2005/1 of 28 January 2005 of UNDP's Executive Board approved the new Financial Regulations and Rules and, along with them, the new definitions of 'Executing Entity'¹ and 'Implementing Partner'² enabling UNDP to fully implement the new Common Country Programming Procedures resulting from the UNDP simplification and harmonization initiative.
4. All phases and aspects of the project shall be governed by and carried out in accordance with the relevant and applicable resolutions and decisions of the competent United Nations organs and the principles embedded in UNDP's Financial Regulations and Rules, and in accordance with UNDP's policies and procedures for such projects, and subject to the requirements of the UNDP Monitoring, Evaluation and Reporting System.
5. The Co-operating agency shall remain responsible for its part in UNDP-assisted development projects and the realization of their objectives as described in the Project Document.
6. Assistance under the Project Document is provided for the benefit of the Government and the people of the Islamic Republic of Iran. The Co-operating Agency shall bear all imputable risks of operations in respect of this project.
7. The Co-operating Agency, in accordance with the Project Document, shall provide to the project the national counterpart personnel, training facilities, land, buildings, equipment and other required services and facilities.

¹ Executing Entity shall mean, for UNDP programme activities carried out under the harmonized operational modalities established in response to General Assembly resolution 56/201, the entity that assumes the overall ownership over and responsibility for UNDP programme activities and the acceptance of accountability for results, and shall normally be the programme country Government.

² Implementing Partner shall mean, for UNDP programme activities carried out under the harmonized operational modalities established in response to General Assembly resolution 56/201, the entity to which the Administrator has entrusted the implementation of UNDP assistance specified in a signed document along with the assumption of full responsibility and accountability for the effective use of UNDP resources and the delivery of outputs, as set forth in such document.



8. The UNDP undertakes to complement and supplement the Co-operating Agency participation and will provide through the Implementing Partner the required expert services, training, equipment and other services within the funds available to the project.
9. Upon commencement of the project the implementing Partner shall assume primary responsibility for project implementation and shall have the status of an independent contractor for this purpose. However, that primary responsibility shall be exercised in consultation with UNDP and in agreement with the Co-operating Agency. Arrangements to this effect shall be stipulated in the Project Document as well as for the transfer of this responsibility to the Co-operating Agency or to an entity designated by the Co-operating Agency during the implementation of the project.
10. Part of the Co-operating Agency's participation may take the form of cash contribution to UNDP. In such cases, the Implementing Partner will provide the related services and facilities and will account annually to the UNDP and to the Co-operating Agency for the expenditure incurred.

(a) Participation of the Government

1. The Co-operating Agency shall provide to the project the services, equipment and facilities in the quantities and at the time specified in the Project Document Budgetary provision, either in kind or in cash, for the Co-operating Agency's participation so specified shall be set forth in the Project Budgets.
2. The Co-operating Agency shall, as appropriate and in consultation with the Implementing Partner, assign a director for the project on a full-time basis. He shall carry out such responsibilities in the project as are assigned to him by the Co-operating Agency.
3. The estimated cost of items included in the Co-operating Agency contribution, as detailed in the project budget, shall be based on the best information available at the time of drafting the project proposal. It is understood that price fluctuations during the period of execution of the project may necessitate an adjustment of said contribution in monetary terms; the latter shall at all times be determined by the value of the services, equipment and facilities required for the proper implementation of the project.
4. Within the given number of work-months of personnel services described in the Project Document, minor adjustments of individual assignments of project personnel provided by the co-operating Agency may be made by the co-operating Agency in consultation with the Implementing Partner, if this is found to be in the best interest of the project. UNDP shall be so informed in all instances where such minor adjustments involve financial implications.
5. The Co-operating Agency shall continue to pay the local salaries and appropriate allowances of national counterpart personnel during the period of their absence from the project while on UNDP fellowships.
6. The Government shall defray any customs duties and other charges related to the clearance of project equipment, its transportation, handling, storage and related expenses within the country. It shall be responsible for its installation and maintenance, insurance, and replacement, if necessary after deliver to the project site.
7. The Co-operating Agency shall make available to the project – subject to existing security provisions and national laws and regulations – any published and unpublished reports, maps, records and other data, which are considered necessary to the implementation of the project. Such reports, maps, records and other data shall be exclusively used for the implementation of the project. In cases when the Co-operating Agency, due to security provisions or national laws and regulations, does not make available reports, maps, records and other data considered necessary to



the implementation of the project, UNDP and the Government may decide to modify or redesign the project or components thereof.

8. Unless otherwise agreed by the Parties in each case, patent rights, copyright and other similar rights to any discoveries or work resulting from UNDP assistance in respect of this project shall belong to the UNDP. Unless otherwise agreed by the Parties in each case, however, the Government shall have the right to use any such discoveries to work within the country free of royalty and any charge of similar nature.
9. The Co-operating Agency undertakes to assist all project personnel in finding suitable housing accommodation at reasonable rents.
10. The services and facilities specified in the Project Document which are to be provided to the project by the Co-operating Agency by means of a contribution in cash shall be set forth in the Project Budget. Payment shall be made in accordance with the Schedule of Payments in the Project Document.
11. Payment of the above-mentioned contribution on or before the dates specified in the Schedule of Payments is a prerequisite to commencement or continuation of project operations.

(b) Participation of UNDP and the Implementing Partners

1. The UNDP shall provide to the project through the Implementing Partner the services, equipment and facilities described in the Project Document Budgetary provision for the UNDP contribution as specified shall be set forth in the Project Budgets.
2. The Implementing Partner shall consult with the Co-operating Agency and UNDP on the candidature of the Project Manager who under the direction of the Implementing Partner will be responsible in the country for the Implementing Partner's participation in the project.
3. Manager shall supervise the experts and other entity personnel assigned to the project, and the on-the-job training of national counterpart personnel. The Project Manager shall be responsible for the management and efficient utilization of all UNDP-financed inputs, including equipment provided to the project.
4. The Implementing Partner, in consultation with the Co-operating Agency and UNDP, shall assign international staff and other personnel to the project as specified in the Project Document, select candidates for fellowships and determine standards for the training of national counterpart personnel.
5. Fellowships shall be administered in accordance with the fellowships regulations of the Implementing Partner.
6. The Implementing Partner may, in agreement with the Co-operating Agency and UNDP, implement part or all of the project by subcontract. The selection of subcontractors shall be made, after consultation with the Co-operating Agency and UNDP, taking into account the Implementing Partner's procedures.
7. All material, equipment and supplies which are purchased from UNDP resources will be used exclusively for the implementation of the project, and will remain the property of the UNDP in whose name it will be held by the Implementing Partner. Equipment supplied by the UNDP shall be marked with the insignia of the UNDP and of the Implementing Partner.



8. Arrangements may be made, if necessary, for a temporary transfer of custody of equipment to local authorities during the life of the project, without prejudice to the final transfer.
9. Prior to completion of UNDP assistance to the project, the Co-operating Agency, the UNDP and the Implementing Partner shall consult as to the disposition of all project equipment provided by the UNDP. Title to such equipment shall normally be transferred to the Co-operating Agency, or to an entity nominated by the Co-operating Agency, when it is required for continued operation of the project or for activities following directly there from. UNDP may, however, retain title to part or all of such equipment in accordance with UNDP regulations and rules.
10. At an agreed time after the completion of UNDP assistance to the project, the Co-operating Agency and the UNDP, and if necessary the Implementing Partner, shall review the activities continuing from or consequent upon the project with a view to evaluating its results.
11. UNDP may release information relating to any investment oriented project to potential investors, unless and until the Co-operating Agency has requested the UNDP in writing to restrict the release of information relating to such project.

Rights, Facilities, Privileges and Immunities

1. In accordance with the Convention on the Privileges and Immunities of the United Nations of 1946, given effect to by the Act of 4 March 1973 of the Iranian National Assembly, and the Agreement between the United Nations Special Fund and the Government of Iran Concerning Assistance from the Special Fund, signed by the Minister of Foreign Affairs 6 October 1959, the officials of UNDP and other United Nations organizations associated with the project shall be accorded rights, facilities, privileges and immunities specified in said Convention and Agreement.
- 2.(a) Should the Parties agree to involve "Persons Performing Services" in this project in accordance with Article 8(3) of the Agreement between the United Nations Special Fund and the Government of Iran Concerning Assistance from the Special Fund, signed on 6 October 1959, the expression "persons performing services" as used in this Article of this Annex includes UN Volunteers, operational experts, Implementing Partners, their employees and contractors, implementing or assisting in the implementation of UNDP assistance to a project, other than Government nationals employed locally. Any agreement between the parties to involve persons performing services has to be approved in accordance with the Iranian national procedures.
- (b) The expression "persons performing services" does not extend to cover nationals and the residents in the territory of Iran.
- (c) The privileges and immunities are accorded to the officials of UNDP and other relevant UN organizations associated with the projects in the interest of the United Nations and not for the personal benefit of the individuals themselves. The Secretary-General shall have the right and duty to waive the immunity of any official in any case where, in his opinion, the immunity would impede the course of justice and can be waived without prejudice to the interest of the United Nations. The United Nations shall cooperate at all times with the appropriate authorities of the Islamic Republic of Iran to facilitate the proper administration of justice, secure the observance of police regulations and prevent the occurrence of any abuse in connection with the privileges, facilities and immunities referred to above.
3. For purposes of the instruments on privileges and immunities referred to in the preceding parts of this Article:
 1. All papers and documents relating to a project in the possession or under the control of the persons referred to in sub-paragraph 2(a), above, shall be deemed to be documents belonging to UNDP, the United Nations or the Specialized Agency concerned, as the case may be; and



- II. Equipment, materials and supplies brought into or purchased or leased by those persons within the country for purposes of a project shall be deemed to be property of UNDP, the United Nations or the Specialized Agency concerned, as the case may be.
4. The Cooperating Agency shall ensure:
 - I. Prompt clearance of experts and other persons performing services in respect of this project; and
 - II. The prompt release from Customs of:
 - a. Equipment, materials and supplies required in connection with this project; and
 - b. Property belonging to and intended for the personal use or consumption of the personnel of the UNDP, its Implementing Partners, or other persons performing services on their behalf in respect of this project, except for locally recruited personnel.
 5. Nothing in the Project Document shall be construed to limit the rights, facilities, privileges or immunities conferred in any other instrument upon any person, natural or juridical, referred to hereunder.
 6. The Co-operating Agency shall facilitate the project implementation under the provisions of the Project Document.

Suspension or Termination of Activities

1. Following mutual consultation with the Co-operating Agency, UNDP may by written notice to the Co-operating Agency and to the Implementing Partner concerned suspend any project activities, if in the judgment of UNDP, any circumstances arise which interferes or threatens to interfere with the successful completion of the project or the accomplishment of its purposes.
2. The procedure for suspension and termination of a project are as follows:
 - I. Suspension: During the period of suspension, the Parties may consult and try to resolve the problems by corrective measures. If the problems are resolved, the project activities may be resumed. The UNDP Resident Representative confirms to the Parties the date for resuming such activities. However, UNDP may directly terminate a project, in cases it deems as force majeure.
 - II. Termination: A project may be terminated only after a period of suspension. If neither party has been able to reach a resolution of the problem within a reasonable period of time, either party may recommend the project's termination. Unspent TRAC1 or TRAC2 funds from a terminated project may be reprogrammed, taking into account the outstanding obligations of the terminated project. The Implementing Partner proceeds with the steps required for financial completion.
3. The UNDP Resident Representative takes the necessary steps regarding suspension or termination of a project and confirms it in writing to the parties concerned, in consultation with the national coordinating authority and the Implementing Partner.



ANNEXES

ANNEX-I: Risk Analysis

ANNEX-II: Agreement between the Government of the Islamic Republic of Iran and Executive Committee of Multilateral Fund to the Montreal Protocol on HPMP of Iran (Stage-I)

ANNEX-III: Final revised version of HPMP of Iran for Stage I (approved by 63rd Excom)

ANNEX-IV: Provisional Budget of HPMP of Iran for the period 2011 to 2015

ANNEX-V: Milestones, Indicators and Funding for Project Management and Monitoring



ANNEX-I

RISK ANALYSIS

Description	Date identified	Type	Impact and Probability (Low 1 to High 5)	Counter Measures	Owner
Delay in completion of project deliverables	Project initiation date	Operational	Probability - 3 : Impact - 4	Close coordination with NOU/DOE and periodic monitoring of project tasks. Facilitating timely completion of tasks.	UNDP/ NOU/DOE
Delay in available cost-effective HCFC free options	Project initiation date	Operational	Probability - 3 : Impact - 4	Consultation with specialist technical experts on technical options, closely monitoring technical developments	UNDP/ NOU/DOE
Delay in implementation of regulations (i.e., HCFC supply controls)	Project initiation date	Operational	Probability - 2 : Impact - 4	Close coordination with NOU/DOE and regulatory agencies on expeditious implementation of regulations	UNDP/ NOU/DOE
Delay in endorsement of action plans by Government	Project initiation date	Operational	Probability - 2 : Impact 4	Work on project preparation through consultative process with stakeholders. Stakeholder endorsement prior to Government approval. Coordination with Government on providing necessary clarifications relating to project.	UNDP/ NOU/DOE



ANNEX-II

AGREEMENT BETWEEN REPUBLIC OF IRAN AND THE EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR PHASE-OUT OF CONSUMPTION OF HYDROCHLOROFLUROCARBONS

1. This Agreement represents the understanding of the Government of the Islamic Republic of Iran (the "Country") and the Executive Committee with respect to the reduction of controlled use of the ozone-depleting substances (ODS) set out in Appendix 1-A ("The Substances") to a sustained level of 320.1 ODP tonnes for 2015 under the Montreal Protocol reduction schedule prior to 1 January 2015 in compliance with Montreal Protocol schedules.

2. The Country agrees to meet the annual consumption limits of the Substances as set out in row 1.2 of Appendix 2-A ("The Targets and Funding") in this Agreement as well as in the Montreal Protocol reduction schedule for all Substances mentioned in Appendix 1-A. The Country accepts that, by its acceptance of this Agreement and performance by the Executive Committee of its funding obligations described in paragraph 3, it is precluded from applying for or receiving further funding from the Multilateral Fund in respect to any consumption of the Substances which exceeds the level defined in row 1.2 of Appendix 2-A (maximum allowable total consumption of Annex C, Group I substances) as the final reduction step under this agreement for all of the Substances specified in Appendix 1-A, and in respect to any consumption of each of the Substances which exceeds the level defined in rows 4.1.3 and 4.2.3.

3. Subject to compliance by the Country with its obligations set out in this Agreement, the Executive Committee agrees in principle to provide the funding set out in row 3.1 of Appendix 2-A (the "Targets and Funding") to the Country. The Executive Committee will, in principle, provide this funding at the Executive Committee meetings specified in Appendix 3-A (the "Funding Approval Schedule").

4. The Country will meet the consumption limits for each of the Substances as indicated in Appendix 2-A. It will also accept independent verification, to be commissioned by the relevant bilateral or implementing agency, of achievement of these consumption limits as described in sub-paragraph 5(b) of this Agreement.

5. The Executive Committee will not provide the Funding in accordance with the Funding Approval Schedule unless the Country satisfies the following conditions at least 60 days prior to the applicable Executive Committee meeting set out in the Funding Approval Schedule:

- (a) That the Country has met the Targets for all relevant years. Relevant years are all years since the year in which the hydrochlorofluorocarbons phase-out management plan (HPMP) was approved. Exempt are years for which no obligation for reporting of country programme data exists at the date of the Executive Committee Meeting at which the funding request is being presented;
- (b) That the meeting of these Targets has been independently verified, except if the Executive Committee decided that such verification would not be required;
- (c) That the Country had submitted tranche implementation reports in the form of Appendix 4-A (the "Format of Tranche Implementation Report and Plan") covering each previous calendar year, that it had achieved a significant level of implementation of activities initiated with previously approved tranches, and that the rate of disbursement of funding available from the previously approved tranche was more than 20 per cent;



- (d) That the Country has submitted and received approval from the Executive Committee for a tranche implementation plan in the form of Appendix 4-A (the "Format of Tranche Implementation Reports and Plans") covering each calendar year until and including the year for which the funding schedule foresees the submission of the next tranche or, in case of the final tranche, until completion of all activities foreseen; and
- (e) That, for all submissions from the 65th Meeting onwards, confirmation has been received from the Government that an enforceable national system of licensing and quotas for HCFC imports and, where applicable, production and exports is in place and that the system is capable of ensuring the country's compliance with the Montreal Protocol HCFC phase-out schedule for the duration of this agreement.

6. The Country will ensure that it conducts accurate monitoring of its activities under this Agreement. The institutions set out in Appendix 5-A (the "Monitoring Institutions and Roles") will monitor and report on Implementation of the activities in the previous tranche implementation plan in accordance with their roles and responsibilities set out in Appendix 5-A. This monitoring will also be subject to independent verification as described in sub-paragraph 5(b).

7. The Executive Committee agrees that the Country may have the flexibility to reallocate the approved funds, or part of the funds, according to the evolving circumstances to achieve the smoothest phase-down and phase-out of the Substances specified in Appendix 1-A. Reallocations categorized as major changes must be documented in advance in a Tranche Implementation Plan and approved by the Executive Committee as described in sub-paragraph 5(d). Major changes would relate to reallocations affecting in total 30 per cent or more of the funding of the last approved tranche, issues potentially concerning the rules and policies of the Multilateral Fund, or changes which would modify any clause of this Agreement. Reallocations not categorized as major changes may be incorporated in the approved Tranche Implementation Plan, under implementation at the time, and reported to the Executive Committee in the Tranche Implementation Report. Any remaining funds will be returned to the Multilateral Fund upon closure of the last tranche of the plan.

8. Specific attention will be paid to the execution of the activities in the refrigeration servicing sub-sector, in particular:

- (a) The Country would use the flexibility available under this Agreement to address specific needs that might arise during project implementation; and
- (b) The Country and the bilateral and implementing agencies involved will take full account of the requirements of decisions 41/100 and 49/6 during the implementation of the plan.

9. The Country agrees to assume overall responsibility for the management and implementation of this Agreement and of all activities undertaken by it or on its behalf to fulfil the obligations under this Agreement. UNDP has agreed to be the lead implementing agency (the "Lead IA") and UNEP, UNIDO and the Government of Germany have agreed to be cooperating agencies under the lead of the Lead IA in respect of the Country's activities under this Agreement. The Country agrees to evaluations, which might be carried out under the monitoring and evaluation work programmes of the Multilateral Fund or under the evaluation programme of any of the IA taking part in this Agreement.

10. The Lead IA will be responsible for carrying out the activities of the plan as detailed in the first submission of the HPMP with the changes approved as part of the subsequent tranche submissions, including but not limited to independent verification as per sub-paragraph 5(b). This responsibility includes the necessity to co-ordinate with the cooperating agencies to ensure appropriate timing and sequence of activities in the implementation. The cooperating agencies will support the Lead IA by



implementing the activities listed in Appendix 6-B under the overall co-ordination of the Lead IA. The Lead IA and cooperating agencies have entered into a formal agreement regarding planning, reporting and responsibilities under this Agreement to facilitate a co-ordinated implementation of the Plan, including regular coordination meetings. The Executive Committee agrees, in principle, to provide the Lead IA and the cooperating agencies with the fees set out in rows 2.2, 2.4, 2.6 and 2.8 of Appendix 2-A.

