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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Sixty-sixth Meeting
Montreal, 16-20 April 2012

PROJECT PROPOSAL: KUWAIT

This document consists of the comments and recommendation of the Fund Secretariat on the following project proposal:

Phase-out

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

UNEP and UNIDO

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
Kuwait

(I) PROJECT TITLE	AGENCY
HCFC phase out plan (Stage I)	UNEP (lead), UNIDO

(II) LATEST ARTICLE 7 DATA (Annex C Group I)	Year: 2010	439.1 (ODP tonnes)
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(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)								Year: 2010	
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-123					0.5				0.5
HCFC-124									
HCFC-141b		53.4							53.4
HCFC-141b in imported pre-blended polyol		20.0							20.0
HCFC-142b		77.4							77.4
HCFC-22		43.6			244.3				287.9

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline:	418.6	Starting point for sustained aggregate reductions:	429.24
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	0.0	Remaining:	199.42

(V) BUSINESS PLAN		2012	2013	2014	Total
UNIDO	ODS phase-out (ODP tonnes)	53.1	0	30.11	83.21
	Funding (US \$)	3,652,796	0	3,432,725	7,085,521
UNEP	ODS phase-out (ODP tonnes)				
	Funding (US \$)	459,910		832,360	1,292,270

(VI) PROJECT DATA			2012	2013	2014	2015	2016	2017	2018	Total
Montreal Protocol consumption limits (estimate)			n/a	418.6	418.6	376.7	376.7	376.7	376.7	n/a
Maximum allowable consumption (ODP tonnes)			n/a	415.60	336.81	338.98	297.87	296.17	254.47	n/a
Project costs requested in principle(US \$)	UNEP	Project costs	277,000	0	337,000	0	332,000	0	97,000	1,043,000
		Support costs	33,126	0	40,301	0	39,703	0	11,600	124,730
	UNIDO	Project costs	3,537,450	0	3,615,982	0	1,103,445	0	920,000	9,176,877
		Support costs	265,309	0	271,199	0	82,758	0	69,000	688,266
Total project costs requested in principle (US \$)			3,814,450	0	3,952,982	0	1,435,445	0	1,017,000	10,219,877
Total support costs requested in principle (US \$)			298,435	0	311,500	0	122,461	0	80,600	812,996
Total funds requested in principle (US \$)			4,112,885	0	4,264,482	0	1,557,906	0	1,097,600	11,032,873

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
continuation

(VII) Request for funding for the first tranche (2012)		
Agency	Funds requested (US \$)	Support costs (US \$)
UNEP	277,000	33,126
UNIDO	3,537,450	265,309

Funding request:	Approval of funding for the first tranche (2012) as indicated above
Secretariat's recommendation:	For individual consideration

PROJECT DESCRIPTION

1. On behalf of the Government of Kuwait, UNIDO as the lead implementing agency, has submitted to the 65th meeting of the Executive Committee an HCFC phase-out management plan (HPMP) at a total cost, as originally submitted, of US \$13,926,535, of which US \$12,604,535 plus agency support cost of US \$945,340 would be for UNIDO and US \$1,357,000 plus agency support cost of US \$159,270 for UNEP as co-implementing agency. The HPMP proposes strategies and activities to achieve a 39.2 per cent reduction in HCFC consumption by 2018.

2. The first tranche being requested for the HPMP at this meeting, as originally submitted, amounts to US \$4,024,950 plus agency support cost of US \$301,871 for UNIDO and US \$407,000 plus agency support cost of US \$47,769 for UNEP.

Background

3. Kuwait, with a population of 3.63 million, is located in the Arabian Gulf in a flat desert with hot and dry weather throughout the year and temperatures reaching occasionally above 50°C. The country ratified all the amendments to the Montreal Protocol.

ODS regulations

4. The Environment Protection Authority (EPA) and its predecessor have been responsible for the control of import and export of ozone-depleting substances (ODS). The related decisions of the Council of Ministers are comprehensively regulating the import and export of, *inter alia*, HCFCs, introducing detailed licensing and quota systems as well as other administrative and legal measures related to the enforcement and cooperation with other local authorities. Current regulations include the ban of import of CFC-based technology. Kuwait is a member of the Gulf Corporation Council for Arabian Gulf States (GCC), which issued a unified regulation with respect to ODS in 2005. This regulation is currently being updated to accommodate the requirements of the HCFC accelerated phase-out decided in 2007 by the Meeting of the Parties. The possibility to control imports of ODS into the country is particularly elaborate in Kuwait, since, in addition to the ability to hold shipments at the border, a special permission is needed before opening a letter of credit to import ODS. In conclusion, Kuwait has an elaborate system to monitor and control ODS imports, including HCFCs.

HCFC consumption

5. All HCFCs used in Kuwait are imported as the country does not have any HCFC production capacity. HCFC consumption has increased over the last four years consistently by, on average, 11.3 per cent per year. An overview of the consumption from 2006 to 2010 that has been reported under Article 7 to the Ozone Secretariat is provided in Table 1.

Table 1 – Consumption of HCFCs as per Article 7

Year	2007		2008		2009		2010		Baseline	
	mt	ODP t	mt	ODP t	mt	ODP t	mt	ODP t	mt	ODP t
HCFC-22	4,666.0	256.63	4,409.0	242.50	4,237.0	233.04	5,234.0	287.87	4,735.5	260.46
HCFC-123	3.0	0.06	9.0	0.18	3.0	0.06	25.0	0.50	14.0	0.28
HCFC-141b	287.0	31.57	522.0	57.42	700.0	77.00	667.0	73.37	683.5	75.19
HCFC-142b	1,102.0	71.63	1,160.0	75.40	1,354.0	88.01	1,190.0	77.35	1,272.0	82.68
Total	6,058.0	359.89	6,100.0	375.50	6,294.0	398.11	7,116.0	439.09	6,705.0	418.60

6. During the preparation of the HPMP, a survey was undertaken based on questionnaires, subsequent verification, correction and aggregation of results by a national team of experts; close cooperation with UNEP and UNIDO was achieved through several missions of the agencies to the country. Historic data from importers of HCFCs has been cross-checked with import licensing data available with the National Ozone Unit (NOU) and from customs. The HPMP provided a detailed list of the 2009 and 2010 imports of HCFCs, showing the amount imported by each of the 19 importers. The Ozone Secretariat informed that the process of reporting Article 7 data for 2010 for Kuwait has been finalized, and the baseline been established.

Use of HCFCs in different sectors

7. Kuwait is consuming HCFCs in the extruded polystyrene (XPS) foam, polyurethane (PU) foam, refrigeration and air conditioning manufacturing and servicing sectors; the largest consumption is with 48.2 per cent (ODP based) in the servicing sector. Three enterprises forming the XPS foam sector are responsible for a further 30.9 per cent of the consumption. Two systems houses, catering to national as well as foreign customers, consume 16.5 per cent of the HCFC baseline; other than the systems houses, there are no direct consumers of bulk HCFC-141b in the PU foam sector. Finally, a share of 4.5 per cent of the HCFC baseline consumption is related to the use of HCFC-22 by two equipment manufacturers producing HCFC-22 air conditioning equipment as well as other refrigeration equipment using non-ODS refrigerants. The consumption of HCFCs by sector for 2009 and 2010 is shown in Table 2.

