

**GOVERNMENT OF THE KYRGYZ REPUBLIC
UNITED NATIONS DEVELOPMENT PROGRAMME**

PROJECT DOCUMENT

KYR/PHA/63/INV/26 – HCFC PHASE-OUT MANAGEMENT PLAN (HPMP)

UNDAF Outcome/Indicator:	Pillar c: Inclusive and Sustainable Job-Rich Growth for Poverty Reduction. Outcome 2: By end of 2016 sustainable management of energy, environment and natural resources practices operationalized.
Expected Outcome/Indicator:	% reduction in consumption of HCFCs- Hydro chlorofluorocarbons.
Expected Output/Annual Targets:	10% reduction by 2015.
Expected CP Outcome(s):	Sustainable development principles integrated into poverty reduction policies and programmes.
Expected CPAP Output(s):	Increased institutional capacity to implement international conventions and agreements.
Implementing agency:	UNDP in the Kyrgyz Republic
Implementing partner:	State Agency on Environment Protection and Forestry of the Kyrgyz Republic, National Ozone Center

Brief description:

The HCFC Phase-out Management Plan (TPMP) strategy contemplates phase out schedule in line with the Decision XIX/6 requirements. The first stage of HPMP which is presented will effectively target reaching the freeze by 2013 and 10% reduction of baseline phase out level by 2015.

This HCFC Phase out Management Plan (HPMP) documents the analysis and actions proposed by the government of the Republic of Kyrgyzstan in respect to meeting the obligations assumed under Decision XIX/6 of the Parties to the Montreal Protocol on the accelerated phase of HCFC's. It has been prepared by the National Ozone Unit with the support of UNDP acting as implementing agency. The project will be implemented by UNDP as a lead agency and UNEP as a cooperating agency. It is intended to serve as an integral component of the country's policy and commitment to meet its obligations under the Montreal Protocol.

The overall strategic objectives associated with the HPMP in Stage 1 and Stage 2 are:

Stage 1: To rapidly stabilize and initiate reduction in current HCFC consumption over a three year period to a projected baseline level forecast to be approximately 4.42 tons ODP (80.4 tons HCFCs-22) by 2013 and reduce this to 3.98 tons ODP (72.3 tons HCFCs-22) by 2015.

Stage 2: To sustain the progressive reduction in consumption reduction to a level of 2.87 ODP (52.2 tons HCFC-22) in 2020, 1.44 ODP tons (26.1 tons HCFC-22) in 2025 and effectively zero in 2030.

- To the maximum degree practical utilize technologies that minimize climate change impacts.

- To accomplish the above in such a way as to minimize economic and social impacts, particularly in vulnerable sectors and portions of the population.

Programme Component: Environment and Energy
Project Title: HCFC Phase-out Management Plan
Project ID: 00079153
Project Duration: 2011-2015
Management Arrangement: NIM

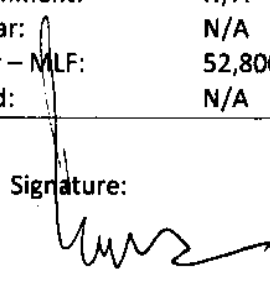
Budget :	52,800 USD
Total budget:	52,800 USD
Government:	N/A
Regular:	N/A
Donor – MLF:	52,800 USD
In kind:	N/A

Signature:

Date:

Agreed by UNDP:

Mr. Pradeep Sharma Resident Representative a. i.



21.6.2011

Agreed by Implementing Partner:

Mr. Mars Amanaliev Head of NOU



21.7.2011

MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL ON SUBSTANCES THAT DEplete THE OZONE LAYER

HPMP SUBMISSION CHECKLIST

BASIC INFORMATION	
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Country:	Kyrgyzstan
Project Title:	HCFC Management Plan for Kyrgyzstan (Stage 1)
Lead Agency:	UNDP
Cooperating Agencies:	UNEP

MONTREAL PROTOCOL AMENDMENT RATIFICATION STATUS		
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Amendment	Ratified (Y/N)	Date
Copenhagen Amendment	Yes	May 5, 2003
Beijing Amendment	Yes	May 10, 2005

HCFC DATA	
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Article-7 data reported	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Year: 2009
CP progress data reported	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Year: 2009
Calculated HCFC baseline (ODP tonnes)	4.42
Starting point (ODP tonnes)	4.42

DOCUMENTATION		
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Document	Submitted (Y/N)	Remarks
Letter of transmittal	Yes	
HPMP document and components	Yes	
Draft agreement	Yes	
MYA online tables	Yes	
Technical review (where applicable)		

HPMP SCOPE		
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Sectors covered	<input type="checkbox"/> Manufacturing only <input checked="" type="checkbox"/> Servicing only <input type="checkbox"/> Manufacturing and Servicing	
Phase-out targets	<input checked="" type="checkbox"/> Freeze and 10% reductions (2015) <input type="checkbox"/> Complete phase-out (Year:)	<input type="checkbox"/> 35% reductions (2020) <input type="checkbox"/> Other
Priority given to reductions/phase-out in manufacturing (over servicing)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not required/applicable	
Justification for not prioritizing HCFC-141b	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not required/applicable	

HPMP COMPONENTS		
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Components	Included (Y/N)	Remarks
Executive Summary	Yes	
Overarching Strategy	Yes	
Strategy and action plan for Stage-I	Yes	
Sector plans/individual projects	No	Servicing sector only
Annual implementation plan	Yes	
Implementation arrangements	Yes	
Environmental Impact	Yes	

HPMP FUNDING		
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Components	Included (Y/N)	Remarks
Consistency with guidelines (for servicing sector, cut-off date, second conversions, HCFCs in preblended polyols, technology upgrade, non-A5 ownership, non-A5 exports)	Yes	
Funding for first tranche requested	Yes	
Funding for last tranche in last year	No	

Executive Summary

This HCFC Phase out Management Plan (HPMP) documents the analysis and actions proposed by the government of the Republic of Kyrgyzstan in respect to meeting the obligations assumed under Decision XIX/6 of the Parties to the Montreal Protocol on the accelerated phase of HCFC's. It has been prepared by the National Ozone Unit with the support of UNDP acting as implementing agency. The project will be implemented by UNDP as a lead agency and UNEP as a cooperating agency. It is intended to serve as an integral component of the country's policy and commitment to meet its obligations under the Montreal Protocol.

The HPMP documents a detailed survey and assessment of HCFC consumption in the country along with trends in and a forecast of this consumption. The results indicate that Kyrgyzstan currently consumes (2009) an estimated 4.39 ODP tons/year of HCFCs, in the form of HCFC-22 - 61.76 tons/year, 7.26 tons/year of HCFC-141b in imported fully formulated polyol, and 3 tons/year of HCFC-142b in solvents. Consumption of HCFC-22 is in the refrigeration servicing sector (61.76 tons/year). This consumption has been growing rapidly over the past five years, largely due to servicing demands from dramatic growth in HCFC based refrigeration and air condition in equipment, and particularly imported small domestic air conditioners. The survey work also documents the current regulatory regime governing ODS, as well as current technical and institutional capacity to manage its import, distribution and use. In that regard, Kyrgyzstan has identified availability of adequate human resource and procedural capability related to customs controls and refrigeration servicing as a critical barrier to its ability to comply with accelerated phase out requirements.

Kyrgyzstan's proposed strategy contemplates an HCFC phase out schedule in line with the Decision XIX/6 requirements. The first stage of HPMP which is presented will effectively target reaching the freeze by 2013 and 10% reduction of baseline phase out level by 2015.

The document details an overall strategy for meeting the required phase out schedule. This is elaborated as a detailed action plan in a number of areas. A menu of regulatory and administrative control measures are outlined including imposition of mandatory quotas on the import of HCFCs, as well as other important measures related to controlling import of HCFCs. Proposed non-investment activities support a range of actions related to enhancing customs control practices and most critically the availability and capability of refrigeration servicing technicians, through initial trainings, and strengthening of coordination and enhanced reporting. Such activities are planned for the period of 2011-2014. Furthermore, it is proposed to continue strengthening the servicing sector through supply of basic recovery equipment to qualified technicians.

The overall incremental cost as capped by decision 60/44 for this HPMP is US\$ 88,000. Details of this funding can be found in Annex 4.3, but is summarized as follows:

	IA	Project	Total	Tranche 1	Tranche 2
1 & 2. Non-investment Components	UNEP	1. Legal and Regulatory Action	\$ 5,200	\$ 5,200	
	UNEP	2. Technical Capacity Strengthening			
		2.1. Customs/environmental training	\$ 12,500	\$ 12,500	
		2.2. Technician Training	\$ 12,500	\$ 12,500	
		2.3. Monitoring	\$ 5,000	\$ 1,480	\$ 3,520
Sub-Total for UNEP			\$ 35,200	\$ 31,680	\$ 3,520
3. Investment Component	UNDP	3.1 Initial development of HCFC Refrigerant Management Plan	\$ 52,800	\$ 47,520	\$ 5,280
Sub-Total for UNDP			\$ 52,800	\$ 47,520	\$ 5,280

Sub-Total UNEP	\$ 35,200
Sub-Total UNDP	\$ 52,800
Support cost UNEP (13%)	\$ 4,576
Support cost UNDP (9%)	\$ 4,752
Grand Total UNEP	\$ 39,776
Grand Total UNDP	\$ 57,552

It should be noted that the country chooses to receive institutional strengthening assistance outside of this HPMP, as was the case in the past.

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List of Abbreviations and Acronyms

A/C	Air Conditioner
ADB	Asian Development Bank
CFC	Chlorofluorocarbons
CIS	Commonwealth of Independent States
EU	European Union
ExCom	Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol
FAO	Food and Agricultural Organization
GEF	Global Environmental Facility
GDP	Gross Domestic Product
GWP	Global Warming Potential
HCFC	Hydrochlorofluorocarbons
HFC	Hydrofluorocarbons
HPMP	HCFC Phase Out Management Plan
kW	Kilowatt
IBRD	International bank for Reconstruction and Development
LVC	Low Volume Country
MAC	Mobile Air Conditioning
MLF	Multilateral Fund for the Implementation of the Montreal Protocol
MP	Montreal Protocol
NOC	National Ozone Centre
ODP	Ozone Depleting Potential
ODS	Ozone Depleting Substance
OEC	Organization of Economic Cooperation
OSCE	Organization for Security and Cooperation in Europe
PIC	Prior Informed Consent
RAC	Refrigeration and Air Conditioning
RMP	Refrigerant Management Plan
TEAP	Technology and Economic Assessment Panel
UNEP	United Nations Environmental Programme
UNDP	United Nations Development Programme
WB	World Bank

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1.0 General Information

1.1 Scope and Context

This document has been prepared to define the Government of the Republic of Kyrgyzstan's commitment, plan and resource requirements to meet the obligations that it has assumed as a Party to the Montreal Protocol under Decision XIX/6¹ of the Nineteenth Meeting of the Parties to The Montreal Protocol which accelerated the phase out of hydrochlorofluorocarbons (HCFCs) in both Article 5 and non-Article 5 countries. Furthermore, it is intend to fulfill the requirements of the Executive Committee (ExCom) of the Multilateral Fund for the Implementation of the MP (MLF) respecting adoption and submission of a HCFC Phase Out Management Plan (HPMP) applied to Article 5 countries seeking MLF financial support in meeting these obligations.

This HPMP has been prepared by the National Ozone Center (NOC) with the financial support of the MLF and with UNDP acting as implementing agency. It has been developed in accordance with the guidance issued by Executive Committee (ExCom), specifically the document UNEP/OzL.Pro/ExCom/54/53² and ExCom Decision 54/39³.

For purposes of the HPMP, Kyrgyzstan is categorized as a Low Volume Country (LVC). Historically, ODS and specifically HCFC consumption has occurred almost entirely in the refrigeration servicing sector and has been almost exclusively HCFC-22. Therefore in a global context, Kyrgyzstan would generally be considered a “servicing only” country. However, some consumption of HCFCs in manufacturing also exists in the form of HCFC based products using HCFC-141b contained in imported fully formulated polyol used in manufacturing of foam based products and components, and HCFC-142b as a solvent.

Consistent with the recommendations of draft ExCom guidance on HPMPs referenced above, a staged approach to the HPMP is taken based on a consumption baseline to be determined by the average consumption officially reported in 2009 and 2010. It involves presentation of an overarching long term strategy directed at achieving a phase out schedule that was determined by Decision XIX/6. More specifically, Kyrgyzstan is committing to freezing HCFC consumption at the 2009/2010 baseline levels in 2012, and reducing the consumption by 10% in 2014.

1.2 Country Profile

1.2.1 Geography

The Kyrgyz Republic is located in the centre of the Asian continent, in the north-east of Central Asia between 39° and 43° north latitude and 69° and 80° east longitude. The

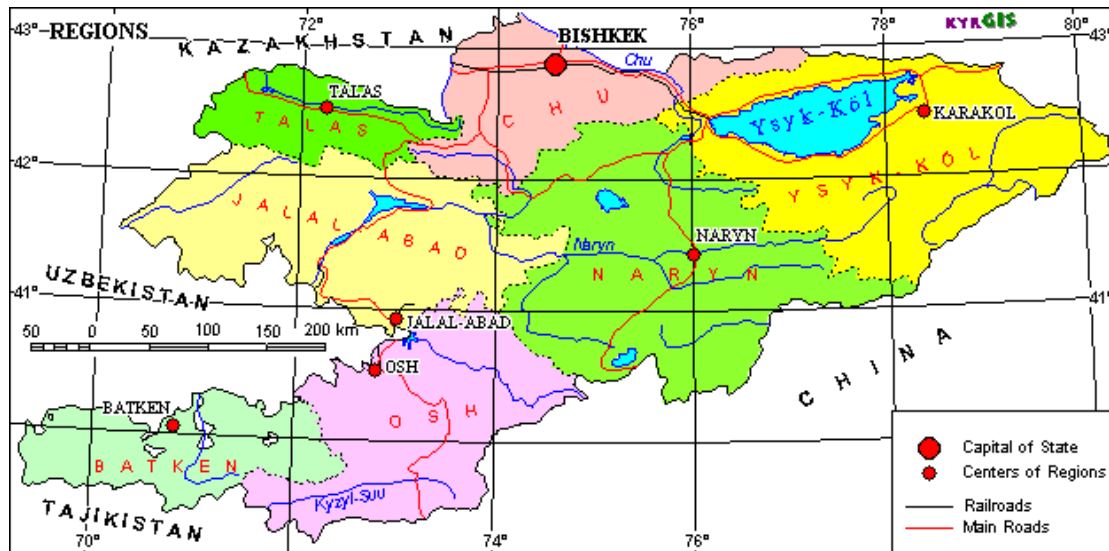
¹ http://ozone.unep.org/Meeting_Documents/mop/19mop/MOP-19-7E.pdf, Page 33

² <http://www.multilateralfund.org/files/54/5453.pdf>,

³ <http://www.multilateralfund.org/files/54/5459.pdf>, Page 43, Annex XIX

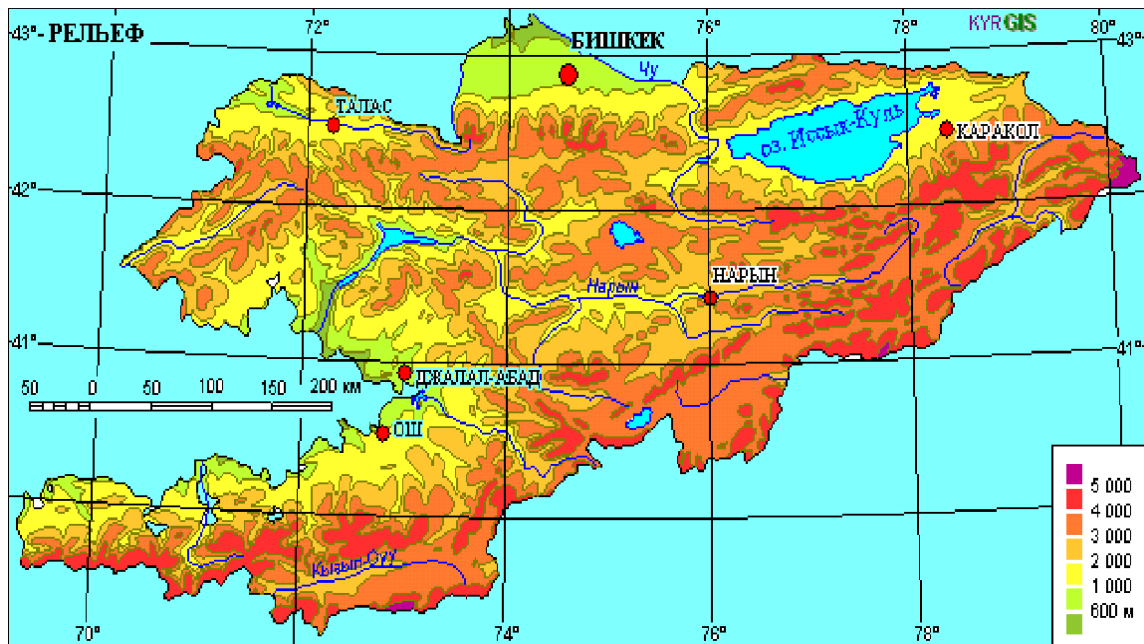
Republic borders on Kazakhstan in the north, on China in the south-east and east, on Tajikistan in the south-east, and on Uzbekistan in the west. The length of the Kyrgyzstan's borders is 4,508 km, its total area is 199,900 km². The country is divided on 9 administrative units: 7 regions (Batken, Djalal-Abad, Issyk-Kul, Naryn, Osh, Talas and Chui) and its two major cities, Bishkek and Osh are also standalone administrative units. Figure 1.1 illustrates this.

Figure 1.1 Kyrgyzstan: Administrative Boundaries



The highest point in the country is Pobeda peak (7,439 m) and the lowest is 350 m above the sea level. The average height of the Republic above the sea level is 2,750 m. About 94% of the territory is located above 1,000 m, 90% - above 1,500 m, and 40% - above 3,000 meters above sea level. Figure 1.2 provides a map illustrating elevations. The country's predominantly high mountain ecological system generally defines the country's climate, landscapes, soils, water resources, flora and fauna, as well as social and economic conditions of life. It also creates conditions susceptible to natural and anthropogenic influence, including earthquakes, landslides, mudflows, floods and avalanches.

