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EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Eightieth Meeting  
Montreal, 13-17 November 2017

**PROJECT PROPOSAL: THE PHILIPPINES**

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) World Bank

## PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

## Philippines

<b>(I) PROJECT TITLE</b>	<b>AGENCY</b>
HCFC phase out plan (stage II)	World Bank

<b>(II) LATEST ARTICLE 7 DATA (Annex C Group I)</b>	Year: 2016	114.85 (ODP tonnes)
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<b>(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)</b>								<b>Year: 2016</b>	
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-123			4.26		1.00				5.26
HCFC-124									
HCFC-141b			0.03		13.72	3.14			16.89
HCFC-22				12.32	80.37				92.68
HCFC-225ca						0.01			0.01
HCFC-225cb						0.01			0.01

<b>(IV) CONSUMPTION DATA (ODP tonnes)</b>			
2009 - 2010 baseline:	208.4	Starting point for sustained aggregate reductions:	162.87
<b>CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)</b>			
Already approved:	45.0	Remaining:	117.87

<b>(V) BUSINESS PLAN</b>		2017	2018	2019	2020	After 2020	Total
World Bank	ODS phase-out (ODP tonnes)	8.34	4.83	4.83	6.44	21.47	45.91
	Funding (US \$)	1,066,717	789,380	789,380	789,380	701,670	4,136,527

<b>(VI) PROJECT DATA</b>			2017	2018	2019	2020	2021	Total
Montreal Protocol consumption limits			187.56	187.56	187.56	135.46	135.46	n/a
Maximum allowable consumption (ODP)			146.58	146.58	146.58	105.87	97.72	n/a
Project costs requested in principle (US \$)	World Bank	Project costs	1,160,023	0	1,450,029	0	290,005	2,900,057
		Support costs	81,202	0	101,502	0	20,300	203,004
Total project costs requested in principle (US\$)			1,160,023	0	1,450,029	0	290,005	2,900,057
Total support costs requested in principle (US\$)			81,202	0	101,502	0	20,300	203,004
Total funds requested in principle (US\$)			1,241,225	0	1,551,531	0	310,305	3,103,061

<b>(VII) Request for funding for the first tranche (2017)</b>		
Agency	Funds requested (US \$)	Support costs (US \$)
World Bank	1,160,023	81,202
<b>Total</b>	1,160,023	81,202
<b>Funding request:</b>	Approval of funding for the first tranche (2017) as indicated above	

<b>Secretariat's recommendation:</b>	Individual consideration
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## PROJECT DESCRIPTION

### Background

1. At the 79<sup>th</sup> meeting, on behalf of the Government of the Philippines the World Bank, as the designated implementing agency, submitted a request for funding for stage II of the HCFC phase-out management plan (HPMP), at the amount of US \$3,462,257, plus agency support costs of US \$377,055, as originally submitted.
2. The activities to be implemented during stage II of the HPMP focused mainly on the complete conversion of the air-conditioning (AC) manufacturing sector, as the activities related to the servicing sector included in stage I were being implemented by UNEP.
3. During the project review process, the Secretariat and the World Bank discussed *inter alia* issues related to the status of implementation of stage I of the HPMP which had a completion date of 2015; revision of the HCFC baseline for compliance following the revised starting point for sustained aggregate reduction in HCFC consumption agreed at the 68<sup>th</sup> meeting based on the verified HCFC consumption levels for 2009 and 2010; and the eligible incremental costs related to the conversion project at AC manufacturing enterprises. As a result of the discussions, the Secretariat and the World Bank agreed on the cost for the conversion of the AC manufacturing sector at US \$1,983,646 (from US \$2,781,256 as originally requested after deducting foreign ownership).
4. During these discussions, the Government of the Philippines submitted the 2016 country programme (CP) implementation report that showed discrepancies on the consumption of HCFC-22 used in the AC manufacturing sector which was the basis for calculating the incremental costs of the AC conversion project included in stage II of the HPMP. After further consultations, the World Bank reported that the Government of the Philippines decided to withdraw the submission of stage II of the HPMP, and would resubmit it once HCFC data discrepancies and other outstanding issues were addressed.

### *Resubmission of stage II of the HPMP*

5. Given that all the issues that were outstanding at the 79<sup>th</sup> meeting have been satisfactorily addressed, on behalf of the Government of the Philippines, the World Bank, as the designated implementing agency, has submitted to the 80<sup>th</sup> meeting a revised project proposal for stage II of the HPMP, at the amount of US \$2,930,057, plus agency support costs of US \$205,104,<sup>1</sup> as originally submitted. The implementation of stage II of the HPMP will phase out 25.73 ODP tonnes of HCFCs and assist the Philippines in meeting the Montreal Protocol compliance target of 35 per cent reduction by 2020 and by 40 per cent in 2021.
6. The first tranche of stage II of the HPMP being requested at this meeting amount to US \$1,172,023, plus agency support costs of US \$82,042 for the World Bank, as originally submitted.