Table 2 – 2009 and 2010 sectoral distribution of HCFCs

Substance	XPS foam		PU foam System houses		Air conditioning manufacturing		Refrigeration servicing	
	2009	2010	2009	2010	2009	2010	2009	2010
HCFC-22 (mt)	902.0	792.0			321.0	356.6	3014.0	4085.5
HCFC-142b (mt)	1354.0	1190.0						
HCFC-141b (mt)			644.1	611.2			55.9	55.9
HCFC-123 (mt)							3.0	25.0
Total HCFC (mt)	2256.0	1982.0	644.1	611.2	321.0	356.6	3072.9	4166.3
Total HCFC (ODP t)	137.62	120.91	70.85	67.23	17.66	19.61	171.98	231.34
Share of baseline	30.9%		16.5%		4.5%		48.2%	

8. The refrigeration servicing sector has a baseline consumption of 3,550 mt of HCFC-22, 14 mt of HCFC-123 for chillers and 55.9 mt of HCFC-141b for use as a solvent in the installation and repair of refrigeration and air conditioning equipment. Due to the very hot climate, buildings in Kuwait are predominantly equipped with sophisticated and powerful air conditioning systems. The HPMP contained detailed information about the number of air conditioning systems in Kuwait and the methodology to determine the related data. As a result of the survey, it appears that Kuwait has an unusually large equipment base with a low growth rate, due to the fact that the country has invested in high quality infrastructure for many years. This large equipment base causes in turn a large consumption for servicing, despite the fact that the assumed leak rate, being between 5 per cent and 20 per cent, is only moderate. This low leak rate appears to indicate an appropriate level of equipment and service quality.

HCFC phase-out strategy

9. The Government of Kuwait is proposing to follow the Montreal Protocol schedule and adopt a staged approach to achieve the complete phase-out of the HCFC consumption by 2030. The current submission only contains stage I of the HPMP, lasting until 2018. Stage I of the HPMP covers activities in the polyurethane foam (PU foam), extruded polystyrene foam (XPS foam) and servicing sectors.

10. In stage I of the HPMP the country will focus mainly on the phase-out of HCFC-22 and HCFC-142b in the XPS foam sector, where about 31 per cent of the consumption is located. There is also a significant consumption of HCFC-141b in the PU foam sector; however, this consumption includes the use of HCFC-141b to produce pre-blended polyols for export. The relatively small refrigeration and air conditioning manufacturing sector, consuming less than 5 per cent of the consumption in the country, is currently not in the position to commit to an HCFC-22 phase-out before 2018, since there is a strong belief that current alternative technologies do not meet the technical requirements of the market in the Gulf region in general and in Kuwait in particular. Therefore, Kuwait, after consulting with the related enterprises, decided to wait until a suitable technology is sufficiently mature to allow sustained conversion of manufacturing facilities. Under stage I of the HPMP there are also a number of efforts undertaken to substantially improve servicing practices in Kuwait, with an objective to revert the current trend of increasing consumption in that sector; those efforts would be further strengthened by the use of remaining funding under the previously approved terminal phase-out management plan (TPMP). The summary of activities, overall cost and phase-out as originally requested is shown in Table 3.

Table 3 – Specific activities of the HPMP stage I – budget and phase-out as originally requested

Sector	Activity	Substance	Associated tonnes		Actual cost (US \$)*	Funding requested (US \$)	CE (US \$)
			mt	ODP t			
XPS foam sector	Conversion of three enterprises	HCFC-22	847.4	46.61	11,370,953	11,370,953	5.37
		HCFC-142b	1,271.1	82.62			
PU foam sector	Conversion of two enterprises	HCFC-141b	141.9	15.61	613,382	613,382	4.32
	Conversion of small spray foam users	HCFC-141b	0.0	0	75,000	75,000	n/a
Servicing sector	Reductions in service	HCFC-22	350.9	19.3	1,772,200	1,579,200	4.50
PMU, verification			n/a	n/a	378,000	323,000	n/a
Total			2,611.3	164.14	14,209,535	13,961,535	5.35

*Including remaining funding proposed to be transferred from the TPMP

11. The total cost of the HPMP for Kuwait has been estimated at US \$14,209,535, which includes funding to be transferred from the implementation of the TPMP of US \$248,000. The resulting need for additional resources to be approved in principle at this meeting was estimated to be US \$13,961,535, plus agency support cost. This funding would support the country in achieving reduction by more than 40 per cent of the baseline until 2018, with an associated phase-out of 2,611.3 metric tonnes (mt) (164.14 ODP tonnes).

12. The HPMP contained the strategy for stage II, which is intended to commence in January 2020. The HPMP submission expressed the expectation that commercially viable alternatives for air conditioning units, which are suitable for high ambient temperatures as well as are based on fluids with a low impact on the climate, will become available. The availability of such technologies will allow the refrigeration and air conditioning equipment manufacturers to convert in stage II their production to non-HCFC refrigerants. The Government will consider reducing or banning the use of HCFC-22 in new and imported air conditioning units once such an alternative technology is mature and commercially available. Stage II also foresees continuation of work in the servicing sector through strengthening the containment measures to be introduced during stage I of the HPMP by means of a reclamation centre, with the flexibility to establish additional reclamation centres if necessary. During stage II, the HPMP will support the conversion of eight users of HCFC-141b in imported pre-blended polyol to non-HCFC technology; the Government of Kuwait will then issue a regulation to ban the import of HCFC contained

in pre-blended polyol. In planning stage II, it will be considered whether early retirement incentive programmes for large air conditioning applications, starting around 2025 will be necessary. The country aims to achieve the complete phase-out of HCFC consumption in 2030. The HPMP did not include an unconstrained demand scenario for the development of HCFC consumption without phase-out activities and without further regulation.

Activities to phase out CFCs and lessons learned

13. A refrigerant management plan (RMP) for Kuwait was approved at the 37th meeting of the Executive Committee in 2002, with associated costs of US \$746,106. The RMP consisted of customs training, training of trainers for refrigeration technicians, a recovery and recycling project and a component for monitoring. All related activities had been completed. At the 52nd meeting in 2007, the TPMP was approved for Kuwait at a total cost of US \$565,000, with the first tranche approved at the same meeting of US \$460,000 for UNEP and UNIDO as implementing agencies. Of this first tranche, US \$280,000 remains uncommitted to date. The reason for the slow implementation is, according to the agencies, the passing away of the Ozone Officer, and several changes at the higher management level of the EPA in Kuwait. Nevertheless, the HPMP points out that all reduction targets of the Montreal Protocol and the maximum allowable consumption under the TPMP have been met by Kuwait. The HPMP proposed to transfer the remaining funding from the TPMP (first tranche) to activities under the HPMP.

14. The HPMP contained a number of lessons learned from the implementation of the TPMP. Several of those are generic, such as the difficulties in monitoring a reclamation programme in detail. Other lessons are very specific to the situation in Kuwait. The promotion of alternatives in the refrigeration sector relying on refrigerants such as hydrocarbons and ammonia faced difficulties in the TPMP implementation due to market reluctance and because of the absence of relevant skills. The development and introduction of the necessary codes and standards related to hydrocarbon and ammonia equipment and its servicing, as well as systems and installations using these alternatives are considered to be a necessary pre-condition for their installation and use in the country; currently, such codes and standards are not sufficiently established. The HPMP consequently addressed this lack of suitable standards in the refrigeration and building sectors. The experience from implementing the TPMP in Kuwait did also relate to the large number of expatriate technicians who do not understand Arabic and where the implementation faced difficulties to deliver training in good refrigerant management. This issue has been addressed in the design of the HPMP by planning to provide training in different languages. The lessons learned also referred to the institutional difficulties, pointing out that the unstable institutional set-up at the NOU impacted negatively on the implementation of the TPMP and resulted in incomplete achievement of the targets. The lessons learned suggest the establishment of a dedicated implementation team, which has been the approach in the proposal for the HPMP.

15. The country received support for CFC phase-out only through a RMP and a TPMP; no other projects were funded. Within these projects, there are investment activities related to the provision of recovery and recycling units for mobile air conditioning. In Kuwait no conversion projects were supported by the Multilateral Fund. Consequently, there are no second conversions under the HPMP for Kuwait.

