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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Seventy-second Meeting
Montreal, 12-16 May 2014

PROJECT PROPOSAL: MEXICO

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

Phase-out

- HCFC phase-out management plan (stage II, first tranche) Germany/Italy/UNEP/UNIDO

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS
Mexico

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

(II) LATEST ARTICLE 7 DATA (Annex C Group I)	Year: 2012	1,103.98 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)									Year: 2012
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab Use	Total sector consumption
				Manufacturing	Servicing				
HCFC-123					0.7				0.7
HCFC-124					0.6				0.6
HCFC-141b	32.5	382.6		218.9					634.0
HCFC-142b		47.2							47.2
HCFC-22	20.9	27.0		50.6	310.1				408.5

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline:	1,148.8	Starting point for sustained aggregate reductions:	1,214.8
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	417.30	Remaining:	797.45

(V) BUSINESS PLAN		2014	2015	2016	2017	2018	2020	Total
UNEP	ODS phase-out (ODP tonnes)	0	0	0	0	0	0	0
	Funding (US $)	0	0	40,000	0	40,000	0	80,000
UNIDO	ODS phase-out (ODP tonnes)	160.2	0	73.9	0	10.0	10.0	254.10
	Funding (US $)	8,888,839	0	3,742,860	0	875,455	875,455	14,382,609
Germany	ODS phase-out (ODP tonnes)	0	1.6	1.6	1.6	0	0	4.8
	Funding (US $)	33,900	400,000	0	0	0	0	433,900
Italy	ODS phase-out (ODP tonnes)	25.6	0	0	0	0	0	25.6
	Funding (US $)	300,000	0	0	0	0	0	300,000

(VI) PROJECT DATA			2014	2015	2016	2018	2020	2022	Total
Montreal Protocol consumption limits (*)			1,148.80	1,033.92	1,033.92	1,033.92	746.72	746.72	n/a
Maximum allowable consumption (ODP tonnes) (*)			1,148.80	1,033.92	1,033.92	746.72	574.40	373.36	n/a
Project costs requested in principle (US$)	UNIDO	Project costs	2,581,403		3,499,200	1,808,490	1,162,350	450,600	9,502,043
		Support costs	180,698	-	244,944	126,594	81,365	31,542	665,143
	Germany	Project costs	325,000		325,000				650,000
		Support costs	40,750		40,750				81,500
	Italy	Project costs	281,200						281,200
		Support costs	36,556						36,556
	UNEP	Project costs			40,000		40,000		80,000
		Support costs			5,200		5,200		10,400
Total project costs requested in principle (US $)			3,187,603	-	3,864,200	1,808,490	1,202,350	450,600	10,513,243
Total support costs requested in principle (US $)			258,004	-	290,894	126,594	86,565	31,542	793,599
Total funds requested in principle (US $)			3,445,607	-	4,155,094	1,935,084	1,288,915	482,142	11,306,842

(*) Consumption limits for 2017 are the same as in 2016, for 2019 are the same as in 2018, and for 2021 are the same as in 2020.

(VII) Request for funding for the first tranche (2014)		
Agency	**Funds requested (US $)**	**Support costs (US $)**
UNIDO	2,581,403	180,698
Germany	325,000	40,750
Italy	281,200	36,556

Funding request:	Approval of funding for the first tranche (2014) as indicated above
Secretariat's recommendation:	For individual consideration

PROJECT DESCRIPTION

1. On behalf of the Government of Mexico, UNIDO, as the lead implementing agency, has submitted to the 72nd meeting of the Executive Committee stage II of the HCFC phase-out management plan (HPMP) [1] at a total cost of US $11,932,054, consisting of US $10,086,353, plus agency support costs of US $706,045 for UNIDO, US $80,000, plus agency support costs of US $10,400 for UNEP, US $650,000, plus agency support costs of US $81,500 for Germany and US $281,200, plus agency support costs of US $36,556 for Italy, as originally submitted. The implementation of stage II of the HPMP will phase out 433.14 ODP tonnes[2] of HCFCs and assist Mexico in meeting the Montreal Protocol's compliance target of the 65 per cent reduction by 2022.

2. The first tranche for stage II of the HPMP being requested at this meeting amounts to US $3,623,828, consisting of US $2,746,563, plus agency support costs of US $192,259 for UNIDO, US $325,000, plus agency support costs of US $42,250 for Germany, and US $281,200, plus agency support costs of US $36,556 for Italy, as originally submitted.

Status of stage I

3. Stage I of the HPMP for Mexico was approved by the Executive Committee at its 64th meeting to meet the 30 per cent reduction of the established HCFC baseline of 1,148.8 ODP tonnes by 1 January 2018. Stage I includes the reduction of HCFCs in the foam and aerosol manufacturing sector, and in the refrigeration servicing sector. An overview of the results achieved so far is included below.

Activities in the polyurethane (PU) foam manufacturing sector

4. *Domestic refrigeration (MABE):* The conversion from HCFC-141b and HCFC-22 to cyclopentane in the production of insulation foam for domestic refrigerators at Mabe Mexico is ongoing. Equipment is currently being installed and the converted plant will be fully operational by the end of 2014, resulting in the phase-out of 55.90 ODP tonnes of HCFC-141b and HCFC-22.

5. *Systems houses and downstream users*: Assistance is being provided to 10 systems houses[3] and their customers to phase out 299.90 ODP tonnes of HCFC-141b used in the manufacturing of rigid and flexible/integral skin PU foams. To date, the majority of assisted systems houses have completed industrial conversion and have developed new HCFC-free formulations that are being tested by selected end-users/customers.

6. *Commercial refrigeration (Fersa, Frigopanel and Metalfrio):* Through this project, three commercial refrigeration companies are phasing out their total consumption of HCFC-141b and replacing it with cyclopentane. Metalfrio will complete its conversion by the end of 2014 with a phase-out of 9.2 ODP tonnes, while Frogopanel and Fersa, which had slower implementation due to the large share of counterpart inputs required, are expected to be completed during 2015, with an estimated phase-out of 13.7 ODP tonnes.

Activities in the aerosol manufacturing sector

7. *Conversion of Silimex Company:* This project is phasing out 11 ODP tonnes of HCFC-22 and HCFC-141b in the manufacturing of aerosols at Silimex. HCFC-free formulations have been developed, and some of those not requiring hydrocarbons (HC) are already being distributed on the market.

[1] Stage II of the HPMP for Mexico was formulated without preparatory funding. Preparatory funding for Mexico is estimated at US $170,000.
[2] A total of 164.01 ODP tonnes funded by the Multilateral Fund plus additional 269.13 ODP tonnes not funded.
[3] Three additional non-eligible systems houses are also participating without assistance from the Multilateral Fund.

Conversion has also been finalized and trial runs are ongoing followed by training of employees. The project will be completed in 2014.