Figure 1.2: Kyrgyzstan: Physical Map



1.2.2 Climate: The Kyrgyz Republic is a typical high mountain country with generally arid continental climate and large temperature range. Four climatic zones are clearly distinguished: North and Northwest Kyrgyzstan, Southwest Kyrgyzstan, the Issyk-Kul basin, and the Internal Tien-Shan. Up to four vertical climatic zones can be distinguished: lowland (from 500-600 to 900-1,200 m above sea level), middle mountain (from 900-1,200 to 2,000-2,200 m), high mountain (from 2,000-2,200 to 3,000-3,500 m), and nival (3,000-3,500 and above). The principle climatic characteristics of the main valleys where 75% of the population along with countries main agricultural and industrial production is located is provided in Table 1.1

Table 1.1 Climatic Characteristics of Principle Valleys

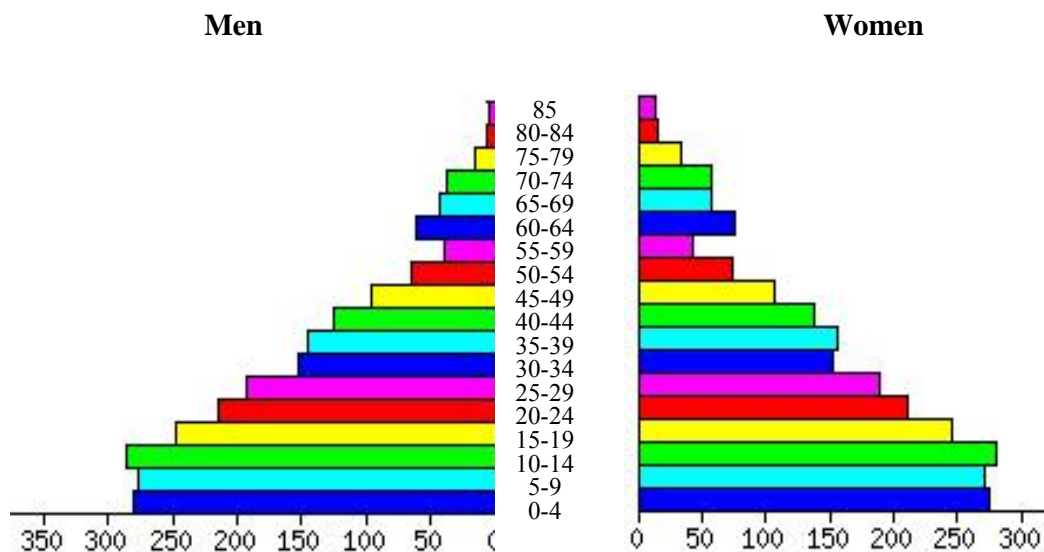
Valley	General Location	Annual Precipitation (mm)	Temperatures °C	Other Features
Chui	North West	300-500 Mainly Spring/Fall	Average Summer: 24.4 High Summer: 43 Average Winter -5 Low Winter: -38	High westerly winds
Fergana	South West	100-120 (central) Up to 500 (west)	Average Summer: 25.4 High Summer: 38 Average Winter -3.4 Low Winter: -29	Hot dry climate
Issyk-	North East	120-450	Average	Impact of Lake Issyk-

Kul			Summer:18.2 High Summer: 34 Average Winter -4.5 Low Winter: -23	Kul
Talas	North West	300	Average Summer:20.3 High Summer: 40 Average Winter -7.5 Low Winter: -38	Geographically isolated
Naryn	South Central	200-500	Average Summer:12.5 High Summer:35 Average Winter -17.1 Low Winter: -35	Long and narrow

1.2.3 Population and Social Characteristics: Kyrgyz Republic's population by the end of 2008 was 5.3 million people. The average increase in population for the last 10 years was approximately 1.0 % per year. Sixty five (65) % of the population officially lives in rural areas. However, significant rural to urban population migration has occurred in recent years with Bishkek particularly having an overall increase of 50%. The age structure is illustrated in Figure 1.3 which shows a relatively young population. Overall, population density (24 persons per km²) is relatively low, compared to that of other countries but is concentrated in the valleys that make up about 25% of the land area.

The country has a high level of literacy rate - more than 98% with more than 61% of the population having post secondary education and 10% older than 15 years of age possessing a graduate degree. The officially registered unemployment rate is 3.0%, whereas the actual one is 11.5%, of which 62% are women. According to the main medical indicators of health (sickness and mortality rates, number of doctors and medical institutions, etc.), the Kyrgyz Republic is about average among the Central Asian republics.

Figure 1.3: Age structure of Kyrgyzstan's population (2000)



1.2.4 Government and International Relations: A former a republic of the Soviet Union, the Kyrgyz Republic became an independent state on August 31, 1991. It is an independent, democratic, social, rule of law state. The state power is administered pursuant to the Constitution and the laws based on the principle of separation of the legislative, executive and judicial branches. The constitution was adopted in 1993.

Kyrgyzstan is a member of more than 63 international organizations, including the United Nations, Organization for Security and Cooperation in Europe (OSCE), Food and Agricultural Organization (FAO), Organization of Economic Cooperation (OEC), International Monetary Fund (IMF), World Bank (WB), International Bank for Reconstruction and Development, the Asian Development Bank (ADB), the Commonwealth of Independent States (CIS), and the World Trade Organization (WTO).

1.2.5 Economy: The economy of Kyrgyzstan enjoyed gradual growth and improved living conditions up to 1991. This was followed by a period of economic decline with the initial transition to a market economy and subsequently after 1996 sustained growth until 2009. This transition was particularly characterized by an overall decline in industrial production by twofold between 1990 and 2005. During this period, the only sub-sector showing growth being non-ferrous metals extraction. Similarly there was decline in the agricultural sector but this is now seeing sustained growth and returned to 1990 levels by 2008. However the structure of the sector has been changed with a decrease in livestock farming and increase in crop production, as well as transition to smaller private operations and generally more labor and less input intensive operations. Compensating increases in economic activity has been seen from growth in the communications and service sector with the latter being particularly significant after 2000. Annex 1.1 provides graphical data provided by the National Statistics Committee for of overall GDP growth between 2000 and 2007 including that for key sectors that may influence HCFC consumption.

A national development strategy under the “The program of development and placement the sectors of economy” has been prepared by the Centre of Economic Strategies under the Government of Kyrgyz Republic, International Institute of Strategic Investigation under the President of Kyrgyz Republic, and leading specialists. This provides a long term macroeconomic assessment until 2020-2025. The principle results of this are summarized as follows:

- GDP growth is forecasted with annual growth rate from 5% to 8% through to 2020.
- GDP growth per capita is expected be US\$787.8 dollars per person in 2010 with growth to US\$3,905 per person in 2025.
- Annual growth by sector in the next decade is predicted to be: Industry – 7.2%, Agriculture - 4.0%, and the general service - >9.0%.

1.2.6 Environmental Overview: The overall environmental conditions in Kyrgyzstan are relatively positive but the country has and continues to have a number of environmental issues, largely as a legacy of situations that developed during the Soviet period and

subsequent period of economic adjustment. These include three priority areas impacting human health and the country's economic stability as discussed in the following.

- *Land and Soil Degradation:* Generally, the soil quality in the areas of settlement in the country is of relatively poor and sensitive to industrial and agricultural practice. There is a tendency of degradation of cultivated soil associated with crop selection and rotation practices as well as those associated with fertilizer application and irrigation, all of which has resulted in salinization, swamping, exhaustion and desertification in a number of areas. Significant soil pollution by heavy metals is observed at local areas as a result of metal mining activities and industrial production. These include: i) Industrial land of Haidarkan mercury enterprise and adjacent territories, Batken oblast; and ii) Industrial land of Kyrgyz mining and smelting enterprise and adjacent territories in Chuy oblast. Other significant contamination is associated with lead mining and processing, historic production of rare earth metals, and uranium mining. Similarly, agricultural areas have seen extensive use of chloro-organic pesticides including significant quantities of Dichlorodiphenyltrichloromethylenethane (DDT). It is estimated that approximately 30,000 hectares of land has been contaminated with pesticides. While most are now banned, accumulations of obsolete pesticides remain in burial sites and sub-standard storage.
- *Water Resources:* While water is relatively abundant in the country it is subject to a number of sources of pollution affecting its quality. Waste water from human and industrial use (estimated at 12 million m³ of discharge per year) receives limited treatment. In 2005 only 29 of 1,906 settlements in the country had municipal treatment facilities and overall 23.9% of population was provided with an operational sewage system. Significant groundwater contamination exists, including under Bishkek where extensive nitrate compound pollution exists.
- *Atmospheric Air Quality:* Air quality in urban areas, particularly Bishkek is a significant concern, largely as a result of transportation emissions and particulate emissions from fuel and energy facilities.

Kyrgyzstan is a signatory and/or Party to a wide range of international agreements and conventions related to the environment. The principle ones with some relation to ozone protection issues are listed below.

Convention/Agreement	Signature	Ratification/ Accession (a)
Vienna Convention	n/a	May 31/2000(a)
Montreal Protocol	n/a	May 31/2000(a)
• London Amendment to the Montreal Protocol	n/a	May 5/ /2003
• Copenhagen Amendment to the Montreal Protocol	n/a	May 5/ /2003
• Montreal Amendment to the Montreal Protocol	n/a	May 5/ /2003
• Beijing Amendment to the Montreal Protocol	n/a	May 10/2005
Stockholm Convention on Persistent Organic Pollutants	May 16/02	Dec. 12/2006
Basel Convention on the Trans-boundary Movement of Hazardous Waste and their Disposal	n/a	Aug, 13, 1996 (a)
Rotterdam Convention on Prior Informed Consent for Certain Chemicals and Pesticides in International Trade	Aug. 11/1999	May 25/2000
UNECE Convention on Long-Range Trans-boundary Air Pollution	n/a	May 25/2000 (a)
Convention on Access to Information, Public Participation in Decision Making, and Access to Justice in Environmental Matters	n/a	May 1/2001 (a)
UN Framework Convention on Climate Change	n/a	May 25/2000(a)
• Kyoto Protocol	n/a	May 13.2003(a)
UN Convention to Combat Diversification	n/a	Sept 19/1997(a)
Convention on Biological Diversity	n/a	Aug.6/1996(a)
• Cartagena Protocol on Bio-safety	n/a	May 10/2005(a)
Convention on Trans-Boundary Effects of Industrial Accidents	Observer	n/a

1.3 History and Status of ODS Phase Out

Kyrgyzstan is an Article 5 party to the Montreal Protocol (MP) currently operating in full compliance with its obligations under the MP and all current amendments. It acceded to the MP and London Amendment in 2000, ratified the Copenhagen and Beijing amendments in 2003 and the Montreal Amendment in 2005.

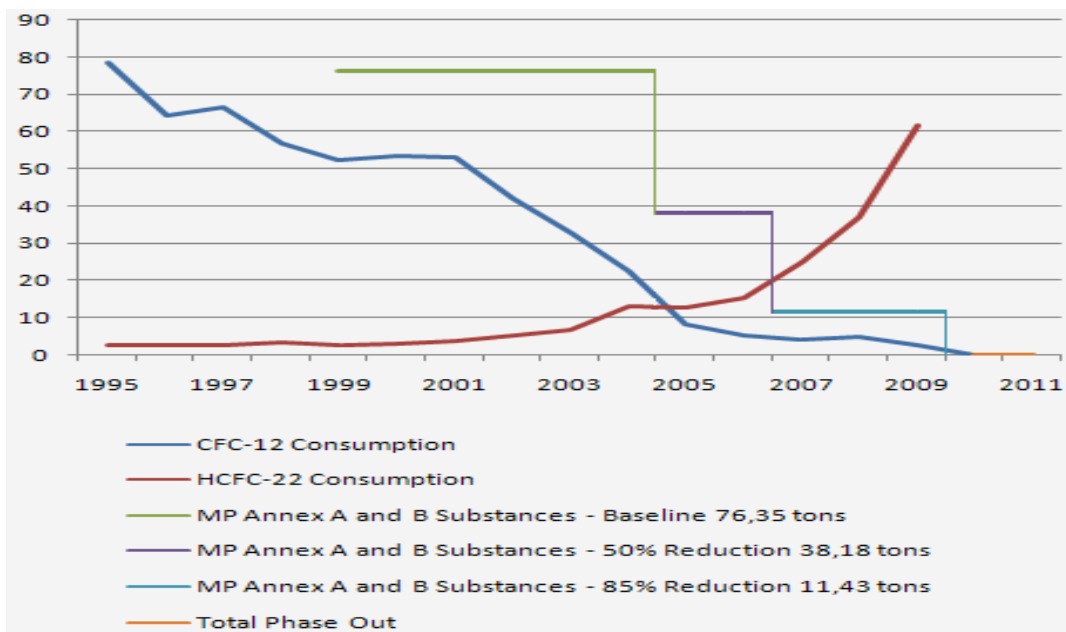
The country has a history of ODS consumption similar that in other smaller Central Asian and Caucasian Republics that were part of the Soviet Union. No ODS was ever produced in the country and all ODS was and continues to be imported. Originally this was mainly from Russia but since 2000 it has originated primarily in ODS producing Article 5 countries, principally China and India but in some cases imported via intermediate Article 5 countries. No ODS is reported as exported so for purposes of determining consumption, and imports equal consumption. ODS consumption in manufacturing was historically absent.

Prior to 1990 and up until 2004, consumption of ODS was predominately CFC-12 used in servicing of refrigeration equipment. Imports of halons and methyl bromide had also occurred. Up to 2000, CFC-12 consumption largely reflected the state of the economy with a decline through the 1990s. Since 2002, CFC-12 consumption has fallen rapidly as older equipment was getting retired and replaced by HCFC and to some extent HFC based equipment. This has been facilitated by the availability of recovery and recycling capability in the service sector, retrofit/replacement programs to accelerate retirement of old equipment and the application of control measures in the form of quotas in accordance with Article 5 country phase out targets. Total phase out of CFC -12 was achieved at the end of 2009 when a CFC import ban came into effect.

HCFC consumption began after 1990 but had relatively limited application until 2000 and only became significant after 2004. In part this reflects the replacement of CFC containing equipment through retirement or retrofit/replacement programs with both HCFC and HFC based equipment although the former predominates due its generally lower capital and servicing cost. However, the majority of the major increase in consumption in recent years has been the result of significant economic growth in the overall service sector and particularly in the availability of affordable air-conditioning units based on HCFC-22 including their increasingly widespread use in households and small commercial establishments. The latter reflects the substantial latent demand for these products that can be expected to continue into the future. The number of imported units imported annually is reported to have increased from 10,000 in 2005 to 25,000 in 2008.

To illustrate the historical dynamics of CFC-12 and HCFC-22 consumption, Figure 1.4 and the associated table provide a comparison of officially reported consumption from 1995 to 2008.

Figure 1.4 Kyrgyzstan Historical CFC-12 and HCFC-22 Consumption (tons)



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
CFC-12	78.52	64.41	66. .60	56.84	52.40	53.45	53.00	42.10	33.00	22.30	8.10	5.25	4.23	5.0	2.7
HCFC-22	2.50	2.40	2.45	3.10	2.55	2.90	3.40	5.20	6.36	12.90	12.60	15.10	24.88	37.0	61.76

1.4 Summary of ODS Phase out Measures and Programs to Date

After ratification of the Montreal Protocol and the London Amendment in 2000, the Country Program on ODS Phase-out was developed in the Republic with the support of UNEP. An Interdepartmental Commission on Ozone was established in 2002 as part of the Country Program endorsement. At the same time the National Ozone Center (NOC) was established with the main purpose to implement the Country Program and activities/projects established under it, namely the Refrigerant Management Plan (RMP) and Terminal Phase Out Management Plan (TPMP), and to provide a reporting and networking focal point with international organizations. The first phase of Country Program implementation covered the period 2002-2007 and the second the period 2008-2010. Table 1.2 below lists the MLF support received.

Table 1.2 MLF Funded Projects

Name of project	Implementing Agency/ Project Reference Code	Duration	Grant Amount US\$	Status
Institutional Strengthening Project	UNEP IM/4040-02/rev.1	2002 – 2009	481,140*	On-going
Training of Customs Officers	UNEP IM/4040-02-61-2223	2003 – 2009	74,910	Completed
Training of Specialists from Refrigeration Sector	UNEP IM/4040-02-61-2224	2004 – 2009	97,900	Completed
Recovery & Recycling Program	UNDP KYR/02/G62	2003 – 2007	136,380	Completed
Monitoring of Refrigerants Management Plan	UNDP KYR/02/G61-G62	2004 – 2008	18,645	Completed
Raising Awareness and End-users Incentive Program	UNDP KYR/02/G63	2003 – 2008	117,908	Completed
Terminal ODS Phase-out Management Plan (TPMP)	UNDP KYR/PHA/50/TAS/15	2007 – 2009	550,000	Completing

* Current IS funding for 2010 and 2011 is US\$115,830

The main activities undertaken in the course of the Country Program, including the RMP and TPMP to date are summarized in the following:

- *Training of Customs Officers (2003 – 2009):* Training in framework of the RMP was divided into two phases. During the first phase two workshops were conducted in Bishkek (north) and Osh (south), where 75 persons were trained and 31 were selected to act as trainers of other customs officers during the second phase. During the second phase (2004-2005) 10 workshops in all regions of the republic were conducted. 114 specialists were trained and issued with course completion certificates. Customs officers had practical lessons on the identification of ODS. Thirty one (31) units of ODS detection equipment were distributed. Additional training under the TPMP was undertaken in 2007

and 2008 with 137 customs officers were trained at 5 workshops (Bishkek, Osh, Balykchy, Talas, Naryn). Currently, the NOC supports periodic entry level and refresher training courses as requested by the State Customs Committee.