### **Status of implementation of stage I of the HPMP**

7. Stage I of the HPMP for the Philippines was approved at the 68<sup>th</sup> meeting to meet the 10 per cent reduction from the baseline by 2015 resulting in the phase-out of 45.0 ODP tonnes of HCFCs (i.e., 2.0 ODP tonnes of HCFC-22 and 43.0 ODP tonnes of bulk HCFC-141b), at the amount of US \$2,521,955, excluding agency support costs (US \$2,262,055 for UNIDO and the Government of Japan for the phase-out of 40 ODP tonnes of HCFC-141b used in the foam manufacturing sector approved at the 62<sup>nd</sup> meeting (decision 62/34); and US \$230,000 for UNEP for activities in the servicing sector). Funding for the

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<sup>1</sup> As per the letter from the Department of Environment and Natural Resources of the Republic of the Philippines to the World Bank.

servicing sector also included US \$1,033,575, plus agency support costs of US \$134,364, from the national CFC phase-out plan of the Philippines, that was transferred from the World Bank to UNEP.

8. The first tranche of stage I of the HPMP was approved at the 68<sup>th</sup> meeting, at a total cost of US \$233,910 including agency support costs for UNEP. The second (and final tranche) amounting to US \$25,990 (including agency support costs) will not be requested, as the Government of the Philippines had officially requested UNEP that stage I of the HPMP be closed and remaining balances be returned to the Executive Committee at the 80<sup>th</sup> meeting.<sup>2</sup>

#### *ODS policy and regulatory framework*

9. The HCFC import licensing and quota system is operational since 2004. The Environmental Management Bureau (EMB) through the Philippine Ozone Desk (POD) establishes the annual import quotas for HCFCs consistent with the phase-out schedule of the Montreal Protocol, approves importers issues import quotas to registered importers in coordination with the Bureau of Customs. The regulations were revised in 2013 to *inter alia* include conditions for imports/exports of HCFCs; a ban on import/export of HCFC-141b in bulk and contained in imported pre-blended polyols from 1 January 2015; a certification scheme for technicians, and a harmonized code system and labelling requirements. Importers of non-ODS alternatives (i.e., HFCs) have been required to obtain a pre-shipment importation clearance since 2005, but there are currently no limits set for the import amount.

#### *Conversion in the foam manufacturing sector (UNIDO and Japan)*

10. The foam sector plan comprised conversions of 19 foam enterprises that resulted in the complete phase-out of 40 ODP tonnes of HCFC-141b. All but one of the enterprises converted to the following low-global warming potential (GWP) technologies: water blown by 11 enterprises producing insulation foam for thermoware and commercial refrigeration; cyclopentane by three enterprises producing continuous and discontinuous panels; liquid CO<sub>2</sub> by one enterprise manufacturing flexible molded foam; supercritical CO<sub>2</sub> by one spray foam enterprise; and methyl formate by two enterprises. One enterprise (Blutherm) did not proceed with the conversion to cyclopentane technology; the equipment was returned to the technology provider and the funding balance amounting to US \$47,908, will be returned to the 80<sup>th</sup> meeting.<sup>3</sup>

#### *Refrigeration and air-conditioning (RAC) servicing sector (UNEP)*

11. A total of 33 trainers and 81 enforcement officers received training on the HCFC control measures, the provisions of the ODS regulations, and how penalties are imposed in case of violations; the code of practice for RAC servicing was revised to incorporate updated standards and guidelines on new technologies including flammable refrigerants, resulting in the training of 38 trainers from the Technical Education and Skills Development Authority (TESDA), 10 industry practitioners and 491 service technicians.

12. Approximately 920 service shops were monitored for compliance with their accreditation requirements, including the return of recovered refrigerants to designated regional depository sites; and training was provided to 24 regional staff of the Department of the Environment and Natural Resources (DENR) on the requirements of the HPMP including the ban on the new or expansion of existing foam

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<sup>2</sup> At the 79<sup>th</sup> meeting, the Executive Committee urged the Government of the Philippines to work with UNEP to submit the mandatory verification report for 2015 and 2016, to return the remaining balances of stage I of the HPMP to the 80<sup>th</sup> meeting, and to submit the project completion report of stage I of the HPMP to the 81<sup>st</sup> meeting (decision 79/24(b)). In addition, on 7 September 2017 the Government of the Philippines sent a letter to UNEP requesting the return of funding balance of stage I to the 80<sup>th</sup> meeting.

<sup>3</sup> The equipment was sold back to the technology provider for US \$60,650, UNIDO deducted costs associated with packaging, clearance and shipment.

production facilities using HCFC-141b, as well as monitoring existing RAC manufacturing facilities using HCFCs.