Activities in the refrigeration sector

8. The main activity is the first part of the project to phase out HCFCs used as cleaning agent during servicing. Under this project UNIDO is promoting the use of low-global warming potential (GWP), zero ODP tonne and low toxicity alternatives[4], and the use of recovery equipment that allows the reuse of the flushing agent up to 25 to 30 times. Results include *inter alia* delivery of equipment to 20 training centres, training to 60 trainers, and finalization of the new manual on good maintenance practices for technicians. Technical specifications for equipment procurement have been prepared and agreed with the Government, and shipping is expected in November 2014.

Project coordination and monitoring

9. Other activities implemented to control HCFC import levels and production include the issuance of quotas per company and per chemical on the basis of the average imports for 2009-2010, training of 50 customs officers on methods to prevent illegal trade and delivery of 12 identifiers to more than 23 customs offices throughout the country.

Tranches and disbursement

10. Table 1 shows the status of tranches approved and funds disbursed under stage I of the HPMP for Mexico.

Table 1. Status of tranche approvals and disbursements stage I as of February 2014

Description	Impact (ODP tonnes)		Funds (US $)		
	HCFC-141b	HCFC-22	Approved in principle	Tranches approved	Disbursement
Mabe foam project	38.9	16.8	2,428,987	2,428,987	2,100,500
Three commercial refrigeration	23.0	-	2,046,110	2,046,110	563,622
Systems houses	299.9	-	11,225,029	10,102,526	3,500,000
Silimex aerosol project	7.7	3.3	520,916	520,916	336,229
Servicing sector and project monitoring	23.0	4.7	1,845,169	1,498,852	415,505
Total	392.5	24.8	18,066,211	16,597,391	6,915,856

Stage II

ODS policy and regulatory framework

11. Mexico has ratified all the Amendments to the Montreal Protocol. The Government of Mexico has also established an enforceable national licensing and quota system for imports and exports of HCFCs, operated by the Ozone Office under the auspices of the Secretary of Environment and Natural Resources (SEMARNAT) and in coordination with the Ministry of Health and Customs Administration. The annual import quotas for the years 2013 and 2014 were established at 1,141.14 ODP tonnes, which is 7.65 ODP tonnes below the baseline for compliance. Mexico also established a specific customs tariff for each of the HCFCs to ensure that all HCFCs are properly regulated and controlled.

12. The licensing and quota system in Mexico is based on the National Rules for Imports and Exports of Chemical Substances and Materials issued in 2004. The authorized importer has to explicitly request the General Direction of Air Quality Management for an import quota based on the 2009-2010 average

[4] Products used include superflush, turboclean and CF-20.

amounts imported. This request is reviewed by the National Ozone Unit (NOU). Following clearance, the importer has to request an import authorization from the Secretariat of Health. An import permit has to be requested through the Hazardous Materials and Substances Division of the Secretariat of the Environment. The amount of HCFCs to be imported is registered in the Information and Monitoring System (SISSAO). After ensuring that all import permits are in place, the amounts of HCFCs entering into the country are registered in the SISSAO by the Customs authorities and the information is passed on to the NOU.

HCFC consumption, production and sector distribution

Table 2. HCFC consumption in Mexico (2008-2012 Article 7, 2013 estimated)

HCFC	2008	2009	2010	2011	2012	2013*	Baseline
Metric tonnes							
HCFC-22	7,142.0	9,419.0	7,591.2	6,704.5	7,425.3	4,694.6	8,505.1
HCFC-123	13.9	54.0	92.1	63.3	37.0	20.9	73.1
HCFC-124	2.7	5.0	10.9	161.3	29.3	-62.2	8.0
HCFC-141b	7,459.7	5,503.5	6,744.2	6,196.2	5,882.2	4,691.4	6,123.9
HCFC-142b	16.0	20.0	158.3	437.7	725.5	89.0	89.2
Total mt	**14,634.3**	**15,001.5**	**14,596.7**	**13,563.0**	**14,099.3**	**9,433.7**	**14,799.3**
ODP tonnes							
HCFC-22	392.8	518.0	417.5	368.75	408.39	258.2	467.8
HCFC-123	0.28	1.1	1.8	1.27	0.74	0.4	1.5
HCFC-124	0.1	0.1	0.2	3.55	0.65	-1.4	0.2
HCFC-141b	820.6	605.4	741.9	681.58	647.04	516.1	673.6
HCFC-142b	1.04	1.3	10.3	28.45	47.16	5.8	5.8
Total ODP tonnes	**1,424.7**	**1,125.9**	**1,171.7**	**1,083.40**	**1,103.98**	**779.2**	**1,148.8**

*Based on verification report submitted by UNIDO.

13. Similar to the HCFC consumption levels in 2011 and 2012, preliminary data indicates that HCFC consumption for 2013 is below the first Montreal Protocol control target of 1,148.8 ODP tonnes for Mexico. The first official consumption report for 2013 (country programme implementation report) will be submitted to the Multilateral Fund Secretariat on 1 May 2014.

14. Mexico continues to produce HCFC-22 for the domestic market and for exports. Mexico also exports HCFC-141b contained in pre-blended polyols (estimated at 12.22 ODP tonnes in 2013). Production and exports figures for HCFC-22 are presented below in Table 3.

Table 3. HCFC-22 production and exports in Mexico

Production	2010	2011	2012	2013*	Baseline
Metric tonnes	12,618.80	11,812.70	7,872.00	7,378.00	12,671.90
ODP tonnes	694.0	649.70	432.96	405.79	697.00
Exports					
Metric tonnes	10,800.00	10,952.73	4,590.91	5,726.60	n/a
ODP tonnes	594.00	602.40	252.50	314.96	n/a

*****Based on verification report submitted by UNIDO.

15. Table 4 below shows HCFC consumption distributed by user sectors.

Table 4. HCFC use distribution by sector (2012)*

HCFC	Refrigeration		Foam	Aerosol	Total	Percentage of total
	Manufacture	Servicing				
Metric tonnes						
HCFC-22	920.00	5,638.00	478.90	391.00	7,428.00	53%
HCFC-123	-	37.00	-	-	37.00	0%
HCFC-124	-	29.30	-	-	29.30	0%
HCFC-141b	1,971.80	-	3,357.60	434.20	5,763.60	41%
HCFC-142b	-	-	725.50	-	725.50	5%
Total (mt)	**2,891.80**	**5,704.30**	**4,562.00**	**825.20**	**13,983.40**	100%
Percentage of total	21%	41%	33%	6%	100%	
ODP tonnes	-	-	-	-		
HCFC-22	50.60	310.09	26.34	21.51	408.53	37%
HCFC-123	-	0.74	-	-	0.74	0%
HCFC-124	-	0.64	-	-	0.64	0%
HCFC-141b	216.90	-	369.34	47.76	634.00	58%
HCFC-142b	-	-	47.16	-	47.16	4%
Total (ODP tonnes)	**267.50**	**311.47**	**442.84**	**69.27**	**1,091.07**	
Percentage of total	25%	29%	41%	6%	100%	

*The estimation of HCFCs use can differ from consumption reported under Article 7. One possible reason is that not all imported and produced HCFC are used in the same year.