XPS foam sector

16. The XPS foam sector in Kuwait consists of three enterprises: Isofoam Insulating Materials Plant W.L.L. (Isofoam), Gulf Insulating Manufacturing and Trading Co. W.L.L. (Gulf) and Al Musaha Al Mushtaraka Co. (Al Musaha). The XPS foam sector in Kuwait is one of the largest globally with a baseline consumption of 2,119 mt (129.23 ODP tonnes) of HCFC-22 and HCFC-142b. The consumption of the three enterprises is shown in Table 4.

Table 4 – Consumption of the enterprises Gulf, Isofoam and Al Musaha

Enterprise	HCFC-22				HCFC-142b				Total (ODP t)	Total (share, ODP) (%)
	2009 (mt)	2010 (mt)	Baseline (mt)	Baseline (ODP t)	2009 (mt)	2010 (mt)	Baseline (mt)	Baseline (ODP t)		
Gulf	351	295.2	323.2	17.78	526.8	442.8	484.8	31.51	49.29	38.1
Isofoam	472	413.6	442.6	24.34	707.4	620.4	663.9	43.15	67.49	52.2
Al Musaha	79	84	81.6	4.49	118.8	126	122.4	7.96	12.45	9.6
Total	902	792.8	847.4	46.61	1353	1189.2	1271.1	82.62	129.23	100.0

17. Gulf and Isofoam, although independent from each other, have one common share holder and the same general manager. In combination, they absorb more than 90 per cent of the consumption of HCFC in the XPS foam sector. Because of their economic ties as well as the presence of a third company not to be disadvantaged, the HPMP proposed to address the complete XPS foam sector as part of stage I of the HPMP. The enterprises have in total six XPS extruder lines, of which five are intended for a major retrofit in order to be converted to the technology choice, a combination of CO₂, dimethyl-ether (DME), and HFOs. The sixth line located at Isofoam will also be converted to these alternatives, without requiring funding from the HPMP. Since DME and HFOs are considered flammable, the conversion proposed would include a number of measures to mitigate the risk of fire or explosion, such as ventilation systems, sensors, anti-static measures, etc. The funding originally requested for the conversion of the XPS manufacturers was US \$11,370,953, to convert the whole XPS sector in Kuwait, phasing out the full eligible consumption of HCFC-142b under stage I of the HPMP.

PU foam sector

18. Kuwait imports significant quantities of HCFC-141b for the production of pre-blended polyol in the country. It also imports pre-blended polyols containing HCFC-141b for foam blowing. The country has two systems houses which manufacture pre-blended polyols, in both cases for local consumption and export to other Article-5 countries. There are 14 manufacturers of PU foam products as well as three large ones, and a significant number of small enterprises producing spray foam in Kuwait; of those, eight import pre-blended polyol for their production. One of the users of nationally pre-blended polyols for foam manufacturing also consumes HCFC-141b for blending polyols for its own use and for other enterprises, thus serving as a systems house. The details are presented in Table 5:

Table 5 – Manufacturers of PU foam using nationally pre-blended and imported pre-blended polyol

Manufacturer	mt	ODP t	share	share of total	To be converted in stage I
Use of nationally blended polyol					
Kuwait Polyurethane Industry Co.	75.6	8.32	29.3%	21.3%	75.6
Kirby Building Systems, Kuwait	66.3	7.29	25.7%	18.7%	66.3
Seven smaller users	12.3	1.35	4.8%	3.5%	12.3
Spray foam companies	103.9	11.43	40.3%	29.3%	103.9
Sub-total	258.1	28.39	100.0%	72.8%	258.1
Users of imported pre-blended polyol containing HCFC-141b					
Hennikel (Spray foam)	22.8	2.51	23.6%	6.4%	0
Khajah (Spray foam)	22.8	2.51	23.6%	6.4%	0
Mashaan (Spray foam)	16.7	1.84	17.3%	4.7%	0
Bader Al Mulla and Brothers Co.	10.8	1.19	11.2%	3.0%	0
Four smaller users	23.5	2.59	24.3%	6.6%	0
Sub-total	96.6	10.63	100.0%	27.2%	0
Total	354.7	39.02		100.0%	258.1

The eight users of HCFC-141b contained in imported pre-blended polyols are not being converted under stage I of the HPMP.

19. The HPMP proposed to address the two largest manufacturers of PU foams in the country, Kuwait PU Industry Co. (KPI) and Kirby Building Systems (Kirby), which consumed together 141.9 mt (15.61 ODP tonnes), representing 55 per cent of the consumption of HCFC-141b for foam blowing in Kuwait. The manufacturer KPI acts in addition as a systems house. The HPMP also proposed two technical assistance components targeted at users that use pre-blended polyols blended in the country. The HPMP targeted exclusively users related to imports of bulk HCFC-141b, and does not plan to address users of HCFC-141b contained in imported pre-blended polyols.

20. The activities proposed for the PU foam sector are:

- (a) The conversion of KPI. The company has a production of discontinuous PU foam panels, using pre-blended polyol provided from the associated systems house on the same premises and consuming 75.6 mt of HCFC-141b. KPI has not received assistance from the Multilateral Fund before and is a fully nationally owned enterprise, which established its foam manufacturing facilities in 2006. KPI exports 60 per cent of its production to other countries in the region as well as to Egypt, Tunisia, India and Sudan. The company selected pentane technology as an alternative. For the conversion, the existing high pressure machine is proposed to be retrofitted; equipment for pre-mixing and a nitrogen gas supply system will be added. KPI will also receive a safety system including forced ventilation, hydrocarbon sensors and control boards, lightening protection, grounding and anti-static floors. Other costs required relate to the plant modification, technology transfer, trials and commissioning as well the necessary safety audit. The project will be implemented during 2014.
- (b) The conversion of Kirby. This enterprise is currently consuming 66.3 mt of HCFC-141b. Kirby produces discontinuous foam panels as well, and has additional production sites in India, Viet Nam and Turkey. It has been producing PU foams since 1995, using pre-blended polyols from a local systems house in Kuwait, and exports 70 per cent of its production to countries in the region as well as Turkey and a number of sub-Saharan countries in Africa. Kirby has not received assistance from the Multilateral Fund before and is fully nationally owned. Similar to KPI, Kirby also opted for pentane as the replacement technology for HCFC-141b. The enterprise, owning a machine which cannot be retrofitted due to its overall condition, is meant to receive a new high-pressure foaming machine, pre-mixing units, buffer tanks and a nitrogen supply system, as well as support in modifying certain presses used. In order to improve plant safety, forced ventilation, gas sensors and a safety system would be provided, and electrical control boards upgraded. The plant will be equipped with fire protection and control systems, lightening protection, grounding and anti-static floors. The conversion will also undertake plant modifications, technology transfer and trials and commissioning as well as, upon conclusion of the conversion, a safety audit to ensure appropriate use of hydrocarbon technology. The implementation is scheduled to be completed by the end of 2013.
- (c) A technical assistance component for the small spray foam manufacturers using locally pre-blended polyols; these are typically involved in building insulation. It is intended to provide assistance to the systems houses of KPI and Al Ahliya Chemicals to enable them to offer non-HCFC technology, to create awareness and provide solutions for spray foaming with alternatives suitable also for foaming during elevated ambient temperatures, posing specific technical challenges to the manufacturing of spray foam. It

was agreed that the conversions would be to low global warming potential (GWP) alternatives, namely CO₂/water or methyl formate (MF).