11. Should the Country, for any reason, not meet the Targets for the elimination of the Substances set out in row 1.2 of Appendix 2-A or otherwise does not comply with this Agreement, then the Country agrees that it will not be entitled to the Funding in accordance with the Funding Approval Schedule. At the discretion of the Executive Committee, funding will be reinstated according to a revised Funding Approval Schedule determined by the Executive Committee after the Country has demonstrated that it has satisfied all of its obligations that were due to be met prior to receipt of the next tranche of funding under the Funding Approval Schedule. The Country acknowledges that the Executive Committee may reduce the amount of the Funding by the amounts set out in Appendix 7-A in respect of each ODP tonne of reductions in consumption not achieved in any one year. The Executive Committee will discuss each specific case in which the country did not comply with this Agreement, and take related decisions. Once these decisions are taken, this specific case will not be an impediment for future tranches as per paragraph 5.

12. The Funding of this Agreement will not be modified on the basis of any future Executive Committee decision that may affect the funding of any other consumption sector projects or any other related activities in the Country.

13. The Country will comply with any reasonable request of the Executive Committee, the Lead IA and the cooperating agencies to facilitate implementation of this Agreement. In particular, it will provide the Lead IA and the cooperating agencies with access to information necessary to verify compliance with this Agreement.

14. The completion of the HPMP and the associated Agreement will take place at the end of the year following the last year for which a maximum allowable total consumption has been specified in Appendix 2-A. Should at that time activities be still outstanding which were foreseen in the Plan and its subsequent revisions as per sub-paragraph 5(d) and paragraph 7, the completion will be delayed until the end of the year following the implementation of the remaining activities. The reporting requirements as per Appendix 4-A (a), (b), (d) and (e) continue until the time of the completion if not specified by the Executive Committee otherwise.

15. All of the agreements set out in this Agreement are undertaken solely within the context of the Montreal Protocol and as specified in this Agreement. All terms used in this Agreement have the meaning ascribed to them in the Montreal Protocol unless otherwise defined herein.



APPENDICES

APPENDIX 1-A: THE SUBSTANCES

Substance	Annex	Group	Starting point for aggregate reduction: in consumption (ODP tonnes)
HCFC-22	C	I	173.3
HCFC-141b	C	I	182.4
Total			355.7

APPENDIX 2-A: THE TARGETS, AND FUNDING

		2011	2012	2013	2014	2015	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes) *	n/a	n/a	355.7	355.7	320.1	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	n/a	n/a	355.7	355.7	320.1	n/a
2.1	Lead IA UNDP agreed funding (US \$)	2,242,000	1,370,000	477,816	0	475,930	4,565,746
2.2	Support costs for Lead IA (US \$)	168,150	102,750	35,836		35,695	342,431
2.3	Cooperating IA UNEP agreed funding (US \$)	262,000	0	0	0	0	262,000
2.4	Support costs for Cooperating IA (US \$)	34,060	0	0	0	0	34,060
2.5	Cooperating IA UNIDO agreed funding (US \$)	1,300,000	830,000	275,000	0	274,827	2,679,827
2.6	Support costs for Cooperating IA (US \$)	97,500	62,250	20,625	0	20,612	200,987
2.7	Cooperating agency Germany agreed funding (US \$)	2,063,000	534,233	0	0	258,582	2,855,815
2.8	Support costs for Cooperating agency (US \$)	234,079	60,617	0	0	32,744	327,440
3.1	Total agreed funding (US \$)	5,867,000	2,734,233	752,816	0	1,039,339	10,393,388
3.2	Total support cost (US \$)	533,789	225,617	56,461	0	89,051	904,918
3.3	Total agreed costs (US \$)	6,400,789	2,959,850	809,277		1,128,390	11,298,306
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this agreement (ODP tonnes)						41.4
4.1.2	Phase-out of HCFC-22 to be achieved in previously approved projects (ODP tonnes)						-
4.1.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)						131.9
4.2.1	Total phase-out of HCFC-141b agreed to be achieved under this agreement (ODP tonnes)						65.7
4.2.2	Phase-out of HCFC-141b to be achieved in previously approved projects (ODP tonnes)						-
4.2.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)						116.7

*Figures based on Article 7 Data, which are rounded to one decimal point.



APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

1. Funding for the future tranches will be considered for approval not earlier than the first meeting of the year specified in Appendix 2-A.

APPENDIX 4-A: FORMAT OF TRANCHE IMPLEMENTATION REPORTS AND PLANS

1. The submission of the Tranche Implementation Report and Plan will consist of five parts:
 - (a) A narrative report regarding the progress in the previous tranche, reflecting on the situation of the Country in regard to phase out of the Substances, how the different activities contribute to it and how they relate to each other. The report should further highlight successes, experiences and challenges related to the different activities included in the Plan, reflecting on changes in the circumstances in the country, and providing other relevant information. The report should also include information about and justification for any changes vis-à-vis the previously submitted tranche plan, such as delays, uses of the flexibility for reallocation of funds during implementation of a tranche, as provided for in paragraph 7 of this Agreement, or other changes. The narrative report will cover all relevant years specified in sub-paragraph 5(a) of the Agreement and can in addition also include information about activities in the current year;
 - (b) A verification report of the HPMP results and the consumption of the substances mentioned in Appendix 1-A, as per sub-paragraph 5(b) of the Agreement. If not decided otherwise by the Executive Committee, such a verification has to be provided together with each tranche request and will have to provide verification of the consumption for all relevant years as specified in sub-paragraph 5(a) of the Agreement for which a verification report has not yet been acknowledged by the Committee;
 - (c) A written description of the activities to be undertaken in the next tranche, highlighting their interdependence, and taking into account experiences made and progress achieved in the implementation of earlier tranches. The description should also include a reference to the overall Plan and progress achieved, as well as any possible changes to the overall plan foreseen. The description should cover the years specified in sub-paragraph 5(d) of the Agreement. The description should also specify and explain any revisions to the overall plan which were found to be necessary;
 - (d) A set of quantitative information for the report and plan, submitted into a database. As per the relevant decisions of the Executive Committee in respect to the format required, the data should be submitted online. This quantitative information, to be submitted by calendar year with each tranche request, will be amending the narratives and description for the report (see sub-paragraph 1(a) above) and the plan (see sub-paragraph 1(c) above), and will cover the same time periods and activities; it will also capture the quantitative information regarding any necessary revisions of the overall plan as per sub-paragraph 1(c) above. While the quantitative information is required only for previous and future years, the format will include the option to submit in addition information regarding the current year if desired by the country and lead implementing agency; and
 - (e) An Executive Summary of about five paragraphs, summarizing the information of above sub-paragraphs 1(a) to 1(d).



APPENDIX 5-A: MONITORING INSTITUTIONS AND ROLES

1. The monitoring process will be managed by the Islamic Republic of Iran Department of Environment (DOE) through the National Ozone Unit (NOU) with the assistance of the Lead IA.
2. The consumption will be monitored and determined based on official import and export data for the Substances recorded by relevant government departments.
3. The NOU shall compile and report the following data and information on an annual basis on or before the relevant due dates:
 - (a) Annual reports on consumption of the Substances to be submitted to the Ozone Secretariat;
 - (b) Annual reports on progress of implementation of HPMP to be submitted to the Executive Committee of the Multilateral Fund; and
4. The NOU and the Lead IA will engage an independent and qualified entity to carry out a qualitative and quantitative performance evaluation of the HPMP implementation.
5. The evaluating entity shall have full access to relevant technical and financial information related to implementation of the HPMP.
6. The evaluating entity shall prepare and submit to the NOU and the Lead IA, a consolidated draft report at the end of each Tranche Implementation Plan, comprising of the findings of the evaluation and recommendations for improvements or adjustments, if any. The draft report shall include the status of the Country's compliance with the provisions of this Agreement.
7. Upon incorporating the comments and explanations as may be applicable, from NOU, Lead IA and the Cooperating IAs, the evaluating entity shall finalize the report and submit to the NOU and Lead IA.
8. The NOU shall endorse the final report and the Lead IA shall submit the same to the relevant meeting of the Executive Committee along with the Tranche Implementation plan and reports.

APPENDIX 6-A: ROLE OF THE LEAD IMPLEMENTING AGENCY

1. The Lead IA will be responsible for the following:
 - (a) Ensuring performance and financial verification in accordance with this Agreement and with its specific internal procedures and requirements as set out in the Country's phase-out plan;
 - (b) Assisting the Country in preparation of the Tranche Implementation Plans and subsequent reports as per Appendix 4-A;
 - (c) Providing verification to the Executive Committee that the Targets have been met and associated annual activities have been completed as indicated in the Tranche Implementation Plan consistent with Appendix 4-A;
 - (d) Ensuring that the experiences and progress is reflected in updates of the overall Plan and in future Tranche Implementation Plans consistent with sub-paragraphs 1(c) and 1(d) of Appendix 4-A;



- (e) Fulfilling the reporting requirements for the tranches and the overall Plan as specified in Appendix 4-A as well as project completion reports for submission to the Executive Committee. The reporting requirements include the reporting about activities undertaken by the Cooperating IA;
- (f) Ensuring that appropriate independent technical experts carry out the technical reviews;
- (g) Carrying out required supervision missions;
- (h) Ensuring the presence of an operating mechanism to allow effective, transparent implementation of the Tranche Implementation Plan and accurate data reporting;
- (i) Coordinating the activities of the Cooperating IA, and ensuring appropriate sequence of activities;
- (j) In case of reductions in funding for failure to comply in accordance with paragraph 11 of the Agreement, to determine, in consultation with the Country and the co-ordinating implementing agencies, the allocation of the reductions to the different budget items and to the funding of each implementing or bilateral agency involved;
- (k) Ensuring that disbursements made to the Country are based on the use of the indicators; and
- (l) Providing assistance with policy, management and technical support when required.

2. After consultation with the Country and taking into account any views expressed, the Lead IA will select and mandate an independent entity to carry out the verification of the HPMP results and the consumption of the substances mentioned in Appendix 1-A, as per sub-paragraph 5(b), sub-paragraph 1(b) of Appendix 4-A and Appendix 5-A.

APPENDIX 6-B: ROLE OF COOPERATING AGENCIES

1. The Cooperating IA will be responsible for the following:
 - (a) Assisting the Country in the implementation and assessment of the activities funded by the Cooperating IA, and refer to the Lead IA to ensure a coordinated sequence in the activities; and
 - (b) Providing timely reports to the Lead IA on these activities, for inclusion in the consolidated reports as per Appendix 4-A.

APPENDIX 7-A: REDUCTIONS IN FUNDING FOR FAILURE TO COMPLY

1. In accordance with paragraph 11 of the Agreement, the amount of funding provided may be reduced by US \$216 per ODP tonne of consumption beyond the level defined in row 1.2 of Appendix 2-A for each year in which the target specified in row 1.2 of Appendix 2-A has not been met.



**Corrigendum to the above agreement – reissued for technical reasons
(to be read with the agreement)**

Paragraph 164

Replace "Following the report of a contact group, the Executive Committee decided:" with "Following the report of a contact group, where it was agreed that stage I of the HPMP should address the phase-out of 62.7 ODP tonnes of HCFC-141b in the foam sector and 29.3 ODP tonnes of HCFC-22 used by one large enterprise for manufacturing air-conditioning systems, and an additional US \$500,000 should be allocated for activities in the refrigeration servicing sector, the Executive Committee decided:"

Paragraph 164(c)

Replace the figure "107.10" with "101.3".

Annex X

Iran: HCFC phase-out management plan (stage I, first tranche)

- Under the foam sector plan:
 - replace "UNIDO and the Government were requested to deduct 38.3 ODP tonnes of HCFCs" with "UNIDO and the Government were requested to deduct 32.2 ODP tonnes of HCFCs";
 - replace "Germany and the Government were requested to deduct 27.4 ODP tonnes of HCFCs" with "Germany and the Government were requested to deduct 30.5 ODP tonnes of HCFCs";

- Under the refrigeration servicing sector:
 - replace "Germany and the Government were requested to deduct 12.9 ODP tonnes of HCFCs" with "Germany and the Government were requested to deduct 6.1 ODP tonnes of HCFCs" and
 - replace "UNEP and the Government were requested to deduct 3.24 ODP tonnes of HCFCs" with "UNEP and the Government were requested to deduct 3.2 ODP tonnes of HCFCs"
- Under the air conditioning sector plan, replace "UNDP and the Government were requested to deduct 25.3 ODP tonnes of HCFCs" with "UNDP and the Government were requested to deduct 29.3 ODP tonnes of HCFCs".

Annex XXXVII

Replace rows 4.1.1 to 4.2.3 of Appendix 2-A: "The Targets, and Funding" with the following:

4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this agreement (ODP tonnes)	38.6
4.1.2	Phase-out of HCFC-22 to be achieved in previously approved projects (ODP tonnes)	-
4.1.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)	134.7
4.2.1	Total phase-out of HCFC-141b agreed to be achieved under this agreement (ODP tonnes)	62.7
4.2.2	Phase-out of HCFC-141b to be achieved in previously approved projects (ODP tonnes)	-
4.2.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)	119.7



ANNEX-III

Final revised version of HPMP of Iran for Stage I (approved by 63rd Ex.Com)

Islamic Republic of Iran

HCFC Phase-out Management Plan

Prepared by

Government of Iran

With the assistance of

National Stakeholders

United Nations Development Programme (Lead Agency)

United Nations Environment Programme (Cooperating Agency)

United Nations Industrial Development Organisation (Cooperating Agency)

GTZ Proklima (Cooperating Agency)

Revised Version : December 2010



Executive Summary

The Islamic Republic of Iran ("Iran") is an important country in the Middle East Region, with a population of 73 million being the most populous country in the region and ranked 16th in the world. The economy ranks among the top three in the region and Iran is the second largest OPEC oil producer with the world's second largest gas reserves.

Iran has ratified the 1990 London Amendment, the 1992 Copenhagen and the 1997 Montreal Amendment of the MP. Iran is classified as a country operating under Article-5 of the MP.

Ratification of the Montreal Protocol and its Amendments

Agreement/Amendment	Date of Ratification	In Force Since
Vienna Convention	3 October 1990	December 1990
Montreal Protocol	10 October 1990	December 1990
London Amendment	4 August 1997	November 1997
Copenhagen Amendment	4 August 1997	November 1997
Montreal Amendment	17 October 2001	January 2002
Beijing Amendment	Not Yet Ratified	

Source: Ozone Secretariat.

The original Country Program (CP) for the implementation of the MP for Iran was approved at the 10th Meeting of the Executive Committee (ExCom) in June 1993. This was updated in the year 2007.

Iran has been successfully implementing Montreal Protocol activities with assistance from implementing agencies and bilateral partners. They have been successful in phasing out most of their CFC, halons, CTC, MCF and Methyl Bromide consumption over the last 10-15 years. They are the final stages of implementation of their National ODS phase-out plan and phasing-out CFC use in MDI applications and Methyl Bromide phase-out in non-QPS applications.

HCFCs that are currently used in Iran are HCFC-22 and HCFC-141b. These substances are imported from countries in the region and used for manufacturing and servicing requirements. The main subsectors where HCFCs are used are refrigeration and air-conditioning applications and foam products manufacturing. There is no reported consumption of HCFCs in solvents and fire-fighting applications.



The table below presents the HCFC consumption data of Iran for the period 2005 to 2009.

(All figures in Mt)

	2005	2006	2007	2008	2009	CARG*
HCFC-141b	791.28	894.09	924.8	1725.8	1884.5	24%
HCFC-22	1322.7	1239.77	1630.82	1328.16	2823.18	21%
Total	2113.98	2133.86	2555.62	3053.96	4707.68	-

Source: CP Progress data reports.

*CARG – Compounded Annual Rate of Growth

One can see that the consumption of HCFCs has significantly increased from 2005 to 2009. Consumption of HCFC-22 and HCFC-141b have grown by 2.11 times and 2.38 times, respectively during this timeframe.

The main reasons for the growth in consumption of HCFC-22 is increase in consumption of HCFCs in manufacturing/assembly of HCFC-22 based air-conditioners in domestic, commercial and industrial applications over the period 2005-2009. During this period, servicing demand for maintaining new HCFC-22 based equipment has also seen a significant increase. HCFC-141b consumption has grown due to increase in consumption of HCFC-141b in foam applications and conversion of industries from CFCs to HCFC-141b in manufacturing foam products including insulation foam in refrigeration and air-conditioning applications during the period 2004-2009.

In addition to the above, data collection and reporting processes used for reporting HCFCs were strengthened over the last two years. In the past, HCFC import data from Customs statistics could not be accurately collected as this data was reported under different nomenclature which made it difficult to identify HCFC imports. Through cross verification of HCFC import data (supply data) with data from manufacturers of HCFC based equipment, products and services(demand data), the data reporting accuracy has improved and is reflected in the end-use based data reporting in HPMP. This has resulted in more accurate data collection and reporting in the years 2008 and 2009.

In manufacturing, HCFCs are used in refrigeration and air-conditioning equipment manufacturing and assembly and foam products manufacturing that includes rigid foam, integral skin foam and insulation foam for refrigeration and air-conditioning applications. HCFC-22 is also used for servicing the population of HCFC using refrigeration and air-conditioning equipment. The table below presents estimated sectoral / sub-sectoral distribution of HCFC-141b and HCFC-22 in Iran for the years 2009 and 2010.



The table below shows the consumption of HCFCs in Iran for the year 2009 and 2010 (estimated) in different sub-sectors,

Sectors / sub-sectors	2009			2010			Baseline (2009-2010) in MT	2009-2010 Average in ODP tons
	HCFC-22	HCFC-141b	Total	HCFC-22	HCFC-141b	Total	Total	Total
Foam								
Rigid PU Foam (sandwich panel)	-	684.71	684.71	-	753.18	753.18	718.95	79.08
Rigid PU Foam (others)	-	211.84	211.84	-	233.02	233.02	222.43	24.47
Rigid PU Foam (spray)	-	-	-	-	-	-	-	-
Integral Skin	-	132.00	132.00	-	145.20	145.20	138.60	15.25
XPS	40.00	-	40.00	44.00	-	44.00	42.00	2.31
Air-conditioning								
Residential Air-conditioners	682.42	-	682.42	784.79	-	784.79	733.60	40.35
Commercial Air-conditioning	30.13	-	30.13	33.14	-	33.14	31.63	1.74
Industrial Air-conditioning (Chillers)	336.43	-	336.43	370.07	-	370.07	353.25	19.43
Refrigeration								
Domestic Refrigeration Equipment	-	547.56	547.56	-	602.32	602.32	574.94	63.24
Commercial Refrigeration Equipment	62.70	308.42	371.12	68.97	339.26	408.23	389.68	39.24
Industrial Refrigeration Equipment	172.22	-	172.22	189.44	-	189.44	180.83	9.95
Transport Refrigeration Equipment	10.00	-	10.00	11.00	-	11.00	10.50	0.58
Servicing	1,489.28	-	1,489.28	1,608.42	-	1,608.42	1,548.85	85.19
	2,823.18	1,884.53	4,707.71	3,109.83	2,072.98	5,182.82		

Note: Article 7 data submitted for the year 2010 may result in change in the above figures.

Based on the above, the baseline consumption of HCFCs in Iran amounts to **380.8 ODP tons**. The Montreal Protocol Phase-out targets for Iran is given in the table below.