16. In 2012, HCFC-22 represented 53 per cent of the consumption in metric tonnes, followed by HCFC-141b (41 per cent). However, in ODP tonnes, consumption of HCFC-141b accounted for 58 per cent of the consumption. The completion of the investment projects funded under stage I will represent a large reduction of HCFC-141b in 2014 and 2015, leaving HCFC-22 as the largest consumed substance in both metric and ODP tonnes.

HCFC consumption in manufacturing sectors

17. The status of consumption of HCFCs by manufacturing sectors after stage I of the HPMP is summarized as follows:

(a) All eligible consumption of HCFC-141b and HCFC-22 in the PU foam manufacturing sector has been addressed by stage I with an overall impact of 361.74 ODP tonnes of HCFC-141b and 16.83 ODP tonnes of HCFC-22. The remaining consumption of HCFC-141b in this sector, estimated at 1,000 mt (110 ODP tonnes) is consumed by one non-Article 5 owned enterprise. This enterprise will phase out the use of HCFC-141b by 2022 with its own funds during stage II;

(b) There are 65 aerosol plants in Mexico but only nine of them have used HCFCs in recent years. The largest enterprise (Silimex) was assisted during stage I of the HPMP. The remaining HCFC consumed in these applications will be addressed in stage II, except for 2.97 ODP tonnes of HCFC-141b used in medical applications for which no alternative has been yet identified;

(c) Consumption of HCFC-22 in the refrigeration and air-conditioning manufacturing sector is attributed mostly to five air-conditioning manufacturing enterprises, out of which around 99 per cent of the consumption corresponds to a non-Article 5 owned enterprise, and a very small portion is consumed by three locally owned enterprises manufacturing commercial and industrial refrigeration equipment. HCFC-22 consumption in the air-conditioning manufacturing sector has decreased in recent years; and

(d) HCFC-22 and HCFC-142b are also consumed in the extruded polystyrene (XPS) foam manufacturing sector by one non-Article 5 enterprise and two smaller locally owned enterprises. Given the limited consumption of HCFCs by the local XPS manufacturers, their conversion would require a large co-financing that they are not able to provide. These enterprises will be addressed at a future stage when appropriate and financially viable alternatives become available.

HCFC consumption in the refrigeration and air-conditioning servicing sector

18. While the use of HCFC-22 in the refrigeration and air-conditioning manufacturing sector decreased from 211.75 ODP tonnes in 2008 to 50.60 ODP tonnes in 2012, consumption in the refrigeration servicing sector increased from 137.06 ODP tonnes to 310.09 ODP tonnes during the same years. The main reasons provided for this shift in consumption are:

(a) A sharp reduction in the manufacturing of HCFC-22-based air-conditioning equipment and some appliances for commercial refrigeration, due to technology, costs, energy-efficiency requirements and bans on HCFC-based equipment in the main export markets; and

(b) An increase in air-conditioning equipment installation in recent years and the tendency by many end-users to maintain their old air-conditioning equipment in operation beyond its recommended useful life instead of replacing it, thereby intensifying servicing needs. The leak rate of such equipment during operation and repeated servicing is abnormally high.

HCFC phase-out strategy

19. The Government of Mexico considers it urgent to start stage II of the HPMP[5] to complete the conversion of the aerosol sector to ensure equivalent conditions for competing enterprises being converted under stage I and stage II; reduce HCFC-141b imports to prevent emerging enterprises from starting its use; and provide more significant assistance to the refrigeration servicing sector, where easy access to inexpensive domestically produced HCFC-22 hinders the reduction of consumption of this substance.

20. To maintain the momentum achieved in stage I and ensure the sustainable and accelerated achievement of forthcoming reduction targets, the Government of Mexico and UNIDO formulated stage II of the HPMP to reach 50 per cent reduction of baseline consumption by 2020 as the first step, and a total of 65 per cent reduction of the baseline by the year 2022 as the second step.

21. To achieve these reductions, the Government of Mexico proposes for stage II to phase out the remaining HCFC-141b consumption in all eligible and in some non-eligible enterprises by 2022, except for 27 mt (2.97 ODP tonnes) left as reserve to be used in the manufacturing of medical needles for which no viable alternative is available yet. In addition, stage II includes assistance to reduce 105.06 ODP tonnes of HCFC-22 used in aerosol manufacturing and in the refrigeration servicing sector. Upon completion of stage II, HCFC consumption will be mainly in the refrigeration servicing sector, as well as a small portion linked to two eligible enterprises in the XPS foam sector[6].

22. The accelerated phase-out is supported by the conversion of non-eligible enterprises (110.00 ODP tonnes of HCFC-141b by 2020 and an additional 145.26 ODP tonnes of HCFC-141b and

[5] Submitted in line with decision 64/45(e) which "notes that approval of stage I of the HPMP did not preclude Mexico from submitting, prior to 2015, a proposal to achieve phase-out of HCFCs beyond that addressed in stage I of the HPMP".

[6] HCFC consumed by an additional non-eligible enterprise in the XPS foam sector would need to be deducted from the remaining eligible consumption when this sector is addressed.

13.88 ODP tonnes of HCFC-22 by 2022). The Government of Mexico will ensure that there are agreements with non-eligible enterprises to take voluntary measures and/or apply for other sources of financing for the accelerated phase-out of their HCFC-141b consumption.

Proposed phase-out activities

23. The main activities to be implemented during stage II of the HPMP are regulatory actions, activities in the manufacturing sector, activities in the refrigeration servicing sector and staged phase-out of HCFC-22 production (which is not included in this proposal).

Regulatory actions and monitoring

24. The following activities will be implemented between 2018 and 2022 in coordination with the investment and training activities started in stage I:

(a) *Updating and operating the quota and licensing system and legislation:* It includes periodic update of the ODS import, export and production registry and monitoring system introduced in stage I (SISSAO), installation of a new workstation to monitor the performance of the system and further updates to the HCFC related legislation;

(b) *Customs activities:* It includes two additional workshops on new customs legislation, harmonized customs system, new refrigerants and their identification codes, intelligence systems, smuggling patterns, and ODS identification methods to prevent or identify illegal trade;

(c) *Monitoring of HCFC production:* It includes continuation of yearly monitoring of domestic HCFC production through the licensing and quota system and verification visits to the production facilities by international experts;

(d) *Public awareness:* It includes media campaigns, and other dissemination actions by SEMARNAT and other stakeholders to support timely phase-out of HCFCs and facilitate introduction of HCFC-free products; and

(e) *HPMP coordination and monitoring:* It includes annual coordination meetings with stakeholders to enact the necessary agreements for investment and non-investment activities in a timely and coordinated manner. This component is of particular importance in stage II as it includes negotiations, plant visits and regular on-site monitoring of the phase-out process in non-eligible enterprises.