13. Two stakeholder consultations on the use of HCFC-141b as flushing agent by refrigeration servicing technicians were held with end-user companies and importers to explore options for alternative uses in the servicing sector.

14. The activities for the servicing sector were administered through a Project Cooperation Agreement (PCA) between the Government of the Philippines and UNEP that expired in December 2015.<sup>4</sup>

*Project implementation and monitoring unit (PMU)*

15. The DENR acts as the national coordinator for the implementation of the Montreal Protocol in the Philippines through POD, which facilitates and coordinates ODS phase-out projects and policies. In 2014, EMB created the HCFC Phase-out Management Plan Project Management Unit (HPMP-PMU) to spearhead HCFC phase-out activities under stage I, ensuring coordination with all stakeholders. The PMU has provided support to the POD in implementing the HPMP activities; visiting enterprises to review projects; developing technical specifications; and ensuring financial control of the funds according to the rules and regulations of the implementing agencies.

Status of disbursements

16. As of September 2017, of the total funds of US \$2,295,000 so far approved, US \$2,032,224 had been disbursed by UNIDO and the Government of Japan. Noting that stage I of the HPMP has been closed, UNIDO will return US \$44,566, plus agency support costs of US \$3,342, and UNEP US \$891,795, plus agency support costs of US \$108,262 to the 80<sup>th</sup> meeting.

**Stage II of the HPMP**

17. Through implementation of stage II of the HPMP, 25.73 ODP tonnes of HCFCs will be phased out; total consumption of HCFC-22 used in manufacturing domestic and commercial air-conditioners will be achieved; and HCFC consumption in the refrigeration servicing sector will also be reduced. The Government of the Philippines would commit to reduce its HCFC consumption by 35 per cent from the baseline in 2020 and by 40 per cent in 2021.

Remaining consumption eligible for funding

18. After deducting 45.0 ODP tonnes of HCFCs associated with stage I of the HPMP and the 25.73 ODP tonnes proposed for stage II, the remaining consumption of HCFCs eligible for funding after stage II amounts to 92.14 ODP tonnes, as shown in Table 1.

**Table 1. Overview of the remaining HCFC consumption eligible for funding**

HCFC	Starting point	Reduction in stage-I	Remaining consumption	Reduction in stage II	Remaining Consumption
HCFC-22	1,987.63	36.36	1,951.27	467.85	1,483.42
HCFC-141b	471.36	390.91	80.45	0	80.45
HCFC-123	85.00	0	85.00	0	85.00
<b>Total metric tonnes (mt)</b>	<b>2,543.99</b>	<b>427.27</b>	<b>2,116.72</b>	<b>438.34</b>	<b>1,648.87</b>
HCFC-22	109.32	2.00	107.32	25.73	81.59
HCFC-141b	51.85	43.00	8.85	0	8.85
HCFC-123	1.70	0	1.70	0	1.7

<sup>4</sup> The last transfer of funds from UNEP to the Philippines was in May 2015. In an official letter of 1 September 2017, the Government had requested to close the project and return to the Multilateral Fund remaining balances.

HCFC	Starting point	Reduction in stage-I	Remaining consumption	Reduction in stage II	Remaining Consumption
<b>Total (ODP tonnes)</b>	<b>162.87</b>	<b>45.0</b>	<b>117.87</b>	<b>25.73</b>	<b>92.14</b>

### HCFC consumption

19. The Government of the Philippines reported a consumption of 114.85 ODP tonnes of HCFC under Article 7 of the Montreal Protocol in 2016, which was 29 per cent below the starting point of 162.87 ODP tonnes). The 2012-2016 HCFC consumption is shown in Table 2.

**Table 2. HCFC consumption in the Philippines (2012-2016 Article 7 data)**

HCFC	2012	2013	2014	2015	2016	Baseline
<b>Metric tonnes</b>						
HCFC-22	2,409.13	1,641.45	1,860.03	1,837.43	1,685.12	1,987.63
HCFC-123	221.64	69.05	206.07	227.34	263.06	85.00
HCFC-141b	533.79	408.67	390.64	159.72	153.58	471.36
HCFC-225ca	0.00	1.39	0.42	1.52	0.21	0
HCFC-225cb	0.00	1.39	0.42	1.52	0.21	0
<b>Total (mt)</b>	<b>3,164.56</b>	<b>2,121.95</b>	<b>2,457.58</b>	<b>2,227.53</b>	<b>2,102.18</b>	<b>2,543.99</b>
<b>ODP tonnes</b>						
HCFC-22	132.50	90.28	102.30	101.06	92.68	109.32
HCFC-123	4.43	1.38	4.12	4.55	5.26	1.70
HCFC-141b	58.72	44.95	42.97	17.57	16.89	51.85
HCFC-225ca	0.00	0.03	0.01	0.04	0.01	0.00
HCFC-225cb	0.00	0.04	0.01	0.05	0.01	0.00
<b>Total (ODP tonnes)</b>	<b>195.65</b>	<b>136.69</b>	<b>149.42</b>	<b>123.26</b>	<b>114.85</b>	<b>162.87</b>

20. The decrease in HCFC-141b consumption is due to the conversion of enterprises in the polyurethane (PU) foam sector, and the ban on imports of HCFC-141b established in 2015. The slight decrease in consumption of HCFC-22 is due to the training of technicians on good servicing practices implemented; while the increase in HCFC-123 consumption was for servicing chillers and fire-fighting equipment.