Targets	Quantity in ODP tons
2013 – freeze	380.8
2015- 10% reduction	342.7
2020- 35% reduction	247.5
2025- 67.5% reduction	123.7
2030 - 100% except service tail at 2.5% annual average	9.5

For achieving Stage I phase-out targets, Iran proposes to implement HCFC phase-out project in identified enterprises in rigid foam including continuous and discontinuous sandwich panels, integral skin foam, systems houses and domestic air-conditioning applications. In addition, activities relating to regulations enforcement strengthening and service sector training are proposed to be implemented during Stage I to have more effective controlling and monitoring of

HCFC supply and reducing HCFC consumption in servicing applications. The main elements of HCFC phase-out strategy proposed to be adopted by Iran are given below:

- Growth in HCFC consumption addressed through "constrained growth" approach: HCFC consumption is seeing growth over the past and is expected to continue to grow in the near future. As per industry estimates, growth in HCFC-141b and HCFC-22 is expected to be in the range of about 10% in most of the applications including servicing. The Government proposes to adopt a strategy to achieve phase-out through a "constrained growth" approach addressing sectors, which have cost-effective alternatives and are experiencing high-growth. This approach will include supply controls on HCFCs in line with Montreal Protocol requirement and prioritized sub-sectoral phase-out strategy.
- Prioritisation of HCFC-141b consumption: HCFC-141b consumption in foam applications constitutes about 40% of total HCFC consumption in country in MT terms and 57% in ODP tons terms. Given this, priority has been given to cost-effective HCFC-141b phase-out projects in foam applications including use of HCFC-141b in manufacturing insulation foam for domestic refrigerators. Thus, HCFC phase-out projects with total phase-out aggregating to 64.8 ODP tons, including assistance to HCFC phase-out in XPS foam, have been proposed for foam sector applications.

It must also be noted that in Stage I, small enterprises consuming HCFC-141b in foam applications are not addressed as cost-effective low-GWP technical options (e.g., technologies using aliphatic blowing agents etc.) are evolving and are expected to be adopted over the next 3-4 years.

- Phase-out in HCFC-22 used in domestic a/c manufacturing: As explained earlier, HCFC-22 consumption in refrigeration and air-conditioning applications is seeing a steady increase because of manufacturing / assembly of HCFC-22 based air-conditioning applications and demand for servicing existing population of HCFC based refrigeration and air-conditioning equipment. Given that the life of HCFC-22 based air-conditioning equipment is about 15 years, even at current annual consumption level of 682 MT of HCFC-22 in manufacturing domestic air-conditioners, avoided HCFC-22 demand for servicing over the life of equipment produced in one year is about 2,046 MT. In addition to this, imports of HCFC-22 based air-conditioners also contribute to significant service demand in future years. Reducing this consumption would help Government of Iran in controlling growing HCFC-22 demand for manufacturing and consequent HCFC-22 demand for servicing RAC equipment.
- Second conversion for HCFC-141b phase-out: The total consumption of HCFCs in enterprises that have received assistance under MLF is 1325.43 MT in the year 2009. This constitutes 28% of the total consumption of HCFCs, 41 % of consumption of HCFCs in manufacturing applications and 70 % of HCFC consumption in foam applications, respectively.



Second stage conversion projects are considered in integral skin foam and rigid foam applications. The list of these projects is given below.

Enterprise name	Sub-sectors	Incremental Cost in USD
Behdor Rangin Co.	Rigid Foam	191,175
Nama Sazan Emrooz Co.	Continuous SW panel	304,825
Nobugh Sarmayesh Co.	Discontinuous SW panel	179,089
Parsin Gostar Jonoub Co.	Discontinuous SW panel	177,561
Yakhchavan Co.	Discontinuous SW panel	173,550
Royan Polymer Co.	Integral Skin	215,040
Zivar Khodro Co.	Integral Skin	209,310

These projects are cost-effective projects for achieving HCFC-141b consumption phase-out in Iran under the current phase-out plan.

- Assistance to service sector: In Iran, HCFC-22 consumption in service sector also needs to be addressed to curtail HCFC-22 consumption in servicing. As mentioned earlier, service demand contributes to more than 30% of total HCFC-22 consumption in the country. Continuous engagement of service enterprises through technical assistance and training support activities will help in initiating and sustaining HCFC-22 consumption reduction in service sector through adoption of good-service and maintenance practices of HCFC using RAC equipment and recovery programs. Supporting regulations to monitor and control supply of HCFCs are also proposed to be introduced to facilitate HCFC phase-out in service sector.

Besides implementing projects, the country proposes to implement regulatory interventions to control supply and use of HCFCs, undertake awareness and information outreach activities targeting different sub-sectors to support HCFC phase-out, and other measures to monitor and control HCFC phase-out. The country proposes adopt a “constrained growth” strategy to achieve 2013 and 2015 control measures.

Beyond Stage I, Iran proposes to achieve the targets through a combination of sectoral sub-sectoral phase-out strategy, which would result in phasing-out manufacturing processes using HCFCs and subsequently address phase-out of HCFCs in servicing. Given that technologies are evolving particularly low-GWP technologies suited for SMEs in foam applications, the country proposes to implement projects in these applications by helping industry in adopting cost-effective low-GWP technical options.



A summary of costs of different project activities with overall impact is presented in the table below.

Project title	Agency	HCFC free technology option	Funding in USD (excluding support costs)	Impact in terms of ODP tons phased out (2009 consumption)	
				HCFC-22	HCFC-141b
Phase-out projects in Continuous Sandwich Panel manufacturers - #	GTZ	HC	1,725,240		24.4
Phase-out projects in Rigid Foam manufacturers - #	UNIDO	HC	377,575		6.1
Phase-out project in Rigid Foam manufacturers (Discontinuous Sandwich Panel) - #	UNIDO	HC	1,273,897		17.3
Phase-out project in Integral Skin Foam manufacturers - #	UNIDO	HC	840,105		7.6
Phase-out project in Domestic refrigeration equipment manufacturer - #	UNIDO	HC	565,825		7.2
Phase-out project in one systems house - #	UNDP	Pre-blended aliphatic blowing agents (Methyl Formate, Methylal, etc.) ; Cost-effective low-GWP foam blowing agents	225,500		
Phase-out project in domestic air-conditioning - #	UNDP	R-410A	5,872,046	37.5	
Capacity Building, Technical assistance and investment activities for service sector	GTZ	Not Applicable	840,000	19.0	
Awareness, Technician Training, Customs Training and Policy	UNEP	Not Applicable	654,545		
Project Management – PMU - #	UNDP	Not Applicable	390,000		
Technical support for foam sector including XPS	GTZ	Not Applicable	480,000	2.2	
Grand total			13,244,733	58.7	62.6
UNDP - Sub-total			6,487,546		
GTZ - Sub-total			3,045,240		
UNIDO - Sub-total			3,057,402		
UNEP - Sub-total			654,545		
Grand total			13,244,733		

Note: (1) The agreed funding by Germany, implemented by GTZ as the Lead Bilateral Agency for the foam and servicing sector, is fixed to minimum USD 3.2 Million (excluding support costs). The final difference between the fixed bilateral contribution of USD 3.2 Million and the finally Total Agreed Funding by the Executive Committee for the sectors above will be disbursed and implemented by MLF funding and implemented through the Cooperating Implementing Agencies. (2) Costs associated with rows marked with

**# have been discussed and agreed with the Secretariat during consultations held during submission to the 62nd Executive Committee Meeting*

The current proposal requests funding of USD 13,244,733 for phasing-out 1638 MT of HCFC consumption in the country. This translates to cost effectiveness value of USD 8.08 per kg of HCFC phased-out.

The above phase-out plan would directly contribute to GHG emission reductions on account of lower levels of consumption of R-410A compared to HCFC-22 in air-conditioning equipment manufacturing and use of low-GWP options for phasing out HCFC-141b. This is estimated to translate to about 750,000 tons of Carbon dioxide equivalent per annum. The above calculation excludes indirect Carbon dioxide equivalent emission reductions that will be achieved on account of energy efficiency and Carbon dioxide equivalent emission reductions achieved through reduced HCFC-22 demand by adopting good RAC equipment service practices.



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1. OVERVIEW OF MONTREAL PROTOCOL IMPLEMENTATION IN IRAN

1.1. BACKGROUND

The Islamic Republic of Iran ("Iran") is an important country in the Middle East Region, with a population of 73 million being the most populous country in the region and ranked 16th in the world. The economy ranks among the top three in the region and Iran is the second largest OPEC oil producer with the world's second largest gas reserves. Despite a long period of international isolation and economic embargo that has limited its access to long-term financing opportunities and technological improvements for its development needs, it has made progress albeit facing challenges similar to most large developing countries. As an ancient civilization, and an internationally important culture pole, Iran exerts a great deal of influence in the region and the world. The country's health and education indicators are high by regional standards. The literacy rate is 94 percent and women outnumber men at undergraduate level at universities by a factor of 2. Iran has a large social protection system with some 28 different social insurance and assistance programs benefiting large segment of the population. Notwithstanding some improvements in social indicators, the economy continues to confront major challenges. Labor market pressures continue to increase because of demographic dynamics, including growth in the labor supply and increased participation of women in labor force. Iran's economy is not generating enough jobs and furthermore, high inflation rates and price subsidies hinder efficiency, and structural impediments prevent private sector development.

Iran lies in western Asia. The climate distribution in Iran is 35.5% hyper-arid, 29.2% arid, 20.1% semi-arid, 5% Mediterranean, and 10% wet (of the cold mountainous type). Thus, more than 82% of Iran's territory is located in the arid and semi-arid zone of the world. The average yearly rainfall in Iran is about 250 mm, which is less than 1/3 of the average rainfall in the world (860 mm). In addition, this sparse precipitation is also unfavorable with respect to time and location. Another important climatic element is extreme temperature changes that sometimes range from -20°C to +50°C. Severe drought has also been recognized as a feature of I.R. of Iran's climate. In the last few years, the country has suffered severe desiccation and this lack of rainfall has resulted in extensive losses.

Environment has been one of the highest priorities of Iran. Environmental affairs are handled at a Vice Presidential level. The Environmental High Council reporting to the President includes two Vice Presidents, ten Cabinet Ministries, and the Attorney General. Given Iran's rapidly growing population and declining infrastructure quality, it faces major environmental challenges. Air pollution is a major urban environmental concern especially that caused by motor vehicles, which is the cause of serious health problems for its citizens. In an effort to overcome these challenges, the Government has taken a number of actions, including the installation of an air quality-monitoring network with stations in a number of provinces (Mashad, Esfahan, and Arak) and has initiated the revision of water and soil standards. In addition, the Government has allocated a budget to conduct economic valuations of the Iranian Ecosystem.

1.2. MONTREAL PROTOCOL (MP) IMPLEMENTATION IN IRAN

Iran committed to ODS phase-out in the early 1990s and it made the Montreal Protocol (Montreal Protocol) part of its constitutional laws (Official Gazette No. 13063 of 28/9/1368 AH (8 Dec. 1989) even before ratifying the protocol. Iran ratified the Vienna Convention for the Protection of the Ozone Layer and the MP on Substances that Deplete Ozone Layer in 1990. Subsequently, it ratified the 1990 London Amendment, the 1992 Copenhagen and the 1997 Montreal Amendment of the MP. Iran is classified as a country operating under Article-5 of the MP.

Table 1: Ratification of the Montreal Protocol and its Amendments

Agreement/Amendment	Date of Ratification	In Force Since
Vienna Convention	3 October 1990	December 1990
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London Amendment	4 August 1997	November 1997
Copenhagen Amendment	4 August 1997	November 1997
Montreal Amendment	17 October 2001	January 2002
Beijing Amendment	Not Yet Ratified	

Source: Ozone Secretariat.

In addition to MP, Iran is a party to Biodiversity, Climate Change, Climate Change-Kyoto Protocol, and other international agreements relating to Desertification, Endangered Species, Hazardous Wastes, Marine Dumping, Ship Pollution and Wetlands. IR of Iran has signed, but not ratified the Environmental Modification, Law of the Sea and Marine Life Conservation.

1.3. COUNTRY PROGRAM OF I.R. OF IRAN AND COUNTRY PROGRAM UPDATE

The original Country Program (CP) for the implementation of the MP for Iran was approved at the 10th Meeting of the Executive Committee (ExCom) in June 1993. The strategy of the CP was to choose the optimum phase-out scenario, along with an Action Plan to accomplish the phase-out strategy. Early phase-out of CFCs, particularly in the refrigeration and foam sectors, was determined to be the least cost option, which would provide the basis for an officially recognized "National Ozone Policy" (NOP) to which industry was also committed. The main actions that have been considered for the NOP were to: (i) enhance public awareness about ozone; (ii) emphasize conservation, and then substitution; (iii) announce a proposed phase-out schedule; (iv) establish import monitoring policies and procedures; and (v) create an "Ozone Monitoring Office" within the Department of Environment (DoE). The original CP has been internally revised in 1995.

In 2003, the CP was formally updated with the assistance of the United Nations Environment Programme (UNEP) and the Government of Japan. The Country Program Update (CPU) was prepared based on the results of the implementation of the original CP, the social and economical changes that had occurred since then and a critical assessment of the policy, strategy and action plans needed to complete the phase out of remaining ODS in the country.

The CPU was presented at the 41st meeting of the Executive Committee, was noted in December 2003 but the final approval came about in 2007¹. The CPU discusses the status of the remaining Ozone Depleting Substances (ODS) to be phased out, and the approaches, strategies and action plans that the I.R. of Iran has committed to undertake.

1.4. NATIONAL CFC PHASE-OUT PLANS (NPP)

By 2003, over 70% of reported ODS consumption was used for manufacturing of CFC-based products and the government was determined to phase-out most CFC consumption by 2007 ahead of the phase-out schedule. Thus, the I.R. of Iran, in line with Executive Committee Decision 35/37, opted for a National CFC Phase-out Plan (NPP), which was developed in parallel with the CPU and was submitted to the 41st Meeting of the Executive Committee. GTZ led the preparation of the NPP on the basis of existing sector surveys, which were approved for a total of US\$11.07 million. NPP contained annual performance-based action plans for CFC phase-out in addition to policies, technical assistance and investment proposals for phasing-out CFC-11 and CFC-12 in foam, refrigeration manufacturing & refrigeration servicing sectors plus CFC-113 as a solvent. The target date for complete phase-out of all Annex A CFCs covered by NPP (excluding MDIs) was January 1, 2010 with implementation slated to start in 2004.

The NPP's activities have been implemented through seven annual action plans. NPP also proposed a management and implementation strategy, including a monitoring plan to ensure successful achievement of the phase-out targets which was directly linked to disbursement of funds.

Table 2 below shows NPP's targets which were achieved at a higher rate than targets.

Table 2: NPP Targets for Annex A Group 1 CFC Consumption in ODP tonnes

	2003*	2004	2005	2006	2007	2008	2009*	2010
Max allowable total consumption of Annex A Group 1 (ODP t)	4,571.0	4,571.0	2,285.0	2,285.0	685.0	685.0	685.0	
Agreed annual consumption limit of Annex A Group 1 substances (ODP t)	n/A	3,889.4	2,269.2	965.6	578.7	328.4	132.7	0.0
Completion of ongoing projects (Pre-NPP)	-	1,120.0	988.0	73.0	-	-	-	0.0
New reduction measures under plan	-	500.3	315.5	313.9	250.3	195.7	132.7	0.0
Total annual projects to be completed (ODP t)	-	1,620.3	1,303.5	386.9	250.3	195.7	132.7	-

¹The data for the solvent sector in the CPU was based on a survey conducted by UNIDO in 2003, which was endorsed by the I.R. of Iran. There were discrepancies between CPU and Article 7 data regarding consumption of CTC and TCA and the Secretariat raised issues with that. The I.R. of Iran submitted a request to the Implementation Committee, through Ozone Secretariat to change the baseline data of CTC and TCA, which remained pending. After approval of phase-out projects for methyl bromide, terminal solvent sector and phase-out of CFC in manufacturing of MDIs, the consumption of CFC, CTC, TCA and methyl bromide were completely addressed and the government withdrew its request for the change of baseline data. In March 2007, I.R of Iran submitted a revised CPU as requested in decision 41/84 to the 55th Meeting of the ExCom.

Total agreed funding (US\$ million)	2,202,837	3,820,471	1,721,493	1,073,348	957,047	757,174	717,630	-
Agency support costs (US\$ million)	232,453	319,660	163,379	115,751	104,008	82,333	78,939	-

Source: Agreement between I.R. of Iran and the Executive Committee approved in the 41st meeting of Executive Committee.

As per the agreement, the responsibilities of the agencies associated with implementation of HPMP are given in the table below.

Table 3: NPP Targets for Annex A Group 1 CFC Consumption in ODP tonnes

Monitoring	Responsible	Reports to
Industry Sector phase out		
Refrigeration manufacturing/assembly	UNDP/UNIDO	IMAF/NOU
Domestic/commercial servicing (RMP)	UNIDO	IMAF/NOU
Foam	Germany	IMAF/NOU
MAC service sector	France	IMAF/NOU
Solvent Sector	UNIDO	IMAF/NOU
Import		
Import of CFCs	Customs department (CD)	IMAF/NOU
Sector breakdown	IMAF	IMAF/NOU
Regulations		
Legislative council	NOU/UNEP	IMAF
Bureau of Standards	UNEP/NOU	IMAF
Quota	NOU/CD	IMAF
Overall implementation		
Consolidated project progress	IMAF/NOU/Germany	MLF/EXCOM

Source: Agreement between I.R. of Iran and the Executive Committee approved in the 41st meeting of Executive Committee.

θ IMAF-Implementation and Management Facility

Table 4: Disbursed Funds by Activities and Agencies As of December 2009

Activity	Agency	2009 Budget (US\$)
Investment Projects - CFC 113 Solvents	UNIDO	10,000.00
Investment Projects - All Foam Subsector	GTZ	3,801,880.99
Investment Projects - Refrigeration Manufacturing/Assembly	UNDP	770,000.00
Training Projects - Refrigeration Assembly	UNIDO	985,000.00
Investment Project - MAC R&R Project*	FRANCE	1,506,620.00
Sector Assistance - MAC	GTZ	322,048.64
Domestic & Commercial Refrigeration R&R project	UNIDO	1,677,064.00
Domestic & Commercial Ref. - Technician Training Project	UNIDO	420,494.00
Custom Training	UNIDO	218,200.00

Regulation and Policy Support	UNEP	140,253.00
Awareness, Project Implementation & Monitoring Unit	GTZ	734164.97
TOTAL		10,585,725.57

Source: Annual Implementation Plan for 2009 for NPP of I.R. of Iran.

Through implementation of the above projects, consumption of CFCs in Iran has come down from 4,089 ODP Tons in 2003 to 100.3 ODP Tons in 2008. The details of phase-out of CFCs for the different applications is given below.

1.4.1. Foam Sector

CFC in the foam sector was used in manufacturing: (i) flexible, (ii) rigid, (iii) molded/integral skin, and (iv) polystyrene to make furniture and bedding, refrigeration, and automotive parts, as well as building and construction sectors and some miscellaneous applications. The enterprises engaged in PU foam sub-sector were responsive to the use of non-CFC technologies, and NPP targeted its strategy on this sub-sector, i.e. Rigid, Flexible and Integral skin.