Activities in the manufacturing sector

Conversion from HCFC-141b to HFO blowing agent at Whirlpool Mexico

25. Whirlpool will replace the use of 110 ODP tonnes of HCFC-141b by a hydrofluoro-olefin (HFO) blowing agent in two domestic refrigeration manufacturing plants with funding outside the Multilateral Fund. This activity will assist the country to achieve the 50 per cent reduction in 2020.

Phase-out of HCFC-22 and HCFC-141b in the aerosol manufacturing sector

26. This project will eliminate the use of 42.24 ODP tonnes of HCFC-141b and 21.13 ODP tonnes of HCFC-22 in aerosol and solvent applications in eight enterprises. HCFC-22 use as an aerosol propellant and as a product in duster aerosols began after CFC-12 was banned. HCFC-141b use as a solvent increased after the ban of CFC-11, CFC-113a and 1,1,1-trichloroethane.

27. Current conditions for phasing out HCFC in the aerosol sector are different from those for CFC phase-out[7]. Each enterprise needs to formulate its own HCFC-free products. Several uses such as dusters have been formulated from their origins with HCFC. In addition, HCFC-based products (e.g. electronic cleaners) still have major quality and price advantages over HCFC-free ones. The performance of some solvent alternatives also needs to be proven as it will be a factor for end-users to choose one aerosol product over another.

28. Currently there are eight aerosol enterprises consuming HCFC in Mexico, mostly in dusters (using HCFC-22), and electrical and electronic cleaners (using HCFC-141b and HCFC-22). One enterprise manufactures a solvent aerosol for various industrial applications using HCFC-141b (90 per cent) and HCFC-22 (10 per cent).

Table 5. Aerosol enterprises consuming HCFC in Mexico (2012)

Enterprise(*)	Uses	HCFC-22		HCFC-141b		Total consumption	
		mt	ODP tonnes	mt	ODP tonnes	mt	ODP tonnes
Aerosoles internacionales	Electronic cleaner, duster	35.80	1.97	12.75	1.40	48.55	3.37
Alben international	Duster	10.27	0.56	-	-	10.27	0.56
Dimmex	Duster	60.34	3.32	-	-	60.34	3.32
Envatec	Electronic cleaner, duster	70.06	3.85	14.00	1.54	84.06	5.39
Quimica Jerez	Electronic cleaner, duster	29.90	1.64	22.00	2.42	51.90	4.06
Quimica Marcat	Electronic cleaner, duster, silicon	90.80	4.99	79.35	8.73	170.15	13.72
Quimobasicos**	Industrial cleaner	18.75	1.03	206.60	22.73	225.35	23.76
Tecnosol	Electronic cleaner, duster	68.30	3.76	49.25	5.42	117.55	9.17
TOTAL		**384.22**	**21.13**	**383.95**	**42.23**	**768.17**	**63.37**

(*) For all enterprises, production started prior to the cut-off date.
(**) Fifty-one percent local ownership.

29. Alternatives to HCFCs in aerosol and solvent applications were evaluated on availability, cost, capital cost of conversion, market conditions, end-users' requirements, performance and environmental aspects such as impact on climate and on air quality. After considering availability in local markets, price, impact on climate and air quality, and issues related to flammability, the proposed formulations for aerosol and solvent applications are shown in Table 6.

Table 6. Selection of alternatives for aerosol and solvent applications stage II

Application	HCFC consumption	Current formulation	Proposed formulation	Observations
Electronic cleaner	189.37	70% HCFC-141b 30% HCFC-22	50% perchloroetylene 50% HFC-134a	Formulation must be non-flammable
Duster (compressed air)	289.47	100% HCFC-22	100% HFC-152a	No flammability concerns
Silicon application	64.02	61% HCFC-141b 39% HCFC-22	34% HAP 40% solvent 25% silicon	Price sensitive No flammability concerns
Industrial aerosols (Quimobásicos)	225.31	100% HCFC-141b or 85% HCFC-141b 15% HCFC-22	100% HFC-245fa	Formulations must be non-flammable
Total	**768.17**			

[7] CFC-based aerosol products were easily converted to propane-butane at a lower cost and largely without assistance from the Multilateral Fund. A few unfunded conversions to HCFC took place where safety requirements prohibited the use of flammables.

30. The cost of converting the eight remaining enterprises in the aerosol sector is US $2,873,263 with an impact of 768.17 mt (63.37 ODP tonnes) of HCFC and cost-effectiveness of US $3.74 per kg (Table 7).

Table 7. Cost aerosol project

Enterprise	Alternatives	Total consumption (mt)	ICC (US $)	IOC (US $)	Total cost (US $)	C.E. (US $/kg)
Aerosoles Internacionales	Perchloroetylene/HFC-134a, HFC-152a	48.55		145,668	145,668	3.00
Alben international	HFC-152a	10.27		30,810	30,810	3.00
Dimmex	Perchloroetylene/HFC-134a, HFC-152a	60.34		181,032	181,032	3.00
Envatec	Perchloroetylene/HFC-134a, HFC-152a	84.06		252,198	252,198	3.00
Quimica Jerez	Perchloroetylene/HFC-134a, HFC-152a	51.90		155,700	155,700	3.00
Quimica Marcat	Perchloroetylene/HFC-134a, HFC-152a, Propane/butane	170.15	310,420	275,085	585,505	3.44
Quimobasicos	HFC-245fa	225.35		1,915,098	976,700	4.33*
Tecnosol	Perchloroetylene/HFC-134a, HFC-152a	117.55		352,650	352,650	3.00
Technical assistance for formulation development and awareness					193,000	
TOTAL		**768.17**	**310,420**	**3,308,241**	**2,873,263**	**3.74**

*Calculated based on the total HCFC consumption.

Activities in the servicing sector

Cleaning agent phase-out in the refrigeration servicing sector

31. This is the second and concluding phase of the programme aimed at eliminating the remaining 278 mt (30.58 ODP tonnes) of HCFC-141b used for flushing and cleaning refrigeration and air-conditioning equipment during servicing and 30 mt (1.65 ODP tonnes) of HCFC-22 used as a pressurizing substance. The approach followed for this activity is an extension of that approved for stage I, and includes additional training to 4,000 technicians and flushing kits to more than 1,000 technicians and servicing enterprises to avoid emissive use of HCFCs during servicing. This activity will contribute to the complete phase-out of HCFC-141b and enable the Government to issue the ban on HCFC-141b imports.

Technicians training programme

32. This project aims to phase out 1,000 mt (55 ODP tonnes) of HCFC-22 consumed by the service sector; reduce direct emissions of refrigerants; and maintain the momentum in the training programme for technicians started during the national phase-out plan (NPP) and continued in stage I of the HPMP, which addressed the cleaning component of servicing.