- (d) A second technical assistance component, added during discussion of the submission between the Secretariat and the agencies, is supposed to address the smaller manufactures producing foams other than spray-foam; this concerns the seven small companies (Steel Panel Center; Al-Hasawi refrigerator panels; Al-Hasawi refrigerator & water cooler water boilers factories; Al Seeb Engineering Co; Al-Qattami Insulation; Al-Noor (Water Boilers); Hala Industries) with a combined consumption of 12.3 mt, as well as any other consumers of HCFC-141b or locally pre-blended polyol containing HCFC-141b currently not known and not addressed elsewhere in stage I of the HPMP. The technical assistance component is intended to cover the users directly through technology transfer and equipment supply. It was agreed that the conversions would be to low-GWP alternatives, namely CO₂/water, MF or hydrocarbons.

With the activities described above and the phase-out of HCFC-141b consumption for solvent use under the refrigeration servicing sector below, the eligible HCFC-141b consumption of Kuwait will be fully phased out under stage I of the HPMP.

Servicing sector activities

21. In the servicing sector, it is foreseen that both UNIDO as well as UNEP will implement a number of activities. Significant support will be provided for the development and introduction of standards and rules for labelling, record keeping requirements, operation and maintenance of systems using hydrocarbons and ammonia, as well as the handling of refrigerant cylinder disposal. In addition, development of national codes of good practice for refrigeration and air conditioning service technicians will be carried out, including the development of a certification scheme and pilot training and certification programme for 1,000 technicians. Since the small-scale servicing sector mostly relies on expatriate, semi-skilled technicians who frequently have difficulties in communicating in either Arabic or English, simplified training materials and training session will be offered. A specialized technical awareness programme for end users and specialists catering to such end users is planned. A national HCFC reclamation programme based on a sustainable market-based approach for two commercially-run reclamation centres is also expected to be established. Finally, it was agreed that the use of 55.9 mt (6.15 ODP tonnes) HCFC-141b as a solvent as part of the servicing sector activities will be phased out; HCFC-141b is typically used by refrigeration technicians to clean the refrigeration circuit after installation or repair before charging.

Legislative, regulatory and enforcement activities

22. The GCC finalized, in December 2011, the update to the Unified Regulation with respect to the ODS which was originally issued in 2005. The update is applicable to Kuwait and is a minimum mandatory regulatory guide. The updated form of the Unified Regulation aims at achieving the complete phase-out of the consumption of ODS; regulating the external trade as well as storage, transport, recycling and use of ODS and related equipment, including exports to and imports from the free zones; preparing and implementing plans for qualification of the related sectors, as well as of the enforcement agencies; facilitating the exchange of related trade information and data among the GCC States in order to monitor intra-trade and to combat illegal transactions; and calling on cooperation amongst GCC countries in terms of studying and exploring feasible long term alternatives particularly for the air-conditioning sectors.

23. The GCC Unified Regulation now have to be implemented nationally and the regulatory agencies and stakeholders will need to be educated. The related activities foreseen in the HPMP include an update of the national ODS legislation including the enforcement of the new regulations issued by the GCC, supply of ODS identification sets for custom authorities with a total of 50 identifiers, a specialized

training programme for the main stakeholders on the licensing, quota and import system including custom officers, and the participation of the Government of Kuwait in the development and implementation of the regional e-licensing system and its adaptation to the specific needs of the Government of Kuwait.

Institutional set-up for implementation of the HPMP

24. As a result of experience with the implementation of the TPMP, the HPMP proposed an institutional set-up for implementation which has defined responsibilities. The EPA had established a National Ozone Committee (NOC), originally for the implementation of the TPMP, which will continue to oversee all activities under the Montreal Protocol including the HPMP. The NOU in consultation with the NOC and management of the EPA will establish a project implementation team, with a full time technical coordinator, a full-time assistant and a full-time secretary plus three part-time advisors for technical, financial and legal matters. This Project Implementation Team will be responsible, *inter alia*, for the management and co-ordination of the implementation of all Montreal Protocol projects, with the various Governmental ministries, authorities and relevant private sector stakeholders. The team will also be responsible for proposing and, in co-ordination with the NOU and the agencies, contracting and managing experts, development and implementation of training, raising awareness and preparing implementation plans. The responsibilities of the project implementation team are also defined in the draft Agreement between the Government of Kuwait and the Executive Committee contained in Annex I to this document.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

25. The Secretariat reviewed the HPMP for Kuwait in the context of the guidelines for the preparation of HPMPs (decision 54/39), the criteria for funding HCFC phase-out in the consumption sector agreed at the 60th meeting (decision 60/44), subsequent decisions on HPMPs and the draft 2012-2014 business plan of the Multilateral Fund. The Secretariat discussed with UNEP and UNIDO technical and cost related issues, which were satisfactorily resolved as described in this document.

Starting point for aggregate reduction in HCFC consumption

26. The Government of Kuwait agreed to establish as its starting point for sustained aggregate reduction in HCFC consumption the baseline of 418.60 ODP tonnes calculated using the actual consumption of 398.11 ODP tonnes and 439.09 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol, plus 10.64 ODP tonnes of HCFC-141b contained in imported pre-blended polyol systems, resulting in 429.24 ODP tonnes.

Prioritization and selection of phase-out activities under the HPMP

27. The Executive Committee had taken a number of decisions regarding the prioritization of the different sectors in addressing the phase-out. Decision 60/44(f)(xv) requests that first the consumption in the manufacturing sectors should be addressed to meet the reduction steps in 2013 and 2015. The Executive Committee also advised in decision 62/12(c) that projects for the phase-out of HCFC-22/HCFC-142b used for the manufacture of extruded polystyrene (XPS) foam would only be considered when it was clearly demonstrated that they would be required by national circumstances and priorities to comply with the 2013 and 2015 control measures. The Secretariat discussed with the agencies whether the selection of priorities for the HPMP stage I had followed the decisions of the Executive Committee.

28. According to these decisions, in the manufacturing sectors, the order of priority would be firstly PU foam, then refrigeration, air conditioning and XPS foam. The servicing sector has an even lower priority. The HPMP for Kuwait excluded conversions in the refrigeration and air conditioning manufacturing sector from the outset, since it is believed that the currently available alternatives are not suitable for the climatic conditions of the country. This overrides any concerns of the country that, with a continuing production of HCFC dependent equipment, the servicing sector consumption of HCFC-22 will continue to increase, and be sustained for longer.

29. In the PU foam sector, conversion of users of HCFC-141b contained in imported pre-blended polyols would not contribute to compliance, and is therefore not a priority; consequently, no such conversions are planned under stage I of the HPMP. Of the HCFC-141b imported, a significant quantity is used for pre-blending polyols for export, which renders the use ineligible. Table 6 below illustrates the situation.

Table 6 - Use of HCFC-141b

	2009		2010		Baseline	
	mt	ODP t	mt	ODP t	mt	ODP t
Import of bulk HCFC-141b	700.0	77.00	667.0	73.37	683.5	75.19
HCFC-141b bulk consumption for solvent use	55.97	6.15	55.9	6.15	55.9	6.15
Remaining HCFC-141b bulk consumption associated with the foam sector	644.1	70.85	611.1	67.23	627.6	69.04
Export of pre-blended polyols, manufactured using bulk imports of HCFC-141b, and therefore not available for consumption by local foam manufacturers	232.6	25.59	358.1	39.39	295.3	32.49
Bulk HCFC-141b available for local foam manufacturers	411.5	45.27	253.1	27.8	332.3	36.55

30. This table indicates that only 36.6 ODP tonnes of bulk HCFC-141b imports are eligible for funding foam manufacturers to convert for compliance purposes; conversions of imported pre-blended polyol would be eligible but do not support compliance. This 36.6 ODP tonnes constitutes only 8.7 per cent of the country's baseline of 418.6 ODP tonnes, and will therefore be insufficient to meet the control measures in 2013 and 2015. The PU foam sector being a high priority, implementation in other sectors in addition to the PU foam sector becomes therefore necessary. With the clear position of the country not to address in stage I the manufacturing in the refrigeration and air conditioning sector, be only the XPS and service sectors could be covered in this proposal.