- *Training of refrigeration specialists in the refrigeration sector (2004 – 2009)*: Training in the framework of the RMP had been implemented in two phases. During the first phase, two workshops were conducted, in Cholpon-Ata and Osh, where 53 specialists were trained and issued with course completion certificates. They participated as trainers during the second phase where other specialists from refrigeration sector were trained with the support of the NOC. In total, 19 workshops were conducted in all regions of the republic with 495 specialists being trained and receiving certificates. In 2005, a center for training of refrigeration specialists was established in Osh, under the auspices of the Osh University of Technology. The NOC provided this training center with computer equipment, furniture, CFC gas analyzer, and other equipment, necessary for training. A subsequent series of training workshops were organized under the TPMP in 2007-2008 as listed below:

- ⇒ Servicing of MACs – two workshops, in Bishkek and Osh, 120 specialists participated;
- ⇒ Best practice in servicing of refrigeration equipment – nine workshops, in Osh, Bishkek, Jalalabat, Kara-Balta, Tokmok and v. Aleksandrovka, 358 specialists participated;
- ⇒ Integrated training of specialists of refrigeration sector – one workshop, in Cholpon-Ata, 28 specialists participated;
- ⇒ Recovery and recycling of CFC-12 and HCFC-22 – four workshops, in Osh, Bishkek, Jalalabat and Cholpon-Ata, 108 specialists participated;
- ⇒ Use of drop-in blends for direct replacement of CFC-12 – three workshops, in Osh, Jalalabat and v. Aleksandrovka, 73 specialists participated;
- ⇒ Natural refrigerants – three workshops, in Kant, Osh and Jalalabat, 72 specialists participated.

Based on this experience, the country through the NOC, the Ministry of Education and the National Refrigeration Association now support entry level technician training in 5 vocational training schools and engineering level courses in two universities as well as initiation of a nationally mandated certification system for technicians, inclusive of mandatory refresher training. Currently, 200 technicians have been certified.

- *Program for Recovery and Recycling of ODS (2003 – 2007)*: This program, undertaken as part of the RMP, involved the development of guidelines for recovery of refrigerants, the supply of 469 units of R&R&R equipment, gas cylinders, refrigeration toolkits, other tools, accessories and spare parts, with total cost of US\$127,979 to users and the training on the use of the supplied equipment. This included complete equipment sets to equip 40 technicians, noting this equipment generally was designed only for CFCs. The trainings

were organized in 2003 (Bishkek, Osh), in 2004 (Jalalabat) and in 2005 (Cholpon-Ata) with a total of 202 persons being trained. The main topic of the workshops was on practical procedures of correct and safe handling of refrigerants, removal of leakages in refrigerated equipment, and recovery and recycling of refrigerants with the provided R&R and ancillary equipment. The purchased equipment included three centers for recycling of CFC (CFC only), including one mobile center. The amount of recycled CFC-12, during the whole period of the program to date is 15,892 kg, including 5,748 kg that was processed in the recycling centers. The detailed results of the program to date are provided below in Table 1.3.

Table 1.3: Recovery and Recycling Performance

Year	Recovered (kg)		Recycled (kg)	
	CFC-12	HCFC-22	CFC-12	HCFC-22
2003	750	0	0	0
2004	2,864.6	0	1,101.9	0
2005	3,930.8	0	1,501.4	0
2006	1,569.8	0	1,013.7	0
2007	1,900	0	588	0
2008	2,142.8	0	700	0
2009	2,734	0	843	0

- *Monitoring of RMP (2004 – 2008)*: This project was designed to provide oversight, supervision and monitoring of the RMP activities by the NOC on a regular basis according to established annual plans. The project assisted in submitting the results of the monitoring activities to the Multilateral Fund and the Ozone Secretariat.
- *Raising awareness and end-user retrofit/replacement program (2003 – 2008)*: Within the framework of the RMP, a few workshops were arranged during 2003-2004 with 72 persons who had participated in those to learn the objectives of this project. The project had formulated specific rules/guidelines/criteria for the preparation and review of applications. Also, regular technical meetings were organized to provide assistance to potential end-users to participate in the program. Such assistance was related to the detailed explanation of project rules/procedures in preparing and presenting grant applications. After the project initiation stage was over, further on during 2003-2007, the project advanced with payments of grants to support equipment retrofit/replacement at qualified end-user companies. The Table 1.4. provided below presents the general results of the retrofit/replacement activities:

Table 1.4: Results of End-users Retrofit/Replacement Program

Year	Enterprise	Equipment Retrofit/Replacement and number of refrigerated units	CFC Replaced kg	Total Incentive Payment, US\$	Recovered /recycled CFC, kg	CFC, not accepted for recycling / reason
2003	“Shin”	retrofit-20	672	10,000	586	86
	“Pivnaya Akademia”	retrofit-15	234	4,375	234	-
	“Putilin”	Replacement-2, retrofit-4	133	4,593	133	-
	“Baichechekei”	Replacement-4, retrofit- 11	179	6,250	-	179/blend
	TOTAL		1,218	25,218	953	265
2004	“Milki Ice”	Replacement-2, retrofit-10	168	6,250	160	8
	“Sher Inc.”	Replacement-4, retrofit-5	221	6,592	221	-
	TOTAL		389	12,842	381	8
2005	“Tsai”	Replacement-15, retrofit-10	343	8,750	216	127
	“Remezov”	Replacement-3, retrofit- 5	105	3,125	148	-
	“Mamytkulov”	retrofit- 12	151	5,473	151	-
	TOTAL		599	17,348	515	127
2006	“Yugai”	Replacement-8, retrofit- 10	383	8,750	342	41
	SK “Vetka”	Replacement-9, retrofit- 4	206	7,500	206	-
	“Karibe-Yug”	Replacement-14	456	10,000	387	69
	TOTAL		1,045	26,250	935	110
2007	“Ergashev H.”	Replacement-4, retrofit-5	214	7,500	212	2
	“Alakova”	retrofit-4	106	6,250	106	-
	“Nikolaev K.I.”	Replacement-7	143	6,250	137	6
	“Shemyakina”	Replacement-20	224	7,500	224	-
	CJSC “Shoro”	Replacement-1, retrofit- 3	351	8,750	351	-
	TOTAL	Replacement-93, Retrofit-118	1,038	36,250	1,030	8
GRAND TOTAL			4,289	117,908	3,814	518

- *Phase-out of CFC-based MDIs (2007 – 2009):* Resulting from the project activities, a national strategy for the transition to alternative non-ODS MDIs was formulated, and methodological recommendations for doctors were published – “MDIs and protection of the Ozone Layer”, “Breath better, save the planet”. Ten (10) training workshops were conducted for family doctors, and heads of hospitals in Bishkek, Osh, Jalalabat, Karakol, Naryn, Talas, Too-Ashu. In total, 408 medical specialists participated in such workshops.
- *Development of legislation and regulations (2003 – 2009):* The NOC prepared and supported the implementation of the legal and regulatory basis for ODS control in the country, including awareness activities among stakeholders. This included a workshop on ODS legislation and regulations which was organized in 2007. The results of this activity are elaborated in Section 2 of the present document.
- *Public Information and Consultation (2002 – 2009):* During the implementation of the Country Program, to the current date, 24 brochures (16,600 copies) in Russian and Kyrgyz languages were printed. Eleven (11) video materials were prepared. Web-sites of

the National Ozone Center⁴, Public Associations “Ecofum” and “Ecoholod” were created. Annually, on September 16, the events have been organized for schools and mass-media. Information about all events has been presented in mass-media (TV, radio, news-papers, internet). A listing of specific information products is provided in Annex 1.2

In summary, Kyrgyzstan has fully met its current Article 5 country obligations under the MP, specifically those associated with phasing out CFCs by January 1, 2010, methyl bromide by January 1, 2008 except for quarantine and pre-treatment (7 years ahead of the MP requirement) and halons by January 1, 2009 (1 year head of the MP requirement). Future activities related to these ODS substances involve regulatory monitoring and recycling of CFCs and halons, and regulatory monitoring of methyl bromide and eventual phase out of QPS applications.

1.5 Lessons Learned:

Based on experience to date the following general lessons considered relevant to development and implementation of the HPMP are noted:

- The need for progressive adoption of legislative and regulatory control measures was demonstrated but to be accepted politically this also must be balanced by recognition of the impacts such measures have on the economy and population’s understandable expectation of having affordable modern goods and services available to them as the economy develops.
- Continuing awareness of the importance and benefits of ODS phase out within the government, major stakeholders (particularly end users of refrigeration equipment), and the general population is critical to obtaining and sustaining government policy commitment for adoption of future control measures, and providing advance warning of phase out needs and impacts to those dependant on ODS.
- The existence of institutional capacity in the form of the NOC operating across government agencies has been a successful model for implementing and administering ODS phase out activities, but is dependent on the international assistance, something that will continue into the future recognizing limitations on national resources.
- Overall, non-investment activities have been generally effective but require regular renewal and updating noting the reality of changing institutions and stakeholders, turnover of people, changes in technology, and evolution of global priorities and trade dynamics related to ODS.
- Non-investment activities are only effective if supported by investment in the form of tools to support enforcement of control measures, servicing infrastructure, and capital replacement or retrofit of equipment where appropriate.
- Programs related to training and equipping of refrigeration technicians were considered highly effective and provide a useful platform for HCFC phase out. Similarly initiation

⁴ <http://www.ozonecenter.kg/en/>

of a certification system and development of a refrigeration association contribute to this, although both need further development.

- Programs related to strengthening import controls and enforcement of the licensing system were effective in the context of what could be achieved in a country like Kyrgyzstan with extensive borders and a limited ability to cover them, hence exposure to illegal trade. This represents a continuing priority which needs to be addressed in relation to HCFC phase out.
- The experience of focusing on CFC phase out, inclusive of a strategy allowing replacement with HCFCs, but now having to rapidly address accelerated HCFC phase out suggests that future measures should better anticipate long term trends and priorities.
- Notwithstanding the success of its ODS phase out efforts to date, it is recognized that many of the factors influencing that the ability of the country to phase out HCFCs are beyond its control including availability of affordable alternatives, and global supply and pricing of HCFCs.

At a more specific level, the following experience is noted which should be considered in the development of this HPMP.

- *Refrigeration Technician Training:* Training of refrigeration servicing technicians was particularly effective in exposing practical experts to non-ODS equipment, its acquisition, and general improvement in both reducing refrigerant emissions and increasing cost effectiveness of the service. This was further enhanced by the almost full coverage of all qualified technicians and availability of refresher training during the program and the basis this provided for sustaining training in the national education system as well as initiating a certification program. However, the main limitations that remain is ensuring that more than a relatively low proportion of technicians are properly equipped and training is expanded to current alternatives within a sustainable national training system.
- *Customs Training:* While training of the customs' officers was generally considered useful, it is apparent that the coverage was not sufficient to fully support effective import control measures and guarding against illegal trade. This is in part due to the nature of the county's borders which are in many locations poorly controlled. This generally leaves Kyrgyzstan susceptible to illegal trade, particularly among the numerous small or individual refrigeration service providers and use of small, easily concealed containers. Similarly, the system remains exposed to practices such as mislabeled ODS as uncontrolled materials and avoidance of registration/licensing regulations. It is also noted that of the 67 customs stations, only 31 are equipped with ODS detection and analysis devices.
- *Recovery and Recycling:* Activities on recovering and recycling ODS brought satisfactory results and achieved rates of recovery meeting those targeted in the RMP. However, the effectiveness might have been larger in the absence of relatively inexpensive illegally imported new ODS, that considerably reduces the incentive for servicing organizations to recover and recycle refrigerant.

- *Retrofit and Replacement:* Activities on raising awareness respecting retrofit and replacement among the end users of commercial and industrial refrigerating equipment achieved planned coverage with the funding available, noting that greater coverage would be achieved with additional resources. However, lessons were learned respecting the need to simplify the procedures of preparation of applications for incentive payments so that smaller end users may participate, and utilizing technologies that may subsequently be subject to control measures.

2. Description of Current Policies, Legislation, Regulation and Institutional Structure

2.1 General Policy and Regulatory Framework

Kyrgyzstan's overall policy respecting the phase out of ODS is reflected in its original accession to the Montreal Protocol in 2000 along with subsequent ratification of all current amendments, hence a policy commitment to meet applicable control measures. This overarching commitment along with detailed aspects that give it substance has been formalized in the form of national legislation, supporting government resolutions addressing specific issues such as import licensing and application of import quotas, as well as formal instructions issued by responsible authorities on phase out milestones. Annex 2.1 provides a list of the specific legal acts related to ODS.

The following summarizes the main control measures currently imposed by this regulatory framework which provide building blocks for regulatory measures that will be required to meet Decision XIX/6 obligations.

- Government Resolution No. 860 (2004): Authority to impose bans and quotas on import and export of MP Annex A ODS and equipment/products containing them
- Government Resolution No. 374 (2008): Introduces ban effective 01.09.08 on import of methyl bromide (except QPS), halons and equipment containing or depending on halons, and used equipment using Annex A substances as well as mandating publication of mandatory future ODS phase out dates
- Government Resolution No. 594 (2009): Defining ODS Substances (Lists A, B, C and E) and ODS containing equipment/products (List D) for which import/export licensing is required are defined.⁵
- Letters of Instruction, State Agency for Environmental Protection and Forestry (SAEPF): Annual import quotas for MP Annex A substances (CFCs) and ban effective January 1, 2010.

Regulations are also currently in place requiring state certification of specialists working with CFCs, HCFCs, HFCs and natural refrigerants, and pesticides alternatives to methyl bromide including a requirement for renewal on the basis of refresher training every two years.

2.2 National Institutional Arrangements for ODS Issues

Overall supervision of action related to ODS issues is provided by the Interdepartmental Commission on Ozone Issues with specific responsibility for coordination of work connected with the implementation of the Country Program. This was established in 2002 as part of the Country Program endorsement (Government Resolution No. 263). Formal designations of

⁵ Lists A, B, C and E correspond to Annexes A, B, C and E of the Montreal Protocol.

membership on the Commission was most recently approved by Government Resolution No. 374 in July 2008 as follows:

- Chairman of the commission – Head of the State Agency on Environment Protection and Forestry under the Government of Kyrgyz Republic.
- Deputy Chairman of the commission – Deputy Minister of the Ministry of Emergency Situations of Kyrgyz Republic.
- Formal Members:
 - Deputy Minister of the Ministry of Economic Development and Trade of Kyrgyz Republic
 - Deputy Minister of the Ministry of Health of Kyrgyz Republic
 - Deputy Minister of the Ministry of Agriculture, Water and Processing Industry of Kyrgyz Republic
 - Deputy Minister of the Ministry of Education and Science of Kyrgyz Republic
 - Head of the State agency on Vocational Technical Training under the Government of Kyrgyz Republic
 - Head of the Customs Supervision Administration of the State Customs Committee
 - Expert of the Department of Agricultural Sector and Nature Management of the Government of Kyrgyz Republic

In addition a range of external members as identified in Section 2.4 below also participate in the activities of the Interdepartmental Commission.

The coordination and administration of matters related to the MP and national programs related to its implementation is undertaken by the National Ozone Centre (NOC) under the supervision of the Interdepartmental Commission on Ozone Issues. In addition to overall coordination of national initiatives it is responsible for reporting to the Ozone Secretariat, acting as the national focal point for MP matters and international assistance programs. Within the government structure the overall legislative regulatory authority lies with SAEPF. Authority for licensing and import/export matters lies with the Ministry of Economic and Trade (MEDT) with controls and enforcement and reporting undertaken by the State Customs Committee. Supported by the NOC, the Ministry of Emergency Situations and, within it, Gosgortehnadzor have responsibility to certification of refrigeration technicians and related requirements applied to end users of refrigeration equipment.

2.3 Implementation of the Licensing System and Application of Quotas:

The practical administration of ODS measures, including its monitoring and reporting, is coordinated by the NOC. The following government agencies have specific assigned authorities for various aspects of regulatory measures applied:

- Ministry of Economic Development and Trade: Licensing and registration of importers and exporters;

- State Agency on Environment Protection and Forestry: Endorsement of licenses, control over observance of the laws on protection of the Ozone Layer;
- State Customs Committee: Control over import and export of ODS and ODS-containing goods.

The procedure for licensing ODS imports and exports involves the submission of an application with supporting documentation to SAEPF for consideration and, upon its approval, the issuing of the license by MEDT. Both agencies maintain records and a formal registration applicable to importers and exporters. The State Customs Committee maintains data on actual import and exports, and submits this in aggregate form to the NOC quarterly. The NOC also maintains a data base containing information on companies and specialists dealing with supply, maintenance, repairing and servicing of refrigeration equipment.

2.4 Measures respecting HCFCs

The Government assumed HCFC phase out obligations current under the MP, and specific legislation and regulation applicable to HCFCs covers HCFC chemicals being subject to import licensing as an ODS. The preparation of this HPMP represents the country's first formal initiative in relation to accelerated HCFC phase out.

2.5 Stakeholder Involvement in the Policy and Regulatory Regime

Overall, the key mechanism for direct stakeholder involvement in the development and application of policy and regulatory actions related to ODS is the Interdepartmental Commission on Ozone Issues. In addition to Ministry of Economic Development and Trade and the State Customs Committee, other stakeholder government agencies sitting on the Interdepartmental Commission are: Ministry of Emergency Situations, Ministry of Health, Ministry of Finance, Ministry of Agriculture, Ministry of Education and Science, and State Agency for Vocational Training. In the case of Ministry of Emergency Situations, participation is provided for by both the subsidiary agencies responsible for fire protection, and approvals related to technical and construction standards, equipment registration and associated inspection activities (Gosgortekhnadzor). This includes responsibility for refrigeration technician certification. In addition, the Commission has non-government members representing the scientific community, academic institutions, industrial associations (specifically the Refrigeration Association) and several major industrial users of ODS. Furthermore, SAEPF is specifically directed under Government Resolution No. 374 to inform all interested legal entities and natural persons about schedules for ODS phase out, a function also fulfilled by the NOC as described below.

At the level of end users, individual service providers and the general public, the NOC's implementation of the RMP initially and subsequently the TPMP has involved extensive awareness and public disclosure on ODS phase out, both as a directed sub-activity and as part of the training activities in the refrigeration and other sectors. Annex 1.2 provides a representative list of the information products that have been produced and Section 1.4 summarizes the wide range of specific training and awareness activities undertaken. In particular, the associated monitoring activities applied to the RMP and TPMP have served to feedback lessons learned to the policy level through the Interdepartmental Commission.