33. The training programme will focus on air-conditioning servicing, more specifically on good servicing practices, proper management, recovery, reuse and disposal as well replacement of HCFC-22, and replacement of HCFCs with alternatives, taking into account safety, energy consumption and equipment conditions. The plan also includes strengthening the vocational institutes with training equipment, developing a manual for 5,000 technicians, training 4,500 technicians, and providing servicing tools to 1,650 technicians and servicing enterprises (comprising recovery units, cylinders, vacuum pumps, leak detectors, hand tools, manifolds, hoses and scales).

Assistance for the introduction of HC alternatives

34. Based on an analysis of feasibility and preconditions to introduce HCs, the project aims to facilitate the introduction of HCs as an alternative refrigerant for stationary air-conditioning and commercial refrigeration equipment. The project will establish qualified service centres through certified personnel for installation or maintenance of HC equipment; test and select potential and conditions for application of HC technology where appropriate; provide institutional capacity for training and certification; and implement a pilot incentive programme for the replacement of old HCFC-based equipment with HC-based equipment.

35. Specific outputs proposed by this project include:

(a) Demonstration of replacement with HC technology at 20 sites. Data obtained from the demonstrations will be used to determine guidelines and standards with regard to the application of HC to air-conditioning systems. A regulatory programme for establishing standards, rules and codes of practice in the use of HCs and other natural refrigerants will be implemented based on the outcome of the test trials; and

(b) Distribution of 1,000 new HC air-conditioning units on a pilot basis to specific users willing to assist the Government in collecting the necessary data on energy use and functioning of the system for 12 months. Data on emission reductions and energy performance will be used for a larger roll out in the air-conditioning user sector and for the standards and labelling programmes.

36. The project outputs will also contribute to the environmental labelling scheme for products and services being developed by SEMARNAT.

Strengthening of recovery, recycling and reclamation network

37. Based on the planned regulation to make recovery, recycling and reclamation of refrigerants mandatory, this project is aimed at upgrading two national HCFC reclamation centres to ensure supply of recovered and reclaimed HCFC-22 to the local servicing market, thereby reducing demand for virgin HCFC-22. The project will identify and address deficiencies in existing policies and current legal framework concerning the use of natural refrigerant alternatives; upgrade of two reclamation centres using a centralized reclaim station and set of portable recovery units to collect refrigerants from large/medium sized systems; and organize a study tour to demonstrate a successful supply chain of virgin and reclaimed refrigerants in Italy and to train selected servicing technicians and representatives of the NOU.

Staged phase-out of HCFC-22 production

38. In order to comply with its obligations under the Montreal Protocol, the Government of Mexico plans to phase out the total HCFC-22 production in the country in a phased manner. UNIDO, on behalf of the Government of Mexico, included preparatory funding for the HCFC production sector to be released in 2015 with the understanding that a full-fledged project would be submitted.

Total cost of stage II of the HPMP

39. The total cost of the activities proposed in stage II of the HPMP to be funded through the Multilateral Fund amounts to US $11,097,553 (excluding agency support costs). These activities will result in the phase-out of 164.01 ODP tonnes of HCFCs with an overall cost-effectiveness of US $4.78 per kg. In addition, 269.13 ODP tonnes not eligible for funding will be phased out, achieving a total

reduction of 433.14 ODP tonnes at a cost of US $2.27 per kg. Detailed activities and cost breakdown are shown in Table 8.

Table 8. Overall cost of stage II of the HPMP for Mexico

Description of component	Agency	HCFC	Total HCFC		Cost (US $)	C.E.	Percentage of baseline
			Mt	ODP			
Conversion from HCFC-141b to HFO blowing agent at Whirlpool Mexico		HCFC-141b	1,000.0	110.00	-		9.6%
Conversions other non-eligible enterprises		HCFC-141b HCFC-22	1,572.8	159.13	-		13.9%
Subtotal non-funded activities			**2,572.8**	**269.13**	**-**		**23.4%**
Aerosol sector activities	UNIDO	HCFC-141b HCFC-22	768.2	63.37	2,873,263	3.74	5.5%
Servicing sector activities							
Cleaning agent phase-out in the refrigeration servicing sector	UNIDO	HCFC-141b HCFC-22	308.0	32.23	1,385,990	4.50	2.8%
Technicians training programme	UNIDO	HCFC-22	1,000.1	55.01	4,500,600	4.50	4.8%
Assistance for the introduction of HC alternatives	Germany	HCFC-22	145.0	7.98	650,000	4.48	0.7%
Strengthening of recovery, recycling and reclamation network	Italy	HCFC-22	59.0	3.25	281,200	4.77	0.3%
Subtotal servicing sector activities			1,512.1	98.47	6,817,790	4.51	8.6%
Policy and regulatory actions							
Updating and operating the quota and licensing system and legislation	UNIDO	HCFC-22	8.3	0.46	37,500	4.52	0.0%
Customs activities	UNEP	HCFC-22	17.8	0.98	80,000	4.49	0.1%
Public awareness	UNIDO	HCFC-22	13.3	0.73	80,000	6.02	0.1%
Subtotal policy and regulatory actions			39.4	2.17	197,500	5.01	0.2%
Preparatory funding production sector	UNIDO				150,000		0.0%
Monitoring of HCFC production	UNIDO				360,000		0.0%
HPMP monitoring and coordination	UNIDO				699,000		0.0%
Subtotal funded activities			**2,319.7**	**164.01**	**11,097,553**	**4.78**	**14.3%**
Total for stage II of the HPMP			**4,892.5**	**433.14**	**11,097,553**	**2.27**	**37.7%**

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

40. The Secretariat notes with appreciation that the Government of Mexico submitted stage II of its HPMP without requesting preparatory funding. As the proposal was submitted prior to a decision by the Executive Committee on criteria for funding HCFC phase-out in the consumption sector for stage II, in line with decision 70/21(e)(i), the Secretariat reviewed the proposal on the basis of the existing guidelines for stage I of HPMPs, including 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 2014-2016 business plan of the Multilateral Fund.

Activities in the servicing sector

Prioritization and size

41. Considering that Mexico would already be in a position to reduce HCFC consumption beyond the compliance limits by only addressing HCFC-141b and the HCFC-22 associated with aerosols and solvents, the Secretariat and UNIDO discussed the need to include a large refrigeration servicing sector

proposal in stage II. UNIDO explained that HCFC-22 as refrigerant has not been addressed yet in Mexico as the only activity related to the refrigeration servicing sector in stage I was partial phase-out of HCFCs used as cleaning agent. Given the rapid growth of HCFC-22 consumption in the sector, it was considered of the utmost importance to start significant activities in this sector to ensure compliance with stage II phase-out targets, reducing the demand in future years. The proposal only addresses 66.23 ODP tonnes of the more than 300 ODP tonnes of HCFC-22 (i.e., 22 per cent of total consumption) used in the sector. The remaining consumption will be addressed in future stages.