The objectives of the phase out strategy in the NPP were to continue the government policy that had been effective in controlling the consumption of CFC in the foam sector, i.e.:

- Continue with timely implementation of the funded projects;
- Ensure small companies are included in the technical assistance program to avoid the possibility of consumption of CFC by these enterprises beyond the phase-out schedule, or otherwise to push them out of business and cause them economic hardship;
- Provide incentives for enterprises to phase out CFC-11 and adopt environmentally sound alternative technologies;
- Ensure that phase-out target of CFC-11 consumption in the foam sector is achieved on time;
- Minimize adverse impacts of phase-out targets on the growth of the foam sector.

GTZ was responsible for eliminating CFC consumption in the foam sector. A total of 26 foam sub-projects were completed under the plan and by the end of 2009 had phased out 608.4 ODP tonnes of which 512.8 were due to conversion and 95.6 due to closure. The NOU played an active role during the implementation of NPP by ensuring that compliance targets, demand and import were met throughout the implementation. Companies whose projects were included in the 2008 CFC phase-out program were required to stop using CFCs by end of December 2009 despite the shorter-than-usual implementation timeframe. It was anticipated that the price increase will make the use of CFC-11 economically not viable for large-scale users, and remaining CFC users in the foam industries would willingly look for alternatives.

1.4.2. Refrigeration Sector

The refrigeration sector in Iran consists of a number of sub-sectors and a wide range of products including: (i) household refrigeration; (ii) commercial refrigeration and (iii) industrial refrigeration. The large domestic refrigeration manufacturers selected cyclopentane technology for conversion of foam, while the medium and small-scale enterprises chose HCFC-141b based systems. As for the refrigerant component, the preferred choices were HFC-based technology, due to cost-effectiveness and viability

technology. At the time of formulation of NPP, most of the large-and medium-size refrigeration manufacturers had already converted their technology or were in the process of doing so. The remaining were medium and small enterprises scattered throughout the country with limited access to sophisticated technology and practices and therefore, were the focus of NPP in refrigeration manufacturing sector. The target for CFC phase-out in the refrigeration sector under the NPP is presented below. UNIDO, UNDP and GTZ all participated in the phase-out of CFCs in this sector.

Table 5: CFC Phase-out Targets Under NPP in ODP tonnes

	2004	2005	2006	2007	2008	2009	2010	Total	Actual
Domestic/Commercial Servicing	130	125	125	55	25	15	-	475	
Refrigeration Assembly/ Mfg.	89.8	120.8	56.1	-	-	-	-	266.8	
Foam Sector Plan	120.8	118.7	140.9	127.0	68.4	-	-	575.8	
MAC Sector	79	86	90	40	21	10	-	326	
Solvent Sector Plan	64.8	-	-	-	-	-	-	64.8	
Total									

UNIDO was responsible for investment in refrigeration assembly; conversion of domestic and commercial refrigeration; set up of Recovery and Recycling (R & R) including training of technicians and training of Customs officers.

1.4.3. Refrigeration Manufacturing and Assembly sub-Sector

In 2002, Iran in preparation for a group of projects to address the remaining CFC consumption, with the assistance of UNDP, carried out a survey of Refrigeration Manufacturing and Assembly sub-sector and identified 92 enterprises engaged in manufacturing and assembling of refrigeration equipment with estimated consumption of 488.2 ODP tons to be funded. There remained a number of manufacturers of new commercial refrigeration equipment and refrigerated transport equipment who continued to use CFCs as the refrigerants, and some consumed CFC-11 in the production of PU foam for insulation.

1.4.4. Refrigeration Service Sector

In 2001, estimated CFC consumption in the refrigeration and air-conditioning sectors was about 475 tons excluding MAC units. As of 2001, there were about 8,000 formally registered refrigeration and air-conditioning service centers, and about 2,000 informal service shops. These service shops employed a large labor force of which about one-fifth had basic training in refrigeration and air-conditioning. In addition to a large fleet of CFC-based refrigeration equipment that was serviced on an annual basis, there were sizable number of lorries and trucks that were equipped with cold room for carrying frozen foods, some of which had CFC-12 based refrigerant that needed to be charged twice a year.

A high portion of consumption in the servicing sector was wasted due to:

- (1) old equipment,
- (2) inappropriate tools, and
- (3) poor quality service due to lack of formal technical training.

Refrigeration Management Plan (RMP) sub-project with assistance from UNIDO was implemented to address CFC phase-out in servicing sector.

The strategy adapted in the I.R. of Iran to phase-out CFCs was through RMP, which provided hardware, training, and technical assistance to refrigeration and air-conditioning service centers to instill best practices in servicing and maintenance. The RMP in combination with providing 570 refrigeration service shops with ozone-friendly R & R equipment has assisted ODS phase-out in servicing.

1.4.5. Refrigeration Servicing for Mobile Air-Conditioning (MAC)

There is no CFC consumption reported in MAC manufacturing. However, during NPP preparation, it was estimated that there were about 1,000 MAC service shops consuming 350 tons of ODS, mostly CFC-12 based, generating employment for 2,000 technicians and workers. A pilot project by AFD was implemented in the I.R. of Iran to equip 50 selected MAC service shops in Tehran. On the basis of the pilot project, about 1,000 service shops had to be equipped with tools and training programs in R&R techniques in different type of refrigerants. A MAC service project addressing the needs of service centers including service shops for buses was included in the NPP and provided 450 eligible MAC service shops with ozone-friendly R & R equipment.

Iran adopted the recommendation of the Parties to the MP on the use of R&R equipment for servicing CFC-based MAC systems. R&R was expected to reduce the annual consumption of CFCs starting in 2005. From 2010 onwards, the recycling machines are expected to be operating based on recycled CFCs, which would minimize early retirement of MAC systems.

The MAC project also included a comprehensive training program to control and reduce the release and use of CFCs for maintenance and service.

1.4.6. Transportation Refrigeration

Refrigerated transport is an essential part of the food supply chain in Iran. A typical installation consists of a standard CFC-12-based refrigeration unit. There were about 1,500 industrial and large cold storage units, and 2,000 lorries and trucks equipped with cold room to carry refrigerated and frozen foods in 2002 and they were charged at least twice a year with CFC-12. These vehicles and trucks with CFC-12 MACs and refrigeration systems are expected to be operational and needing service for the next decade or so, albeit on a diminishing scale as units are retired from active use.

In addition to refrigerated trucks, the Ministry of Agriculture, Ministry of Industry and Mines, and Ministry of Commerce have oversight responsibility over Cold Rooms or storage rooms. The Ministry of Agriculture supervises Cold Rooms (above 30 tons) as part of its mandate to control food quality in the country. It has already converted some of the older Cold Rooms from R-22 to Ammonia system and has plans for additional

conversion. HPMP activities are proposed to be included to address HCFC phase-out in transport refrigeration.

1.4.7. Solvent

The consumption of the solvent sector in the I.R. of Iran consisted of CTC, TCA and CFC-113 and all consumption has been imported. In 2003, UNIDO as part of preparation of a Terminal Solvent Sector Umbrella Phase-out Project carried out a survey and an assessment of consumption data. The Government was concerned that reported data on actual solvent consumption was low relative to the size of the country, its industrial base, and the major users of solvents. The results of the survey indicated large consumption of CTC and TCA, and, based on the survey results, I.R. of Iran requested the Implementation Committee of the MP to revise the solvent baseline for Iran. The request remained dormant for a while. When UNIDO submitted the Terminal Solvent Sector Umbrella project to the 50th meeting of the ExCom, which was approved in the amount of \$856,478, it noted that a substantial reduction in ODS consumption had already occurred as many users had already converted to alternative technologies on their own.² The project has fully phased out the consumption of CTC and reduced TCA to four ODP tonnes as of 2007. As per CP progress report submitted by IR of Iran for CY 2009, the total consumption of CTC and TCA is zero and 1.5 ODP tons, respectively³.

1.4.8. CFC-113 as Solvent

UNIDO phased out 81 ODS tons (64.8 ODP tonnes) of CFC-113 consumption through Solvent Sector Phase-Out Plan under NPP. CFC-113 consumption in the Solvent Sector was principally for cleaning purposes in the electronics and precision engineering industries. Its use was often in the form of spray cans for precision cleaning. The conversion of the spray can manufacturers will require Ex-proof filling stations that can be used to process hydrocarbon replacements that are used as alternative to CFC-113.

The Government has not allowed any import and application of CFC-113 and the NOU has consequently not issued any licenses for import of CFC-113. As per CP progress report submitted by IR of Iran for CY 2009, consumption of CFC-113 is zero. Any further ODS solvent use is covered under the ongoing solvent sector project of UNIDO.

1.4.9. CFC consumption in Metered Dose Inhalers (MDIs)

With the exception of pharmaceutical uses, CFC use in the aerosol sector has been mostly phased out. There was a relatively small amount of CFC consumption as aerosol propellant and for medical use. Ideally, the conversion of CFC-based MDIs to a non-CFC formulation should be with zero-ODP replacements for CFCs, which possess similar physical, chemical and toxicological properties. However, technologies with such properties and standards were not readily available to I.R. of Iran in 2003. Later in 2007, with assistance from UNIDO, the Government of Iran prepared a project for phasing-out CFCs in MDIs.

² In view of the uncertainties surrounding the results of the 2003 survey, the government decided to retain the declared solvent baseline of 1998-2000 for funding request for phase-out of remaining eligible quantities.

³ I.R. of Iran faced a compliance challenge relating to CTC in the year 2007. The Government has been successfully able to address the challenge and has nil consumption of CTC.



The project to phase-out 96.4 ODP tonnes of CFCs used in manufacturing MDIs was approved in July 2007 with an implementation period of 36 months and total funding of \$3,296,758. The project objective is to convert the Sina Darou, the manufacturers of aerosol MDIs, to CFC free technology. The project costs include HFA equipment supply, technology transfer, IOCs and implementation of the National Transitional Strategy. The contract for the provision of manufacturing equipment has been placed with Pamasol, Switzerland. However, identifying technology providers, who were prepared to offer the comprehensive requirement in the formulation development/technology transfer of the program, was difficult. After significant scrutiny Bepak Europe Ltd (UK) supported by associate companies was selected as the provider. The formulation development program was going to be fast tracked to make up for the lost time and by the year 2012, the project is expected to be completed.

As part of the UNEP non investment component of the MDI transition strategy, the first stakeholder awareness workshop was held on 8th March 2009 in Teheran. As part of the UNEP non investment component of the MDI transition strategy, the first stakeholder awareness workshop was held on 8th March 2009 in Teheran. Subsequently, regular dialogues between Health Ministry and Environment Ministry and the industry are being organised to review the progress of the CFC phase out. UNEP awareness materials, including the MDI Awareness package has been translated into farsi and outreached. Iran expects to phase out their CFC use in MDI manufacturing by 2011.

1.4.10. ODS phase-out Policy and Regulations Component

A Comprehensive Legislation Plan (CLP), including licensing system was developed to control CFC imports. A Policy and Enforcement centre was set up within the Ozone Cell. The project led to the development of procedures and guidelines for enforcement of ODS regulations and for addressing illegal activities by coordinating with different governmental departments involved. UNEP and NOO organized consultation meeting under the Policy and Enforcement Centre (PEC) with the aim to have the consultation and cooperation of the relevant line-ministries and stakeholders in the control of the illegal trade of ODS. The NOO conducted Tehran Dialogue in close coordination with the Governments of Pakistan, Afghanistan and UNEP ROAP. As a result of these efforts, NOO is now maintaining the database of information on illegal activities with reference to ODS regulations, including illegal ODS trade activities. NOO also organized information sessions for enforcement officers on procedures and guidelines for follow up of illegal activities that would influence adversely on the CFC phase –out.



2. INSTITUTIONAL & REGULATORY FRAMEWORK FOR ODS PHASE-OUT IN IRAN

Institutional and regulatory framework of I.R. of Iran formed the foundation for all activities implemented for ODS phase-out in the country. An overview of the same is provided in the sections below.

2.1. INSTITUTIONAL FRAMEWORK

2.1.1. Organization and Structure of the National Ozone Unit (NOU)⁴

The NOU was established in 1993 within the DoE and became fully functional as the national focal point for overall coordination, formulation and promulgation of policies consistent with the National Ozone Policy (NOP) in 1994. A Vice President is in charge of DoE, and the Deputy Head of Human Environment is the National Project Director (NPD) of the NOU. In 1994, the National Ozone Committee (NOC) was constituted as the policy and decision-making authority for implementation of the action plans to comply with the MP guidelines. The Deputy Head for Human Environment in DoE chairs the NOC, and other members are the representatives from Ministries of Foreign Affairs, Industries and Mines, Jihad Agriculture, Oil, Commerce, Management and Planning Organization, Customs Administration, Metrological Organization, and other ministries and agencies. The NOU is the Secretariat for the NOC, it prepares its agendas.

The NOU, with the full support of DoE and other government organizations and the refrigeration industry association, have played a pivotal role in managing the MP Programs. In addition to meeting the country's ODS phase-out targets, NOU has played a critical role in establishing and amending ODS regulations, conducted extensive public awareness campaigns and is taking initiatives to strengthen the enforcement of the regulations.

As stated above, the Deputy Head of DoE is the Director of the NOU. The NOU is responsible for overall management of MP programs, i.e. supervision of investment operations at the national level, which is done with the support of technical and administrative staff of NOU and the Implementation and Management Assistance Facility (IMAF). Furthermore, the NOU manager has oversight responsibility over IMAF, which was set up by GTZ as a PMU to coordinate technical support among international and national consultants as well as monitoring and fulfilling the NPP's reporting requirements. The manager liaises with the MLF Secretariat and coordinates the strategic activities of the IAs.

2.1.2. Provincial Ozone Cells

The 30 Ozone Cells at the provincial level have been established and strengthened to assist with implementation of CFC phase-out. The Provincial Ozone officers help the companies with operational difficulties and seek solutions through the IMAF and NOU. The Provincial Ozone officers also conduct surveys to verify consumption and determine the eligibility of industries. NOU has set up the infrastructure for enforcing the 2004

⁴ Originally Called Ozone Layer Protection Unit (OLPU).

decision of the National Ozone Committee that requires the registration of CFC users or traders. Accordingly, all enterprises consuming CFC for manufacturing or servicing use and trading must be registered and maintain records of their CFC purchases and uses. The Provincial Ozone Cells play an important role in enforcing this requirement through regular monitoring and supervision visits. The databases for contact information, data storage capacity and processing of the information in all 30 cells set up under NPP are now operational.

2.1.3. Iran Ozone Network (ION)

Establishment of a comprehensive ODS tracking and performance monitoring system was considered one of the main priorities of NOU and NPP with the objective of ensuring sustainability of ODS phase-out. The idea of establishing a nation-wide network of Ozone Officers was initially triggered in 2006 with the objective of decentralizing NOU's activities. This objective was to be achieved through cooperation of the provincial bureaus of the DoE and other line organizations such as the provincial extensions of the central NOU. Accordingly, the National Ozone Network was established in late 2006 and its Modus Operandi, describing the structure and operational mechanism of the ION developed by NOU was circulated to the provincial bureaus of DoE. The objective was to eventually connect 30 provinces through a national intranet system to assist the NOU in its efforts to: (i) monitor consumption of ODS, (ii) control import and distribution of ODS, (iii) conduct trouble shooting and diagnosis at a provincial level and (iv) collect more detailed and inclusive data on performance of converted enterprises with respect to initialization rate of the alternative technologies; satisfaction with the new technologies to support bottom up decisions making process, on a case by case basis.

ION was designed to include 30 provincial Ozone Groups (as down scaled local extensions for the National Ozone Committee), comprised of representatives of the provincial departments of NOCs and 30 provincial Ozone Officers. The provincial Ozone Cells are housed in the provincial bureaus of DoE. Provincial Ozone Officers were trained on the overall framework of ODS networking and monitoring activities in late 2006 and in 2007 and in 2008, they were-trained on the application of the new database management system on monitoring and reporting.

The database system is network-based software very similar to the NOU's website at www.iranozone.ir. It is network compatible and capable of being linked to the existing portal of the DoE. Once the system is fully integrated, it will make communication between and among the provincial Ozone Cells and NOU more efficient. A full-time database officer in NOU manages the system. The system is designed to be flexible enough for the administrator and other NOU staff to access the main interface module and make necessary modifications to the content and structure of the data forms and add new forms if necessary.

2.1.4. Ministries, Customs Administration and ISIRI

The Ministry of Foreign Affairs has authority over policy issues expressed internationally relating to MEAs. It is the official contact point in Iran for matters relating to the MP. In the early days of MP operation, representatives of the Ministry of Foreign Affairs participated in MP meetings including ExCom meetings. However, this participation ceased after a few years.

The Ministry of Industry and Mines (MoIM) is the licensing authority for industry and issues permission for the start-up of any new workshops. Hence, it has a significant role in policy decisions making and enforcement of regulations related to ODS phase-out.

The Ministry of Commerce (MoC) maintains data and information on businesses, issues trademarks and helps with setting industrial standards. Companies wishing to import ODS or ODS consuming equipment must have a valid commercial license and register with the MoC, who in turn provides the information to NOU.

The Ministry of Jihad Agriculture is responsible for the management of agricultural pesticides including Methyl Bromide. It also issues licenses for large Cold Rooms (above 30 mt), and has oversight over the Cold Rooms on accounts of having responsibility of the quality of food and produce stored in these Cold Rooms. In this regard, similar to MoC, Ministry of Agriculture has an important role in policy and regulatory aspects of ODS phase-out in connection with large Cool Rooms.

Ministry of Housing & Urban Development (MHUD) was established in 1963 for the purpose of city planning and implementing housing projects in cities, towns and villages. MHUD cooperates closely with municipalities on housing requirements in the country. Moreover, it oversees the establishment of technical standards for design as well as construction material for large housing complexes, commercial and government buildings.

The Customs Department is responsible for the control of trade and enforcement of regulatory import and export measures. The Customs Department plays a very important role in enforcement of ODS regulations and facilitating data collection process on ODSs. The Customs Departments, in addition to ensuring that imports of ODS are in accordance with licenses and assigned quotas, are also responsible for examining and inspecting any suspicious shipments and forwarding quarterly reports including a list of importers and other information on ODS imports to DoE and NOU.

Furthermore, the Information and Statistics Office of the Customs Department provides the NOU with hard copies as well as the electronic version of imported ODS data. NOU and the independent auditors review the data for necessary refinements and adjustments. The Statistic Office provides the electronic data to NOU based on their official request. This is useful for ODS data reporting to different agencies.

2.1.5. Institute of Standard and Industrial Research of Iran (ISIRI)

ISIRI started operating in 1960, and joined the International Organization for Standardization (ISO) in the same year. ISIRI is an active participant in numerous international organizations on standardization as either a member of the technical committees or ISO councils.

The main mission of ISIRI is establishment of standards system for the growth of the economy and promotion of national welfare through determining and formulating national standards. This entails research, development and publication of standards for improvement of the quality of domestic goods, enhancement of production process and industrial efficiency. ISIRI is also responsible for supervision of compulsory standards, and quality control of imported and exported goods that are subject to compulsory standards. The National Committees in charge of development of standards cover a wide range of sectors, durable and non-durable consumer goods in industry, agriculture, civil

engineering, chemicals, minerals, mechanical & metallurgy, telecom, biology, educational documents & equipment and games among others.

The Iranian National Standard 10050, ISIRI, which is actually a translation and adaptation of ARI 700 -2006 has been prepared by ISIRI to be a mandatory standard for all imported blowing agents and refrigerant gases (including R-22 and R-141b). This standard, which has been ready for the past two years was supposed to become effective in February 2010. However, the effectiveness date was postponed to April 1, 2010 due to delays in setting up of laboratories and acquisition of expensive equipment needed for testing the gases. The eventual effectiveness of this standard means all imported refrigerants and blowing agents must be tested against a set of specified criteria.