21. Table 3 presents the sectoral distribution of HCFC sectors according to the survey undertaken during the preparation of stage II, which is consistent with data provided in the country programme (CP) implementation report for 2016.

**Table 3. Sector distribution of HCFCs according to the stage II survey in 2016**

Sector	Substance	HCFC use			
		mt	mt (%)	ODP tonnes	ODP tonnes (%)
Refrigeration/Air-conditioning manufacturing	HCFC-22	223.91	11	12.32	10
RAC servicing	HCFC-22	1,461.21	70	80.37	70
	HCFC-123	49.74	2	1.00	1
	HCFC-141b	124.73	6	13.72	12
Foam	HCFC-141b	0	0	0	0
Solvent and cleaning	HCFC-141b	28.47	1	3.13	3
Solvent and cleaning	HCFC-225	0.42	0	0.02	0
Firefighting	HCFC-123	213.32	10	4.26	4
	HCFC-141b	0.28	0	0.03	0
<b>Total</b>		<b>2,102.08</b>	<b>100</b>	<b>114.85</b>	<b>100</b>

22. The servicing sector represents 83 per cent of total HCFC consumption measured in ODP tonnes in 2016, followed by the RAC manufacturing sector (10 per cent), and the solvents and fire-fighting sectors (7 per cent).

#### Verification report

23. UNEP submitted the verification of the HCFC consumption for 2014 and 2015. The report confirmed the imports of 149.42 ODP tonnes of HCFCs in 2014 and 123.26 ODP tonnes in 2015, and established that the Government continued to implement its licensing and quota system for HCFC imports and exports.

#### HCFC consumption in manufacturing sectors

##### *AC manufacturing sector*

24. Window-AC represents 70 per cent of the market and split-AC the remaining 30 per cent. Of the 800,000 AC units sold in 2016, 480,000 units were produced locally. The total use of HCFC-22 for manufacturing AC equipment was estimated at 223.91 mt (12.33 ODP tonnes). During the last few years, the Philippines has seen an increased penetration of R-410A-based window-AC units, and the introduction of split-AC using inverter technology based on R-410A or HFC-32 refrigerants.

25. Four enterprises, namely Panasonic Manufacturing Philippines, Concepcion-Carrier Air-Conditioning Company, Hitachi Air-Conditioning Products Philippines, and Koppel, Inc., manufacture mostly residential AC with cooling capacities between 10,000 and 36,000 BTU/hour (the most popular of which are window-AC with 10,000 BTU/hour<sup>5</sup> capacity). Koppel, Inc., also produces light commercial AC with cooling capacities ranging from 3 to 15 tonne of refrigeration (TR). Three of these four manufacturers also import split-AC, and seven other enterprises (i.e., Daikin, LG, Allenaire, Kolin, Panasonic, Samsung, and Trane) exclusively import and distribute window and split residential ACs.

26. The industrial AC sub-sector uses mostly imported equipment installed through local service providers. There are around 100 chillers using HCFC-22, while those installed between 2007 and 2010 operate with HCFC-123, R-407C, HFC-134a, or R-410A refrigerants.

27. For industrial refrigeration (e.g., ice plants, cold rooms, and cold storage), the main refrigerant used is ammonia. The transport refrigeration sub-sector use minimal amounts of HCFCs; HFC-134a, R-404A (for fishing vessels), or ammonia are widely used. Most commercial refrigeration companies are using HFC-134a or HFC blends (e.g., R-404A and R-507A).

#### HCFC consumption in other sectors

##### *Solvent*

28. A total of 153.20 mt of HCFC-141b was imported in 2016 for flushing AC and refrigerators during production and servicing. Some HCFC-141b was also used in the manufacture of industrial aerosol products, spot cleaning in the textile industry, and cleaning in the electronics industry. In addition, 0.42 mt of HCFC-225ca and HCFC-225cb for solvent cleaning applications were imported.

##### *Firefighting*

29. Demand is increasing for HCFC-123 in the manufacture of portable fire extinguishers. Currently, various types of portable fire extinguishers including CO<sub>2</sub>, chemical dry powder, HCFC-123 and

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<sup>5</sup> British Thermal Unit.