42. Furthermore, the sector is being addressed because of its size and complexity in Mexico, with many as-yet unequipped technicians and many new alternatives expected to appear on the market in coming years; the need to ensure that low-GWP alternatives are chosen over high-GWP alternatives; the need to maintain the momentum of phase-out activities in the sector and introduce new techniques for recovery, management and good practices in the air-conditioning and commercial refrigeration sectors; and the consideration that the small XPS foam enterprises remaining in the manufacturing sector are not in position to adopt alternatives today.

Approach

43. The Secretariat noted that during the preparation of stage II, the Government of Mexico took into consideration the discussion paper on key considerations to minimize adverse climate impact in the refrigeration servicing sector resubmitted to the 72nd meeting[8]. Mexico has already implemented some of the activities mentioned in the discussion paper, such as the introduction of mandatory reporting by ODS importers and exporters to reduce illegal trade, and the introduction of record-keeping practices in large and medium-size end-users, including large supermarket chains. The training programme will include preventive maintenance, enhancing installation quality and improving the energy efficiency of equipment through better maintenance. The existing recovery, recycling and reclamation scheme will be improved and supported by legislation. Mexico also plans to include training on safe handling of flammable refrigerants, to gain an understanding of the related regulations and standards, to enhance training institutes to provide training on installation, maintenance and disposal of equipment using flammable substances, and to facilitate the entry of technology with a lower climate impact for new factory-charged air-conditioning systems.

44. The Secretariat considered the proposed approach to be adequate, as it focuses on reducing HCFC emissions, avoiding increase of energy use, and facilitating the entry of air-conditioning equipment with a lower climate impact.

45. However, it was also noted that there is an absence of specific activities to influence a shift of technology in the commercial refrigeration sector, where emissions could be high and installations are designed locally. In responding, UNIDO acknowledged that this is an important source of emissions of HCFC-22, but it may be early to start any other activities in addition to refrigerant containment and training on installation and maintenance. For instance, secondary loop systems with either HC or ammonia are not widespread due to energy efficiency issues, and trans-critical CO_2 may also have energy efficiency issues in local temperature conditions. Mexico will include cascade systems (sub-critical CO_2 and HC/ammonia) in the curricula of the training workshops and in awareness programme when the technology is more mature and cost-effective (currently at US $600/kg). Initial results for CO_2-based vending machines being developed show increased costs and slightly decreased energy efficiency.

46. In view of the length of stage II and changing market conditions, the Secretariat suggested closely monitoring the developments in the refrigeration and air-conditioning sector, and making use of the flexibility in the Agreement to modify or add activities within the budget according to the evolving needs of the sector. This suggestion was taken, and tranches have been distributed to allow this flexibility.

[8] UNEP/OzL.Pro/ExCom/72/42.

47. The Secretariat noted the increase in the consumption of HCFC-22 in the servicing sector in recent years. As many of the activities will require several years to have an effective impact in the reduction of consumption, the earlier they start, the earlier the country will be able to curb the growth of HCFC consumption.

Phase-out in aerosol sector

HCFC reductions

48. The Secretariat noted that the submission of stage II was required to ensure equivalent conditions for aerosol enterprises assisted in stage I and stage II, and to minimize imports that would allow emerging enterprises to start using HCFC-141b, which would have a negative effect on converted enterprises. As the sector will be addressed now, the Secretariat requested UNIDO to consider committing to an additional HCFC reduction in 2018. Upon further discussion, UNIDO reported that the Government of Mexico committee to add 5 per cent to the current reduction of 30 per cent of the baseline in 2018 (for a total of 35 per cent). If an earlier conversion would take place, the Government of Mexico would adjust the quotas to ensure the sustainability of the conversion.

Technology

49. UNIDO was asked to further elaborate on the reasons for proposing formulations containing HFC-134a for electronic cleaning aerosols and HFC-245fa for industrial aerosols. UNIDO explained that the alternatives are selected based, among other factors, on their availability, safety, technical properties and price. Currently, HFC-134a-based formulations are the best available option for non-flammable aerosol applications. Selection of an HFO or other new propellants is not possible or viable due to their unavailability in the market, their very high price and, in some cases, a certain grade of flammability which is not allowed for several applications. In the case of HFC-245fa used for industrial cleaning by Quimobásicos, UNIDO indicated that the other option could be a type of HFO, but the performance and flammability, as well as the high price (US $90.00/kg), are not acceptable in this particular sector.

50. After consultation with Quimobásicos, it was indicated that HFO as a solvent is not expected to be available in the medium term. The market for HFO is looking first at other applications such as mobile air-conditioning, and there is no clear market or technological signal for solvents for the time being. The Secretariat considered that the specific application produced by Quimobasicos does not seem to be in competition with the multiple enterprises in the sector producing electronic cleaners and dusters. Therefore this enterprise could be converted later. Given this fact and that this enterprise is proposing to introduce an HFC-based formulation with a high-GWP, the Secretariat explored the possibility of postponing this specific conversion and using another alternative with a lower impact in climate. Upon discussions it was agreed that the project would still be part of stage II on the understanding that when the tranche in 2016 is submitted, UNIDO will report on the availability and affordability of lower GWP suitable alternate ves (such as HFOs). In the event that there is no better solution than HFC-245fa at that time, UNIDO would start conversion to HFC-245fa on the understanding that it will be an interim solution and once affordable low-GWP alternatives become available in the market, Mexico would commit to convert Quimobásicos from HFC without any further funding from the Multilateral Fund.

Eligibility of enterprises included in the aerosol project

51. The Secretariat noted that the Dimmex and Tecnosol enterprises had received funding[9] for the phase-out of CFC-11, CFC-12 and CFC-113 for the cleaning of electronics and some industrial uses. The alternatives introduced were HFC-134a and HFC-4310. UNIDO clarified that in the case of Dimmex, the

[9] Project MEX/ARS/41/INV/116 provided assistance for US $252,340, which was complemented by US $2,710,711 self-funded by the enterprises.

conversion from CFC to HFC was only for a particular formulation to be used as electronic cleaner, while the manufacturing of a duster with HCFC-22 had already been formulated before the implementation of the CFC phase-out project, and was therefore not funded.

52. In the case of Tecnosol, the previous project addressed the formulation of an aerosol for the electronic cleaner market where certain properties are needed, including non-flammability and compatibility with plastics, and only covered incremental operating costs. For other applications Tecnosol had been producing HCFC aerosols.

53. Since no funding was received for conversion of HCFC-containing aerosols produced at the time of approval of the CFC conversion project, the phase-out of HCFC consumption related to those aerosols at these two enterprises is eligible.

Remaining consumption of HCFC-141b

54. During the project review period, UNIDO also indicated that the 27 mt (2.97 ODP tonnes) of HCFC-141b used in medical applications that were initially not intended to be addressed during stage II, will also be phased out during stage II. As the enterprise consuming these 2.97 ODP tonnes is not eligible for funding, the phase-out will take place without assistance from the Multilateral Fund. Based on this, the Government of Mexico will be able to achieve total phase-out of HCFC-141b in 2022 and promulgate a ban on the import of HCFC-141b, to enter into force by 1 January 2022.