31. The servicing sector consumes 48 per cent of the baseline consumption. Efforts to curb this increasing consumption need a long-term strategy to prepare long term changes in the approach of servicing sector technicians to the servicing of refrigeration and air conditioning equipment. It appears to the Secretariat that UNEP and UNIDO have developed a promising approach, based on lessons learned from the implementation of the RMP and TPMP. Some activities, associated with less than 10 per cent of the servicing sector consumption, seem to form a solid basis for such changes, and might be in the view of the Secretariat a meaningful priority at this time. On the other hand, given the size of the country and the technician population, it does not appear meaningful to undertake significantly more activities than proposed.

32. The combination of activities in the servicing and PU foam sectors will lead to a phase-out of less than 12 per cent of the baseline, i.e. less than a 2 per cent margin above the 10 per cent phase-out required under the Montreal Protocol, and significantly below the amount of phase-out approved for the majority of non-Article 5 countries for stage I of the HPMP. The remaining meaningful phase-out activity beyond

those mentioned would be the complete phase-out of the XPS foam sector, which would lead to a related higher phase-out level. The approach of Kuwait towards implementation is ambitious in its overall scale, however, the activities with the pre-defined levels of reductions appear to be fully implementable with low risk during the six years over which the HPMP is supposed to be implemented.

33. Having principally added the complete phase-out in the XPS foam sector to the activities under stage I it would be conceivable to remove the PU foam sector from the HPMP; this would save 7 per cent of the funding requested and reduce the impact of the implementation by 26 per cent (in ODP tonnes). In light of the very significant consumption in the servicing sector, it is in the opinion of the Secretariat that it is not meaningful to remove the servicing sector activities from the HPMP. Finally, it should be considered that about 25 per cent of the funding of the overall HPMP is requested for the years after 2015, and that the costs until 2015 are within the limits of the business plan. The HPMP, as agreed between the Secretariat and the agencies, appears therefore to be taking into account the need to manage the Multilateral Fund's liquidity in this triennium as well as achieving cost effective reductions towards the 2020 compliance target, and basing activities on a sustainable long-term strategy.

Agreed Funding

34. The Secretariat discussed with the implementing agencies UNEP and UNIDO the cost for the different activities undertaken, as well as the reductions associated. As a result, the specific activities of the HPMP with the associated budget and reductions, as shown in Table 7, were agreed between the agencies, on behalf of the country, and the Secretariat. The remaining approved funding under the first tranche of the TPMP was fully integrated into the overall implementation budget of the HPMP.

Table 7 – Specific activities of the HPMP – budget and phase-out as agreed

Sector	Activity	Substance	Associated tonnes		Actual cost (US \$)*	Funding requested (US \$)	CE (US \$)
			mt	ODP t			
XPS foam sector	Conversion of three enterprises	HCFC-22	847.4	46.61	7,893,295	7,893,295	3.73
		HCFC-142b	1,271.1	82.62			
PU foam sector	Conversion of two enterprises	HCFC-141b	141.9	15.61	613,382	613,382	4.32
	Conversion of small spray foam users	HCFC-141b	103.9	11.43	75,000	75,000	n/a
	Conversion of other small users	HCFC-141b	12.3	1.35	50,000	50,000	4.07
Servicing sector	Reductions in service	HCFC-22	281.2	15.47	1,458,200	1,265,200	4.50
		HCFC-141b	55.9	6.15	0	0	n/a
PMU, verification			n/a	n/a	378,000	323,000	n/a
Total			2,713.7	179.24	10,467,877	10,219,877	3.77

* Including remaining funding transferred from the TPMP

2012-2014 draft business plan of the Multilateral Fund

35. UNEP and UNIDO are requesting US \$10,219,877 plus support costs for implementation of stage I of the HPMP by 2018. The total value requested for the period 2012-2014 of US \$8,377,366 including support cost is within the total amount in the draft business plan. The difference in the figures is only minor. In the years until 2018, the draft business plan foresees cost of US \$9,395,101 for the phase-out of 85 ODP tonnes, or 20 per cent of the baseline of Kuwait. The project cost will be by US \$1.638 million or 17.4 per cent above the draft business plan until 2018, but will address the phase-out of more than the 35 per cent (i.e. 39.2 per cent) of the level necessary to comply with the 2020 reduction.

Consumption in the servicing sector

36. According to the information from the HPMP, and consistent with the overall consumption data, the servicing sector in Kuwait appears to have a HCFC-22 consumption of 3,549.7 mt (195.24 ODP tonnes) in 2010. The HPMP informed that currently Kuwait is inhabited by 3.6 million people, including both citizens of Kuwait as well as foreign workers. At the 65th meeting, the Secretariat had raised the issue that the consumption might be uncommonly high given the number of inhabitants. The Secretariat therefore looked at a number of other countries that might experience, due to their level of economic development and climatic conditions, a high consumption of HCFCs in the refrigeration air conditioning servicing sector. A number of examples are shown in Table 8.

Table 8 - Consumption and per capita consumption of HCFC-22 in the refrigeration and air conditioning servicing sector for several countries

Country	Service sector consumption (mt)	Population	Year of maximum consumption	Per capita consumption in the service sector (kg)
Bahrain	294	1,215,000	2010	0.242
Kuwait	3,550	3,632,009	2010	0.977
Oman	29	3,028,000	2010	0.01
Panama	200	3,460,000	2010	0.058
Qatar	1,318	1,699,435	2010	0.776
Saudi Arabia*	513	26,132,000	2010	0.02
United States of America	68,000	310,000,000	2007	0.219

*Implementing agencies informed that the figure provided for servicing sector consumption cited here from the previous HPMP submission of Saudi Arabia (withdrawn) might have been inaccurate and substantially too low

37. It is evident that the consumption of HCFC-22 per capita in Kuwait is almost four times higher than that of any other country considered in the table above. The HPMP provided clarification on the reasons for such a high consumption, indicating that the uncommonly high per capita capacity of HCFC-22 based air conditioning even for the region might be the reason for the high consumption, that the leak rate is assumed to be relatively low and the service quality therefore adequate or better.

38. The Secretariat advised that the servicing sector has limits in how much support can be absorbed given the characteristics of the country and its comparatively small population. Further, significant activities are already proposed for funding under this HPMP, so reducing the need for activities for future stages. At the same time, these significant activities in stage I with an associated cost of US \$1.265 million will reduce the remaining eligible consumption of the sector only by 8 per cent. The Secretariat suggested that already 25 per cent of the country's eligibility in the servicing sector are likely to be more than sufficient to implement all meaningful future servicing sector activities. In light of these arguments, the Government of Kuwait committed to reducing the remaining eligible consumption for the service sector by 179.4 mt (9.4 ODP tonnes) to account for the one-time effect of consumption by servicing sector companies related to installation of new equipment. The Secretariat and UNEP, for the Government of Kuwait, also agreed to continue discussions before the 66th meeting of the Executive Committee to explore whether further voluntary commitments by the Government would be possible. The Secretariat will advise the Executive Committee accordingly, should that be the case.