3. Data Collection and Surveys

3.1 Survey Methodology and Approach

The general profile of ODS consumption in Kyrgyzstan indicates that, CFC-12 for use in servicing refrigeration equipment accounted for essentially all historically ODS consumption with some import of halons and methyl bromide for use in fire fighting and crop protection. However after 2004, CFC-12 consumption has effectively been replaced by HCFC-22, exclusively for the service sector. The reported consumption levels of CFC-12 and HCFC-22 are illustrated in Figure 1.4. In the last several years HCFC-22 consumption has increased dramatically in the refrigeration service sector. This includes the use of HCFC-22 for service of assembled equipment. Some consumption of HCFC-142b for a solvent application was reported in 2008, and is classified as manufacturing sector consumption. In addition, beginning in 2004 but expanding significantly in 2008, the use of HCFC-141b based on imported fully formulated polyol in the manufacture of insulating panels has developed. The current practice adopted by the NOC in 2008 is to declare the HCFC-141b content of this imported polyol as national consumption, noting that the quantity reported in 2008 was in fact polyol rather than its HCFC-141b content. As is elaborated below, it is also noted that the one enterprise using this is planning to convert to a HFC based alternative and will complete this by the end of 2010. No historical reported consumption of HCFC is reported or known in other sectors.

Historically, estimation of ODS consumption has been made primarily on a “top down” basis using reported imports from the State Customs Authorities based on customs codes with some application of experience from NOC experts. Table 3.1 summarizes this data for the period 2000-2009, noting that significant growth in HCFC consumption effectively begins in 2003 coincident with initial application of control measures on CFCs and perhaps most significantly, the realization of significant economic growth that is being sustained, particularly in critical sectors such as the general service sector of the overall economy. The total amount of HCFC imported in 2009 according to the license and customs data reports was 67.27 tons and represents the current “top down” consumption estimate.

Table 3.1: Officially Reported HCFC Consumption 2000-2008 (tons)

Substance	ODS/ ODP	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
HCFC-22	ODS	2.9	3.4	5.2	6.36	12.9	12.6	15.1	24.88	37	61.76
	ODP	0.16	0.19	0.29	0.35	0.71	0.69	0.83	1.37	2.04	3.40
HCFC-141b	ODS	0	0	0	0	0	0	0	2.00	7.08	7.26
	ODP	0	0	0	0	0	0	0	0.22	0.78	0.80

HCFC-142b	ODS	0	0	0	0	0	0	0	0	2.5	3.00
	ODP	0	0	0	0	0	0	0	0	0.16	0.19
Totals	ODS	2.9	3.4	5.2	6.36	12.9	12.6	15.1	26.88	46.58	72.02
	ODP	0.16	0.19	0.29	0.35	0.71	0.69	0.83	1.59	2.98	4.39

* Amount of HCFC-141b reported in 2008 was the quantity of polyol consumed (47.22 tons) but has been corrected above to count just HCFC-141b content (7.08 tons).

However for purposes of this HPMP, it is recognized that a strictly “top down” approach of relying on reported import data may have limitations. As in any country, the accuracy and comprehensiveness of this type of data will be a function of the capacity of the responsible institutions to identify imported HCFCs and potentially HCFC containing equipment/products through the licensing system, customs data, and its level of physical enforcement. It will also be a function of the degree to which importers, distributors and end users of such equipment voluntarily comply with reporting and control measures and what economic and structural factors may exist to discourage such compliance.

In Kyrgyzstan, there remain a number of institutional, geographic, product packaging, and economic factors that could impact on the accuracy and comprehensiveness of current customs data based reporting. These are discussed individually below:

- *Import Identification:* There is a basic systemic issue related to the ability of current customs codes to differentiate HCFCs and HCFC containing products. Effectively, imports that need to be separately identified in this way for purposes of data collection and potentially future application of control measures but may in fact fall under a number of different categories that also cover other chemicals and equipment. Work on this issue between the NOC and State Customs Committee over the last several years has largely resolved customs code issues but this requires continuing coordination. It is understood that this is a generic issue that needs to be addressed internationally with unified customs codes for specific controlled chemicals and associated labeling standards. However, at a practical level, the ability of customs officials to physically differentiate between various chemicals and equipment types that fall under a common designation or may be incorrectly designated remains an ongoing issue requiring continuing monitoring and training.
- *Geographical Constraints:* Kyrgyzstan while a relatively small country has extensive borders with four neighboring countries (China, Kazakhstan, Tajikistan, and Uzbekistan). In total, 67 official border points exist with formal customs inspection. However, there are numerous unofficial border crossing points, often in remote areas, that allow uncontrolled access to the country.
- *Product Packaging Factors:* Presently, the import of most HCFC and HFC chemicals occurs in relatively small single use containers, a departure from the historical practice of

import of CFCs in larger containers directly from producers in Russia. Container sizes typically range in size from 0.250 to 13.6 kg. It is also known that there is substantial variation in the accuracy of labeling in terms of actually reflecting what the contents are. This is a particular issue with refrigerants originating in China, where material can be purchased from dealers in cities like Urumqi, in a variety of small container configurations⁶. Where larger containers are imported directly from or with creditable tracking documentation back to original manufactures this less of an issue.

- *Economic Factors:* Currently, the main economic factor that might promote illegal trade and avoidance by importers and end users of licensing/registration requirements is the application of sales taxes and import duties, common to any imports. The current rate of import duty is 10 % for HCFCs and 5% for HFCs, and a sales tax of 16 % is applied. Informal evaluation of HCFC-22 prices of legally and illegally imported material indicates that HCFC-22 prices are typically US\$5/kg and US\$3/kg respectively which roughly corresponds to the taxes/import duty applied.

In view of the above limitations, a more comprehensive “bottom up” approach to estimating HCFC consumption has been adopted in this HPMP. It relies on direct survey and supplemented by the use of statistically based data to estimate the bank of HCFC containing equipment in service.

The survey based methodology involved data collected directly at the enterprise level, including import/distribution enterprises, end users of HCFCs and HCFC containing equipment, and refrigeration servicing organizations, along with statistical data related to the amount of HCFC containing equipment in the country. This approach is facilitated by the extensive network of contacts maintained by the NOC generally and particularly in the refrigeration sector, including involvement of the developing refrigeration association. Additional contacts among end-users generally were obtained through relevant national and local government agencies, as was the statistical data related to estimated total inventory of operating HCFC containing equipment.

Given the relatively small size of the country as well as the general concentration of refrigeration and air conditioning equipment in several regions and urban centers, the number of survey targets while significant was of a size that survey’s could be conducted by direct contact from experts, either using telephone, electronic communication and/or visits. Annex 3.1 provides, a copy of the survey form used as the basis for information collection. Respondents were asked to respond verbally with the local expert completing the forms. Responding enterprises were then asked to verify information in writing or by e-mail, where possible and practical. In collecting end-user data as well as data from the refrigeration servicing sector, the equipment involved was further sub-divided into refrigeration equipment above and below 3000 watt cooling capacity, air conditioning equipment and transport refrigeration equipment. However, noting that in the last two years some direct HCFC consumption outside the refrigeration servicing sector has developed, the

⁶ It is be noted that this is generally assumed to apply to illegal imports given that China does not currently report issuing any export licenses to Kyrgyzstan.

survey also covered consumption associated with manufacturing in all potential consumption sectors. In total, more than 1,000 end-users, 10 importers/distributors, 107 refrigeration service providers were contacted, 1 foam sector enterprise and 7 potential solvent sector enterprises. The response rates were 87%.

The survey was supported by the use of statistical data available from the National Statistics Committee related to the inventory of refrigeration equipment of various categories in the country and estimation of numbers of households, commercial trade and food establishments, institutional buildings and facilities, the latter being used to estimate the number of smaller commercial refrigeration units and A/C units. This methodology was used in a preliminary HCFC inventory study undertaken in 2007. In summary, this methodology uses the number of units of the categories of equipment noted above to estimate the “bank” of refrigerant in the country and, using local experience from the refrigeration servicing sector, annual servicing demand for HCFC refrigerant anticipated in 2009, it is estimated.

The key assumptions made for purposes of this analysis were:

- Equipment categories were refrigeration under 3000 watt cooling capacity, refrigeration equipment over 3000 watt cooling capacity, air conditioners, and refrigerated trucks.
- The proportion of units of each category using CFCs, HCFCs and HFCs by category was estimated based on current survey experience as follows:

Equipment Application Category	CFC	HCFC	HFC
Commercial refrigeration equipment with cooling capacity up to 3000 watt	21%	46%	33%
Commercial/Industrial refrigeration equipment, with cooling capacity above 3000 watt	5%	60%	35%
Air conditioners	0%	95%	5%
Refrigerators on trucks	0%	85%	15%
Service of assembled equipment	0%	85%	15%

- The average HCFC refrigerant charge and annual servicing requirements are listed below based on the distribution of equipment and reported service frequencies and leakage rates in derived from survey information⁷. Leakage rates used are generally consistent with published global estimates of equipment emission rates⁸.

⁷ Assumed service cycle: Capital repair after operating time of 30,000 hours, and mid-life repair after operating time of 15,000 hours. Two minor repairs of the cycle, each is carried out after the operating time of 7,500 hours. Eight preventive servicing will be carried out after operating time of 2,500 hours. For equipment < 3,000 watts: Average charge size 2 kg. Average requirement of HCFC-22 is 0.65 kilogram per annum for one installation or at an average of 30%. Equipment > 3,000 watts with average charge of 25 kg: the average servicing requirement is 7.5 kilogram or at an average 30% of equipment charge. Air conditioners: At an average charge of 1 kilogram for each installation the service requirement is 0.2 kg of HCFC-22 or an average of 20% of the charge.

⁸ IPCC/TEAP Report “Safeguarding the Ozone Layer and the Global Climate System”, 2005 -

http://www.ipcc.ch/publications_and_data/publications_and_data_reports_safeguarding_the_ozone_layer.htm

Equipment Application Category	Average Charge kg.	Average Annual Required per unit kg.
Commercial refrigeration equipment, with cooling capacity up to 3000 watt	2	0.65
Commercial /Industrial refrigeration equipment, with cooling capacity above 3000 watt	25	7.5
Air conditioners	1	0.2
Refrigerators on trucks	3-15	3.2

- All HCFC based equipment utilizes HCFC-22, based on absence of evidence of blend use from licensing data and information from end and service companies.

Table 3.2 below provides a summary of the survey results for all sectors. Geographical distribution of HCFC consumption based on the survey results project was as follows: Bishkek (36%), Chuy region (21%), Osh region (15%), Jalalabad region (17%), Issyk-Kul region (6%), Talas region (2%), Naryn region (2%), and Batken region (1%).

**Table 3.2:
Summary of Results from Surveys**

Refrigeration Servicing (End User and Service Provider Surveys)			
Equipment Application Category	Units	HCFC Bank (tons)	Annual Service Req.
Commercial refrigeration equipment with cooling capacity up to 3000 watt	17,000	75.00	11.00
Commercial/Industrial refrigeration equipment with cooling capacity above 3000 watt	1,316	36.70	9.87
Air conditioners	75,000	32.90	15.00
Refrigerators on trucks	800	6.40	2.56
Total	94,116	151.00	38.43
Other Consumption			
	2007	2008	2009
Service of assembled equipment with HCFC-22	6.62	12.1	23.27
Imported Fully Formulated Polyol (Contained HCFC-141b)	2.00 (0.34)	47.2 (7.08)	48.4 (7.26)
Solvent Sector Consumption (HCFC-142b)	-	2.50	3.00

3.2 HCFC Supply and Import/Export Profile

Survey information from importers and distributors as well as refrigeration service providers indicates that the supply of HCFCs to the country has historically originated primarily from China, although lesser amounts are received from the UAE (originating in India) and from Russia although the latter has become a negligible source of supply in recent years. The current distribution of imports is China - 80%, UAE - 15%, and India – 5%. Import of fully formulated

polyol based on HCFC-141b has been mainly from Germany⁹ but has also been supplied by a system house in Russia. This import is being discontinued in 2010 and replaced by an HFC based product imported from the EU.

As noted above, import of HCFCs from China in particular occurs in relatively small containers, often purchased through distributors filling these containers and who provide limited traceability to original source of production. The importers and distributors in the country are typically relatively small and serve local or regional markets. Additionally, service companies, larger end-users and individual service technicians may import themselves, directly periodically purchasing the material in China and bringing it into the country. There are also problems with defining HCFC because of the labeling. There are cases of the delivery of other unregulated substances besides HCFC, for example: HFC-134, HFC-404A and others, but in containers labeled as HCFC-22, as well as HCFC-22 being delivered in containers labeled as HFCs.

In reporting this information it is understood that China has indicated that it has not issued export licenses to Kyrgyzstan. Therefore, any exports from China would be illegal notwithstanding their having been permitted into Kyrgyzstan. This underlines an important issue that needs to be addressed now that a formal legal system of licensing and registration is in place (Government Resolution 594, 2009), including coordinating export and import licenses between the respective countries through prior informed consent (PIC) procedures.

There is no official export of HCFCs from the country and it does not appear to be a major transit country for movement of HCFCs to other countries in the region, although this may occur on an occasional basis given the challenges noted above respecting customs control.

3.3 Current HCFC Consumption

Consumption of HCFC in Kyrgyzstan occurs primarily in the refrigeration servicing sector including filling RAC equipment assembled domestically using imported components. In 2008 and 2009, there was also use of HCFC-141b in imported fully formulated polyol and HCFC-142b in a solvent application, but both applications are slated to discontinue HCFC use by the end of 2010. Therefore for purposes of the HPMP, all future consumption from 2011 forward is assumed to be HCFC-22. Currently estimated 2009 HCFC consumption based on the survey work is summarized in Table 3.3 and is utilized as the base consumption for purposes of forecasting and analysis in this HPMP.

⁹ Production of HCFC-141b based fully formulated polyol discontinued in 2009 from this supplier

Table 3.3. Estimated HCFC Consumption for 2009 (tons)

Equipment Application Category	Consumption
Commercial refrigeration equipment with cooling capacity up to 3000 watt	11.06
Commercial/Industrial refrigeration equipment with cooling capacity above 3000 watt	9.87
Air conditioners	15.00
Refrigerators on trucks	2.56
Service of assembled equipment	23.27
Total Refrigeration Servicing	61.76
Total HCFC-22 Consumption	61.76
Manufacturing: Insulating Panels (HCFC-141b)*	7.26
Manufacturing: Solvents (HCFC-142b)*	3.00
Total Declared National Consumption (ODS tons)	72.02
Total Declared National Consumption (ODP tons)	4.39

*Anticipated to be discontinued by the end of 2010

3.4 Forecast of HCFC Consumption

The starting point for forecasting of HCFC consumption is the estimated 2009 consumption summarized in Section 3.3. The total consumption is 72.0 tons consisting of 61.76 tons of refrigeration servicing consumption and 10.3 tons of manufacturing consumption in the process of being discontinued by the end of 2010.

The forecast for consumption in the absence of Decision XIX/6 assumes that unconstrained growth in HCFC consumption occurs through to 2016 at which point it is assumed that a 2016 freeze would apply, as would have been the country's compliance obligation under the Copenhagen Amendment prior to the adoption of Decision XIX/6.

In general, the following rationale applies to the unconstrained growth forecasts presented for the 2010-2016 period. Firstly, it is assumed that 10.26 tons will be eliminated by the end of 2010 or throughout 2011. Secondly, sustaining consumption growth will be driven by growth in the bank of HCFC based equipment, primarily imported, with annual increase in this bank requiring servicing being reflected of the country's economic performance and anticipated market trends. A similar growth rate can be assumed for the local assembly and filling of refrigeration equipment based on imported components. It is also assumed that no significant change in the technology of choice would occur given that HCFC based equipment would likely remain the lowest price alternative and continue to be available from industrialized Article 5 country producers as would be the case for HCFC-22 required to service operating equipment. In making this assumption, it is recognized that in the same period it would be anticipated that Article 2 country markets for such equipment would increasingly be closed to HCFC equipment and non-ODS alternatives would generally start to become more readily available and competitive. However, this would be balanced by producing Article 5 countries redirecting established production of HCFC based equipment and products in the immediate future to smaller Article 5 countries at discounts as they fully convert to non-ODS alternatives required in their primary markets.

On this basis three unconstrained consumption growth scenarios were evaluated which effectively medium, high and low cases that would result from various assumptions related to overall economic growth in the country and the assessments of local experts on what consumption

increases may be in various sectors. The first utilizes official government economic growth projections, the second is based on consumption growth estimates of NOC experts and the third is based on current international economic growth projects for the country.

- *Official Government Economic Growth Projections:* The growth rates applied for 2010 through 2012 are based on the official Kyrgyz government's projections for GDP growth in the overall service sector, for the years 2010 through 2012¹⁰ and continues with the 2012 rate through to 2016. Recognizing the continued rapid growth of small domestic air conditioners, the rate applied is 1.5 times the official service sector GDP rate. These official rates are summarized below.

	2010	2011	2012
Real growth of GDP (%)	5.3	5.5	5.9
Service sector, %	7.3	7.5	8.1

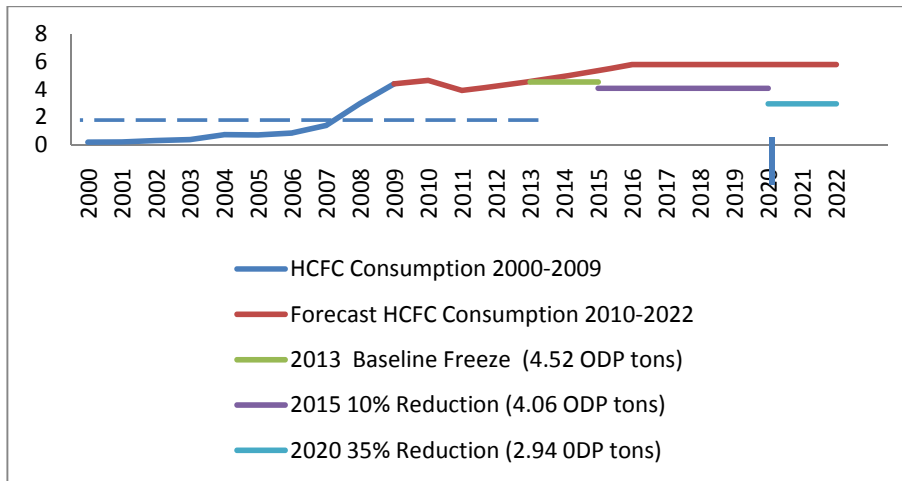
Table 3.4 below provides the base case consumption forecast based on the above. Figure 3.1 illustrates this projection graphically with the associated table illustrating the compliance deficit that would occur.