ISIRI has prepared and announced national mandatory standards for a few ODS consuming equipment such as window-type A/Cs less than 7KW (translation of ISO 5151-1994 and JIS C 9612-1999), domestic refrigeration compressors 1/3 to 1/8 HP (IEC 60335-1, IEC 60335-2-34) and for different types of domestic refrigerators and freezers (IEC 60335-1, IEC 60335-2-24, ISO 8561, ISO 15502).

2.1.6. Industry Associations and Other Agencies

Industry associations have supported NOU with successful implementation of CFC phase-out activities in the past. Currently, there are three major identified associations/syndicates that represent ODS consumers:

- Association of Manufacturers of Home Appliances, who are mostly in manufacturing business;
- Association of Refrigeration Industries, who are mainly in repair and maintenance of refrigeration; and
- Association of the Automobile Spare Part & Part Manufacturers, who cover all auto part manufacturers including foam and refrigeration systems for both light and heavy vehicles.

The Refrigeration Industry Association has been working actively with NOU to control illicit distribution of refrigerant cylinders and has been assisting with training of technicians in servicing sector. This Association has also been working with the ISIRI to prepare national refrigerant standards. In addition to the above associations there also are Association of Furniture Manufacturers and Tehran Association of Mattress and Car Seats producers, who should become more active participants in ODS phase-out to support their members' interests.

2.1.7. Technical Vocational Training Organizations

There are 30 Technical Vocational Training Organizations (TVTOs) in Iran, one in each province's center that are under the supervision of the TVTO Headquarters in Tehran and work closely with Provincial Refrigeration Associations. Additionally there exists about 400 more Vocational Training Institutes in the country, who provide technical training to the technicians and workers in different fields including Refrigeration Servicing. These smaller vocational institutes are all public and under the supervision of TVTOs in provinces' centers. The entire vocational training system is under the authority of the Ministry of Labor. The trainers at the TVTOs are responsible for training the technicians and certifying them. The trainers of the 400 Vocational Training Institutes come to TVTO Headquarters in Tehran to complete a minimum of 120 hours of mandatory

continuing education in their fields of expertise annually to enhance their knowledge and competency.

Under the current regulatory procedures in Iran, in order for a service workshop owner to obtain the license to operate, the person must be trained and certified by one of TVTOs. The license application is processed through Industry Unions. However, these requirements do not apply to the workers in servicing stations. This has resulted in presence of large number of service technicians who are not formally trained in handling refrigerants and servicing refrigeration equipment.

In addition to the above, there are other technical institutions (e.g., technical vocational training schools, universities) who also provide technical training to engineers and technicians in different fields including refrigeration and air-conditioning and chemicals management.

It must be noted that for HCFC phase-out, there are other organizations who would play a role in implementation of HPMP. These include (but not limited to):

- Building and Housing Research Center (BHRC)
- Construction Engineers Organization (Sazemane Nezam Mohandesi)
- Iranian Syndicate of Heating, Refrigeration & Air conditioning Industries (ISHRAI);
- Iranian Association for Air Conditioning Equipment.
- National Climate Change Authority
- Iran Energy Efficiency Organization (IEEO-SABA)

Their specific roles in HPMP and support that would be available through HPMP project funding are elaborated later in the report.

2.2. LEGISLATIVE AND REGULATORY FRAMEWORK

2.2.1. Existing Policy and Regulatory Framework

The I.R. of Iran initiated policy measures for ODS phase-out as part of the original CP in 1992 with the establishment of the NOU. Since then comprehensive policy and regulatory frameworks covering institutional, regulatory, fiscal, and legislative actions have been established. Ratification of Conventions, Protocols and their amendments in the 1990s created a comprehensive framework to encompass future laws related to MP decisions. Subsequently, new ODS rules and regulations were introduced on the basis of the existing laws in Iran, namely: (i) Article 50 of the constitutional Law on Protection of Environment; (ii) Import and Export Regulation Act, 1993; (iii) Environmental Protection and Enhancement Act, 1974; (iv) Plant Protection Act, 1967; (v) Air Pollution Act, 1994; and (vi) Economic, Social and Cultural Development Plan, by issuance of directives. In this regard, directives have been issued since 2004 on ODS controls and monitoring requirement.

As part of the strategic phase-out approach of performance-based sector plans, the I.R. of Iran constituted a comprehensive policy and regulatory measures and in June 2003 with the support of UNEP and the Government of Japan initiated preparation of the Comprehensive Legislation Plan (CLP). Other implementing agencies provided inputs for preparation of the CLP.

Comprehensive Legislation Plan (CLP): Establishment of the CLP in 2004 was a major milestone for ODS phase-out, as it facilitated issuance of additional regulations and directives. NOU is responsible for implementation of CLP, monitors the progress of the activities against schedules, and ensures that enforcement of approved legislations is in accordance with National Acts and Laws that define enforcement.

To facilitate implementation of CLP, the following actions were taken:

- Forming a legislation steering committee,
- Increasing participation in regional cooperation with neighbouring countries on ODS trade issues, and
- Establishing an ODS trade Clearing House.

The following rules were issued under CLP to limit import and consumption of ODS:

- a. **Control Measures:** Imports of CFCs were already subject to quota systems prior to CLP. DoE expanded the control measure to cover import of ODS-containing appliances and subsequently banned imports of the following products using CFCs:

- Refrigerators, freezers, and water coolers;
- Compressors;
- Non-pharmaceutical sprays, and
- Chillers.

Furthermore, DoE banned the establishment of new ODS-consuming industrial units through a notice from the MoIM.

- b. **Fiscal Incentives and Disincentives:** The following fiscal measures were established to reduce illegal ODS trade:

- Enterprises that convert to non-ODS technology are exempt from import duties;
- The commercial benefits tax on import of non-ODS compressors was decreased to promote its usage;
- Import of ODS containing compressors (1/3 to 1/8 horse power) was banned;
- Taxes on imported ODS was increased, and
- Quality standards have been established for some alternative substances, recycled gases, or ozone friendly products.

- c. **Labeling Requirements:** CLP considered labeling requirements as an effective awareness measure for ODS phase-out and a condition for ODS trade. Therefore, the following labeling requirements were emphasized:

- Manufacturers of products that contain ODS are required to affix labels on their products clearly indicating the scientific and commercial name of the substances and the text "Ozone Depleting Substances"; and
- All manufacturers that have converted their technology to non-ODS must show a label on their products clearly showing the scientific and commercial name of the substances and the text "Ozone Friendly Product". As a safety measure, products containing hydrocarbons should be labeled as potentially flammable.

- d. **Monitoring ODS Trade:** Article 4B of the 9th Meeting of the Parties obligated the Article 5 countries to establish and implement a licensing system for import and export of new, used, recycled and reclaimed ODS in Annexes A, B, C and E of the Protocol by January 1, 2000. The purpose of the licensing system was to prevent illegal trade of ODS, facilitate collection of accurate data, and thus improve the quality of statistical reporting to the Ozone Secretariat. The Import Registration and Licensing System, which was set up through issuance of CLP on ODS Phase-out and its enforcement in March 2007, brought the I.R. of Iran in compliance with MLF licensing system requirements.

Import and Export Licensing System (IELS): As mentioned above, in line with the Parties Agreement, the I. R. of Iran initiated the process of a licensing system in collaboration with relevant ministries in mid 2000. To this end, the Government undertook the following activities:

- Codified all ODSs through the national system in accordance with the Harmonized System, which is listed in the "Import and Export Regulation Book";
- Prepared and introduced an import Quota system for ODS import and export registration forms to be used by importers and exporters to be monitored by the MoC and the Customs Department;
- Established a system for the NOU to collect registration forms to be used for analyzing supply and demand of ODS; and
- Introduced the quota system for imports of CFC-11 and 12 from January 1, 2003.

ODS consumption has been controlled through IELS and quota system. The licensing system made it possible to gradually reduce supply of ODS in accordance with the country's obligations under the MP.

Policy & Enforcement Center (PEC): Another major policy and regulatory action, which brought the I.R. of Iran in conformity with Decision XIV/7 of the MoP-14 was the formation of PEC in 2006. PEC became formally operational in 2008 in the NOU⁵ with the mandate to enforce regulations with particular emphasis on illegal ODS activities. The main functions of PEC are:

- Recommend amendments to legislation on ODS related policies,
- Develop procedures and guidelines for enforcement of ODS regulations, including illegal activities, and
- Develop a database on illegal activities in ODS regulation including illegal ODS trade in English language, and
- Prepare draft reports for submittal to the Ozone Secretariat in conformity with Decision XIV/7 of MOP-14.

PEC has been effective in enforcing the import licensing regulations that have been in effect since 2007. Key achievements since then are:

- All importers applying for the import of ODS have to complete and sign a commitment letter to ensure control of the imports;

⁵ In 2006 the PEC was formed under NOU to act as an interim administrative body after the MoC withdrew its offer to accommodate the Center under its administrative jurisdiction. An interim Policy and Enforcement Officer handled the PEC's activities until 2007 when the appointment was made full time.

- Maximum allowable import for each importer is 20 tons for each application for registration (excluding imports for MDI uses);
- All importers must submit report of their previous ODS imports to NOU before receiving new import license;
- No license will be issued to importers with records of counterfeit ODS imports (CFC-11/12) or illegal ODS trade filed at NOU;
- All importers are obliged to provide a verification letter from the Customs Administration confirming the purity and novelty of the imported gases in order to control import of counterfeit commodities;
- No license for registration is issued for import of ODSs by converted enterprises;
- All ODS importers applying for the import registration after the effectiveness date of these criteria should have records of ODS trade within the past 3 years.

2.3. LESSONS LEARNED FROM ODS PHASE-OUT

Over the last two decades spent on implementing ODS phase-out activities and particularly, implementation of NPP, the following main lessons were learnt.

- Successful implementation of National Plans require close interaction with industry stakeholders and strong commitment from Government on implementation of ODS phase-out projects under the plans. Particularly, consultations with industry on project implementation issues, regulations enforcement and support needed for them to achieve their ODS phase-out targets is important. Industry associations need to play a very active role in implementing the phase-out plans.
- Awareness and information outreach activities play an important role in faster adoption of ozone friendly technologies. The awareness activities should be regionally spread for greater outreach. Focus of these awareness activities should be on industry representatives, industry associations, enforcement agencies and academia, besides general public. Given that consciousness on environment friendliness is very high in today's world, the awareness programs should be designed in a strategic manner to cost-effectively outreach messages on ODS phase-out and its environmental benefits.
- Training on good servicing practices particularly on recovery and reclamation programs and for Customs and Enforcement agencies on ODS regulations enforcement should form an integral part of project implementation plans. Regular information exchange on above issues besides training is important.
- For enforcement effectiveness, closer working relationship between ISIRI and Customs Department is necessary. Constant information exchange on ODS phase-out issues between these organisations and technical support would help in better enforcement of ODS regulations. Senior level commitment on participation ODS phase-out enforcement would help in sustained cooperation between ISIRI and Customs Department.
- Regular updates on monitoring performance of projects and other ODS phase-out activities is very important. This not only helps in sharing good practices and learning experiences but also facilitates introducing mid-course corrective measures for project implementation.

3. HCFC SUPPLY AND DEMAND IN IRAN

HCFC supply and demand situation in I.R. of Iran is presented in the ensuing paragraphs. The information presented in this section is based on data collected from National Ozone Unit (NOU) and survey undertaken for HPMP preparation.

3.1. HCFC SUPPLY IN IRAN

Iran does not produce any HCFCs. All HCFCs are imported. The main countries from where HCFCs are imported to Iran include China, India and other countries in the region. Imports are mainly undertaken through the following three sources:

- Direct imports by end-users for both HCFC-22 and HCFC-141b
- Imports by polyurethane foam systems houses in case of HCFC-141b
- Imports by traders in HCFCs for both HCFC-22 and HCFC-141b

The quantities of HCFCs imported and used in Iran by substance are given in the table below.

Table 6: Quantities of HCFCs imported and used in IR of Iran between 2005-2009

(All figures in MT)

	2005	2006	2007	2008	2009	CARG*
HCFC-141b	791.28	894.09	924.80	1725.80	1884.53	24%
HCFC-22	1322.70	1239.77	1630.82	1328.16	2823.18	21%
Total	2113.98	2133.86	2555.62	3053.96	4707.71	-

Source: CP Progress data reports.

*CARG – Compounded Annual Rate of Growth

From the above table, one can observe the following:

- HCFCs are imported from India, Europe and China. While HCFC-22 is imported from all these three countries, HCFC-141b is imported mainly from China, which has recently emerged as the largest producer of HCFC-141b. Iran has not reported any exports or re-exports of HCFCs.
- Of the total consumption of HCFCs in Iran in 2009 in MT, HCFC-141b accounts for 40% and HCFC-22 constitutes 60%. In ODP tons, this works out to 43% and 57%, respectively, as HCFC-141b has twice the ODP of HCFC-22.
- HCFC-141b is used in manufacturing foam products, primarily rigid foam and integral skin foam, and insulation foam for refrigeration and air-conditioning applications. Based on data collected during the HCFC survey conducted in 2009, about 1,028 MT of HCFC-141b consumption in 2009 is in foam product manufacturing and 856 is in refrigeration and air-conditioning applications for insulation foam. There has been a significant growth in these applications primarily

driven by economic growth and conversion of enterprises to HCFC-141b based technology options⁶.

Of the total consumption of HCFC-141b used in foam applications (both foam products and in insulation foam in refrigeration and air-conditioning applications), negligible quantities are procured from systems houses (estimated to be less 10 MT) in the year 2009. Most of the HCFC-141b consumption in foam applications is procured directly from importers. Polyols are separately procured from systems houses and mixing is undertaken at the manufacturing facilities for manufacturing foam products.

- HCFC-22 is used in producing refrigeration and air-conditioning appliances. Predominantly, HCFC-22 is used in manufacturing unitary air-conditioners, commercial & industrial refrigeration equipment and installation of industrial and transport air-conditioning equipment. As of the year 2009, while manufacturing operations are estimated to constitute about 47% of total HCFC-22 demand, servicing applications constitutes about 53% of HCFC-22 demand.
- The price of HCFC-22 and HCFC-141b in the market collected through field survey is given below. The price trends are primarily governed by demand supply situation and international price trends of these substances, besides commercial practices adopted by the industry.

Table 7: Price of HCFCs in 2009

Refrigerant	2009
HCFC-141b	1.35-1.49
HCFC-22	3.80 – 5.00

The price of HCFCs fluctuate depending upon market factors such as availability, demand-supply in the global market etc.

- HCFC blends are also used in Iran. The quantities are expected to be negligible (possibly less than 10-15 MT per annum). These blends are expected to be used as drop-in substitutes in commercial and transport refrigeration applications, which were using CFC-12 and R-502.
- HCFCs are imported and sold in the domestic market either directly to the end-user (e.g., manufacturer of HCFC based equipment, agencies installing HCFC based equipment) or through a distribution network of retailers / chemical products selling companies. In Iran, HCFCs are sold through the distribution network of retailers and chemical products selling companies.
- Overall growth in HCFC use in Iran is about 20% per annum calculated over the last five years. Consumption of HCFC-22 and HCFC-141b have grown by 2.11 times and 2.38 times, respectively during the period 2005 to 2009.

The main reasons for the growth in consumption of HCFC-22 is increase in consumption of HCFCs in manufacturing/assembly of HCFC-22 based air-

⁶ CP progress data report for the calendar year 2009.

conditioners in domestic, commercial and industrial applications over the period 2005-2009. During this period, servicing demand for maintaining new HCFC-22 based equipment has also seen a significant increase. HCFC-141b consumption has grown due to increase in consumption of HCFC-141b in foam applications and conversion of industries from CFCs to HCFC-141b in manufacturing foam products including insulation foam in refrigeration and air-conditioning applications during the period 2004-2009.

In addition to the above, data collection and reporting processes used for reporting HCFCs were strengthened over the last two years. In the past, HCFC import data from Customs statistics could not be accurately collected as this data was reported under different nomenclature which made it difficult to identify HCFC imports. Through cross verification of HCFC import data (supply data) with data from manufacturers of HCFC based equipment, products and services(demand data), the data reporting accuracy has improved and is reflected in the end-use based data reporting in HPMP. This has resulted in more accurate data collection and reporting in the years 2008 and 2009.

3.2. HCFC DEMAND IN IRAN

As mentioned earlier, HCFCs are mainly used in manufacturing and servicing refrigeration and air-conditioning, foam for refrigeration and air-conditioning appliances and foam products. During the survey, no HCFC use was reported in aerosol and fire-fighting applications. The following paragraphs provide detailed estimates of HCFCs used in different applications in Iran.

3.2.1. Refrigeration and air-conditioning applications

The following sections presents details of HCFC-22 used in Refrigeration and Air-conditioning applications in Iran. As mentioned earlier, consumption of HCFCs other than HCFC-22 in Iran is negligible. Therefore, the section presents details of HCFC-22 usage in Iran.

It must also be noted that while data of registered enterprises engaged in RAC equipment manufacturing shows more than 500 enterprises in this business, during field survey, it was noted that many of these enterprises are not active in manufacturing activities. During the field survey, all attempts were made to cover all active enterprises engaged in RAC equipment manufacturing / assembly. The data presented below is based on field survey data collected and industry expert inputs obtained during data collection process.

Air-conditioning

Unitary air-conditioning

In Iran, more than 1 million air-conditioners are sold for use in domestic markets. There are 33 enterprises manufacturing, assembling and importing HCFC based unitary air-conditioning equipment in the countries.

Mehr Asl is the largest local manufacturer of unitary air-conditioners. Besides Mehr Asl, there are 26 other assemblers of HCFC-22 based unitary air-conditioners in Iran. These enterprises are engaged in manufacturing more than 650,000 to 700,000 equipment per annum in Iran.

The names of the importers with their international affiliations/brands in parenthesis is given below.

- Goldiran (LG)
- Goodman kish (Carrier, Goodman)
- Meltech (Assorted)
- Pishro Tahviah Nia (Hitachi)
- Sam Pakhsh (Sumsung)
- Tahviah Nia (O general)

The estimated total quantity of air-conditioners sold in Iran is more than 1.2 million units in the year 2009. The estimated consumption in manufacturing of these units is about 683 MT of HCFC-22.

The products are mainly sold in the local markets. Some quantities are exported to Article 5 countries in Asian, Middle Eastern and African regions.

It must be noted that unitary air-conditioning applications form a very significant proportion of national consumption of HCFCs- both as initial charge and recharge. It is also known that currently, in very limited quantities, HCFC free alternatives (e.g., R-410A, R-407C) are being used in the markets – mainly imported from countries in the region. Given the long life of equipment, these equipment are expected to consume HCFCs over long duration of time (say more than 15 years) for servicing, if not addressed for HCFC phase-out.

Price of power is an important factor that is expected to affect demand of HCFCs in the country. Any policy changes in the Government that results in increase in power price would affect the HCFC based RAC equipment demand in Iran. It must also be noted that as a substitute to air-conditioners, water-based air-cooled units are widely used in Iran, wherever possible.