Total phase-out addressed

39. The HPMP for Kuwait proposes a number of phase-out activities across three different sectors. In addition, the Government of Kuwait agreed to reduce the remaining eligible consumption beyond the phase-out achieved in activities by agreeing to reduce out the consumption of yet un-identified users of HCFC-141b, and to remove from the remaining eligible consumption the HCFC-141b contained in exported pre-blended polyols, and a certain limited tonnage of HCFC-22 in the servicing sector because

of one-time effects related to the installation of new large refrigeration and air conditioning equipment during the baseline years. The Secretariat and the agencies, on behalf the country, continue to discuss whether the Government of Kuwait would be in the position to agree to further reductions of their remaining eligible consumption in the servicing sector. Table 9 provides an overview of the reduction in consumption achieved through activities, and the agreed reductions in remaining eligible consumption.

Table 9 - Reductions from the eligible consumption related to stage I of the HPMP

Sector	Activity	Substance	Associated tonnes	
			mt	ODP t
Reductions of consumption related to activities				
XPS foam sector	Conversions of three enterprises	HCFC-22	847.4	46.61
		HCFC-142b	1271.1	82.62
PU foam sector	Conversion of two enterprises	HCFC-141b	141.9	15.61
	Conversion of small spray foam users	HCFC-141b	103.9	11.43
	Conversion of other small users	HCFC-141b	12.3	1.35
Servicing sector	Reductions in service	HCFC-22	281.2	15.47
		HCFC-141b	55.9	6.15
Sub-total			2,713.7	179.24
Further reductions of remaining eligible consumption				
PU foam sector	Reductions related to unknown consumption	HCFC-141b	74.2	8.16
	Reductions related to export of pre-blended polyol containing HCFC-141b	HCFC-141b	295.3	32.49
Servicing sector	Voluntary reductions	HCFC-22	179.4	9.87
Total			3,262.6	229.76

40. The total phase-out under the stage I of the HPMP now represents 42.8 per cent of the baseline. The remaining eligible consumption will be reduced by 53.5 per cent of the starting point, accounting for the effects from reductions related to un-identified consumption, reductions related to the export of pre-blended polyols and voluntary reductions of the remaining eligible servicing sector consumption. The Government has also committed to limit the amount of imports of HCFC-141b after completion of the conversion in the PU foam sector and the implementation of stage I for the servicing sector activities to the current level of HCFC-141b contained in exported pre-blended polyols, i.e. 32.49 ODP tonnes.

Impact on the climate

41. The proposed technical assistance activities in the HPMP, which include the introduction of better servicing practices and enforcement of HCFC import controls, will reduce the amount of HCFC-22 used for refrigeration servicing. Each kilogramme (kg) of HCFC-22 not emitted due to better refrigeration practices results in the savings of approximately 1.8 CO₂-equivalent tonnes. Although a calculation of the impact on the climate was not included in the HPMP, the activities planned by Kuwait, in particular its above-average efforts to improve servicing practices and reduce associated refrigerant emissions indicate that it is likely that the country will surpass the reduction of 13,160 CO₂-equivalent tonnes in HCFC-22 emissions into the atmosphere as estimated in the 2012-2014 business plan. However, at this time, the Secretariat is not in a position to quantitatively estimate the impact of HCFC-22 emission reductions on the climate. The impact might be established through an assessment of implementation reports by, *inter alia*, comparing the levels of refrigerants used annually from the commencement of the implementation of the HPMP, the reported amounts of refrigerants being recovered and recycled, and the number of technicians trained. In addition to the reduction in HCFC-22 emissions, the phase-out of the 55.9 mt of HCFC-141b used as solvent during the servicing of refrigeration systems would avoid the annual emission of 40,248 CO₂-equivalent tonnes, assuming that the replacements will be a combination of better practice avoiding the need to use solvents, and use of hydrocarbon solvent, water-based solutions or

similar low-GWP alternatives. However, given the costs associated with high GWP solvents, the predominant use of climate friendly alternatives seems likely.

42. Table 10 lists all groups of activities proposed under the HPMP and their calculated climate impact. In calculating the climate impact, the affect of the phase-in of the alternative technology was taken into account. The climate impact of the activities add to a reduction of 4.69 million tonnes CO₂ equivalent in emissions related to the use of substances to be phased out under stage I of the HPMP.

Table 10 – Climate impact of the implementation of stage I of the HPMP by group of activities

Sector	Activity	Substance	Alternative technology	Climate impact (mt CO ₂ equiv.)
XPS foam sector	Conversions of three enterprises	HCFC-22	CO ₂ /DME/HFO	-1,524,668
		HCFC-142b	CO ₂ /DME/HFO	-2,922,553
PU foam sector	Conversion of two enterprises	HCFC-141b	Pentane	-102,868
	Conversion of small spray foam users	HCFC-141b	MF or CO ₂	-75,308
	Conversion of other small users	HCFC-141b	MF, CO ₂ /water, pentane	-8,898
Servicing sector	Reductions in service	HCFC-22	Use reduction	-13,160
		HCFC-141b	Use reduction	-40,248
Total				-4,687,703

Co-financing

43. In response to decision 54/39(h) on potential financial incentives and opportunities for additional resources to maximize the environmental benefits from HPMPs pursuant to paragraph 11(b) of decision XIX/6 of the Nineteenth Meeting of the Parties, the HPMP contained a number of detailed concepts for co-financing. The support of enterprises in conversion from HCFCs was defined as an objective for co-financing. The co-financing should, according to the concepts, be provided both in the form of technical assistance as well as in the form of financial contributions. The document discusses alternatives for the latter in investment grants, interest subsidies on commercial loans, and publicly backed guarantees. The HPMP provided also a detailed concept for the necessary institutional arrangements, including the set-up of an inter-ministerial steering committee. However, no concrete information on how to obtain co-funding and about its possible magnitude was provided.

Draft Agreement

44. A draft Agreement between the Government of Kuwait and the Executive Committee for HCFC phase-out is contained in Annex I to the present document.

RECOMMENDATION

45. The Executive Committee may wish to consider:

- (a) Approving, in principle, stage I of the HCFC phase-out management plan (HPMP) for Kuwait for the period 2012 to 2018 to reduce HCFC consumption by 39.2 per cent of the baseline, at the amount of US \$11,032,873, consisting of US \$1,043,000, plus agency support costs of US \$124,730 for UNEP, and US \$9,176,877, plus agency support costs of US \$688,266 for UNIDO;

- (b) Noting that the Government of Kuwait had agreed to establish as its starting point for sustained aggregate reduction in HCFC consumption the baseline of 418.60 ODP tonnes, calculated using actual consumption of 398.11 ODP tonnes and 439.09 ODP tonnes reported for 2009 and 2010, respectively, under Article 7 of the Montreal Protocol, plus 10.64 ODP tonnes of HCFC-141b contained in imported pre-blended polyol systems, resulting in 429.24 ODP tonnes;
- (c) Noting that the Government has committed to limiting the amount of imports of HCFC-141b to the current level of HCFC-141b exported in pre-blended polyols of 32.49 ODP tonnes once the conversion in the polyurethane foam sector and the implementation of the activities for the servicing sector for stage I are completed;
- (d) Deducting 229.76 ODP tonnes of HCFCs from the starting point for sustained aggregate reduction in HCFC consumption;
- (e) Noting that approval of stage I of the HPMP did not preclude Kuwait from submitting, prior to 2015, a proposal to achieve a reduction in HCFCs beyond that addressed in stage I of the HPMP;
- (f) Approving the draft Agreement between the Government of Kuwait and the Executive Committee for the reduction in consumption of HCFCs, as contained in Annex I to the present document;
- (g) Approving the first tranche of stage I of the HPMP for Kuwait, and the corresponding implementation plan, at the amount of US \$4,112,885, consisting of US \$277,000, plus agency support costs of US \$33,126 for UNEP, and US \$3,537,450, plus agency support costs of US \$265,309 for UNIDO; and
- (h) Approving the reallocation of funding remaining from the terminal phase-out management plan (TPMP) of US \$220,000 plus agency support costs for UNEP, and US \$28,000 plus agency support costs for UNIDO, as agreed under the TPMP, in line with the implementation plans provided.