Table 3.4. Forecast HCFC-22 Refrigeration Servicing Consumption using Official GDP forecasts for the Service Sector

Equipment Application Category	Forecast HCFC-22 Consumption (MT)							
	2009	2010	2011	2012	2013	2014	2015	2016
Commercial refrigeration equipment with cooling capacity up to 3000 watt	11.06	11.80	12.69	13.72	14.83	16.03	17.33	18.73
Commercial/Industrial refrigeration equipment with cooling capacity above 3000 watt	9.87	10.59	11.38	12.31	13.30	14.38	15.55	16.81
Air conditioners	15.00	16.10	17.30	18.70	20.22	21.86	23.63	25.54
Refrigerators on trucks	2.56	2.75	2.95	3.19	3.45	3.73	4.03	4.36
Service of assembled equipment	23.27	24.97	26.84	29.02	31.37	33.91	36.65	39.62
Total Servicing Sector HCFC Consumption (ODS)	61,76	66,2	71,17	76,93	83.17	89.90	97.18	105.06
Short Term Manufacturing consumption (Foam and Solvent)	10.26	10.26	0	0	0	0	0	0
Total Consumption (ODS)	72.02	76.46	71.17	76.93	83.17	89.90	97.18	105.06
Total Consumption (ODP)	4.39	4.64	3.91	4.23	4.57	4.94	5.35	5.78

¹⁰ Government Resolution No. 257, dated 27.04.09, <http://www.stat.kg> , www.gov.kg, www.toktom.kg

Figure 3.1: HCFC Consumption Forecast assuming 2016 Freeze (ODP tons) Official Growth Rate



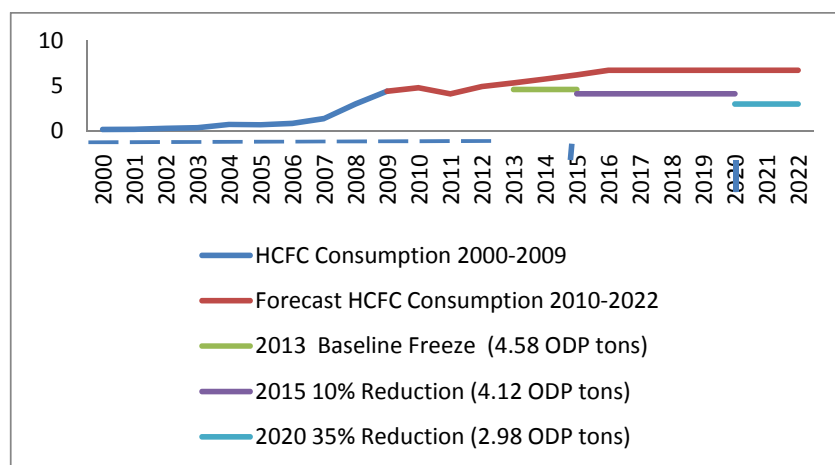
Year	09	10	11	12	13	14	15	16	17	18	19	20	21
HCFC Consump. (ODP)	4.39	4.64	3.91	4.23	4.57	4.94	5.35	5.78	5.78	5.78	5.78	5.78	5.78
MP Compliance (ODP)	n/a	n/a	n/a	n/a	4.52	4.52	4.06	4.06	4.06	4.06	4.06	2.94	2.94
Compliance Gap (ODP)	n/a	n/a	n/a	n/a	0.05	0.42	1.29	1.72	1.72	1.72	1.72	2.84	2.84
Compliance Gap (ODS HCFC-22)	n/a	n/a	n/a	n/a	0.90	7.64	23.45	31.27	31.27	31.27	31.27	51.64	51.64

- *NOC Expert Growth Rate Projections:* This scenario is based on local expert judgment developed through the survey process and reflecting trends observed within individual sectors applied in 2010-2012. These generally reflect greater increases in consumption, particularly related to air conditioning that has particularly high growth. These results are presented in Table 3.5 below. Figure 3.2 illustrates this projection graphically with the associated table illustrating the compliance deficit that would occur.

Table 3.5. Forecast HCFC-22 Refrigeration Servicing Consumption using NOC Projections based on Sub-Sector Trends

Equipment Application Category	Forecast HCFC-22 Consumption (MT)							
	2009	2010	2011	2012	2013	2014	2015	2016
Commercial refrigeration equipment with cooling capacity up to 3000 watt	11.06	12.53	14.25	16.20	17.51	18.93	20.46	22.12
Commercial/Industrial refrigeration equipment with cooling capacity above 3000 watt	9.87	10.77	11.80	12.84	13.88	15.00	16.22	17.53
Air conditioners	15.00	19.00	23.60	28.60	30.92	33.42	36.16	39.09
Refrigerators on trucks	2.56	2.90	3.20	3.45	3.73	4.03	4.36	4.71
Service newly assembled equipment	23.27	21.58	21.55	28.17	30.45	32.92	35.58	38.46
Total Servicing Sector HCFC Consumption (ODS)	61.76	68.78	74.40	89.26	96.49	104.31	112.75	121.91
Short Term Manufacturing consumption (Foam and Solvent)	10.26	10.26	0	0	0	0	0	0
Total Consumption (ODS)	72.02	78.04	74.40	89.26	96.49	104.31	112.75	121.91
Total Consumption (ODP)	4.39	4.78	4.09	4.91	5.31	5.74	6.20	6.71

Figure 3.2. HCFC Consumption Forecast assuming 2016 Freeze (ODP tons): Expert Growth Prediction



Year	09	10	11	12	13	14	15	16	17	18	19	20	21
HCFC Consump. (ODP)	4.39	4.78	4.09	4.91	5.31	5.74	6.20	6.71	6.71	6.71	6.71	6.71	6.71
MP Compliance (ODP)	n/a	n/a	n/a	n/a	4.58	4.58	4.12	4.12	4.12	4.12	4.12	2.98	2.98
Compliance Gap (ODP)	n/a	n/a	n/a	n/a	0.73	1.16	2.08	2.59	2.59	2.59	2.59	3.73	3.73
Compliance Gap (ODS HCFC-22)	n/a	n/a	n/a	n/a	13.27	21.09	37.82	47.09	47.09	47.09	47.09	67.82	67.82

- *International Economic Projection*: This scenario is based on international economic forecasts¹¹ with generally predicted lower growth rates than official government rates over the next 3 to 5 years. These results are presented in Table 3.6 below. Figure 3.3 illustrates this projection graphically with the associated table illustrating the compliance deficit that would occur.

Table 3.6. Forecast HCFC-22 Refrigeration Servicing Consumption using Conservative GDP Growth Rates from International References

Equipment Application Category	Forecast HCFC-22 Consumption (MT)							
	2009	2010	2011	2012	2013	2014	2015	2016
Commercial refrigeration equipment with cooling capacity up to 3000 watt *	11.06	11.11	11.44	12.02	12.74	13.50	14.31	15.17
Commercial/Industrial refrigeration equipment with cooling capacity above 3000 watt*	9.87	9.97	10.27	10.78	11.43	12.11	12.84	13.61
Air conditioners**	15.00	15.30	16.22	17.84	19.62	21.59	23.74	26.11
Refrigerators on trucks*	2.56	2.59	2.66	2.80	2.96	3.14	3.33	3.53
Service newly assembled equipment	23.27	23.50	24.21	25.42	26.94	28.56	30.27	32.09
Total Servicing Sector HCFC Consumption (ODS)	61.76	62.47	64.80	68.85	73.70	78.90	84.50	90.51
Short Term Manufacturing consumption (Foam and Solvent)	10.26	10.26	0	0	0	0	0	0
Total Consumption (ODS)	72.02	72.73	64.80	68.85	73.70	78.90	84.50	90.51
Total Consumption (ODP)	4.39	4.44	3.56	3.79	4.05	4.34	4.65	4.98

* Assume 1% 2010, 3% 2011, 5% 2012, 5% 2013, 6% 2014, 6% 2015, 6% 2016

** Assume 2% 2010, 6% 2011, 10% 2012, 10% 2013, 10% 2014, 10% 2015, 10% 2016

¹¹ World Bank Kyrgyz Country Office : Recent Economic and Policy Developments April 2009:

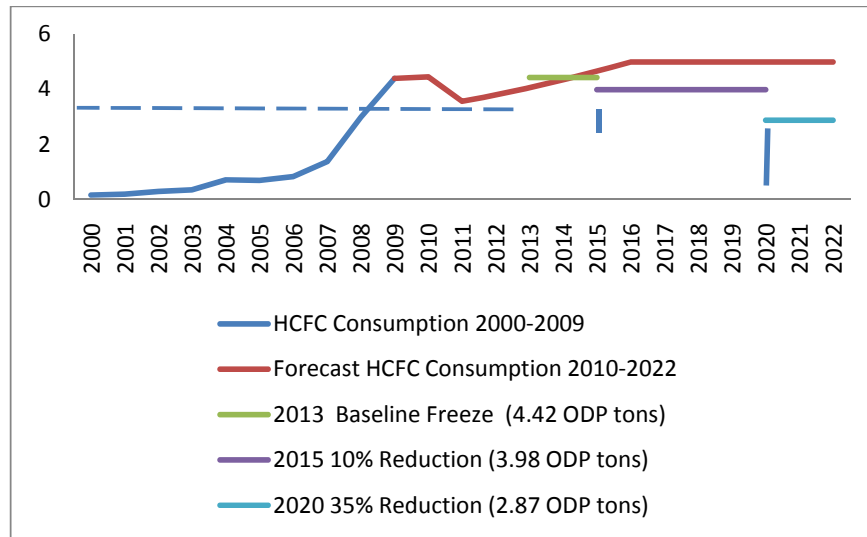
http://siteresources.worldbank.org/INTKYRGYZ/Resources/Econ_update_Apr09_eng.pdf

Business International Monitor: http://www.fdi.net/bmi/bmidisplay.cfm?filename=OEMO_20090527_260120_xml.html

IMF Regional Economic Outlook – Middle East and Central Asia

<http://www.imf.org/external/pubs/ft/reo/2009/mcd/eng/mreo0509.pdf>

Figure 3.3. HCFC Consumption Forecast assuming 2016 Freeze (ODP tons): Low Growth Prediction



Year	09	10	11	12	13	14	15	16	17	18	19	20	21
HCFC Consump. (ODP)	4.39	4.44	3.56	3.79	4.05	4.34	4.65	4.98	4.98	4.98	4.98	4.98	4.98
MP Compliance (ODP)	n/a	n/a	n/a	n/a	4.42	4.4.2	3.98	3.98	3.98	3.98	3.98	2.87	2.87
Compliance Gap (ODP)	n/a	n/a	n/a	n/a	(0.37)	(0.08)	0.67	1.00	1.00	1.00	1.00	2.11	2.11
Compliance Gap (ODS HCFC-22)	n/a	n/a	n/a	n/a	(6.73)	(1.45)	12.18	18.18	18.18	18.18	18.18	38.36	38.36

The results of these forecast scenarios show that the predicted base line (average of 2009/2010 consumption) is relatively insensitive to the forecast assumptions made, ranging from 4.42 to 4.58 ODP tons (80.4 to 82.2 ODS tons of HCFC-22). However, there is a significant variance in the amount of phase out that would have to be achieved under the various forecast scenarios.

The third scenario was used as the basis for predicting the baseline. The actual figures of HCFC consumption for 2010 will be reported by the country in due time.

3.5 Data Validation

The process of data validation was built into the survey work applicable to estimates of servicing consumption. The assumptions made for purposes of statistical analysis based on banks of equipment being checked for consistency by actual enterprise specific survey information that confirmed things like typical leakage rates (overall annual service demand). Consumption in manufacturing was validated by enterprise documentation on production and purchases of HCFCs. The comparison of overall consumption determined by the “bottom up” survey/statistical approach (72.0 tons) correlates well with the “top down” consumption implied by the import license/customs data information which was 67.3 tons). On a broader scale, it is also noted that estimates of Kyrgyzstan’s overall consumption of approximately 72 tons per year is generally consistent with current per capita consumption estimates available for a number of similar countries in the CIS region when normalized with GDP. The Table 3.7 below illustrates this.

Table 3.7: Consumption Per Capita Comparison for Similar CIS Countries

Country	Population ¹² (Millions)	GDP ¹³ US\$/ person	Estimated 2009 HCFC Consumption (ODS tons)	Consumption per Capita (Tons/Million)	Consumption per Capita per GDP Tons/Million/\$
Kyrgyzstan	5.24	951	72.02	13.6	0.014
Armenia	3.00	3,401	123.6	41.6	0.012
Tajikistan	6.74	741	64.8	9.6	0.013
Moldova	3.79	1,830	42.2	11.1	0.006

3.6 Availability of Alternatives

Non-ODS alternatives are commercially available for all current HCFC applications. The only potential exception is for some high capacity cooling applications such as installations with capacities of more than 3 kilowatt in the southern part of the country where summer temperatures are high. However, readily available commercial equipment alternatives generally use relatively high GWP HFCs. Currently the commercial availability of direct drop-in non-ODS replacements, specific various proprietary HFC blends is limited and no experience yet exists with their application. While it is anticipated that wider application of natural refrigerants in new equipment such as CO₂ and hydrocarbons will occur in the future these alternatives are not currently offered in the local market and, in the absence of targeted demonstration initiatives, this will likely occur only after these products are established in developed countries. All alternatives have affordability barriers either in terms of the capital cost of non-ODS equipment and the cost of refrigerant, or in some cases both. The Table 3.8 below illustrates representative local market price ranges for refrigerants in use currently, as well as international prices for a number of alternatives not currently available locally. Table 3.9 provides comparative prices for various common types of

¹² World Bank (<http://siteresources.worldbank.org/DATASTATISTICS/Resources/POP.pdf>)

¹³ IMF: World Economic Outlook Data Base, October 2008

equipment using HCFCs and alternatives

Table 3.8: Comparative Indicative Chemical Price Ranges* (US\$/kg)

CFC-12	HCFC-22	HFC-134a	HFC-404a	HFC-407c	HFC-410a	HFC-507a	R-600a	Ammonia
8-9	5-6	14-16	20-26	15-16	15-18	15-18	12.00 9.33*	1.00-2.00 5.40*

HCFC-141b	C-pentane	N-pentane	HFC-245a	Forane 427	R-422d	R-417a
6.00-7.00	2.75-3.30	1.95-2.20	8.90-9.60	17.00*	35.00*	51.00*

*EU Prices

Table 3.9: Comparative Indicative RAC Equipment Cost Ranges (US\$/Unit or System)

Equipment Description	HCFC	HFC	Other
Domestic Refrigerators (360 l)	n/a (HCFC-22)	200-1,000 HFC-134a)	200-1,000 (R-600a)
Split System A/C (3 kW)	230-370 (HCFC-22)	520-630 HFC-410a)	n/a
A/C units/Heat Pumps (5kW)	400-700 (HCFC-22)	630-890 HFC-410a)	n/a
Condensing Units (10-16 kW)	1,700-2,000 (HCFC-22)	2,300-2,800 (HFC-404a)	n/a
Cold Rooms (10-15 kW)	4,200-5,200 (HCFC-22)	5,000-7,000 (HFC-404a)	n/a
Chillers (120 kW)	16,000 (HCFC-22)	16,000 (any suitable HFC blend)	n/a

4.0 Strategy and Plan for Implementation of HCFC Phase Out

4.1 Strategy Framework and Rationale

The current situation respecting HCFCs in Kyrgyzstan described in Sections 2 and 3 above provides an estimated baseline, forecasts a range of scenarios in the absence of any action and suggests the priorities that need to be addressed to meet Decision XIX/6 phase out requirements.

In the absence of any action, Kyrgyzstan will have difficulty meeting its immediately pending obligations. While anticipated elimination of manufacturing consumption by 2012 will allow the country to meet or approach the 2013 freeze requirement at 2009/2010 consumption levels, the 10% reduction in 2015 would not be achievable without action as would subsequent reductions. Like most Article 5 countries with expanding economies, HCFC consumption has been growing rapidly over the past five years, and without active intervention it is forecasted to continue to do so at least until 2015 and potentially beyond. The predominant source of consumption is the growing bank of imported HCFC based refrigeration equipment, mainly in the air conditioning sector and heavily biased to relatively small units being extensively used in domestic, commercial and institutional applications globally. The compounding impact of the continued import of such equipment and resulting growth in refrigeration servicing demand if unrestrained is the main driver in the forecast growth of HCFC consumption in the country. Additionally, a significant contribution to sustaining annual consumption is also being made by the servicing of locally assembled and installed RAC equipment using imported components by larger refrigeration servicing firms.

Kyrgyzstan's proposed strategy contemplates an HCFC phase out schedule in line with the Decision XIX/6 requirements. This will effectively target reaching the freeze and 10% reduction of baseline phase out level by 2015.

Utilizing the baseline defined by the low growth forecast scenario presented in Table 3.6 and Figure 3.3 (4.42 ODP tons), the following provides the targeted schedule of consumption phase out that the country will commit to in this HPMP. An underpinning assumption in this schedule is all consumption in the manufacturing sector, specifically for foam blowing and solvent use will have been terminated by 2012. This will be supported by a ban on the import of HCFC based fully formulated polyol) effective January 1, 2012.