HFC-236fa, are commercially available in the local market. In addition, the industry has started to offer HFC-based fire-fighting equipment.

#### HCFC consumption in the servicing sector

30. There are approximately 5,000 service workshops in the Philippines (2,000 located in Metro Manila). Each RAC service shop employs three to five technicians depending on the number and size of equipment to be repaired, installed or maintained. Industrial ACs and refrigeration units are mostly contracted by larger RAC agencies.

31. Based on a survey conducted among 162 refrigerant dealers, 46 AC installation workshops, 308 service workshops, and 129 private/commercial establishments, 1,461.21 mt of HCFC-22 was used for servicing, installation, and repair of refrigeration and AC units in 2016. Individual service workshops accounted for 80 per cent of the total HCFC consumption for servicing, while AC installation and repair workshops and private/commercial establishments accounted for the remaining 20 per cent.

32. In addition, 124.73 mt (13.72 ODP tonnes) of HCFC-141b was used during servicing for flushing and oil removal of AC and commercial refrigeration units. Stage I of the HPMP addressed the phase-out of 3.0 ODP tonnes of HCFC-141b used as a solvent through technical assistance. A small amount of HCFC-123 (49.74 mt, 1.0 ODP t) is used for servicing chillers. Since no cost-effective alternatives are available at present, the complete phase-out of these chemicals will be addressed in the subsequent phases of the HPMP.

#### **Proposed activities in stage II of the HPMP**

33. The activities to be implemented during stage II of the HPMP include the complete conversion of the AC manufacturing sector, technical assistance programme for the refrigeration servicing sector, and monitoring. These activities are described below.

#### Regulatory actions

34. The Government will introduce the following regulations once the conversion of the AC manufacturing enterprises are completed:

- (a) Ban the manufacture and import of HCFC-22 AC with cooling capacity of less than 36,000 BTU/hour by 31 December 2021; and
- (b) Disallow the registration of any AC model containing HCFC-22 from 1 January 2022 for manufacture and import, and provide incentives for registration of models using non-HCFC alternatives.

35. The Department of Trade and Industry (DTI) through its Bureau of Product Standards will conduct periodic inspections to help enforce sale of registered air-conditioner models in the country.

#### Activities in the manufacturing sector

36. Stage II of the HPMP includes assistance to convert four HCFC-22 based AC manufacturing enterprises (Concepcion Carrier, Hitachi, Koppel, and Panasonic,) to HFC-32 technology, resulting in the phase-out of 283.12 mt (15.57 ODP tonnes) of HCFC-22. Table 4 presents the summary of the costs for the conversion of the AC manufacturing enterprises.



**Table 4. Total cost of the conversion of the AC sector to HFC-32 technology**

Enterprise	Consumption*		Local ownership (%)	Costs (US \$)				CE (US\$/kg)
	mt	ODP t		Capital	Operating	Total	Requested**	
Concepcion	174.05	9.57	60	505,780	1,096,515	1,602,295	961,377	5.52
Hitachi	28.07	1.54	40	340,670	176,841	517,511	207,004	7.37
Koppel	22.46	1.24	100	330,660	141,498	472,158	472,158	21.02
Panasonic	58.54	3.22	20	395,010	368,802	763,812	152,762	2.61
<b>Sub-total</b>	<b>283.12</b>	<b>15.57</b>		<b>1,572,120</b>	<b>1,783,656</b>	<b>3,355,776</b>	<b>1,793,301</b>	<b>6.33</b>

\*Average 2014-2016 consumption.

\*\*Adjusted based on Article 5 ownership.

#### Activities in the refrigeration servicing sector

37. Stage II of the HPMP includes a technical assistance component for servicing sector with an associated phase-out of 140.78 mt (7.74 ODP tonnes) of HCFC-22, at a cost of US\$675,750 (calculated at US \$4.80/kg). The following specific activities will be implemented starting in 2018:

- (a) Capacity building through coordination with local Government units and establishing core group of technical experts from industries; updating and printing the handbook for customs and enforcement officers; training programmes on ODS monitoring and trade for 50 customs officers; procurement and distribution of 20 refrigerant identifiers (US \$174,250);
- (b) Updating the data management system, including meetings with importers and distributors of HCFCs and pre-blended-polyol systems to discuss requirements for the registration and data reporting (US \$22,000);
- (c) Policy and regulatory support to promote low-GWP refrigerants and reducing imports of HCFC-22-based ACs (US \$5,000);
- (d) Five workshops to train 100 technicians on good refrigeration servicing practices, and continuation of the recovery and recycling programme through collection of HCFCs and other refrigerants, and management of stocks of refrigerants at the regional collection centres and central recycling centre (US \$138,000);
- (e) Upgrading the facilities of accredited training institutes (i.e., TESDA) to conduct the train-the-trainer programmes on the revised code of practice for RAC and training workshops for technicians on good servicing practices (US \$24,000);
- (f) Assessment of current design and manufacturing process in small and medium-sized commercial refrigeration manufacturing/servicing enterprises using R-404A, development of servicing manual specifically to address leakage of R-404A, and workshops to disseminate the information (US \$150,000);
- (g) Safety training and awareness programme on HFC-32 to be delivered before and after procurement of the new equipment for 240 authorised installers/service technicians (US \$70,000);
- (h) Identification of alternatives to HCFC-141b, HCFC-225ca and HCFC-225cb used for cleaning refrigeration systems, and HCFC-123 used for firefighting, to be implemented from 2019 (US \$80,000); and
- (i) Verification audit for the preparation of specific regulations for HPMP implementation (US \$12,500).