Production of HCFC-22

55. In justifying the inclusion of preparatory funding for production in stage II of the HPMP, UNIDO explained that the Government of Mexico considers it a matter of extreme importance to start implementing gradual phase-out of domestic HCFC-22 production given the large amount of this substance used in the refrigeration servicing sector. The only producer of HCFC-22 in Mexico, CYDSA, Quimobásicos, has two production lines, which in the past produced CFC-11 and CFC-12 as well as HCFC-22. A Multilateral Fund project funded the closure of only one line producing CFCs, since at that time the second line was already producing HCFC-22. The Government considers that the closure of the second line is eligible for assistance from the Multilateral Fund. The Secretariat is of the view that issues related to production should not be discussed in the context of the HPMP and accordingly requested UNIDO to remove the request for preparatory funding. UNIDO and the Government of Mexico agreed to remove the request.

56. The request of US $360,000 to continue yearly monitoring of domestic HCFC production was reduced to US $100,000.

Calculation of remaining eligible consumption

57. The Secretariat and UNIDO discussed the methodology for calculating the remaining eligible consumption after stage II. After stage I, the total remaining eligible consumption is 797.5 ODP tonnes composed of 368.0 ODP tonnes of HCFC-22, 428.1 ODP tonnes of HCFC-141b, 1.0 ODP tonne of HCFC-142b, 0.3 ODP tonnes of HCFC-123 and 0.1 ODP tonnes of HCFC-124. By achieving the total phase-out of HCFC-141b and reducing 105.5 ODP tonnes of HCFC-22, the remaining eligible consumption would be 263.9 ODP tonnes.

58. It was noted that the remaining eligible consumption after stage II was calculated at 335.8 ODP tonnes in the project proposal as submitted. In analysing the difference, it was noticed that for HCFC-141b after deducting from the remaining eligible consumption, the consumption of all eligible and non-eligible enterprises, as well as the exports of HCFC-141b contained in polyols, there were still 71.9 ODP tonnes remaining. As there were no more enterprises to address, this remaining tonnage of

HCFC-141b was reallocated to the remaining eligible consumption of HCFC-22. The Secretariat clarified that as the starting point is established by substance (as shown in Appendix 1-A of the Agreement between the Government of Mexico and the Executive Committee for stage I), the remaining consumption of HCFC-141b cannot be reallocated. Therefore, the remaining eligible consumption after stage II of the HPMP is 263.9 ODP tonnes.

59. In line with Executive Committee decision 68/42(b), 28.60 ODP tonnes of HCFC-141b exported in pre-blended polyols are discounted from the starting point for aggregate reductions in HCFC consumption. The remaining eligible consumption of HCFC-141b after stage II is zero.

Verification

60. UNIDO provided a verification of the consumption in 2013 by mid April 2014 indicating that the HCFC consumption level in 2013 is 779.2 ODP tonnes, which is below the freeze target of 1,148.8 ODP tonnes.

Revised overall cost of the HPMP stage II

61. Upon additional adjustments in the budget and tonnage addressed in the aerosol and servicing sectors, the agreed cost of the activities proposed in stage II of the HPMP amounts to US $10,513,243 (excluding agency support costs). Detailed activities and the cost breakdown are shown in Table 9.

Table 9. Detailed activities and costs agreed in stage II of the HPMP

Description of component	Agency	HCFC	Total HCFC		Cost (US $)	C.E.	Percentage of baseline
			Mt	ODP			
Conversion from HCFC-141b to HFO blowing agent at Whirlpool Mexico		HCFC-141b	1,000.0	110.00	-		9.6%
Conversions other non-eligible enterprises		HCFC-141b HCFC-22	1,599.8	162.10	-		14.1%
Subtotal non-funded activities			**2,599.8**	**272.10**	**-**		**23.7%**
Aerosol sector activities	UNIDO	HCFC-141b HCFC-22	768.2	63.37	2,708,103	3.53	5.5%
Servicing sector activities							
Cleaning agent phase-out in the refrigeration servicing sector	UNIDO	HCFC_141b HCFC-22	308.0	32.23	1,385,990	4.50	2.8%
Technicians training programme	UNIDO	HCFC-22	1,000.1	55.01	4,500,600	4.50	4.8%
Assistance for the introduction of HC alternatives	Germany	HCFC-22	145.0	7.98	650,000	4.48	0.7%
Strengthening of recovery, recycling and reclamation network	Italy	HCFC-22	62.5	3.44	281,200	4.50	0.3%
Subtotal servicing sector activities			1,515.6	98.66	6,817,790	4.50	8.6%
Policy and regulatory actions							
Updating and operating the quota and licensing system and legislation	UNIDO	HCFC-22	8.3	0.46	37,350	4.50	0.0%
Customs activities	UNEP	HCFC-22	17.8	0.98	80,000	4.49	0.1%
Public awareness	UNIDO	HCFC-22	17.8	0.98	80,000	4.49	0.1%
Subtotal policy and regulatory actions			43.9	2.42	197,350.00	4.50	0.2%
Preparatory funding production sector	UNIDO				-		0.0%
Monitoring of HCFC production	UNIDO				100,000		0.0%
HPMP monitoring and coordination	UNIDO				690,000		0.0%
Subtotal funded activities			**2,327.7**	**164.45**	**10,513,243**	**4.52**	**14.3%**
Total for stage II of the HPMP			**4,927.5**	**436.55**	**10,513,243**	**2.13**	**38.0%**

62. Activities included in stage II of the HPMP for Mexico will result in the phase-out of 164.45 ODP tonnes of HCFCs with an overall cost-effectiveness of US $4.52 per kg. In addition, 272.10 non-eligible ODP tonnes will be phased out, achieving a total reduction of 436.55 ODP tonnes at a cost of US $2.13 per kg.

63. With approval of stage II of the HPMP, the Government of Mexico commits to achieving accelerated reductions of 35 per cent the baseline for compliance in 2018, 50 per cent in 2020 and 67.5 per cent in 2022. The Government of Mexico also commits to achieving total phase-out of HCFC-141b and introducing a ban for imports of HCFC-141b by 1 January 2022.

Impact on the climate

64. The implementation of the conversion of nine aerosol enterprises would avoid the emission into the atmosphere of some 589.2 thousand tonnes of CO_2-equivalent per year, as shown in Table 10.