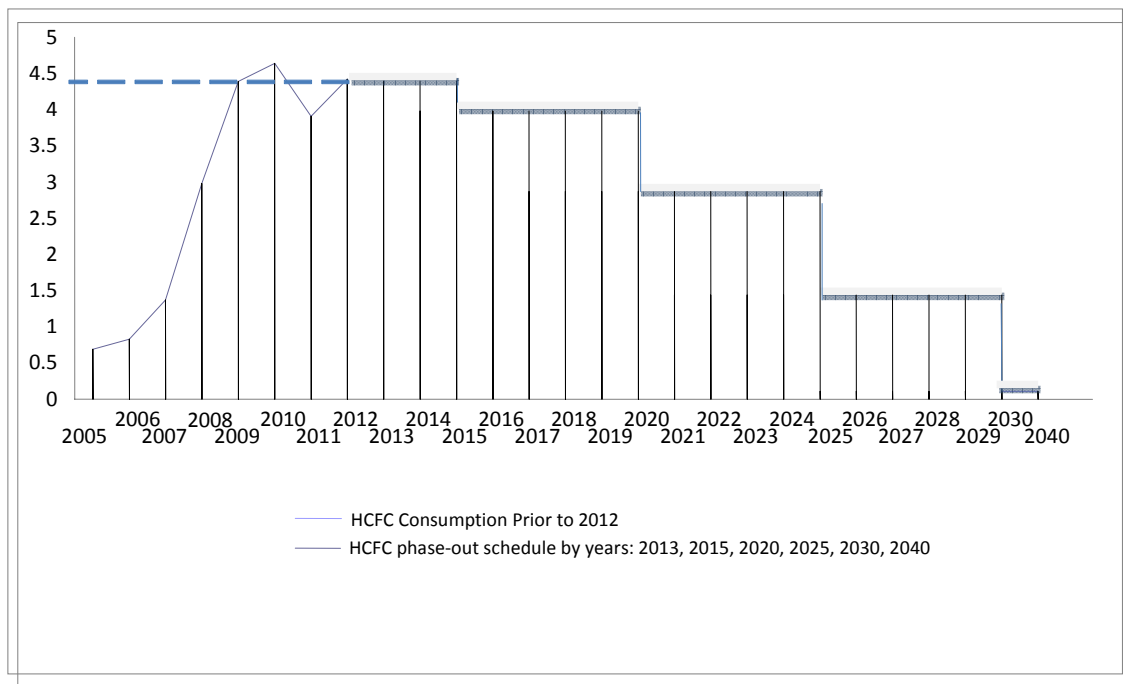
The overall strategic objectives associated with the HPMP in Stage 1 and Stage 2 are:

1. Stage 1: To rapidly stabilize and initiate reduction in current HCFC consumption over a three year period to a projected baseline level forecast to be approximately 4.42 tons ODP (80.4 tons HCFCs-22) by 2013 and reduce this to 3.98 tons ODP (72.3 tons HCFCs-22) by 2015.

2. Stage 2: To sustain the progressive reduction in consumption reduction to a level of 2.87 ODP (52.2 tons HCFC-22) in 2020, 1.44 ODP tons (26.1 tons HCFC-22) in 2025 and effectively zero in 2030¹⁴.
3. To the maximum degree practical utilize technologies that minimize climate change impacts.
4. To accomplish the above in such a way as to minimize economic and social impacts, particularly in vulnerable sectors and portions of the population.

Figure 4.1 below provides a graphical representation of this phase out schedule.

Figure 4.1: HPMP Strategy Target Compliance Graph (ODP tons)



While the application of import quotas on HCFC-22 and a ban on other HCFC imports starting in 2012 will be the underpinning implementation measure for this strategy, it is also recognized that to be credible the strategy must incorporate other regulatory, capacity strengthening and investment measures. In general, these measures need to target the stabilization and progressive reduction of HCFC servicing demand that otherwise will grow. As detailed in the HPMP action plan described in Section 4.2 below, this should include such things as enhancing customs control capacity, training of refrigeration technicians, and initiating the strengthening of the national refrigerant management system.

In addition to a primary focus on HCFC phase out, the HPMP strategy should also be aligned with and reinforce broader global environmental priorities related to climate change and sound chemicals management. Minimizing climate change impacts as part of HCFC phase

¹⁴ A 2.5% allowance (3.11 tons of HCFC-22) is contemplated as a RAC servicing allowance.

out will generally involve refrigerant management practices contributing to overall reduction of refrigerant emissions both from HCFC equipment and high GWP alternatives based on HFCs. As is the case of most small Article 5 countries, Kyrgyzstan is in the position that the urgency of immediate action to arrest HCFC consumption growth and initiate phase out in a short period will tend to favor adoption of fully commercialized non-ODS alternatives that are readily available in the local market. This will tend to mean that in the near term during Stage 1, HFC based technologies with relatively high GWP refrigerants will be utilized. This effectively mirrors the current experience in advanced non-Article 5 countries. Despite this, the continuing upgrading of refrigeration servicing capacity and associated regulatory measures, the strategy's emphasis in this area capitalizes on the linkage between improved maintenance and recovery practice with lower leakage rates (hence GHG emissions) and improved energy efficiency.

4.2 Description of HPMP Action Plan and Activities

The following section details the proposed HPMP action plan and its component activities for Stage 1 consistent with the above overall strategy and as designed meet the phase out targets being committed to through its adoption by the government. For purpose of presentation and defining a funding framework, the action plan is subdivided into three components: i) legal and regulatory action; ii) technical capacity strengthening through training of Customs and refrigeration technicians; and iii) investment. However, in doing so, it is recognized that there is a high level of interdependence between them and the individual activities that they encompass. This will be addressed further in Section 4.4 under project coordination and management. For reference in addressing timing, Section 4.2.5 and Annex 4.4 provide an overall schedule for HPMP action plan implementation.

In future phases of the HPMP (2015-2030), the country would also plan additional activities to continue strengthening the capacity and investing in improvements of the refrigerant management capability.

In the subsequent stages of HPMP implementation, it would be planned to expand the work on regulatory measures in support of the continued effort to strengthen the development and implementation of the HCFC refrigerant management plan. Depending on the efficacy of the currently proposed measures in Stage 1 and also in the overall context of the investment component, potential introduction of additional regulatory measures to control:

- (a) imports of used HCFC equipment;
- (b) imports of HCFC based domestic A/C equipment;
- (c) imports and installation of new large commercial HCFC A/C equipment;
- (d) the use of non-refillable containers.

In addition, additional activities such as proposed for the capacity strengthening in the Stage 1 of HPMP would be further planned in phases after 2015. These include:

- (-) Additional staged trainings of technicians in best practices;
- (-) Additional staged trainings of Customs officers with supply of identifiers and improvement of Customs administrative procedures.

Furthermore, in order to assist the country with further development and implementation of the HCFC refrigerant management plan, in the investment part of HPMP, the following activities would be planned:

- (-) Expansion of basic refrigeration tool supply for qualified technicians in the servicing sector (upgraded capacity);
- (-) Establishment of HCFC reclaim and improvement of HCFC recycling and re-use capacity;
- (-) HCFC equipment retrofit/replacement programme based on end-user incentives;
- (-) Upgrading of HCFC distribution infrastructure;
- (-) Strengthening end-of-life HCFC storage infrastructure;
- (-) ODS waste destruction;
- (-) Continued monitoring of activities.

More detailed information on such future initiatives is presented in Annex 4.1 and Annex 4.2 respectively.

4.2.1 HPMP Component 1: Legal and Regulatory Action (UNEP)

As described in Section 2, Kyrgyzstan has developed a basic legal and regulatory framework in place for the control of ODS which underpins maintaining compliance with its current obligations under the MP. However, to meet HCFC phase out obligations this will require enhancement and expansion. At the same time, it is also recognized that this is not an instantaneous process and cannot be done arbitrarily, particularly when they may have significant social and economic implications, as well as the need to align them with overall government policy. Therefore the action plan in each case includes provision for appropriate consultation and awareness activities in advance of adoption and on an ongoing basis to ensure they are fully implemented. Finally, the approach taken has utilized the guidance material prepared by UNEP DTIE related to HCFC policy and legislative options¹⁵ and experiences in exercising such controls applied in EU countries.

In the following, the various measures identified as being required are described along with the considerations required in the process of developing them in detail.

a) Legal and Regulatory Commitments

- i) *Sub-Component 1.1- Application of Import Quotas on HCFCs:* The highest priority is to establish the legal basis for application of a fixed upper limit on the amount of HCFC

¹⁵ http://www.unep.fr/ozonaction/topics/hcfc_legislation.htm

that can be imported into the country in 2012, 2014, 2019, 2024, 2029 and 2039 consistent with adopted phase out strategy described above. These numbers will not be established until official consumption figures are determined for 2009 and 2010 but based on the analysis in Section 3, the 2012 freeze level is conservatively estimated to be 4.42 tons ODP (80.4 ODS tons HCFC-22) and be reduced in accordance with the schedule above. With the endorsement and submission of this HPMP, the government is signaling its commitment to the principle of imposing these quotas with the adoption of specific numbers being left to announcing them when in 2011 they are specifically determined. Doing this as soon as possible is important for two reasons. The first is that it demonstrates the government's commitment to meeting the phase out schedule. The second is that it provides an early signal to users, manufacturers, importers and refrigeration service providers that the current consumption trends will have to stop and their proactive participation in the process is in their interests.

- ii) *Sub-Component 1.2- Introduction of ban on the import and or use of HCFC-141b contained in the pre-blended polyol systems:* In order to give substance to the underpinning assumption that the HCFC used in the country after January 2012 are HCFC-22 for refrigeration servicing, the ban on import of all other HCFCs including HCFC based fully formulated polyol to be consistent with ExCom Decision 61/47¹⁶ will come into effect as of that date along with the above freeze on HCFC-22 imports at the baseline level.

- iii) *Sub-Component 1.3- Expansion of the Import Licensing System for ODS Transit Transactions and for Provision of Mandatory Legally Binding Prior Informed Consent (PIC) procedures respecting the Import of ODS including HCFCs:* A critical issue is increasing the effectiveness of import controls recognizing that Kyrgyzstan shares borders with a number of potential transient states and China which is the primary producer of HCFCs and HCFC containing equipment. It is intended that a mandatory step in the licensing system now in place will be completion of PIC procedures involving notification by the exporting country and clearance of Kyrgyzstan prior to issuing of licenses and the actual entry of material into the country. This will encompass transit transactions. It is intended that this be in place so that it can support the application of import quotas as of January 1, 2012.

b) Possible Additional Longer term Legal and Regulatory Measures

Additionally, potential supplementary measures as described below may be added to the HPMP action plan depending on the compliance performance achieved as phase out progresses. This also assumes that there is timely availability of required financial resources to support their development and implementation, and that they are acceptable to the Government within its overall policy priorities.

¹⁶ <http://www.multilateralfund.org/files/61/6158.pdf> (Page 30/31)

- i. *Refrigerant Management Regulations:* In support of an upgraded refrigeration servicing system, the progressive adoption of strict refrigerant management regulations applicable to larger installations could be pursued, using the EU practice adopted for HCFC containing equipment and most recently for F-gasses, particularly HFCs. This would require registration of installations, mandatory log books being maintained detailing servicing history, banning of venting of refrigerant, and qualification requirements imposed on technicians servicing the equipment. The timing of implementing these measures would be dependent on progress upgrading refrigeration servicing capacity within an overall refrigerant management system, and recognizing the administrative and enforcement intensity of implementing such measures would be subject to having resources available to pursue it.

4.2.2 HPMP Component 2: Technical Capacity Strengthening (UNEP)

The ability to develop, implement and sustain the legal and regulatory measures described above will be dependent on having the institutional and technical capacity to support them. Similarly such capacity is very closely linked and highly interrelated with the incremental investment identified to support HCFC phase out in the next section. For purposes of the HPMP, capacity strengthening has been divided into three components; i) import control capacity; ii) refrigeration servicing human resource capacity; and iii) monitoring of activities.

The additional details are provided in Annex 4.1.

- i) *Sub-Component 2.1-Import Control Capacity/Prevention of Illegal Trade:* A key target of the HPMP strategy is ensuring the integrity of the current system of licensing and import controls that have proven quite effective notwithstanding deficits in training and equipment resources. The emphasis is proposed to be on ensuring that the capacity of the State Customs Committee and State Environmental Inspectorate is maintained and upgraded as required to address the increased demands associated with HCFC phase out and the risks of illegal trade. More specifically, this would accommodate both the need for continuing training of new entry personal as well as refresher training.

To date training programs for customs officials has been undertaken with 326 customs officers receiving basic training and 31 detection devices being supplied. Based on a total current complement of 700 front line customs officers located at 67 entry points and 2 in-country custom houses, the training coverage has been 40 %. Given the high turnover of front line customs officers, the process has to be repeated regularly as well, something that the NOC undertakes upon request as part of entry level staff and refresher courses undertaken by the State Customs Committee. However, there is a need to establish this process on a more permanent basis to ensure it is sustainable.

The approach proposed is focused on three specific areas:

- Expanding the level of coordination between the NOC and customs authorities respecting: i) methodologies where by customs codes can better discriminate between and among those items of specific interest (i.e. HCFC chemicals, HCFC containing equipment/products) and other imports; ii) preparation of practical instructions on labeling and designations of items being controlled; iii) development of streamlined reporting and information exchange procedures; and iv) evaluation of trends in imported HCFC based equipment/products for statistical purposes.
- Initial program of training of present front line customs and environmental enforcement officers to upgrade both their knowledge level and effectiveness.
- Development and implementation of more formal curriculum modules for customs and environmental enforcement officer training, both entry and renewal, to be embedded in the customs and environmental authority's training institutions and programs, inclusive of "train the trainers" activities, supply of Russian language course materials, and demonstration equipment.

The first training priority will be training of existing front line customs and environmental enforcement officials in two phases starting in 2011 and again in 2012 as the various import and application controls are prepared and come into force in 2011-2012. The development of a sustainable ongoing training capacity will start with development work in 2011 and be targeted for implementation on an annual basis in 2012.

Under Stage 1 of HPMP, it is proposed to organize the training of up to thirty (30) customs and environmental officers.

- ii) *Sub-Component 2.2-Refrigeration Servicing Human Resource Capacity:* This sub-component recognizes the importance of sustaining the established training and certificate system and ensuring that is upgraded to deal with HCFCs and alternatives that will be introduced, including natural refrigerants. The most basic requirement is to ensure capacity to maintain and service the current bank of HCFC containing equipment to a reasonable standard of practice. The need for improved practices is reflected in relatively high overall leakage rates something that is a direct result of maintenance and refrigerant recovery practices. This specifically relates to achieving a higher standard of servicing practice in terms of HCFC recovery and equipment maintenance, something that is directly linked to availability of enough skilled technicians operating with modern equipment and tools. Currently, the estimated number of active technicians is 150 working directly for end users and organized service enterprises with 500 being individual operators, many with limited training. Recognizing the annual replacement requirement of approximately 150 technicians per year, it is also imperative that the current good capacity to continuously train both existing and new technicians be maintained.

Generally, the capacity strengthening would require the following activities which are essential for the country:

- Initial refresher training for existing qualified technicians with emphasis on HCFCs and modern maintenance and refrigeration management practices.
- Upgrade nationally supported formal entry level and refresher refrigeration training capacity specifically for management of HCFCs and alternatives.
- Support to strengthen the refrigeration association with sustaining capability to act as a technical information dissemination vehicle, focal point for international networking on alternatives and modern practice and ongoing training facilitation.

At this stage, it is proposed to organize the training of up to 30 refrigeration technicians.

iii) *Sub-component 2.3. - Monitoring of activities:* The role of UNEP is to provide technical assistance and further guidance towards successful implementation of the non-investment component of HPMP. Under the non-investment component of HPMP, there are two sub-activities to be implemented. Implementation of these sub-activities involves constant interaction with the concerned stakeholders, periodic dialogue on issues and concerns and evolving schemes for implementation. Expected results from the monitoring and review include the following:

- Provide focused attention on timely implementation of non-investment components of HPMP.
- Periodic interaction with the stakeholders on HPMP non-investment implementation modalities.
- Review of effectiveness of implementation of sub-components through surveys.

4.2.3 HPMP Sub-Component 3: Investment Project (UNDP)

The investment component of the HPMP has been designed in line with the above strategy and is entitled “*Initial development of HCFC Refrigerant Management System*”.

i) *Sub-Component 3.1 – Initial Development of HCFC Refrigerant Management System:*

This principal, priority investment component addresses the physical capacity requirements associated with the urgent need to upgrade the country’s refrigeration servicing capability:

- The initial focus during phase 1 would be on ensuring that additional refrigerant recovery equipment and tools are supplied. At present it is estimated that 50 % of the qualified technicians are adequately equipped and have some access to basic recycling capability. This sub-component would target an initial incremental increase in the coverage of technicians with tools to the extent allowed by the funding available. In making these investments it is recognized that a close linkage exists to Sub-Component 2.2 through training and certification initiatives. It will also need to be

subject to economic viability assessment and strict monitoring of equipment supply and its ultimate utilization.

The details of this component are further explained in Annex 4.2.

4.2.4 Climate Change and Sound Chemicals Management Considerations

As noted above in the presentation of the HPMP strategy framework, integration of consideration of broader global environmental issues, namely climate change, is a part of this framework. Consistent with the direction provided in Decision XIX/6 and subsequent ExCom guidance this particularly relates to climate change, the description of the action plan above notes where these linkages exist. The following summarizes a number of specific aspects that potentially could be incorporated into the implementation of this HPMP which link to climate change:

- Involvement of authorities responsible for climate change policy as key institutional stakeholders
- Potential introduction of refrigerant management regulations that would extend to HFCs

4.2.5 HPMP Action Plan Timetable

The overall timetable proposed for implementation of the HPMP is provided in Annex 4.4. It is based on submission of the HPMP in 2010 and subsequent approval for the core non-investment funding that is understood to be contemplated for basic HPMP implementation. The committed legal and regulatory actions will be developed in 2011 and implemented starting January 1, 2012 with others being initiated based on phase out progress. Priority technical and capacity building will be initiated in 2011/12 and continue throughout HPMP implementation. The preparatory investment activities will also begin in 2011/12 for upgraded refrigerant recovery capability.

4.3 HPMP Incremental Cost Estimate

This Section provides the overall estimate of incremental cost associated with implementing of the HPMP Action Plan as capped by the Decision 60/44. A comprehensive layout of the activities with associated costs is provided in Annex 4.3.

The costs are divided into two categories:

Cost Category 1: Non-Investment Activities (US\$ 35,200 in MLF funding)

- *Part 1.1 - Basic Non-Investment Activities:* This covers what would be considered costs required for a maintenance level of attention to HPMP phase out in terms of achieving immediate compliance objectives but without addressing the needs to ensure that capacity would be sustainable. US\$ 35,200 in MLF funding will be requested for this component distributed between legislation/regulatory development, customs training, refrigeration servicing training, and monitoring.
- *Part 1.2 - Supplementary Non-Investment Activities:* This would be considered in light of the need for supplementary regulatory actions to backstop the refrigerant management norms.

Cost Category 2: Investment Projects (US\$ 52,800 in MLF funding)

As discussed in Section 4.2.3 this principal investment section will address the physical capacity requirements associated with the urgent need to upgrade the country's refrigeration servicing capability and will be closely coordinated with the basic non-investment component to be implemented by UNEP.