Annex I

DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF THE STATE OF KUWAIT AND THE EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE REDUCTION IN CONSUMPTION OF HYDROCHLOROFLUOROCARBONS

1. This Agreement represents the understanding of the Government of The State of Kuwait (the “Country”) and the Executive Committee with respect to the reduction of controlled use of the ozone-depleting substances (ODS) set out in Appendix 1-A (“The Substances”) to a sustained level of 254.47 ODP tonnes by 1 January 2018 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 that exceeds the level defined in row 1.2 of Appendix 2-A 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 that exceeds the level defined in rows 4.1.3, 4.2.3, 4.3.3, 4.4.3, and 4.5.3 (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 to the Country. The Executive Committee will, in principle, provide this funding at the Executive Committee meetings specified in Appendix 3-A (“Funding Approval Schedule”).

4. The Country agrees to implement this Agreement in accordance with the HCFC phase-out sector plans submitted. In accordance with sub-paragraph 5(b) of this Agreement, the Country will accept independent verification of the achievement of the annual consumption limits of the Substances as set out in row 1.2 of Appendix 2-A of this Agreement. The aforementioned verification will be commissioned by the relevant bilateral or implementing agency.

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 eight weeks in advance of the applicable Executive Committee meeting set out in the Funding Approval Schedule:

- (a) That the Country had met the Targets set out in row 1.2 of Appendix 2-A for all relevant years. Relevant years are all years since the year in which this Agreement was approved. 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 are exempted;
- (b) That the meeting of these Targets has been independently verified, unless the Executive Committee decided that such verification would not be required;
- (c) That the Country had submitted annual implementation reports in the form of Appendix 4-A (“Format of Implementation Reports and Plans”) covering each previous calendar year; that it had achieved a significant level of implementation of activities initiated with previously approved tranches; and that the rate of disbursement of funding available from the previously approved tranche was more than 20 per cent;

- (d) That the Country has submitted an annual implementation plan in the form of Appendix 4-A covering each calendar year until and including the year for which the funding schedule foresees the submission of the next tranche or, in case of the final tranche, until completion of all activities foreseen; and
- (e) That, for all submissions from the 68th meeting onwards, confirmation has been received from the Government that an enforceable national system of licensing and quotas for HCFC imports and, where applicable, production and exports is in place and that the system is capable of ensuring the Country's compliance with the Montreal Protocol HCFC phase-out schedule for the duration of this Agreement.

6. The Country will ensure that it conducts accurate monitoring of its activities under this Agreement. The institutions set out in Appendix 5-A (“Monitoring Institutions and Roles”) will monitor and report on implementation of the activities in the previous annual implementation plans 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 paragraph 4 above.

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 reduction of consumption and phase-out of the Substances specified in Appendix 1-A:

- (a) Reallocations categorized as major changes must be documented in advance either in an annual implementation plan submitted as foreseen in sub-paragraph 5(d) above, or as a revision to an existing annual implementation plan to be submitted eight weeks prior to any meeting of the Executive Committee, for its approval. Major changes would relate to:
 - (i) Issues potentially concerning the rules and policies of the Multilateral Fund;
 - (ii) Changes which would modify any clause of this Agreement;
 - (iii) Changes in the annual levels of funding allocated to individual bilateral or implementing agencies for the different tranches; and
 - (iv) Provision of funding for programmes or activities not included in the current endorsed annual implementation plan, or removal of an activity in the annual implementation plan, with a cost greater than 30 per cent of the total cost of the last approved tranche;
- (b) Reallocations not categorized as major changes may be incorporated in the approved annual implementation plan, under implementation at the time, and reported to the Executive Committee in the subsequent annual implementation report;
- (c) Should the Country decide during implementation of the agreement to introduce an alternative technology other than that proposed in the approved HPMP, this would require approval by the Executive Committee as part of an Annual Implementation Plan or the revision of the approved plan. Any submission of such a request for change in technology would identify the associated incremental costs, the potential impact to the climate, and any differences in ODP tonnes to be phased out if applicable. The Country agrees that potential savings in incremental costs related to the change of technology would decrease the overall funding level under this Agreement accordingly;

- (d) Any enterprise to be converted to non-HCFC technology included in the approved HPMP and that would be found to be ineligible under the guidelines of the Multilateral Fund (i.e., due to foreign ownership or establishment post the 21 September 2007 cut-off date), will not receive assistance. This information would be reported to the Executive Committee as part of the Annual Implementation Plan; and
- (e) Any remaining funds will be returned to the Multilateral Fund upon completion of the last tranche foreseen under this Agreement.

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. UNEP has agreed to be the lead implementing agency (the "Lead IA") and UNIDO has agreed to be the 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 agencies taking part in this Agreement.

10. The Lead IA will be responsible for ensuring co-ordinated planning, implementation and reporting of all activities under this Agreement, including but not limited to independent verification as per sub-paragraph 5(b). This responsibility includes the necessity to co-ordinate with the Cooperating IA to ensure appropriate timing and sequence of activities in the implementation. The Cooperating IA will support the Lead IA by implementing the activities listed in Appendix 6-B under the overall co-ordination of the Lead IA. The Lead IA and Cooperating IA have reached consensus on the arrangements regarding inter-agency planning, reporting and responsibilities under this Agreement to facilitate a co-ordinated implementation of the Plan, including regular co-ordination meetings. 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 amount set out in Appendix 7-A ("Reductions in Funding for Failure to Comply") in respect of each ODP kg 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 above.

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 the information necessary to verify compliance with this Agreement.

14. The completion of stage I 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 level has been specified in Appendix 2-A. Should there at that time still be activities that are outstanding, and 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 sub-paragraphs 1(a), 1(b), 1(d), and 1(e) of Appendix 4-A will continue until the time of the completion unless otherwise specified by the Executive Committee.

15. All of the conditions 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	260.45
HCFC-123	C	I	0.28
HCFC-141b	C	I	75.19
HCFC-142b	C	I	82.68
Sub-total			418.60
HCFC-141b in imported pre-blended polyol	C	I	10.64
Total			429.24

APPENDIX 2-A: THE TARGETS, AND FUNDING

Row	Particulars	2012	2013	2014	2015	2016	2017	2018	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	n/a	418.6	418.6	376.7	376.7	376.7	376.7	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	n/a	415.60	336.81	338.98	297.87	296.17	254.50	n/a
2.1	Lead IA (UNEP) agreed funding (US \$)	277,000	0	337,000	0	332,000	0	97,000	1,043,000
2.2	Support costs for Lead IA (US \$)	33,126	0	40,301	0	39,703	0	11,600	124,730
2.3	Cooperating IA (UNIDO) agreed funding (US \$)	3,537,450	0	3,615,982	0	1,103,445	0	920,000	9,176,877
2.4	Support costs for Cooperating IA (US \$)	265,309	0	271,199	0	82,758	0	69,000	688,266
3.1	Total agreed funding (US \$)	3,814,450	0	3,952,982	0	1,435,445	0	1,017,000	10,219,877
3.2	Total support costs (US \$)	298,435	0	311,500	0	122,461	0	80,600	812,996
3.3	Total agreed costs (US \$)	4,112,885	0	4,264,482	0	1,557,906	0	1,097,600	11,032,873
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)								71.95
4.1.2	Phase-out of HCFC-22 to be achieved in previously approved projects (ODP tonnes)								0.00
4.1.3	Remaining eligible consumption for HCFC-22(ODP tonnes)								188.50
4.2.1	Total phase-out of HCFC-123 agreed to be achieved under this Agreement (ODP tonnes)								0.00
4.2.2	Phase-out of HCFC-123 to be achieved in previously approved projects (ODP tonnes)								0.00
4.2.3	Remaining eligible consumption for HCFC-123 (ODP tonnes)								0.28
4.3.1	Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes)								75.19
4.3.2	Phase-out of HCFC-141b to be achieved in previously approved projects (ODP tonnes)								0.00
4.3.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)								0.00
4.4.1	Total phase-out of HCFC-142b agreed to be achieved under this Agreement (ODP tonnes)								82.68
4.4.2	Phase-out of HCFC-142b to be achieved in previously approved projects (ODP tonnes)								0.00
4.4.3	Remaining eligible consumption for HCFC-142b (ODP tonnes)								0.00
4.5.1	Total phase-out of HCFC-141b contained in imported pre-blended polyols agreed to be achieved under this Agreement (ODP tonnes)								0.00
4.5.2	Phase-out of HCFC-141b contained in imported pre-blended polyols to be achieved in previously approved projects (ODP tonnes)								0.00
4.5.3	Remaining eligible consumption for HCFC-141b contained in imported pre-blended polyols (ODP tonnes)								10.64

APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

1. Funding for the future tranches will be considered for approval at the first meeting of the year specified in Appendix 2-A.

APPENDIX 4-A: FORMAT OF IMPLEMENTATION REPORTS AND PLANS

1. The submission of the Implementation Report and Plan for each tranche request will consist of five parts:

- (a) A narrative report, with data provided by calendar year, regarding the progress since the year prior to the previous report, reflecting 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 include ODS phase-out as a direct result from the implementation of activities, by substance, and the alternative technology used and the related phase-in of alternatives, to allow the Secretariat to provide to the Executive Committee information about the resulting change in climate relevant emissions. The report should further highlight successes, experiences, and challenges related to the different activities included in the Plan, reflecting any changes in the circumstances in the Country, and providing other relevant information. The report should also include information on and justification for any changes vis-à-vis the previously submitted Annual Implementation Plan(s), 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 on 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 until and including the year of the planned submission of the next tranche request, highlighting the interdependence of the activities, and taking into account experiences made and progress achieved in the implementation of earlier tranches; the data in the plan will be provided by calendar year. The description should also include a reference to the overall plan and progress achieved, as well as any possible changes to the overall plan that are foreseen. The description should cover the years specified in sub-paragraph 5(d) of the Agreement. The description should also specify and explain in detail such changes to the overall plan. This description of future activities can be submitted as a part of the same document as the narrative report under sub-paragraph (b) above;
- (d) A set of quantitative information for all annual implementation reports and annual implementation plans, submitted through an online database. 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), the annual implementation plan and any changes to the overall plan, and will cover the same time periods and activities; and
- (e) An Executive Summary of about five paragraphs, summarizing the information of the above sub-paragraphs 1(a) to 1(d).

APPENDIX 5-A: MONITORING INSTITUTIONS AND ROLES

1. The Environment Public Authority (EPA) established a National Ozone Committee (NOC) for the implementation of the TPMP. The NOC will continue to oversee all activities under the Montreal Protocol including the HPMP. The National Ozone Unit (NOU) in consultation with the (NOC) and management of the EPA will formulate a Project Implementation Team.

2. The Project Implementation Team will be responsible for:

- (a) Managing and co-ordinating implementation, of all Montreal Protocol projects, with the various Governmental ministries, authorities and relevant private sectors;
- (b) Proposing, contracting (in consultation with the NOU, Lead IA and Cooperating IA) and managing teams of national experts that can undertake the responsibility of implementing all Montreal Protocol projects in different sectors;
- (c) Developing and implementing training, awareness and capacity-building activities for key government departments, legislators, decision-makers and other institutional stakeholders, to ensure a high-level commitment to the Plan's objectives and obligations;
- (d) Raising awareness in all sectors among consumers and the public, through workshops, media publicity and other information dissemination measures;
- (e) Preparing annual implementation plans including determining the sequence of enterprise participation in planned sub-projects;
- (f) Reporting to the NOC on implementation progress of the Plan for the annual performance-based; and
- (g) Establishing and operating a decentralized mechanism for monitoring and evaluation of projects' outputs, in association with provincial regulatory environmental bodies to ensure sustainability.

Monitoring and Validation

3. The NOU in close cooperation with relevant authorities will monitor the consumption data of all HCFCs. The Lead IA and Cooperating IA will work together in the future on consumption data reconciliation. The Project Implementation Team will provide detailed information to the NOU and to both agencies about the progress of each component and their deliverables, who in turn will work together to monitor the implementation and validate the outcomes of the project, this will be done through:

- (a) Reviewing and approving the detailed implementation plan for each activity as developed by the project implementation team;
- (b) Receiving and verifying periodic reports, from the Project Implementation Team, about the progress of each activity;
- (c) Ensuring that each tranche objectives are met as planned and reviewing the end of tranche report;
- (d) Providing technical advice to the Project Implementation Team in problems/obstacles faced during implementation;

- (e) Facilitating the communication of the Project Implementation Team with local decision-makers as needed;
- (f) Reviewing implementation status in accordance with the Country's contracts with both implementing agencies;
- (g) Ensuring the timely implementation of the HPMP components by validating:
 - (i) The successful completion of the extruded polystyrene foam (XPS) conversion project to non-HCFC technology by the end of stage I and that the Country issued a ban of HCFC-142b import;
 - (ii) The successful completion of the polyurethane foam conversion project to non-HCFC technology as per stage I of the HPMP;
 - (iii) That all enterprises working with spray foam converted to suitable alternatives;
 - (iv) That refrigerant identifiers are purchased, distributed and in operation by customs and relevant authorities;
 - (v) That specialized training is provided for the personnel of different authorities regarding regulation enforcement and combating illegal trade;
 - (vi) That national standards and codes included in the HPMP are developed and enacted;
 - (vii) That the national code of good practice and a certification scheme for refrigeration technicians are developed, introduced and enacted;
 - (viii) That pilot training on the certification scheme is carried out;
 - (ix) That guidelines for local reclamation centres are being developed; and
 - (x) That two national reclamation centres are established and in operation.

4. Cost information will also be compiled, such as: the cost of recovery at every service workshop with an indication as to who is covering the cost; the cost of reclamation at every reclaim centre with an indication as to who is covering cost; the price of reclaimed CFC refrigerants; and, other financial information relevant to monitoring the efficacy of the system.

APPENDIX 6-A: ROLE OF THE LEAD IMPLEMENTING AGENCY

1. The Lead IA will be responsible for a range of activities, including 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 HPMP;
 - (b) Assisting the Country in preparation of the Implementation Plans and subsequent reports as per Appendix 4-A;

- (c) Providing independent verification to the Executive Committee that the Targets have been met and associated annual activities have been completed as indicated in the 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 annual implementation plans consistent with sub-paragraphs 1(c) and 1(d) of Appendix 4-A;
- (e) Fulfilling the reporting requirements for the annual implementation reports, annual implementation plans and the overall plan as specified in Appendix 4-A 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 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 Cooperating IA, the allocation of the reductions to the different budget items and to the funding of each implementing or bilateral agency involved;
- (k) Ensuring that disbursements made to the Country are based on the use of the indicators; and
- (l) Providing assistance with policy, management and technical support when required.

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

APPENDIX 6-B: ROLE OF THE COOPERATING IMPLEMENTING AGENCY

1. The Cooperating IA will be responsible for a range of activities. These activities are specified in the overall plan, including at least the following:

- (a) Providing assistance for policy development 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 co-ordinated 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 \$114 per ODP kg 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.