Commercial air-conditioning

Commercial air-conditioning equipment are largely used in commercial establishments including business centers, business establishments, restaurants etc. These equipment have capacities larger than domestic air-conditioning equipment. These products are manufactured both locally and imported. The estimated consumption of HCFC-22 is low compared to domestic air-conditioning as production volumes are low compared to domestic air-conditioning. It is estimated that consumption of HCFC-22 in these applications is about 30 MT in the year 2009.

Industrial air-conditioning

Industrial air-conditioning equipment produced in Iran essentially includes central air-conditioning requirement and chillers used in commercial and industrial enterprises in Iran. Like industrial refrigeration equipment, these equipment use HCFC-22 and other non-HCFC based refrigerants.

Compressors for industrial refrigeration equipment are imported into Iran. There is no local manufacturer of compressors in the country. Components for installation are locally procured from different suppliers and installed at the customer's premises.

There are more than 20 enterprises, which are installing HCFC-22 based industrial air-conditioning equipment in the country. Their total consumption of HCFC-22 in these enterprises is about 336 MT in the year 2009.

Refrigeration

In Iran, HCFCs are consumed as refrigerant only in commercial, industrial and transport refrigeration and air-conditioning applications. HCFC-141b is consumed as foam blowing agent in domestic, commercial, industrial and transport refrigeration and air-conditioning applications. Details of consumption of HCFC-22 and HCFC-141b consumed in different applications is given below.

Domestic refrigeration

Domestic refrigeration applications do not consume HCFC-22 as a refrigerant. They only consume HCFC-141b as foam blowing agent. The industry has about 35 enterprises consuming about 548 MT of HCFC-141b in foam applications. Of these 35 enterprises, 26 enterprises have been supported for conversion from HCFC-22 to HCFC-141b during CFC phase-out plan implemented in Iran and the total HCFC-141b consumption of such enterprises aggregates to 456 MT in the year 2009.

Commercial refrigeration

Commercial refrigeration equipment are used in different parts of Iran primarily for refrigeration of food items and beverages. The enterprises in this sector primarily manufacture equipment using HFC-134a and HCFC-22. During the survey, there were about 21 enterprises identified in this sub-sector consuming HCFC-22 as the refrigerant.

Total consumption of HCFC-22 in commercial refrigeration applications is estimated to be 63 MT in 2009. Many of these enterprises consume HCFC-141b in manufacturing insulation foam for refrigeration and air-conditioning. The total quantity of HCFC-141b consumed for such insulation foam in the year 2009 is 308 MT⁷.

Commercial refrigeration enterprises were funded through MLF for conversion from CFC-11 to HCFC-141b. Given the size of the enterprises and the nature of their operations, these enterprises switched over from HCFC-22 to HCFC-141b. The following table presents details of enterprises which have received support for conversion to HCFC-141b ("second conversion") and which have not received support for HCFC-141b ("first conversion").

⁷ Given that the enterprises in this sub-sector include both equipment manufacturers for commercial applications as well as cold rooms etc., this consumption could be either in commercial and industrial refrigeration applications.



Table 8: Support provided for conversion to HCFC-141b in Commercial Refrigeration sub-sector

First conversion		Second conversion		Total	
No.	Quantity in MT	No.	Quantity in MT	No.	Quantity in MT
2	2.0	47	306.0	49	308.0

Industrial refrigeration

Industrial refrigeration equipment produced in Iran essentially includes cold storages and refrigeration equipment used in facilities needing low temperature applications (e.g., food products, dairy products, sea-food industry, ice machines etc.). These equipment operate using different types of refrigerants e.g., ammonia, HFCs, HCFCs, Carbon dioxide etc.

There is no local manufacturer of compressors in the country. Compressors for industrial refrigeration equipment are imported into Iran. Components for installation are locally procured from different suppliers and installed at the customer's premises.

Currently, there are about 35-40 industrial refrigeration equipment installing agencies in the country. It must be noted that these enterprises manufacture multiple RAC equipment for industrial refrigeration applications. The estimated HCFC-22 consumption is about 172 MT in 2009.

While HCFC-22 is used in different applications, in the recent past, there is increasing use of equipment based on HCFC free alternatives such as HFC-134a, Ammonia in installations. Particularly, in large installations used in industrial areas outside main cities or towns, ammonia based installations are increasingly being installed.

Transport refrigeration

There are 3 identified large manufacturers, namely Nik, Mehran e sard and Mamut producing transport air-conditioning applications using HCFC-22. One other company, namely Sard Sir, was producing transport air-conditioning applications earlier but they have reported discontinuation of manufacturing. Besides the above, there are some organizations who handle installation and servicing HCFC-22 based transport air-conditioning applications.

Total consumption of HCFC-22 of these companies in the year 2009 is about 10MT. Mehran-e-sard and Mamut also consume HCFC-141b for insulation foam for the refrigeration and air-conditioning. These enterprises have received assistance in for conversion from CFCs in foam applications during CFC phase-out projects implemented in Iran.

During the survey, the companies have indicated that they would be interested in switching from HCFC-22 to R-404A in transport refrigeration applications. It was also observed during the survey that the enterprises have moved from HCFC based transport refrigeration to HFC based applications.

Servicing sector

The servicing and maintenance of RAC appliances is using more than 50% of the Iranian annual HCFC-22 consumption. This consumption is primarily driven by population of HCFC using equipment mainly in unitary air-conditioners and other RAC applications using HCFC-22.

The main areas related to the HCFC consumption in the servicing sector are:

- a. Air conditioning – Window and split air-conditioning units in Iranian households, working offices, commercial establishments and hotels.
- b. Commercial sector - Small and medium sized equipment which present high rates of refrigerant leakage and high energy consumption and chillers used for AC systems in hotels and supermarkets.
- c. Industrial sector - Large cold rooms and refrigeration systems, mainly in industries engaged in food processing and some other manufacturing operations, process cooling and AC in industrial sector (in hotels and in large public buildings).

All 30 provinces in Iran have local refrigeration unions which register and certify refrigeration technicians and servicing companies to operate servicing and maintenance in the domestic and commercial refrigeration sectors.

The range of servicing, maintenance and installation operations among HCFC end-users includes a wide range of enterprises from different major industries:

- Food, beverage (refrigeration),
- Chemical factories, oil by products industry (AC and chillers),
- Textiles, clothing and leather manufacturers (AC),
- Paper producers, press articles (chillers),
- Big public and private buildings (banks, hotels, government buildings, offices) are also significant end users where maintenance and servicing is regularly required.

There are about 4,000 registered workshops in Iran but the estimated number of operating servicing workshops is more than 10,000 in the country. These workshops have RAC service technicians working in the country using HCFC-22 for servicing equipment.

At present, there is no direct source for measuring HCFC-22 consumption data for servicing in RAC applications. During the survey information on use of HCFC-22 in manufacturing equipment was collected through field survey and this is expected to account for most of the consumption of HCFC-22 in manufacturing. Allowing for a margin of error of 10% for small enterprises which were not completely covered during the survey, the estimated consumption of HCFC-22 in manufacturing is about 1,390 MT in 2009. Given that the total import of HCFC-22 in servicing is 2,823 MT in 2009, the estimated consumption of HCFC-22 in servicing is about 1,489 MT.

Ministry of Labor in the country coordinates existing refrigeration training programs and infrastructure. A brief overview of the same is given below.

- There are 30 Vocational Training centers in each Iranian province – also called provincial TVTOs – which are under supervision of TVTO HQ in Tehran.
- 400 Vocational Training institutes located in different cities in Iran give required training to technicians in different subjects. These smaller training institutes fall under Government control and are under supervision of TVTOs in the province centers. Both institutions are under authority of Ministry of Labor in Iran. It should be noted that only 50 of these 400 local vocational training centers are competent to give the technical refrigeration trainings and have skilled trainers in order to provide professional refrigeration training. There are still many training centers which do not have the required competencies to provide requisite training support to the technicians.
- Vocational Training centers have trainers who are responsible to give technical training to the technicians in different fields such as Refrigeration. Before opening a servicing workshop (in any field), the owner or technician needs to have a certificate in refrigeration by the local TVTOs. Having received the certificate, the owner has to get the working permission from the relevant unions to open the servicing workshop. In some cases like in Tehran, the Refrigeration Union and the Union Training Board have the authority to train the new technicians in the Union to certify technicians.
- Local trainers in 400 cities come every year to Tehran to attend at least 120 hours training on different matters.
- The Central TVTO in Tehran which is responsible to train other TVTO trainers is ready to include all Montreal Protocol related training issues including CFC and HCFCs phase-out in their training standards. Training and awareness materials will be sent them to be distributed to their local trainers to be used in their training courses.
- As these TVTOs have very good potential and existing infrastructures it should be considered to include the center in the capacity building, awareness and training programs for HCFCs phase-out plans.

In addition to TVTOs, there are other training centers providing training to refrigeration technicians in Iran. An overview of the training infrastructure is presented below.

- ITC is the largest and the most equipped training center in Iran.
- Universities: Iranian University of Science and Technology, Arak campus (The university provides a HVAC course under the supervision of Ministry of Science, Research and Technology. The main purpose of the course is to train and educate with O&M orientation of HVAC & R systems), Shahid Rajai Teacher Training University (The university is under the supervision of two ministries: Ministry of Science, Research and Technology and Ministry of Education and Training. The main purpose of the university is to train teachers but semi-professional academic activities have been started in recent years. There is a refrigeration laboratory in mechanical engineering department but without state of art equipment.).
- Private Training Institutes: Private Training Institutes in Tehran providing HVAC & R courses: Adiban Institute, which organizes IRCEO courses

(www.adiban.net), Kaashaaneh institute (www.kaashaaneh.ir), HVAC House, a newly established institute that belongs to Mr. Dehghan owner of 3 HVAC magazines.

There are two Refrigeration and Heating, Ventilation and Air-Conditioning (HVAC & R) related institutions in Iran. A brief overview of these institutions is presented below.

- Iranian Syndicate of Heating, Refrigeration and Air-Conditioning Industries (www.ishtai.ir): mostly dealing with daily issues of HVAC&R manufacturers. It has 115 members. However, it is estimated that over 300 manufacturers are working in this field.
- Iranian Scientific-Engineering Society on Heating and Refrigeration (ISESHR) (www.iseshr.org): founded about 2 years ago by a team of 7 universities and government members. It is working under the supervision of Ministry of Science.

Their active involvement through a network with the training institutions will help in fast-track outreach of training activities that would be undertaken while phasing out HCFCs in Iran.

A summary of usage of HCFC-22 in RAC applications in manufacturing and servicing for the year 2009 is provided in the table below.

Table 8: Summary of HCFC-22 consumption in Iran in RAC applications in 2009

Sectors/subsectors	2009 consumption in MT
Air-conditioning	
Residential Air-conditioners	682.42
Commercial Air-conditioning	30.13
Industrial Air-conditioning (Chillers)	336.43
Refrigeration	
Domestic Refrigeration Equipment	-
Commercial Refrigeration Equipment	62.70
Industrial Refrigeration Equipment	172.22
Transport Refrigeration Equipment	10.00
Servicing	1,489.28
Total	2,783.18

Note: (a) Manufacturing use is based on survey data collected from manufacturers of RAC equipment. Service use is based on best estimates of HCFC-22 for servicing equipment in these applications. (b) In addition to the above, 40MT of HCFC-22 is used in manufacturing XPS as explained below.

3.2.2. Foam manufacturing applications

HCFC-141b is used for manufacturing different foam products. The details of foam manufacturing is presented in the sections below relating to rigid foam, integral skin foam, HCFC-141b used in manufacturing domestic refrigerators and systems houses. Details of HCFC-141b used in commercial and industrial RAC applications is presented in the earlier section on RAC applications.

There is no reported consumption of HCFC-141b in spray foam applications. Hence, this is not included in the description.

Rigid foam (Sandwich Panel)

There are about 25 manufacturers of producing continuous and discontinuous sandwich panels in Iran and have a total consumption of 685 MT of HCFC-141b in the year 2009. Of these 25 manufacturers, 10 manufacturers have been provided assistance for conversion to HCFC-141b from CFCs and their total consumption aggregates to 380 MT in 2009.

Rigid foam (others)

There are 13 manufacturers of rigid foam in Iran. They consume about 212 MT of HCFC-141b in 2009. Of this total consumption, 12 enterprises consuming about 150 MT of HCFC-141b in 2009 have been provided assistance for conversion from CFCs to alternatives. USC consumes HCFC-141b of about 30 MT in 2009 for pipe insulation.

Of this, one enterprise consuming HCFC-141b in 2009 was provided assistance for conversion to cyclopentane.

Integral skin foam

There are 10 manufacturers of integral skin foam products in Iran and have a total consumption of 132.0 MT of HCFC-141b in 2009. Of the 10 manufacturers, 5 manufacturers have been provided assistance for conversion from CFC-11 to HCFC-141b during the earlier Montreal Protocol phase-out projects. Their total consumption of HCFC-141b is 88.5 MT in 2009. This includes Iran Polyurethane, which started using HCFC-141b in its facility.

This sub-sector has 5 enterprises consuming less than 5 MT of HCFC-141b in 2009.

Domestic refrigerator manufacturing – insulation foam

There are 35 manufacturers of domestic refrigerators using HCFC-141b in manufacturing insulation foam in Iran and have a total consumption of 548 MT of HCFC-141b in 2009. Of the 35 manufacturers, 26 manufacturers have been provided assistance for conversion from CFC-11 to HCFC-141b during the earlier Montreal Protocol phase-out projects. It must be noted that some of the large HCFC-141b consuming enterprises have been provided assistance under CFC phase-out project in this sub-sector.

Extruded Polystyrene foam (XPS)

There are 3 identified companies producing XPS with imported machinery from People's Republic of China (PRC). These companies use HCFC-22 in their manufacturing operations. All these companies have equipment installed after the 21st of September 2007.

The blowing agent used is HCFC-22 or a mixture of HCFC-142b/22, both ozone depleting and high GWP.

HCFC-141b consumption in systems houses

During the survey, 5 systems houses were identified in Iran – namely Urethane Systems Corporation, Kabudan Chemie, BASF Elastogran, Satrap Sanat and Iran Polyurethane. Of these, Urethane Systems Corporation (USC) is a large systems house, which consumes about 30 MT of HCFC-141b. Kabudan Chemie uses HCFC-141b in an intermittent manner and the consumption is negligible.

The other systems houses do not use HCFC-141b. During the survey and consultations with industry experts, it was pointed out that a large number of small enterprises buy HCFC-141b as blowing agent, polyol and MDI separately and mix them at their premises. They then use these chemicals for making foam products.

Summary of HCFC-141b consumption in Iran for the year 2009 in different applications is given in the table below.

Table 9: Summary of HCFC consumption in Iran in Foam applications in 2009

	Consumption in 2009	
	HCFC-22	HCFC-141b
Foam		
Rigid PU Foam (sandwich panel)		684.71
Rigid PU Foam (others)		211.84
Rigid PU Foam (spray)		-
Integral Skin		132.00
XPS	40.00	
Refrigeration		
Domestic Refrigeration Equipment		547.56
Other Refrigeration Equipment		308.42
Total by substance	40.00	1884.53
Grand total in MT	1,924.53	

3.2.3. Others

There is no reported consumption of HCFCs in fire-fighting and solvent applications in Iran.

3.3. HCFC CONSUMPTION SUMMARY

Summary of HCFC consumption for the years 2009 and 2010 is given in the table below.



Table 10: Summary of HCFC consumption in 2009 and 2010 in Iran

Sectors / sub-sectors	2009			2010			Baseline (2009-2010) in MT	2009-2010 Average in ODP tons
	HCFC-22	HCFC-141b	Total	HCFC-22	HCFC-141b	Total		
Foam								
Rigid PU Foam (sandwich panel)	-	684.71	684.71	-	753.18	753.18	718.95	79.08
Rigid PU Foam (others)	-	211.84	211.84	-	233.02	233.02	222.43	24.47
Rigid PU Foam (spray)	-	-	-	-	-	-	-	-
Integral Skin	-	132.00	132.00	-	145.20	145.20	138.60	15.25
XPS	40.00	-	40.00	44.00	-	44.00	42.00	2.31
Air-conditioning								
Residential Air-conditioners	682.42	-	682.42	784.79	-	784.79	733.60	40.35
Commercial Air-conditioning	30.13	-	30.13	33.14	-	33.14	31.63	1.74
Industrial Air-conditioning (Chillers)	336.43	-	336.43	370.07	-	370.07	353.25	19.43
Refrigeration								
Domestic Refrigeration Equipment*	-	547.56	547.56	-	602.32	602.32	574.94	63.24
Commercial Refrigeration Equipment	62.70	308.42	371.12	68.97	339.26	408.23	389.68	39.24
Industrial Refrigeration Equipment	172.22	-	172.22	189.44	-	189.44	180.83	9.95
Transport Refrigeration Equipment	10.00	-	10.00	11.00	-	11.00	10.50	0.58
Servicing	1,489.28	-	1,489.28	1,608.42	-	1,608.42	1,548.85	85.19
	2,823.18	1,884.53	4,707.71	3,109.83	2,072.98	5,182.82		

Note: Article 7 data submitted for the years 2009 and 2010 may result in change in the above figures.

*Insulation foam for domestic refrigeration equipment falls under foam sector.

From the above table, one can observe the following:

- In MTs, consumption of HCFC 22 is about 60% and consumption of HCFC-141b is about 40% of the total in 2009.
- HCFC 22 manufacturing includes use of HCFC-22 in manufacturing air-conditioning equipment and refrigeration equipment. Use in refrigeration equipment is limited to commercial and industrial refrigeration and transport refrigeration.
- HCFC 22 used for servicing constitutes about 53 % of the total HCFC-22 consumption. This demand will continue to grow with ageing and growing population of HCFC-22 based equipment.
- Rigid and integral skin foams constitute about 55% of the total consumption of HCFC-141b. The remaining consumption relates to use of HCFC-141b in refrigeration equipment – manufacturing insulation foam for refrigeration equipment.

3.4. STARTING POINT FOR HCFC PHASE-OUT UNDER HPMP

The consumption of HCFCs in Iran for the years 2009 and estimated consumption for 2010 is 362 ODP tons and 399 ODP tons, respectively⁸.

Baseline consumption which is the average of 2009-2010 is **380.8 ODP tons**.

Based on this, the phase-out targets that need to be achieved are given in the table below.

Table 11: Montreal Protocol Phase-out Targets for Iran

Targets	Quantity in ODP tons
2013 - freeze	380.8
2015- 10% reduction	342.7
2020- 35% reduction	247.5
2025- 67.5% reduction	123.7
2030 - 100% except service tail at 2.5% annual average	9.5



⁸ The actual Article 7 data reports submitted by the Government for the years 2009 and 2010 would form the basis of this starting point.

4. HCFC PHASE-OUT STRATEGY AND ACTION PLAN FOR STAGE-I TARGETS

The following section presents HCFC phase-out strategy of Iran to comply with Decision XIX/6 targets and a plan of action for achieving the Stage I (i.e., 2013 and 2015) targets.

4.1. HCFC PHASE-OUT STRATEGY OF IRAN

Islamic Republic of Iran proposes to achieve its HCFC phase-out targets through HCFC supply controls and matching HCFC demand reduction measures adoption of HCFC free alternative technologies in refrigeration and air-conditioning applications and foam applications and avoiding HCFC wastes. The approach would take into consideration:

- Industry driven HCFC demand reduction through adoption of easily and locally available, cost-effective and sustainable HCFC free technologies. Priority would be given to zero-ODP and low/nil GWP alternatives in foam and refrigeration & air-conditioning applications.
- Regulations with strengthened enforcement mechanisms for controlling and monitoring HCFC supply and use in the country.
- Awareness and information outreach to promote adoption of HCFC free alternatives and reduce HCFC demand by avoiding waste of HCFCs.
- Decentralised management of HCFC phase-out through regional and provincial Ozone Cells.