Project monitoring and implementation unit (PMU)

38. The PMU established under the NOU will assist in the implementation and monitoring of stage II of the HPMP, at total cost of US \$250,000 for a four-year period from 2018.

Total cost of stage II of the HPMP

39. The total cost of stage II of the HPMP for the Philippines has been estimated at US \$4,494,305; of this amount, the Government is requesting US \$2,930,057 after adjusting for the foreign ownership of the AC manufacturing enterprises. The proposed activities will result in the phase-out of 25.73 ODP tonnes of HCFC-22 with an overall cost-effectiveness of US \$6.26/kg as summarized in Table 5.

**Table 5. Total cost of stage II of the HPMP for Philippines**

Activity	Substance	HCFC phase-out		Cost (US \$)	CE (US \$/kg)
		mt	ODP tonnes		
Conversion of four AC manufacturing enterprises and technical support to service enterprises	HCFC-22	283.12	15.57	1,793,307	6.33
Technical assistance and equipment support for service network for enterprises	HCFC-22	43.95	2.42	211,000	4.80
Training support for service sector and enforcement authorities, and policy enforcement assistance	HCFC-22	140.78	7.74	675,750	4.80
PMU				250,000	
<b>Total</b>		<b>467.85</b>	<b>25.73</b>	<b>2,930,057</b>	<b>6.26</b>

**SECRETARIAT'S COMMENTS AND RECOMMENDATION****COMMENTS**

40. The Secretariat reviewed stage II of the HPMP for the Philippines in light of stage I, the policies and guidelines of the Multilateral Fund, including the criteria for funding HCFC phase-out in the consumption sector for stage II of HPMPs (decision 74/50), and the 2017-2019 business plan of the Multilateral Fund.

Revision of the HCFC baseline for compliance

41. Following the approval of stage I of the HPMP, the Government of the Philippines committed to change their HCFC baseline for compliance from 208.4 ODP tonnes to the agreed starting point for sustained aggregate reduction in HCFC consumption of 162.87 ODP tonnes. The Government has already sent a request to the Ozone Secretariat for revision of its HCFC baseline, which may be considered at the Twenty-ninth Meeting of the Parties.

Activities in the servicing sector in stage I of the HPMP (UNEP)

42. The progress report on the activities completed for the servicing sector during stage I showed a number of actions taken, as described in paragraphs 11–14. However, since January 2016 no additional activities have been implemented due to the absence of a signed agreement between the Government of the Philippines and UNEP. On this basis, the Government of the Philippines requested that stage I of the HPMP be closed. Accordingly, the last tranche of stage I of the HPMP which was due in 2015 (i.e., US \$23,000), would not be submitted.

43. At the 79<sup>th</sup> meeting when stage II of the HPMP for the Philippines was first submitted, the Secretariat suggested to the World Bank that in addition to the conversion of the AC manufacturing sector,

to include activities related to the servicing sector, noting the request by the Government to close stage I of the HPMP. On this basis, stage II of the HPMP had included a technical assistance component related to the servicing sector, in the amount of US \$675,750, with an associated phase out of 140.78 mt (7.74 ODP tonnes) of HCFC-22.

#### HCFC consumption

44. The Secretariat noted data discrepancies on the HCFC-22 consumption reported in the 2015 and 2016 CP data and the survey done for the preparation of stage II. The World Bank clarified that the survey was based on a bottom up approach which reflects more accurately the consumption used in the manufacturing sector. Accordingly, the Government of Philippines revised the 2015 and 2016 CP data reports.

#### Stage II of the HPMP

45. Stage II of the HPMP proposed to completely phase out the consumption of HCFC-22 used in the AC manufacturing sector, including technical assistance activities for the servicing sector. During the preparation of stage II, the Government of Philippines was cognizant that both HCFC-22-based and high-GWP-based AC equipment were imported into the country; therefore, addressing the AC manufacturing sector would ensure sustained reductions of the overall HCFC consumption in the country, and would allow the Government to put in place controls on imports and manufacture of AC equipment; and initiate policy measures that would support the uptake of low-GWP-based AC equipment.