Table 10. Impact on the climate of the aerosol conversion projects

Enterprise	Annual warming impact before conversion (t-CO2E)		Annual warming impact after conversion by alternative technology (t-CO2E)					Climate impact of conversion t-CO_2E
	HCFC-22	HCFC-141b	Perchloroetylene	HFC-134a	HFC-152a	HC	HFC-245fa	
GWP	1,810	725		1,430	124	20	1,030	
Aerosoles Internacionales	64,798	9,248		13,028.73	3,761.29			-57,256
Alben International	18,589				1,273.48			-17,315
Dimmex	109,223				7,482.66			-101,740
Envatec	126,819	10,150		14,300.00	7,944.18			-114,725
Quimica Jerez	54,119	15,950		22,471.02	2,538.40			-45,060
Quimica Marcat	164,348	57,529		35,290.97	7,042.21	454		-179,089
Tecnosol	123,623	35,706		50,305.97	5,851.93			-103,171
Quimobasicos	33,938	149,785					212,798	29,076
TOTAL	**973,824**		**384,543**					**-589,281**

65. In addition, the implementation of the technical assistance programme to phase out the use of HCFC-141b and HCFC-22 as cleaning agents will phase out 278 mt of HCFC-141b and 30 mt of HCFC-22 emitted every year during servicing. This represents a reduction in emissions into the atmosphere of some 255,850 tonnes of CO_2-equivalent per year.

66. The remaining technical assistance and demonstration activities in the servicing sector, which include better containment of refrigerants and leakage control through training and equipment, a pilot introduction of HC-based equipment and the enforcement of HCFC import quotas, among others, will reduce the amount of HCFC-22 used for refrigeration servicing. Each kilogramme of HCFC-22 not emitted due to better refrigeration practices results in savings of approximately 1.8 CO_2-equivalent tonnes. Although a calculation of the impact on the climate was not included in the HPMP, the activities planned by Mexico, in particular its efforts to improve servicing practices; refrigerant recovery and reuse indicate that the implementation of the HPMP will reduce the emission of refrigerants into the atmosphere therefore resulting in benefits on climate. However, at this time, a more accurate quantitatively assessment on the impact on climate cannot be conducted. 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, the number of technicians trained and the HCFC-22 based equipment being retrofitted.

Co-financing

67. In addition to the assistance received under stage II of the HPMP, 272.10 non-eligible ODP tonnes will be phased out with funds from enterprises and other sources.

2014-2020 draft business plan of the Multilateral Fund

68. Table 11 shows the level of funding and amounts of HCFCs to be phased out according to the 2014-2020 business plan of the Multilateral Fund. The level of funding requested for the implementation of stage II of the HPMP of US $11,306,842 (including support costs and excluding costs associated with stage I tranches) is lower than that in the business plan (US $15,196,509[10]), as it is associated with a reduced amount of HCFCs to be phased out during implementation of stage II of the HPMP.

Table 11. 2014-2020 business plan of the Multilateral Fund

Agency	2014	2015	2016	2017	2018	2019	2020	Total
Funding (US $)								
Germany	33,900	400,000	0	0	0	0	0	433,900
Italy	300,000	0	0	0	0	0	0	300,000
UNEP	0	0	40,000	0	40,000	0	0	80,000
UNIDO	8,888,839	0	3,742,861	0	875,455	0	875,455	14,382,609
Total	**9,222,739**	**400,000**	**3,782,861**	**0**	**915,455**	**0**	**875,455**	**15,196,509**
Phase-out (ODP tonnes)								
Germany	0	1.60	1.60	1.60	0	0	0	4.80
Italy	25.60	0	0	0	0	0	0	25.60
UNEP	0	0	0	0	0	0	0	0
UNIDO	160.23		73.87	0	10.00	0	10.00	254.10
Total	**185.83**	**1.60**	**75.47**	**1.60**	**10.00**	**0**	**10.00**	**284.50**

Draft agreement

69. In finalizing the draft Agreement between the Government of Mexico and the Executive Committee, the Secretariat noted several issues that will require further analysis, including the existence of two different targets in 2018 (i.e., 804.2 ODP tonnes for stage I and 746.72 ODP tonnes for stage II; tranches overlapping with potential implications in the financial monitoring and closure of stage I, two different penalty clauses for years where two stages are ongoing, among others (i.e., US $87.00/kg for stage I and US $128.00/kg for stage II. As these issues could also arise in several stages II of HPMPs, they are further developed in the document on "Overview of issues identified in project review"[11]. The Secretariat recommends consideration of the HPMP at the present meeting, and finalization of the draft Agreement to the 73rd meeting once these issues are further discussed.

[10] Includes an enterprise that will convert without assistance from the Multilateral Fund (Business plan references: decision 71/22 and document UNEP/Ozl.Pro/ExCom/71/11).

[11] UNEP/OzL.Pro/ExCom/72/12.

RECOMMENDATION

70. The Executive Committee may wish to consider:

(a) Approving, in principle, stage II of the HCFC phase-out management plan (HPMP) for Mexico for the period 2014 to 2022 to reduce HCFC consumption by 67.5 per cent of the baseline, at the amount of US $11,306,842 consisting of US $9,502,043, plus agency support costs of US $665,143 for UNIDO; US $80,000, plus agency support costs of US $10,400 for UNEP; US $650,000, plus agency support costs of US $81,500 for the Government of Germany; and US $281,200, plus agency support costs of US $36,556 for the Government of Italy;

(b) Deducting additional 436.55 ODP tonnes of HCFCs from the starting point for sustained aggregate reduction in HCFC consumption, including 28.6 ODP tonnes of HCFC-141b contained in exported pre-blended polyols;

(c) Noting the commitment of the Government of Mexico to issue a ban on import of HCFC-141b by 1 January 2022;

(d) Noting that the Government of Mexico has committed to reduce HCFC consumption by 35 per cent of the baseline in 2018, 50 per cent in 2020 and 67.5 per cent in 2022;

(e) Noting that approval of stage II of the HPMP did not preclude Mexico from submitting earlier than 2020, a proposal to achieve a reduction in HCFCs beyond that addressed in stage II of the HPMP;

(f) Requesting UNIDO not to implement the conversion of Quimobásicos to HFC-245fa in the aerosol and solvent sector prior to the approval of the tranche programmed for 2016, and to actively pursue establishing low-global warming potential (GWP) alternatives for that sub-sector prior to that date; and in the event that there is no better solution than HFC-245fa by 2016, allowing UNIDO to start the conversion of Quimobásicos to HFC-245fa on the understanding that it will be an interim solution and once affordable low-GWP alternatives become available, the Government of Mexico commits to converting Quimobásicos from HFC-245fa without any further funding from the Multilateral Fund;

(g) Requesting UNIDO, the Government of Mexico and the Secretariat to finalize the draft Agreement between the Government of Mexico and the Executive Committee for the reduction in consumption of HCFCs, for submission at the 73rd meeting; and

(h) Approving the first tranche of stage II of the HPMP for Mexico, and the corresponding tranche implementation plans, at the amount of US $3,445,607, consisting of US $2,581,403, plus agency support costs of US $180,698 for UNIDO; US $281,200, plus agency support costs of US $36,556 for the Government of Italy and US $325,000, plus agency support costs of US $40,750 for the Government of Germany.