HCFC phase-out strategy delineated below would also take into consideration the prevailing Executive Committee policies and guidelines particularly decision 60/44. Flexibility offered under these guidelines to facilitate cost-effective conversion from HCFCs to alternatives in Iran would be taken into consideration.

For designing the strategy for Stage I (2015 targets) and beyond Stage I (2020, 2025 and 2030 targets), the filtering criteria / approach that has been adopted is given below.

Table 12: Summary of overall HCFC phase-out approach

Stage I	Beyond Stage I
<ul style="list-style-type: none">• Eligibility of enterprise using HCFCs. (refer decision 60/44 para a)• First conversion prioritized over second conversion. If second conversion is necessary for achieving 2013 and 2015 targets, need for the same has to be well justified in accordance with Executive Committee Guidelines (refer decision 60/44 para b)	<ul style="list-style-type: none">• Eligibility of enterprise using HCFCs. (refer decision 60/44 para a)• Maturity of alternative technology in different sub-sectors. It is expected that cost-effective technical options for small enterprises would be available for rigid foam (sandwich panel and other foam products), domestic refrigeration insulation foam and other refrigeration insulation foam beyond 2014.

Stage I	Beyond Stage I
<ul style="list-style-type: none"> • Maturity of alternative technology in different sub-sectors. For example, in case of SMEs in rigid foam manufacturing, implementing HC technology would not be viable due to safety and conversion cost issues. • Feasibility of implementing projects for respective sector over the next 3 years for achieving 2013 and 2015 targets. 	<ul style="list-style-type: none"> • Feasibility of implementing projects for respective sectors for achieving post 2015 targets (i.e., beyond Stage I targets). • Phase-out in servicing is an important consumption issue that needs to be addressed post 2015- particularly in the period 2020 to 2030. For this, it is important that activities to reduce population of long-life equipment using HCFCs are implemented (e.g., earlier phase-out in domestic air-conditioning, import prohibition of HCFC using equipment etc.)

The following main aspects need to be noted,

- It is important to note that the **implementation of HPMPs would commence in 2011**, at the earliest. Thus, the projects started in 2011 would achieve actual phase-out from not before 2012.
- During this period, i.e., between 2010 – 2014, there would be HCFC consumption growth in enterprises /sub-sectors/ sectors, particularly those which are not prioritized for phase-out in Stage I of HPMP. It is imperative that this growth upto 2015 is considered in calculation of phase-out needed to meet 2013/2015 targets. It must also be noted that this growth has to be "constrained" by the Government given that targets for 2013 freeze, which would also be maximum allowable consumption in 2014, and 2015 10% reduction need to be achieved.
- Enabling activities such as awareness, regulations enforcement strengthening, capacity building for service agencies to reduce HCFC service demand etc. would play an important role in ensuring faster implementation of HCFC phase-out projects by enterprises. Given the current context wherein Iran has to constrain its growth beyond 2013 and 2015 for achieving targets of Stage I, these enabling activities become important.

In addition to reducing demand in the prioritized sectors / sub-sectors in HPMP in Stage I, the following policies/regulations would need to be introduced and enforced to meet the targets:

- Regulations to control HCFC supply including quota order for limiting supply of HCFCs within the applicable phase-out limits from the years 2012.
- Regulations for restricting HCFC based manufacturing capacity expansion and/or creation of new capacity in all sub-sectors.
- Regulations for prohibiting import of HCFC using products / equipment aligned with phase-out of HCFCs consumption in manufacturing similar products. Import restrictions in these applications need to be imposed from such dates.

In order to avoid market distortion and provide level playing field to facilitate smooth enforcement and ensure sustainability, complete phase-out need to be achieved in sub-sectors which qualify based on parameters described in para 4 above. For

example, in sub-sectors such as integral skin PU foam, where alternative technologies are mature, a complete phase-out is expected to be feasible by 1 January 2015.

Based on the above consideration targeted sub-sector level regulations will need to be introduced as give below.

- Domestic air-conditioning to stop manufacturing using HCFC-22 from 1 January 2015. Prohibition of imports of domestic air-conditioners using HCFC-22 also needs to be implemented in line with stopping manufacturing. This would facilitate achieving targets beyond 2015 and avoid premature retirement of equipment using HCFCs.
- Integral skin foam to stop manufacturing using HCFC-141b from 1 January 2015.

In addition to the above, the following support / enabling activities will need to be carried out for smooth transition:

- Support activities for RAC servicing agencies for adopting HCFC-free alternatives and greater market adoption of retrofit practices for HCFC using equipment and recovery & recycling of HCFCs.
- Support activities for regulations enforcement, which need to be sustained throughout the phase-out time period. This needs to be included in networking with the regional enforcement authorities for monitoring import-export trade of HCFCs.
- Awareness and information outreach for promoting HCFC free alternatives targeted at respective industry sub-sectors. The awareness and information outreach approach will be integrated into service sector phase-out strategy that would be adopted.
- Project management structure for facilitating adoption of HCFC free technologies and monitoring and control of HCFC phase-out. The project management structures created would be directly falling under supervision and guidance of Ozone Layer Protection Unit (OLPU). Sub-regional Ozone Units established in Iran would also actively participate in industry project implementation support, and monitoring and coordination of HCFC phase-out activities.

Targets for Stage II and beyond

The remaining HCFC consumption in eligible manufacturing enterprises would be addressed in Stage II during the period 2016-2020⁹. This will include (a) remaining RAC equipment manufacturers in commercial, industrial and transport RAC applications, (b) Remaining manufacturers of HCFC using sandwich panels, rigid foam and domestic refrigeration foam, (c) Remaining manufacturers of commercial and industrial refrigeration foam, and (d) XPS foam.

Regulations for **sectoral phase-out** would be implemented from 2016 and will be aligned to adoption of HCFC free technologies in each sector.

It is envisaged that HCFC demand in RAC equipment would decrease as a result of early conversion of manufacturers of HCFC using RAC equipment and restrictions on import of HCFC using RAC equipment which would be implemented in Stage I and just after Stage I. Training and capacity building of RAC service agencies on good practices for servicing HCFC as well as HCFC free alternative equipment and mechanisms to facilitate

⁹ Implementation of projects for this stage may commence from 2015 to facilitate smooth HCFC phase-out in the country.



adoption of available HCFC free retrofit options, mainly in domestic air-conditioners and industrial RAC equipment, will need to be provided complete phase-out of HCFC based equipment.

To achieve the phase-out targets specified earlier, the following sectors/sub-sectors were addressed to achieve Stage I targets.

Table 13: Proposed phase-out to be achieved in Iran by sub-sectors

Sector/sub-sector	Phase-out (2009 equivalent) in ODP tons
Rigid foam manufacturers producing sandwich panels (13 enterprises)	41.8
Other rigid foam manufacturers and systems house (3)	6.1
Integral skin foam (4)	7.6
Domestic refrigerator manufacturers (4)	7.2
Domestic air-conditioner manufactures (27 units)	37.5
Service sector	19.0
Technical assistance for XPS (1)	2.2
Total	121.4

Note: The above table presents 2009 consumption figures in ODP tons.

**This is computed reduction that needs to be achieved for the project proposed in service sector.*

The list of enterprises that would be included in manufacturing sector conversions is given in Annex 1 to this document. This takes into account the above mentioned reasons of choice (a) for implementability of the projects and (b) for reduced growth post 2013 (i.e., for the years 2014 and 2015).



Based on the above quantity to be phased out, the consumption of HCFCs in ODP tons for individual sector / sub-sector as well as Montreal Protocol control targets for Iran is presented below.

Table 15: Baseline consumption and phase-out that can be addressed

(All figures in ODP tons at equivalent baseline consumption level)

Sectors / sub-sectors	Baseline consumption in ODP tons	Phase-out that can be addressed
Foam		
Rigid PU Foam (sandwich panel)	79.08	43.9
Rigid PU Foam (others)	24.47	6.4
Rigid PU Foam (spray)	-	-
Integral Skin	15.25	8.0
XPS	2.31	2.3
Air-conditioning		
Residential Air-conditioners	40.35	40.4
Commercial Air-conditioning	1.74	
Industrial Air-conditioning (Chillers)	19.43	
Refrigeration		
Domestic Refrigeration Equipment (insulation foam)	63.24	7.6
Commercial Refrigeration Equipment	39.24	
Industrial Refrigeration Equipment	9.95	
Transport Refrigeration Equipment	0.58	
Servicing	85.19	19.6
Total	380.82	128.2

As explained earlier, while the sectors / sub-sectors addressed completely can be regulated through national policies/regulations, the sectors/sub-sectors unaddressed completely will continue to grow at market growth rates, though under constrained conditions primarily through HCFC supply restrictions in line with Montreal Protocol targets for Iran. These sectors/subsectors are unaddressed in Stage I due to challenges posed in cost-effectively implementing HCFC phase-out projects (as mentioned earlier).

The growth rate for the period 2011-2013 is assumed as given in the table below.

Table 16: Growth rates for projections

Sectors / sub-sectors	2010	2011-13
Foam	10%	8%
Refrigeration and air-conditioning	10%	10%
Service	10%	8%

Note: The growth from 2014-2015 need to be constrained through regulatory measures / project interventions to achieve 2015 targets. This is presented in the strategy section attached. In foam applications, on priority basis, phase-out projects would be taken-up at enterprises, which would be able to implement HCFC free technologies.

Under the above scenario, Government of Iran needs to control growth through a “constrained growth” approach post 2013 on enterprises that have not been supported in Stage I. This would be achieved through (a) a combination of regulations on supply of HCFCs such as quota system for HCFCs aligned with baseline consumption levels, (b) enabling activities such as awareness, information outreach on HCFC phase-out, industry consultations etc., and (c) expeditious implementation of HCFC phase-out projects. The Government recognizes that support to industry for conversion to HCFC free technologies and fast track adoption of alternatives through support under MLF is critical for achieving compliance targets.

It is important to recognize here that the above mentioned “constrained growth” approach would need to ensure that consumption levels of HCFCs in ODP tons at a cumulative level is brought to an estimated 342.7 ODP tons by 2015¹⁰.

Under the above “constrained scenario”, Iran would be able to achieve compliance with its phase-out targets. This would also imply the following:

- Enterprises converting to HCFC free technologies in Stage I would continue to grow based on market demand using **HCFC free technologies**.
- Enterprises which are converting to HCFC free technologies post 2015 would limit their growth based on (a) already available manufacturing capacity and (b) maximum available HCFCs in the market.

As one can see from the above, achieving these targets would necessitate (a) expeditious implementation of HCFC phase-out projects at enterprise level, and (b) curtailing growth in HCFC consumption, which are not supported in Stage I to achieve 10% reduction targets. The Government proposes that these challenges need to be addressed through a combination of project assistance, training and capacity building targeted at different end-users as well as strong regulatory interventions for controlling HCFC supply and demand.

While these are identified enterprises for phase-out, the Government proposes to retain flexibility of supporting enterprises with the available funds based on national priorities and pace of implementation of HCFC phase-out projects.

4.2. BEYOND STAGE I

Beyond Stage I (i.e., from 2016 onwards to complete phase-out), the following approach is proposed to be adopted for HCFC phase-out.

- Phase-out of remaining consumption in HCFC-141b in foam sector-mainly SMEs and enterprises consuming HCFC-141b in commercial and other refrigeration equipment.
- Phase-out of HCFC-22 in commercial and industrial refrigeration and air-conditioning applications.
- Technical assistance and support to service enterprises to reduce demand for virgin HCFCs and adopt HCFC free alternatives.

¹⁰ This needs to be achieved through implementation of projects for phase-out commencing 2011 for the future period in all sectors where implementable technologies and projects can be identified.

- Implementation of supply control regulations to completely reduce dependence on HCFCs.

While the former two will be the focus and priorities during the period 2015-2019, all the activities will be systematically implemented during the period 2015 to 2030 to achieve the phase-out targets.

It is imperative that activities under RAC as well as foam sector enterprises consuming HCFCs are initiated in 2014 onwards so that phase-out of consumption can be achieved in these enterprises can be achieved in a fast track manner. Priority needs to be accorded to (a) remaining rigid PU foam users still using HCFC-141b, (b) domestic refrigeration foam manufacturing enterprises using HCFC-141b, and (c) commercial refrigeration equipment during the period 2014-2015 for phase-out, following which other sectors can be addressed. Technology options that are feasible in these applications need to be closely monitored for ensuring that enterprises in the sectors that are unaddressed during Stage I are systematically addressed beyond Stage I.

The Government recognizes that the key challenge in phasing out HCFCs in the period 2020-2029 would primarily relate to HCFC phase-out in population of equipment, which are yet to be retired. This is expected to pose a significant challenge particularly for industrial air-conditioning and refrigeration systems. As mentioned earlier, this challenge would be addressed through a combination of "retrofit" and recovery & reclamation programs and would be defined based on technologies available at that stage. Given that domestic air-conditioning is being addressed at an early stage between 2011-2014, the benefit of consequent reduction in service demand growth would help in Government managing reduction in service sector HCFC-22 consumption.

At this stage cost estimates for phasing out remaining consumption is difficult to assess. Hence, cost effectiveness factors as per decision of the 16th meeting of the Executive Committee has been used as minimum requirement for achieving full phase-out of HCFCs in Iran. Based on this, the estimated costs are expected to be above US \$ 25 million beyond Stage I.

4.3. ELEMENTS OF HCFC PHASE-OUT STRATEGY

The main elements of the phase-out strategy are given below.

PROJECT ACTIVITIES

As mentioned earlier, the projects that need to be implemented for total phase-out that needs to be achieved in Iran for achieving Stage I targets i.e., 2013 and 2015 targets is given in the table below.



Table 17: Proposed project activities and their impact¹¹

Project title	Agency	HCFC free technology option	Funding in USD (excluding support costs)	Impact in terms of ODP tons phased out (2009 consumption)	
				HCFC-22	HCFC-141b
Phase-out projects in Continuous Sandwich Panel manufacturers - #	GTZ	HC	1,725,240		24.4
Phase-out projects in Rigid Foam manufacturers - #	UNIDO	HC	377,575		6.1
Phase-out project in Rigid Foam manufacturers (Discontinuous Sandwich Panel) - #	UNIDO	HC	1,273,897		17.3
Phase-out project in Integral Skin Foam manufacturers - #	UNIDO	HC	840,105		7.6
Phase-out project in Domestic refrigeration equipment manufacturer - #	UNIDO	HC	565,825		7.2
Phase-out project in one systems house - #	UNDP	Pre-blended aliphatic blowing agents (Methyl Formate, Methylal, etc.); Cost-effective low-GWP foam blowing agents	225,500		
Phase-out project in domestic air-conditioning - #	UNDP	R-410A	5,872,046	37.5	
Capacity Building, Technical assistance and investment activities for service sector	GTZ	Not Applicable	840,000	19.0	
Awareness, Technician Training, Customs Training and Policy	UNEP	Not Applicable	654,545		
Project Management – PMU - #	UNDP	Not Applicable	390,000		
Technical support for foam sector including XPS	GTZ	Not Applicable	480,000	2.2	
Grand total			13,244,733	58.7	62.6
UNDP - Sub-total			6,487,546		
GTZ - Sub-total			3,045,240		
UNIDO - Sub-total			3,057,402		
UNEP - Sub-total			654,545		
Total			13,244,733		

Note: (1) Targets beyond 2015 would be achieved through phase-out project activities will be presented by Iran at a later stage. The phase-out approach would be driven by technical options, which will be commercialized over the next two to three years and other market factors. A broad overview of the above is given in Section 4.2 above. (2) Costs associated with rows marked with 'W' have been discussed and agreed with the Secretariat during consultations held during submission to the 62nd Executive Committee Meeting.

¹¹ Details of the activities are presented in Annex I to this document from page 51 to 59.

Implementation of the above projects is expected to yield a total phase-out of 121.3 ODP tons (2009 equivalent) of HCFCs during the period 2011-2014 and will facilitate achieving 2015 targets. It must be noted that the above phase-out will be achieved under "constrained growth" scenario that has been delineated earlier for achieving Stage-I targets for HCFC phase-out in Iran.

POLICY AND REGULATORY CAPACITY BUILDING INTERVENTIONS

HCFC supply controls

- Continued strengthening and implementation of licensing system for import of HCFCs with a focus on closer coordination with Ministry of Industries and Customs Authorities
- Licensing of import of HCFC using products by authorized importers from 1 January 2011
- HCFC import quotas for importers of HCFCs from 1 January 2013 – Import quotas to limit maximum imports of HCFCs into the country and would be provided and distributed based on agreed criteria
- Ban on import of HCFC-141b from 1 January 2020, subject to completion of conversion projects using HCFC-141b in foam applications

HCFC demand

- Continued registration of all HCFC using enterprises [including spray foam companies and service agencies]
- Ban on any new capacity or expansion of capacity of enterprises producing HCFC based equipment and products. The Government of Iran has already implemented a regulation banning establishing new capacity or expansion of HCFC based manufacturing capacity in the country.
- Ban on import of HCFC blends in refrigeration and air-conditioning and foam applications from 1 January 2015
- Ban on use of HCFC-141b or pre-blended polyol containing HCFC-141b in producing foam products or manufacturing insulation foam in refrigeration equipment from 1 January 2020
- Ban on installations of HCFC based air-conditioning systems with capacity greater than 10 TR from 1 January 2016
- Ban on use of spray foaming using HCFC-141b or pre-blended polyol containing HCFC-141b from 1 January 2020
- Exempt enterprises, which adopt non-HCFC, based technologies from import duty, excise duty and sales tax for capital equipment from 1 January 2011, after clearance from OLPU. This support will be available for projects funded under MLF and voluntary projects.

Customs and enforcement strengthening

- Determination of the training needs of Customs officers, Servicing Sector, ISIRI's laboratories and other agencies involved in the enforcement of regulations and incorporation of trainings in strategic comprehensive training programs
- Strengthening coordination between Customs, Licensing Authorities and NOU on data collection on HCFC imports and HCFC supply controls

- Greater information outreach on national regulations relating to HCFCs through provincial Ozone Cell and suppliers of HCFCs
- Improving enforcement of regulations through closer inter-ministerial cooperation particularly with commerce ministry and ministry dealing with SMEs
- Increasing levels of regional cooperation among customs officers on HCFC import-export control issues
- Training of customs and enforcement officers on regulations relating to HCFC phase-out and capacity building for enforcement.