#### Technical and cost issues related to the AC manufacturing sector

46. The Secretariat noted that the proposed conversion of the HCFC-22 fixed-speed based AC is to HFC-32 fixed-speed products rather than to inverter-based<sup>6</sup> equipment, which is widely available in the market, may be preferred by consumers given the savings in electricity cost associated with this equipment, and that lower priced R-410A-based ACs with inverters are provided. The World Bank explained that the choice of fixed-speed HFC-32-based compressors for conversion took into consideration cost-competitiveness of the final product compared to variable speed products that are more expensive; fixed-speed ACs would cater for those who can only afford low-priced ACs. Furthermore, the converted fixed-speed HFC-32-based AC will be energy efficient and will be competitive with similar R-410A inverter equipment available in the market.

47. The Secretariat questioned the sustainability of the HFC-32 technology in the Philippines, noting the evaluation on the RAC sector undertaken by the Senior Monitoring and Evaluation Officer of the Fund<sup>7</sup>, where some HFC-32 conversions could not be completed as originally proposed due to low market demand. In responding, the World Bank emphasised the commitment of the Government to support the conversion with policy measures that would facilitate competitive market environment of fixed-speed HFC-32-based ACs. It also agreed to closely monitor and report the progress of the conversion project as part of the project progress reporting.

48. In reviewing the conversion projects, the Secretariat noted that three out of the four AC enterprises have started producing R-410A-based equipment, though in small quantities, and requested clarification on its impact on the adoption of the HFC-32-based technology. The World Bank clarified that the

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<sup>6</sup> Every AC unit is designed for a maximum peak load. A regular AC unit will always run at peak power requirement when the compressor is running. An AC with inverter technology will run continuously but will draw only the power that is required to keep the temperature stable at the level desired (i.e., automatically adjusts its capacity based on the requirement of the room it is cooling, drawing much less power and consuming lesser units of electricity).

<sup>7</sup> UNEP/OzL.Pro/ExCom/75/9 Desk study on the evaluation of HCFC phase-out projects in the refrigeration and air-conditioning manufacturing sector

R-410A-based AC manufactured by the enterprises are operating with variable speed compressor and cater to consumers who can buy higher priced ACs. The conversion to HFC-32 for smaller-size AC equipment at these enterprises would not be affected as it meets the demand of a different market segment.

49. The Secretariat and the World Bank discussed issues relating to the cost components for the conversion, namely, product redesign, testing and certification, number and eligibility of refrigerant charging equipment required for conversion project, safety considerations, heat-exchanger manufacturing modifications, and costs relating to technical assistance and equipment support for service network of the four enterprises. An agreement was reached on the cost for the redesign and prototype development through rationalisation of the total cost of redesign of models (from US \$1,080,000 to US \$291,000), the number and cost of the charging equipment (from 12 to six, and unit cost from US \$80,000 to US \$75,000, respectively), and the costs of safety infrastructure for the production facilities (US \$80,000). The IOC were agreed at US \$6.30/kg in line with decision 74/50(c)(viii) as the actual costs estimated were confirmed to be higher than the threshold, due to the higher cost of compressors and components. Based on the above changes and after adjustment for non-Article 5 ownership, the agreed incremental costs for conversion of the four AC manufacturers amounts to US \$1,793,307, with the phase-out of 283.12 mt (15.57 ODP tonnes) of HCFC-22 and a cost-effectiveness of US \$6.33/kg (or US \$11.85/kg based on the total agreed cost of US \$3,355,776 before adjustment for non-Article 5 ownership).

50. While the technical assistance and equipment support for service network is directly associated with the four enterprises, these activities are necessary for handling ACs using flammable refrigerants. On this basis, it was agreed to consider US \$211,000 for these activities with an associated phase-out of 43.95 mt (at US \$4.80/kg), bringing the total phase-out for the AC conversion sector to 327.07 mt (17.9 ODP tonnes of HCFC-22).

#### Issues related to the refrigeration servicing sector

51. Noting the closure of stage I of the HPMP and the total consumption of HCFC in the servicing sector, the Secretariat considers the activities proposed in stage II for the servicing sector appropriate. It is expected that the policy measures that are critical for ensuring sustainability of adoption of HFC-32-based technologies in the country would be established, and that their implementation would be included in the capacity building component of the servicing sector. The World Bank will build on their experience from implementing conversion projects to HFC-32 to ensure that a systematic step-by-step approach for effective implementation of the conversion project would be implemented. It would also encourage the Government to strictly implement measures to ensure sustainable adoption of HFC-32 ACs and discourage increasing market penetration of R-410A fixed-speed ACs; facilitate work with relevant agencies to review or update the Minimum Energy Performance Standards (MEPS) to increase the energy efficiency of fixed-speed ACs.