4.4 Project Coordination and Management

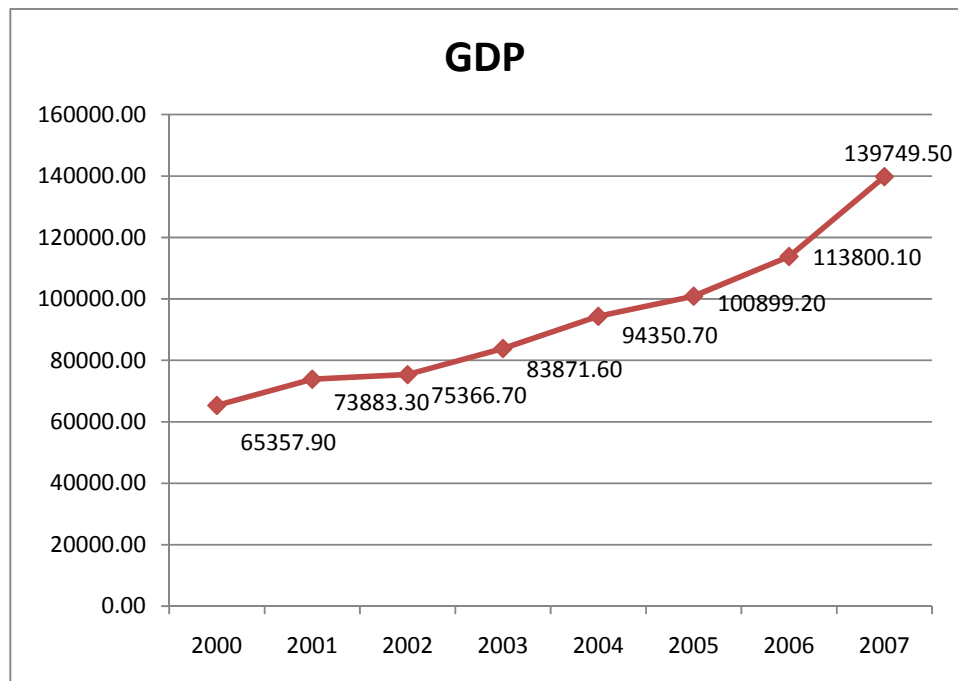
The Kyrgyz Republic has demonstrated experience in the successful implementation of its Country Programme to date. The capacity that has undertaken this within the Government, specifically the National Ozone Centre, operating under the direction of the Interdepartmental Commission on Ozone Issues will continue to act as the focal point for HPMP project coordination and management. This activity will be directly undertaken by experienced project managers acting under the direction of the Head of the NOC who also acts as the national focal point on Montreal Protocol and various international bodies involved with its implementation globally. As described above the work will be undertaken with a high level of stakeholder consultation both with various government agencies and with external stakeholders and the general public.

Implementation will be undertaken under the continued supervision of Interdepartmental Commission on Ozone Issues. It will involve UNDP acting as the lead implementing agency throughout the HPMP and supervising the project's investment component. UNEP will act as

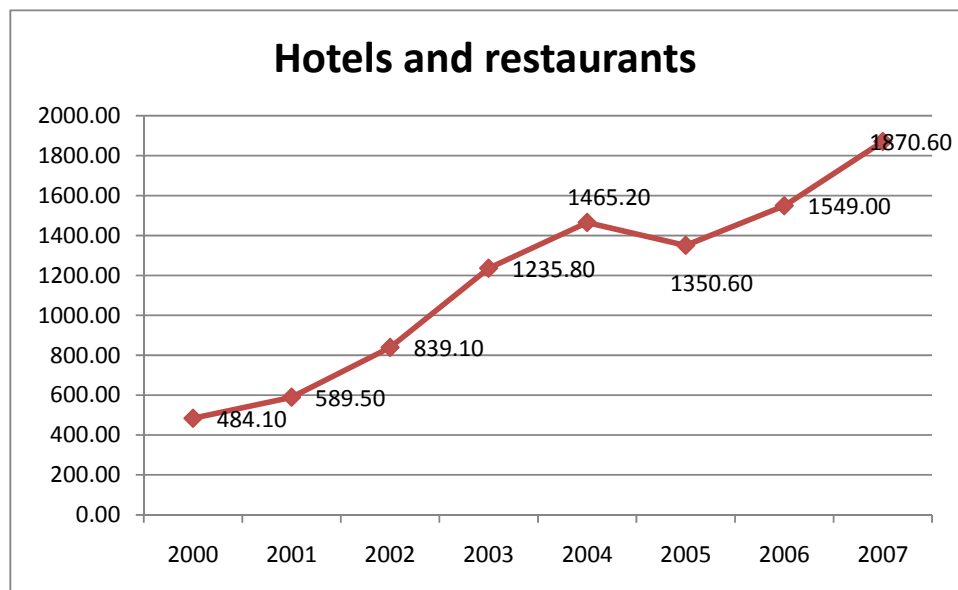
a supporting implementing agency for non-investment activities associated with legislation and technical capacity strengthening. These agencies will utilize the established procedures governing procurement, financial management, reporting and monitoring of the relevant implementing agency and international funding facilities, specifically the MLF. Implementation will be further supported by various administrative and service bodies within the government, international and national consultants, suppliers of equipment and services, and beneficiary enterprises.

Annex 1.1: Diagrams of GDP Dynamics of for Kyrgyz Republic
(Data in national currency is provided by National Statistics Committee of the Kyrgyz Republic)

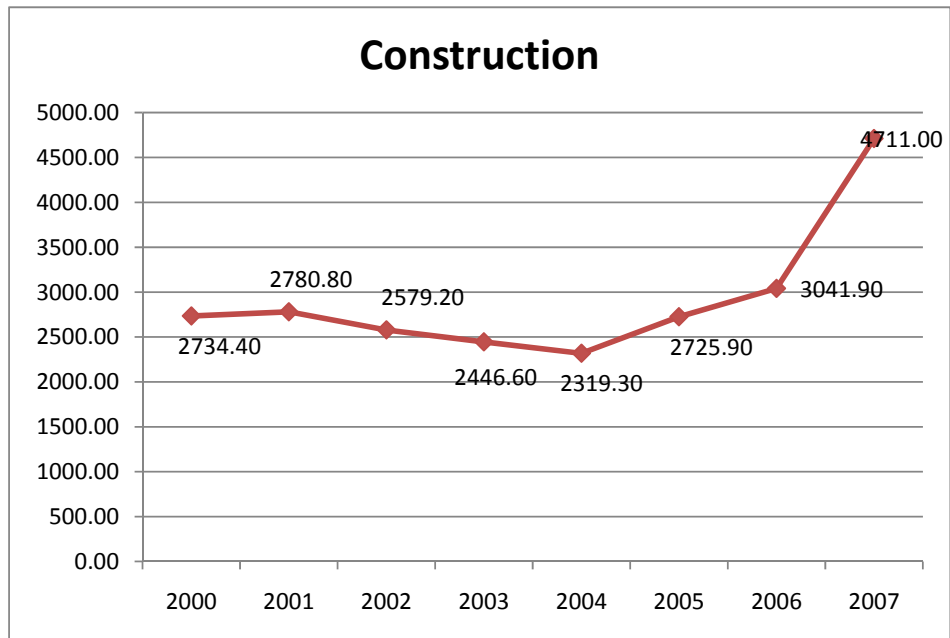
1. GDP of the Kyrgyz Republic



2. GDP by sectors: Hotels and Restaurants



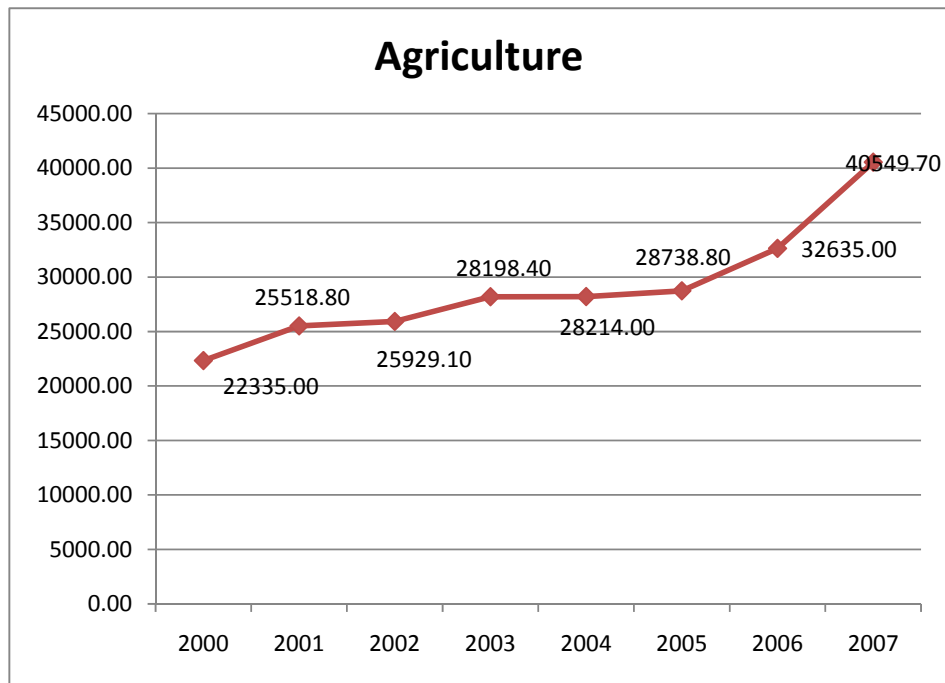
3. GDP by sectors: Construction



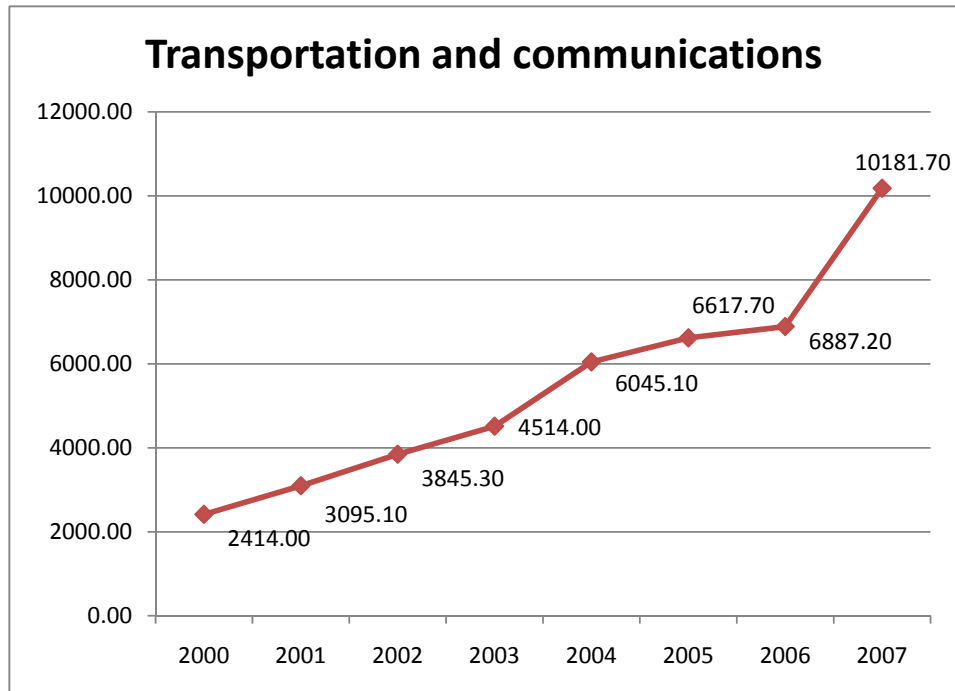
4. GDP by sectors: Trading



5. GDP by sectors: Agriculture



6. GDP by sectors: Transportation and communication



Annex 1.2: Listing of Information Products, Publications, Technical Guidance Documents, educational Initiatives and Awareness Events Undertaken

1. Brochure “Problems of ozone layer protection”
2. Publication “Normative legal document of Kyrgyz Republic on ozone layer protection”
3. Media information message “Problems of ozone layer protection”
4. Brochure “ UV impact on human health”
5. Brochure “Ozone layer protection: contribution of travel industry”
6. Educational Workbook “To teacher – about ozone layer of the planet”
7. Brochure “20 questions and answers. Scientific assessment of the problem of ozone layer protection”
8. Brochures “Breath better saving the planet” in Russian and Kyrgyz languages
9. Posters “Ozone layer and its protective role”, “Ultraviolet radiation and its impact on living organisms”
10. Brochure “Introduction of methyl bromide alternatives in Kyrgyz Republic”
11. “Handbook for technicians on introduction of modern practices of servicing refrigerators”
12. Booklet “Methyl bromide alternatives”
13. “Handbook on training mechanics on modern methods of servicing the mobile auto conditioners”
14. Brochure “Halon phase out”
15. Brochure “Ozone layer”
16. Bulletin “Protection from harmful solar radiation”
17. Postcards in Russian language devoted to 20-th anniversary of Montreal protocol “No ozone depleting substances”
18. Informative brochure “Play safe on the sun”
19. “Save yourself from the sun” for school children of 5th grade
20. Publication Book by Babakin B.S. “Oil and refrigerants”
21. “Handbook for beginners-technicians”
22. “Handbook on auto conditioners servicing”
23. Brochure “Report on refrigerators” in Russian language

Annex 2.1: Summary of ODS Related Legislation, Resolutions, Regulations, Endorsements and Lists of Controlled ODS and ODS Containing Products

Name	Issuing Authority/Instrument	Date	Content Summary
“On immediate measures for implementation of the Vienna Convention and the Montreal Protocol”	Government Resolution No. 552	06.09.2000	Approval of accession of the Montreal Protocol and London Amendment to become a Party to the Montreal Protocol.
“On the Country Program for Phase-out of ODS”	Government Resolution No. 263	29.04.2002	Endorsement of the Country Program for the period 2005-2007 defining measures to be undertaken to implement commitments under the MP, facilitating the designation as an Article 5 country, establishing eligibility for MLF funding, and establishment of the NOC and Inter-departmental Commission.
“On amendments to the Resolution of Government No. 552”, 25.11.2004, No. 860	Government Resolution No. 860	25.11.2004	Resolution 552 approved Regulation on state control import and export of ODS and productions, Resolution 860 made amendments and additions to the Resolution 552 (separate points expired, a ban on import and export of MP Annex A ODS and equipment/products containing them.
“On protection of the Ozone Layer”	Law of the Kyrgyz Republic No. 206	18.12.2006	Overall legal authority for national application of control measures respecting ODS: - State agency on environment protection and forestry, - Ministry of economic development, - State Customs Committee
“On Amendments to the Administrative Code”	Law of the Kyrgyz Republic No. 64	24.04.2008	Article 181-1 assigns responsibility for non-fulfillment of measures directed to phase out environmentally harmful chemicals, particularly ODS.
“On termination of use of ODS”	Government Resolution No. 374	11.07.2008	Approves amended country program for period 2006-2010 and the structure/membership of the Inter-Departmental Commission. Introduces ban effective 01.09.08 on import of methyl bromide and halons. Mandates publication of mandatory future ODS phase out dates.

Name	Issuing Authority/Instrument	Date	Content Summary
“On ratifying the Regulation on state regulating import and export of ODS and ODS containing production”	Government Resolution No. 594	19.09.2009	Import/export of ODS (List A, B, C, E) and ODS-containing products (List D) are subject of licensing
“On annual import quotas of ODS”	The letter of the State agency on environment protection and forestry under the Government of Kyrgyz Republic	At the beginning of the year prior to 2009	Establishes quotas for import of CFCs and CFC containing equipment Establishes quotas on import of CFC and is directed to the Ministry of Economic Development and State Customs committee
On ban on import of CFC from the 1 st January 2010	The letter of the State agency on environment protection and forestry under the Government of Kyrgyz Republic	At the end of 2009	Bans CFC and CFC containing equipment imports after 2009 Ban on import of CFC from the 1 st January 2010.

Annex 3.1: Survey Form

QUESTIONNAIRE

For companies, enterprises that use ODS in manufacturing process

Name of company: Address/phone/fax

Name of manager/director: _____

Date of establishment:

Short description of production:

How ODS is applied/ used:

Parts of ownership: (governmental - %, public - %, private - %, foreign - %)

Markets, production is supplied to: Kyrgyzstan - %
Other countries - %

Quantity and type of ODS used:

Name of substance	2004	2005	2006	2007	2008
1. Consumption of HCFC (____) for manufacturing of new refrigeration equipment. Direct consumption, including: <ol style="list-style-type: none"> 1. Commercial refrigeration equipment, refrigeration capacity up to 3000 watt 2. Industrial refrigeration equipment, refrigeration capacity over 3000 watt 3. Air conditioners - domestic (window, split-systems); - commercial; - industrial. 4. Chillers 5. Other 					
2. Consumption of HCFC for planned precautionary maintenance (servicing) Service consumption, including: <ol style="list-style-type: none"> 1. Commercial refrigeration equipment, refrigeration capacity up to 3000 watt 2. Industrial refrigeration equipment, refrigeration capacity over 3000 watt 3. Air conditioners - domestic (window, split-systems); - commercial; - industrial. 4. Chillers 5. Other 					
3. Production of foam insulating Direct consumption, including: <ol style="list-style-type: none"> 1. Commercial refrigeration and technological equipments 2. Industrial building and assembly constructions 3. Others 					

4. Fire fighting equipment Direct consumption, including: <input type="checkbox"/> Filling of new fire extinguishers, fire fighting systems <input type="checkbox"/> Service consumption <input type="checkbox"/> Refilling of fire extinguishers, fire fighting systems					
5. Solvents Direct consumption, including: <input type="checkbox"/> Application for cleaning of machines, systems, parts, chemical cleaning of clothes					
6. Aerosols Direct consumption, including: <input type="checkbox"/> Filling of cylinders and vessels in the capacity of propellant					

2. Details:

Description of workrooms and operations

In relation to substances, indicated above, your organization is:

Importer of ODS?

User of ODS (Manufacturer and servicing sector)?

Suppliers and country of origin of substances

Predictable import / consumption till 2015

Substance	2009	2010	2011	2012	2013	2014	2015
HCFC-22							
HCFC-141b							
HCFC-142b							
other							

2. Management of ODS

Quantity of products, generated as waste, tons per year.

Quantity of substances, undergoing recycling, tons per year.

3. Impacts, as result of ODS phase-out.

Information about alternatives to ODS used and their availability.