Technician training

- Issuing regulations requiring mandatory training and certification for the labor-force in the ODS-related refrigeration and air-conditioning equipment servicing sector
- Compiling complete information on the number of service stations and their work-force in ODS-related servicing sectors for the purposes of comprehensive training programs. Databases to be maintained through Provincial Ozone Cells
- Supplying the necessary service tools and equipment to improve the overall quality and performance of the servicing sector
- Maximising private sector industry participation and involvement in service sector training programs
- Promoting HCFC recovery and reclamation with training, information exchange and equipment support

Inter-ministerial coordination

- Active participation of core Ministries that were a party to CFC phase-out and additional Ministries and organizations that could play important roles in HCFC phase-out, i.e. ISIRI, MHUD, Provincial Industry Associations and Unions, etc.
- Institutionalizing public awareness campaigns in collaboration with other ministries and organizations through printed matter, media and social networking, in more diversified target groups to further raise environmental awareness as well as the impacts of Ozone Layer damage on their health and how to prevent and mitigate them
- Closer coordination with energy demand and energy efficiency promotion authorities on HPMP activities and developing energy efficiency standards for HCFC free alternatives

SERVICE SECTOR TRAINING SUPPORT

- Development of standards and regulations for RAC equipment for ensuring adoption of more efficient equipment
- Stakeholder consultation on technology evolution and implementation of HPMP
- Training of trainers and technicians for good practices and adoption of alternative technology
- Training of customs officers on enforcement of regulations particularly import-export trade controls on HCFCs
- Financial incentives for demonstration of alternative technology at end-user level
- Standards for certification of technicians in RAC applications

AWARENESS AND INFORMATION OUTREACH

- Implement targeted awareness programs for HCFC user industry through respective associations and industry bodies. E-based awareness programs and greater involvement of provincial Ozone Units would be very effective in implementing awareness activities.
- Encourage industry support in awareness and information outreach activities on HCFC phase-out and HCFC free alternative technologies.
- Providing assistance for the development of national standards for construction of buildings including cooling systems equipment and refrigerants that are HCFC-based.

Details of all the projects relating to each of the above are presented in Annex 1 to this document.

4.4. PROJECT MANAGEMENT AND MONITORING

To ensure timely and coordinated implementation of project activities, project management structures are proposed to be established. These include (a) project management structure for overall HPMP implementation and (b) specific implementation monitoring and facilitating mechanisms for air-conditioning and foam sector HCFC phase-out projects. Details of the overall management and reporting relationship of project management unit including project management mechanism for foam sector plan is given in Annex 1 to this document.

The Project Management Unit for overall HPMP implementation will report to National Ozone Officer who will be overall responsible for project management and supervision. Activities that need to be undertaken at provincial level will be linked with Provincial Ozone Cells.

The PMU will also be responsible for monitoring project implementation in coordination with various agencies associated with implementation of project.



ANNEXURES

Annex 1 – Details of projects and costs for HPMP



Annex I

Details of projects and costs for HPMP

The details of sub-sector level projects are given below.

RIGID FOAM – SANDWICH PANELS

List of proposed enterprises to be supported

The following 13 enterprises in the rigid foam manufacturers which include manufacturers of continuous panel, discontinuous panels and other foam products is given below.

Name of company	Application	FC/ SC	2009	2010	Baseline in MT	Baseline in ODP tons
Arghavan Kabir Co.(Kabir Panel)	Cont. SW panel	FC	80.00	88.00	84.00	9.24
Asre Sard Co.	Cont. SW panel	FC	45.00	49.50	47.25	5.20
Electrosteel Co.	Cont. SW panel	FC	18.00	19.80	18.90	2.08
Kian Panel Co.	Cont. SW panel	FC	22.00	24.20	23.10	2.54
Nama Sazan Emrooz Co.	Cont. SW panel	FC	35.00	38.50	36.75	4.04
Parlo Co.	Cont. SW panel	FC	22.00	24.20	23.10	2.54
Sub-total			222.00	244.20	233.10	25.64
Ammut panel	Discont. SW panel	FC	10.00	11.00	10.50	1.16
Homa Sa'nat Co.	Discont. SW panel	FC	6.70	7.37	7.04	0.77
Paya Telecommunication Industries Co.	Discont. SW panel	FC	13.00	14.30	13.65	1.50
Poushesh Fomdare Gharb Co.	Discont. SW panel	FC	18.00	19.80	18.90	2.08
Sub-total			47.70	52.47	50.09	5.51
Nobugh Sarmayesh Co.	Discont. SW panel	SC	34.23	37.65	35.94	3.95
Parsin Gostar Jonoub Co.	Discont. SW panel	SC	35.80	39.38	37.59	4.13
Yakhchavan Co.	Discont. SW panel	SC	40.00	44.00	42.00	4.62
Sub-total			110.03	121.03	115.53	12.71
Grand total			379.73	417.7	298.72	43.86

Note: FC – First Conversion and SC – Second Conversion.



Technology option considered with reasons

Cyclopentane based technology is considered for conversion in these enterprises. Given that cyclopentane based foam manufacturing technology is already being adopted in enterprises in Iran, ease of availability of cyclopentane and implementability of technology in the enterprises, cyclopentane based technology is considered for conversion in the enterprises.

These conversions are from technical point of view mature technologies nevertheless require companies who have the appropriate organisation, space and qualified personnel. Pre-blended polyol using cyclopentane is not considered due to technical as well as safety issues at enterprise level. For the purpose of conversion, incremental costs associated with equipment for storage, handling including safety infrastructure and foaming have been considered.

Summary of costs

Summary of incremental capital costs and operating costs for conversion for these enterprises is given in the table below.

Particulars	Tech. option	No. of Cos.	ICC	IOC	Total	Phase-out (2009)
		Nos.	USD	USD	USD	MT
Continuous Sandwich Panel	Cyclopentane	6	1,937,250.00	-212,010.00	1,725,240.00	222.0
Discontinuous Sandwich Panel	Cyclopentane	7	1,424,500.00	-150,604.00	1,273,897.00	157.7

Note: ICC is Incremental Capital Costs. IOC is Incremental Operating Costs.

RIGID FOAM – OTHERS

List of proposed enterprises to be supported

The following 2 enterprises manufacturing other rigid foam products is given below.

Name of company	FC/SC	2009	2010	Baseline in MT	Baseline in ODP tons
USC	FC	30.00	33.00	31.50	3.47
Behdor Rangin Co.	SC	25.00	27.50	26.25	2.89
Sub-total		55.00	60.50	57.75	6.35

Note: FC – First Conversion and SC – Second Conversion.

Technology option considered with reasons

The technology option proposed is cyclopentane in all cases. The enterprises have been selected for their ability to warrant the appropriate organisation, technical capacity, space, equity and qualified personnel to ensure rapid conversion.

Summary of incremental capital costs and operating costs for conversion for these enterprises is given in the table below.

Particulars	Tech. option	No. of Cos.	ICC	IOC	Total	Phase-out (2009)
		Nos.	USD	USD	USD	MT
Rigid foam	Cyclopentane	2	430,100	-52,525	377,575	55.0

INTEGRAL SKIN FOAM

List of proposed enterprises to be supported

The following 4 enterprises in manufacturing integral skin foam is given below.

Name of company	FC/SC	2009	2010	Baseline in MT	Baseline in ODP tons
Erish Khodro	FC	21.00	23.10	22.05	2.43
Sanat Foam Iran	FC	18.00	19.80	18.90	2.08
Royan Polymer Co.	SC	12.00	13.20	12.60	1.39
Zivar Khodro Co.	SC	18.00	19.80	18.90	2.08
Sub-total		69.0	75.9	72.5	8.0

Note: FC – First Conversion and SC – Second Conversion.

The technology option proposed is cyclopentane in all cases. The enterprises have been selected for their ability to warrant the appropriate organisation, technical capacity, space, equity and qualified personnel to ensure rapid conversion.

Summary of incremental capital costs and operating costs for conversion for these enterprises is given in the table below.

Particulars	Tech. option	No. of Cos.	ICC	IOC	Total	Phase-out (2009)
		Nos.	USD	USD	USD	MT
Integral skin foam	Cyclopentane	4	906,000	-65,895	840,105	69.0

Note: ICC is Incremental Capital Costs. IOC is Incremental Operating Costs.

INSULATION FOAM FOR DOMESTIC REFRIGERATION EQUIPMENT

List of proposed enterprises to be supported

The following 4 enterprises manufacturing domestic refrigeration insulation foam is given below.

Name of company	FC/SC	2009	2010	Baseline in MT	Baseline in ODP tons
Azar Soozan Tabriz (Silwan)	FC	18.00	19.80	18.90	2.08
Gol Asay Sarma	FC	24.00	26.40	25.20	2.77
Golbin	FC	11.00	12.10	11.55	1.27

Soren Neishaboor houseware	FC	12.00	13.20	12.60	1.39
		65.00	71.50	68.25	7.51

Note: FC – First Conversion and SC – Second Conversion.

The technology option proposed is cyclopentane in all cases. The enterprises have been selected for their ability to warrant the appropriate organisation, technical capacity, space, equity and qualified personnel to ensure rapid conversion.

Summary of incremental capital costs and operating costs for conversion for these enterprises is given in the table below.

Particulars	Technology option	No. of Cos. Nos.	ICC USD	IOC USD	Total USD	Phase-out (2009) MT
Domestic refrigeration insulation foam	Cyclopentane	4	627,900	-62,075	565,825	65.0

SYSTEM HOUSE

List of proposed enterprises

The following company is proposed to be converted during Stage I.

Name of company	FC/SC	2009	2010	Baseline in MT	Baseline in ODP tons
USC	FC	29.2	31.9	30.6	3.4

Technology option considered with reasons

It is proposed to assist USC in converting to low-GWP cost-effective HCFC free alternatives. Based on technical developments and operational feasibility for such technologies, it is proposed to consider pre-blended aliphatic blowing agents (Methyl Formate, Methylal, etc.) and other low-GWP options for adoption. Adoption of alternatives would take into consideration conditions associated with technology availability, risks keeping in mind unique business conditions in Iran and operational viability of such technologies.

Particulars	Tech. option	No. of Cos. Nos.	ICC USD	IOC USD	Total USD
System House	Pre-blended aliphatic blowing agents (Methyl Formate, Methylal, etc.): Cost-effective low-GWP foam blowing agents	1	2255.00	-	225,500.00

TECHNICAL ASSISTANCE FOR PHASE-OUT IN FOAM SECTOR

Technical assistance activities are proposed for assisting implementation of phase-out projects in foam sector. The following table presents a summary of the main activities proposed to be undertaken.

The supporting measures for the implementation of the phase out are being considered of high importance learning from the past experience in Iran. In the past, difficulties were encountered during the execution process because stakeholders had a lack of understanding of phase out process and activities. A foam association which can bridge the gap between stakeholders and NOU is being considered as a good tool to communicate with the stakeholders, provide local training and inform the NOU.

Especially for the sandwich panels producers (Rigid), there is the mandatory need to provide a standard for low GWP blowing agents. Preparation of the standard will be prioritized so that the whole sector can benefit and upcoming new companies have a guideline to follow. It is known that there are large no. of new companies who require these standards.

Description	Costs (US\$)
Coordination and management	200,000.00
Stakeholder coordination and workshops	50,000.00
Project implementation monitoring and reporting	30,000.00
Technical Assistance to XPS on identification of non-HCFC based technology	200,000.00
Sub-total	480,000.00

DOMESTIC AIR-CONDITIONING

List of proposed enterprises to be supported

The following 25 enterprises manufacturing domestic air-conditioners are proposed to be assisted in conversion to HCFC-free technologies in Stage I.

Name of company	FC/SC	2009	2010	Baseline in MT	Baseline in ODP tons
Mehr Asl	FC	532.00	611.80	571.90	31.45
24 Enterprises	FC	150.42	172.98	161.70	8.90
Total		682.42	784.39	733.60	40.35

Note: * These enterprises are small in size and are expected to consume small quantities of HCFC-22 in manufacturing limited number of air-conditioners.

Technology option considered with reasons

HFC based (R-410A and R-407C mainly) and non-HFC based technology options (HC-290) are available in room air-conditioning sub-sector. In Iran market, domestic air-conditioners particularly split units are widely purchased and distributed.

Currently, for units in the prevalent capacity range in Iran, widely used technologies internationally are R-410A and R-407C. R-410A option is a preferred option in terms of technical feasibility and ease of adoption including servicing in the markets. These equipment are also increasingly available in the markets in Iran. The equipment used in these applications are energy efficient (with increasing amount of efforts being undertaken for enhancing energy efficiency in these equipment) with easy availability of components and serviceability. HC options are currently under evaluation and are not yet widely available in the market.

Keeping in mind the above, it is proposed that R-410A based technologies is proposed to be used for conversion in domestic air-conditioning applications in Iran.

Summary of costs

Summary of incremental capital costs and operating costs for conversion for these enterprises is given in the table below.

Particulars	Tech. option	No. of Cos.	ICC	IOC	Total	Phase-out (2009)
		Nos.	USD	USD	USD	MT
Domestic air-conditioning	R-410A	25	1,482,800	4,299,246	5,782,046	682.42

The other support activities proposed to be undertaken under this sub-project are given below. These activities are proposed so as to assist the enterprises in the sector for completely switching over to HCFC free alternatives in Stage I.

Particulars	Value in USD
Technical assistance for project implementation	90,000
Total	90,000

SUPPORT FOR RAC SERVICE SECTOR AND CUSTOMS TRAINING

The activities proposed for service sector and customs training along with associated costs are presented in the table below.

Particulars	Value in USD
Germany	
Development of tools and materials	40,000.00
Stakeholder workshops and capacity building	85,000.00
Certification standards development	10,000.00
Technical / Management Assistance	160,000.00
Investment Technology demonstration	415,000.00
Monitoring and documentation system, survey and logbooks	120,000.00
National inventory, enforcement of standards	50,000.00
Sub-total Germany	840,000.00
UNEP	
Standards and regulations	50,000.00
Awareness and information campaigning	194,545.00
Training of trainers	250,000.00

Particulars	Value in USD
Training of customs officers	160,000.00
Sub-total UNEP	654,545.00
Grand total	1,494,545.00

PROJECT MANAGEMENT UNIT (PMU) FOR IMPLEMENTATION OF HPMP

Overall HPMP implementation

Overview of proposed activities

A PMU will be established under Iran National Ozone Unit to implement project activities under the HPMP once approved by the Executive Committee. PMU would act as the project implementation arm of the National Ozone Unit and would focus on the following:

- Planning of activities under each sub-component for the HPMP in line with the approved overall project plan. The PMU will incorporate respective sector plans that are implemented by the respective agencies for HPMP.
- Developing and maintaining database of HCFC suppliers and users by individual sector / sub-sector – particularly service agencies and organizations implementing project activities.
- Periodically consulting enterprises which will be implementing HPMP activities on project activity progress and implementation support, if any.
- Implementing activities associated with individual sub-components in close coordination with industry, technical institutions, NGOs, other Government departments and NOU.
- Coordinating closely with technical schools and industry associations, as required, on project implementation matters – particularly training, recovery & reuse and retrofit initiatives.
- Policy and regulations development and implementation assistance.
- Reporting periodically on project implementation status to NOU and implementing activities based on guidance given by NOU.
- Participating in inter-agency coordination meetings and other meetings with Government and national stakeholders on HPMP matters.
- Identifying specific regulatory and other interventions needed for achieving HCFC phase-out target.



Project budget

Proposed budget for the project is given in the table below. This project will be implemented over 5 years time frame from 2011 to 2015.

Cost Component	Funding Request in USD
Management and coordination	
Project manager (US\$ 18,000 x 5 years)	90,000
Project assistants (2 x 5 years)	90,000
Operational costs and overheads (US\$ 6,000 x 5 years)	30,000
National stakeholder meetings (2 x 5 years)	60,000
Documentation and reporting	5,000
Monitoring	
Plant visits (US\$ 6,000 x 5 years)	30,000
Performance verification (US\$ 6,000 x 5 years)	30,000
Policies and regulations implementation	
Stakeholder meetings (4)	20,000
Legal expert costs	10,000
Documentation and reporting	5,000
Capacity-building	
Government stakeholder training workshops (2)	10,000
Legal expert costs	5,000
Documentation and reporting	5,000
Total	390,000



ANNEX-IV
Provisional Budget for UNDP component of HPMP of Iran: 2011 to 2015

The following table presents the provisional budgets for UNDP component of HPMP of Iran for the period 2011 to 2015. The first tranche (i.e., for the year 2011) has been approved by the 63rd Meeting of the Executive Committee.

Responsible Party	Source of funds	ATLAS Code	ATLAS Budget Description	2011	2012	2013	2014	2015	Total
UNDP	63030	71200	International experts	2,500	7,500	5,000			15,000
UNDP	63030	71300	National consultants	2,500	7,500	5,000			15,000
OLPU	63030	72100	Contractual Services (Investment Project)	750,000	1,000,000	1,080,500	477,816	475,930	3,784,246
UNDP	63030	74500	Miscellaneous (contingencies)	-	-	46,000	-	-	46,000
OLPU	63030	75700	Workshops and consultative meetings	10,000	60,000	20,000	-	-	90,000
Sub-Total				765,000	1,075,000	1,156,500	477,816	475,930	3,950,246
UNDP	63030	71200	International experts	5,000	5,000	-	-	-	10,000
OLPU	63030	72100	Contractual Services (Investment Project)	40,000	135,000	20,000	-	-	195,000
UNDP	63030	74500	Miscellaneous (contingencies)	-	20,500	-	-	-	20,500
Sub-Total				45,000	160,500	20,000	-	-	225,500

Responsible Party	Source of funds	ATLAS Code	ATLAS Budget Description	2011	2012	2013	2014	2015	Total
	63030	71300	National experts (verification)				15,000	15,000	30,000
UNDP	63030	72100	Contractual Services (Project Management)	78,000	78,000	78,000	63,000	63,000	360,000
Sub-Total				78,000	78,000	78,000	78,000	78,000	390,000
Total annual flow of funds for the project				888,000	1,313,500	1,254,500	555,816	553,930	4,565,746



ANNEX-V

Milestones, Indicators and Funding for Project Management and Monitoring

The milestones, indicators, timelines and payments for Project Management component are presented in the table below in columns B, C, D and E, respectively.

No.	Milestone	Indicator	Time Line	Amount in USD
A	B	C	D	E
1.	Finalisation of Project Document for HPMP between NOU/DOE and UNDP	(a) Letter of Agreement Signature (b) Submission of Article-7 data for the year 2010 (c) Interagency coordination meeting (2011) and HPMP launch.	1 December 2011	78,000
2.	Submission of second annual tranche request to 66 th Meeting of the Executive Committee	(a) Submission of Implementation Report for 2011, Implementation plan for 2012 and request for tranche for 2012 to the Executive Committee (b) Interagency coordination meeting (2012) (c) One technical information outreach workshop for air-conditioning subsector on conversion to HCFC free technologies	15 June 2012	78,000
3.	Submission of third annual tranche request to 69 th Meeting of the Executive Committee	(a) Submission of Implementation Report for 2012, Implementation plan for 2013 and request for tranche for 2013 to the Executive Committee (b) Submission of Article-7 data for the year 2011 (c) Interagency coordination meeting (2013) (d) One technical information outreach workshop for air-conditioning subsector on conversion to HCFC free technologies	15 June 2013	63,000
4.	Compliance with 2013 HCFC consumption targets, in accordance with the HPMP agreement between Iran and the Executive Committee	(a) Verification report confirming compliance with 2013 HCFC consumption targets and submission of Article-7 data for the 2013. (b) Submission of Article-7 data for the years 2012 (c) Interagency coordination meeting (2014)	10 November 2014	78,000
6.	Submission of tranche request to the first meeting of the Executive Committee in the year 2015	(a) Submission of Implementation Report for 2014, Implementation plan for 2015 and request for tranche for 2015 to the Executive Committee. (b) Submission of Article-7 data for the year 2014 (c) Interagency coordination meeting (2015)	15 June 2015	63,000
	Total			360,000