**Annex 4.1: Legal and Regulatory Commitments,
Technical Capacity Strengthening and Monitoring (UNEP)**

This covers what would be considered funding required for a maintenance level of attention to HCFC phase out in terms of achieving the immediate compliance objectives and addressing the needs identified that would ensure sustainable institutional and technical capacity. MLF funding will be distributed between:

- (-) legislation/regulatory development,
- (-) Customs&environmental officer training/ Training in the refrigeration sector, and
- (-) Monitoring of non-investment components.

Implementing partner: UNEP
 Implementation period: 2011-2014
 Costs: US\$ 35,200 MLF Funding

Budget:

Budget Item	Cost on US\$ (Stage 1)
Development of the legislation system	
National legislation experts	3,200
Sub-total	3,200
Customs/ environmental officer training	
Training (Stage 1: 30 @ US\$250/trainee)	7,500
TA in information exchange, customs codes, labeling standards	5,000
Sub-total	12,500
Training in the refrigeration sector	
Technician Training in the refrigeration sector (Stage 1: 30 @US\$250/trainee)	7,500
TA on training program, training materials	5,000
Sub-total	12,500
Monitoring	
Monitoring experts	7,000
Sub-total	7,000
Total cost for UNEP's components	35,200

Future phases

In the subsequent stages of HPMP implementation, it would be planned to expand the work on regulatory measures in support of the continued effort to strengthen the development and implementation of the

HCFC refrigerant management plan. Depending on the efficacy of the currently proposed measures in Stage 1 and also in the overall context of the investment component, potential introduction of additional regulatory measures to control:

- (a) imports of used HCFC equipment;
- (b) imports of HCFC based domestic A/C equipment;
- (c) imports and installation of new large commercial HCFC A/C equipment;
- (d) the use of non-refillable containers.

In addition, additional activities such as proposed for the capacity strengthening in the Stage 1 of HPMP would be further planned in phases after 2015. These include:

- (-) Additional staged trainings of technicians in best practices;
- (-) Additional staged trainings of Customs officers with supply of identifiers and improvement of Customs administrative procedures.

Annex 4.2: Initial Development of HCFC Refrigerant Management System (UNDP)

The initial focus would be on ensuring that a limited number of qualified technicians is equipped with recovery equipment along with supporting tools and leak detection equipment.

The following standard servicing equipment will be considered:

- ⇒ Vacuum pumps
- ⇒ Manifolds, gauges and standard hoses (HCFC, HFC, and HC)
- ⇒ Portable leak detectors
- ⇒ Thermometers and servicing tools
- ⇒ Re-usable refrigerant charging cylinders
- ⇒ Portable Recovery Machines capable of handling HCFCs and HFCs
- ⇒ Spare parts

The project component will be closely linked to and coordinated with the planned training of technicians contemplated in UNEP's component. Once the trainings have been accomplished, qualified technicians will be allocated with equipment sets.

In this component, a national expert will be hired to help the National Ozone Unit in implementing this program.

Implementing Partner: UNDP
Implementation Period: 2011-2014
Cost: US\$ 52,800 MLF Funding

Budget:

Budget item	Cost in US\$
Basic equipment for recovery and tools (and freight)	42,800
National expert	10,000
Total	52,800

Future phases:

In the timeframe after 2015, in order to assist the country with further development and implementation of the HCFC refrigerant management plan, in the investment part of HPMP, the following activities would be planned:

- (-) Expansion of basic refrigeration tool supply for qualified technicians in the servicing sector (upgraded capacity);
- (-) Establishment of HCFC reclaim and improvement of HCFC recycling and re-use capacity;
- (-) HCFC equipment retrofit/replacement programme based on end-user incentives;

- (-) Upgrading of HCFC distribution infrastructure;
- (-) Strengthening end-of-life HCFC storage infrastructure;
- (-) ODS waste destruction;
- (-) Continued monitoring of activities.

The details of such components will be elaborated in detail at future stages of HPMP; however, some preliminary details are provided in the sections below.

Upgraded refrigerant recovery capability:

The overall focus of the HPMP during its whole duration from 2010 to 2030 would be on ensuring that the majority of the country's qualified technicians are equipped with adequate recovery equipment along with supporting tools and leak detection equipment and trained. At present it is estimated that 50 % of the qualified technicians are adequately equipped and have some access to basic recycling capability. This sub-component would target further strengthening the capacity in the country.

The following standard servicing equipment will be considered:

- ⇒ Vacuum pumps
- ⇒ Manifolds, gauges and standard hoses (HCFC, HFC, and HC)
- ⇒ Portable leak detectors
- ⇒ Multi-meters and servicing tools
- ⇒ Re-usable refrigerant charging cylinders
- ⇒ Portable Recovery and Recycling Machines capable of handling HCFCs, HFCs and blends

The supply of such additional equipment would be requested as technical assistance from the MLF fund in the timeframe after 2015

Apart from equipment, many technicians lack experience in the appropriate use of vacuum pumps, vacuum meters, test pressurisation equipment, brazing techniques with inert gas necessary to achieve good long term reliability. Therefore, the equipment supply will be backed by specialized trainings provided by equipment suppliers in relation to the following areas.

- ⇒ Recovery of cooling agents with specialized equipment;
- ⇒ Brazing with inert/protective gas (e.g. nitrogen);
- ⇒ Evacuation and vacuum tests; pressurization tests with nitrogen;
- ⇒ Handling of hygroscopic oils used with alternative refrigerants;
- ⇒ Use of flammable refrigerants (e.g. hydrocarbons) in particular in the domestic appliance sector.
- ⇒ Retrofit procedures and the use of blend refrigerants both as drop in alternatives (e.g. service blends) and HFC blends used in new equipment.

The project component will be closely linked to and coordinated with the planned training and certification of technicians contemplated in other components of the HPMP and throughout 2015-2030 in subsequent phases of HPMP. Once the trainings have been accomplished, qualified technicians will be

allocated with equipment sets, and such allocation will assist in gaining required national level certification.

In this sub-component, a national expert will be hired to help the National Ozone Unit in implementing this program.

Establishment of HCFC reclaim and improvement of HCFC recycling and re-use capacity

At later stages of HPMP in future, the strengthening of the recycling/reclaim centers will be planned.

Such component will be designed for the improvement of recycling/reclaim capability at a few strategic locations in the country with one reclaim center supplied. As previously procured equipment was able to deal with CFC-12 as the primary refrigerant and is outdated, it is intended to supply two (2) modern recycling units and one (1) reclaim machine with gas chromatograph.

Equipment Input: each of the Recycling Centers will be equipped with 1 recycling unit, and 2 x 100 lb refillable cylinders, 1 refrigerant identifier, and necessary weight scales and service tools. The equipment supply will be accompanied by specialized trainings by equipment supplier.

The beneficiaries would include refrigeration technicians within the reach of the centers, service companies, commercial and industrial equipment end-users with special mandatory recycling of recovered refrigerants obtained through equipment retrofit/replacements and importers.

In this sub-component, a national expert will be hired to help the NOC in implementing this program.

The structure of this sub-component is provided below:

- ⇒ Project organization together with refrigerant and air conditioning association with the technical assistance of NOU;
- ⇒ Appointment of consultants and equipment suppliers;
- ⇒ Training of technical personnel;
- ⇒ Distribution of equipment among enterprises to carry out recycling process;
- ⇒ Establishment of three HCFCs recycling stations in three regions;
- ⇒ Development of logistics, transportation, reporting, quality control;
- ⇒ Recycling units' usage and current HCFC import and consumption monitoring

Retrofit/Replacement:

Such approach would involve:

- (1) Introduction of drop-in non-HCFC refrigerants to minimize the retrofit costs; and
- (2) Replacement of equipment using non-HCFC refrigerants

At later stages of HPMP, such component will be developed for the country and it will be guided by

instructions and rules which would identify procedures and criteria for the selection of candidate companies to participate in the program as described below.

Implementation will involve an initial step of the NOU and the National Consultant supervising and coordinating the program promoting the availability of the program with end users. This will utilize the end user network established during HPMP survey work and will have the active involvement of the Refrigeration Association. Workshops for prospective applicants will be used to explain the process and application procedures.

Applications from interested enterprises will be made using the official Application Forms available at the National Ozone Unit and when completed, together with all the necessary supporting documentation, will be submitted to the National Ozone Unit. The dedicated National Consultant in the NOU will be the responsible focal point for screening and administering applications. Part of this function will be to provide practical assistance to applicants in preparing applications. Technical support for this process on an as required will be provided by UNDP and an International Consultant providing overall technical support for this and other projects being undertaken in the framework of the HPMP.

An end-user enterprise wishing to apply for an incentive payment will include the following information in its application for an incentive payment:

- Details of HCFC-22 used during three calendar years preceding the year of application used for the service and repair of the existing equipment that is to be addressed, (including copies of suppliers invoices and servicing records).
- Details of the existing equipment that is to be addressed. These should include the function of the existing equipment, make, model, serial number, year of manufacture, capacity, HCFC charge, the year that the existing equipment was installed, energy consumption, as well as the price at purchase, etc. Copies of the purchase order and invoice for the existing equipment should be attached to the application (if available).
- Technical details and costs of the proposed replacement or retrofit technology.
- Information on the current cost of the HCFC-22 refrigerant, and the current cost of the proposed replacement refrigerant.
- Information on any changes in refrigerating capacity and energy consumption that are projected to occur as a result of the replacement or the permanent retrofit.
- Confirmation that the enterprise can meet established local safety, health, and environmental standards related to the new refrigerant (especially when they are flammable, explosive or pose a risk to workers or the general population).
- Confirmation that the leak inspection and prevention procedures are applied to the system.
- Details of the ownership of the enterprise, including the Nationality of shareholders.

A scale of incentive payments would be developed and will be set in correspondence with HCFC consumption levels. The incentive payments would be paid out to the participants to enable equipment replacement processes. The HCFCs received from the old equipment would be recycled/reclaimed at the recycling/reclaim centers which will further reduce dependence on import of HCFCs. Modern equipment installed would also improve energy-efficiency at enterprises.

Upgrading refrigerant distribution infrastructure:

Significant benefits can be obtained by requiring refrigerant to be imported in bulk and transferred to smaller refillable containers for sale and distribution for servicing applications. This facilitates greater import control and reduces emissions by avoiding residual refrigerant in one time use containers, as well as increases the local value-added contribution to the business. To do this, modest investment in refrigerant distribution infrastructure in the form of transfer and handling equipment as well as containers may be required, and it will be linked (and conditioned) to potential future bans on single-use containers.

The indicative equipment to be purchased based on equipping several distributors or regional recycling centers who would provide an operational location and suitable materials handling capacity would be:

- (-) 15 units of 40 kg and 30 units of 13.6 kg re-fillable cylinders for distribution HCFC and HFCs;
- (-) 3 weight scales (minimum capacity of 40 kg);
- (-) 3 refrigerant identifiers (CFC, HCFC, HFC and HCs)
- (-) 3 sets of permanent labeling equipment
- (-) 3 sets of equipment for purging containers with retention of refrigerant recovered.

The existing HCFC importers/distributors and larger service organizations will be officially notified and invited to make proposals for establishment of a centralized distribution centre. After the notification, an application will be made by interested companies to the NOU to receive equipment. The tools will be distributed on the basis of evaluations of proposals in terms of capacity and investment proposed. As required, training will be provided to the participants in proper handling of the supplied equipment and compliant procedures governing the then imposed requirements for refillable container use and associated reporting.

Information/news to HCFC end-users about the operationalization of such system will be disseminated through targeted outreach.

“End of life” refrigerant management capacity:

The capacity to capture and securely store refrigerant that is no longer useable, is recovered from early retirement of equipment, or ultimately for which there is not a use for will increasingly be required by all countries undertaking ODS phase out. Similarly, there is a current need for such capacity to support the enforcement of customs and environmental controls such that there is no physical barrier to the confiscation of illegally imported or used material HCFC. It is envisioned that such future sub-component would provide for development of such capacity. The basic physical requirement would be a secure storage facility with or adjacent to in an existing structure and controlled property. This would have to be supported by appropriate care and custody arrangements and an economic mechanism to sustain this. This may be an area where investment can potentially be coupled with that being made in sound chemicals management capability in the.

Request for technical assistance in environmentally sound destruction of end of life ODS legacies would be also considered at later stages, but this would be assessed as available technologies and their costs are evaluated, particularly in the context of guidance on the issues being developed by TEAP and

demonstration projects currently being funded by the MLF. Once rules allow, a project proposal for the destruction of ODS will be prepared and submitted to the MLF Secretariat.

The supply of equipment and works funded by the MLF would be limited to the following for simple secure storage purposes, based on the utilization of an existing space:

- (-) Storage racks for cylinders and containers
- (-) Labeling and inventory control equipment
- (-) Refrigerant analysis equipment
- (-) Weigh scale
- (-) Security and surveillance equipment

Annex 4.3: Stage 1: Cost of the HCFC phase-out and timeframe for implementation

Activities /project	Responsible agency	Time frame	Estimated costs US \$
STAGE 1 (2011-2014)			
1. Legal and Regulatory Commitments	UNEP		
Application of Import Quotas on HCFC chemicals		2012-2014	
Ban on import of HCFC-141b based polyols		2012	
Expansion of the Import Licensing System for ODS Transit Transactions and for Provision of Mandatory Legally Binding Prior Informed Consent (PIC) procedures respecting the Import of ODS including HCFCs		2012-2014	
Sub-total			3,200
2. Technical Capacity Strengthening	UNEP		
2.1. Import Control Capacity/Prevention of Illegal Trade (Customs/environmental officers)		2011-2014	12,500
2.2. Refrigeration Servicing Human Resource and Institutional Capacity (Technicians)		2011-2014	12,500
2.3. Monitoring of activities		2011-2014	7,000
Sub-total			32,000
3. Investment Projects	UNDP		
3.1. Initial Development of HCFC Refrigerant Management System		2011-2014	
Sub-Total			52,800
Total Stage 1			88,000

Annex 4.5

DRAFT AGREEMENT BETWEEN KYRGYZSTAN AND THE EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE REDUCTION IN CONSUMPTION OF HYDROCHLOROFLUROCARBONS

1. This Agreement represents the understanding of the Government of Kyrgyzstan (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 3.98 ODP tonnes / maximum consumption allowed 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 (remaining eligible consumption).
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; and
 - 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.
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 has agreed to be cooperating implementing agency (the “Cooperating IA”) 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). The Executive Committee agrees, in principle, to provide the Lead IA and the Cooperating IA with the fees set out in rows 2.2 and 2.4 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 IA to facilitate implementation of this Agreement. In particular, it will provide the Lead IA and the Cooperating IA 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 reductions in consumption (ODP tonnes)
HCFC-22	C	I	4.42

APPENDIX 2-A: THE TARGETS, AND FUNDING

		2010	2011	2012	2013	2014	2015	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	n/a	n/a	n/a	4.42	4.42	3.98	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	n/a	n/a	n/a	4.42	4.42	3.98	n/a
2.1	Lead IA UNDP agreed funding (US \$)	-	47,520	-	-	5,280	-	52,800
2.2	Support costs for Lead IA(US \$) 9%	-	4,276.8	-	-	475.2	-	4,752
2.3	Cooperating IA UNEP agreed funding (US \$)	-	31,680	-	-	3,520	-	35,200
2.4	Support costs for Cooperating IA(US \$) 13%	-	4,118.4	-	-	457.6	-	4,576
3.1	Total agreed funding (US \$)	-	79,200	-	-	8,800	-	88,000
3.2	Total support cost (US \$)	-	8,395.2	-	-	932.8	-	9,328
3.3	Total agreed costs (US \$)	-	87,595.2	-	-	9,732.8	-	97,328
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this agreement (ODP tonnes)							4.42
4.1.2	Phase-out of HCFC-22 to be achieved in previously approved projects (ODP tonnes)							0
4.1.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)							0
4.2.1	Total phase-out of HCFC-141b agreed to be achieved under this agreement (ODP tonnes)							0
4.2.2	Phase-out of HCFC-141b to be achieved in previously approved projects (ODP tonnes)							0
4.2.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)							0

APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

1. Funding for the future tranches will be considered for approval not earlier than the last 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. Appendix 5-A, Monitoring Institutions and Roles, may vary from agreement to agreement. Previous agreements entered by the Committee as reflected in the Reports of the Meetings as well as the existing agreements for the TPMP should be referenced to provide relevant examples. The principle need is for the appendix to provide a detailed and credible indication of how progress is to be monitored and which organizations will be responsible for the activities. Please take into account any experiences from implementing the TPMP, and introduce the relevant changes and improvements.

The Kyrgyz Republic has demonstrated experience in the successful implementation of its Country Programme to date. The capacity that has undertaken this within the Government, specifically the National Ozone Centre (NOC), operating under the direction of the Interdepartmental Commission on Ozone Issues will continue to act as the focal point for HPMP project coordination and management. This activity will be directly undertaken by experienced project managers acting under the direction of the Head of the NOC who also acts as the national focal point on Montreal Protocol and various international bodies involved with its implementation globally. The work will be undertaken with a high level of stakeholder consultation both with various government agencies and with external stakeholders and the general public.

Implementation will be undertaken under the continued supervision of Interdepartmental Commission on Ozone Issues. It will involve UNDP acting as the lead implementing agency throughout the HPMP and supervising the project's investment component. UNEP will act as a supporting implementing agency for non-investment activities associated with legislation and technical capacity strengthening. These agencies will utilize the established procedures governing procurement, financial management, reporting and monitoring of the relevant implementing agency and international funding facilities, specifically the MLF. Implementation will be further supported by various administrative and service bodies within the government, international and national consultants, suppliers of equipment and services, and beneficiary enterprises.

APPENDIX 6-A: ROLE OF THE LEAD IMPLEMENTING AGENCY

1. The Lead IA will be responsible for a range of activities. These can be specified in the project document further, but include at least 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. Co-ordinating 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 organization 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) of the Agreement and sub-paragraph 1(b) of Appendix 4-A.

APPENDIX 6-B: ROLE OF COOPERATING IMPLEMENTING AGENCY

1. The Cooperating IA will be responsible for a range of activities. These activities can be specified in the respective project document further, but include at least the following:
 - a. Providing policy development assistance when required;
 - b. 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
 - c. Providing 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 \$ 5,000 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.

APPENDIX 8-A: SECTOR SPECIFIC ARRANGEMENTS