52. The World Bank also agreed to associate some phase-out of HCFC-141b in the servicing sector noting that some activities are included to identify alternatives to flushing using this substance. The total funding for the service sector amounts to US \$675,750, plus agency support costs, with an associated phase-out of 7.17 ODP tonnes of HCFC-22 and 1.15 ODP tonnes of HCFC-141b, in accordance with decision 74/50.

#### Project management unit (PMU)

53. The Secretariat also discussed the funding requested for the PMU, noting that it will be operating from 2018 to 2021. Subsequently, the cost of the PMU was agreed at US \$220,000 for operational activities and verification reports.

Cost of the HPMP stage II

54. Based on the discussions between the Secretariat and the World Bank, the costs for stage II of the HPMP for the Philippines, as agreed, amounts to US \$2,900,057, to phase out 26.31 ODP tonnes as summarized in Table 6.

**Table 6. Agreed costs for stage II of the HPMP of the Philippines**

Sector/component	Substance	Phase out		Cost (US \$)	CE (US \$/kg)
		mt	ODP tonnes		
<b>RAC manufacturing</b>					
Conversion project for phase-out of HCFC-22 in four manufacturing enterprises	HCFC-22	283.12	15.57	1,793,307	6.33
Technical assistance and equipment support for service network for enterprises	HCFC-22	43.95	2.42	211,000	4.80
<b>Servicing sector</b>					
Training support for service sector and enforcement authorities and policy enforcement assistance	HCFC-22	130.36	7.17	675,750	4.80
	HCFC-141b	10.42	1.15		
PMU				220,000	
<b>Total</b>		<b>467.85</b>	<b>26.31</b>	<b>2,900,057</b>	<b>5.72</b>

Activities planned for the first tranche

55. The first funding tranche of stage II of the HPMP at the agreed amount of US \$1,160,023, plus agency support costs of US \$81,202 will be implemented until December 2018. The following activities will be implemented: strengthening of the HCFC license and quota system; initiation of the policies needed to support the uptake of the new products using non-HCFC alternatives; launching the AC sector conversion; initiate the identification and procurement of equipment for the conversion of the four AC enterprises to HFC-32; training programme for service technicians on safety aspects relating to installation and use of HFC-32 based ACs; and technical assistance for technicians to reduce use of HCFC-141b in flushing.

Impact on the climate

56. Table 7 presents the climate impact in the air-conditioning sector, calculated with the revised multilateral climate impact indicator (MCII).

**Table 7. Climate impact in the air-conditioning sector**

Input	<i>Note: All data displayed is <u>specific</u> to the case investigated and is <u>not generic</u> information about the performance of one alternative; performance can differ significantly depending on the case.</i>		
<b>Generic</b>			
Country		[-]	<b>Philippines</b>
Company data (name, location)		[-]	<b>Carrier-Concepcion; Panasonic; Johnson control-Hitachi; Koppel</b>
Select system type		[list]	Residential and commercial cooling
<b>General refrigeration information</b>			
HCFC to be replaced		[-]	HCFC-22
Amount of refrigerant per unit		[kg]	0.5 to 11.1
No. of units		[-]	314,960
Refrigeration capacity		[kW]	between 2 and 30
<b>Selection of alternative with minimum environmental impact</b>			
Share of exports (all countries)		[%]	0
<b>Calculation of the climate impact</b>			
Alternative refrigerant (more than one possible)		[list]	HFC-410A; HFC-32; HC-290

<b>Output</b>	<i>Note: The output is calculated as the climate impact of the refrigerant systems in their lifetime as compared to HCFC-22, on the basis of the amount produced within one year. Additional/different outputs are possible</i>		
	Country	Philippines	
<b>Identification of the alternative technology with minimum climate impact</b>			
	List of alternatives for identification of the one with minimum climate impact	[Sorted list, best = top (% deviation from HCFC)]	HC-290 (19%)
			HFC-32 (15%)
			<b>HCFC-22</b>
			HFC-410A (0%)
<b>Calculation of the climate impact</b>			
Per unit, over lifetime (for information only):			
	Energy consumption	[kWh]	4,074,510
	Direct climate impact (substance)	[kg CO <sub>2</sub> equiv]	781,294
	Indirect climate impact (energy): In country	[kg CO <sub>2</sub> equiv]	4,219,682
	Indirect climate impact (energy): Global average	[kg CO <sub>2</sub> equiv]	5,000,976
<b>Calculation of the climate impact of the conversion</b>			
<b>Alternative refrigerant 1</b>			<b>R-410A</b>
	Total direct impact (post conversion – baseline)*	[t CO <sub>2</sub> equiv]	39,341
	Indirect impact (country)**	[t CO <sub>2</sub> equiv]	
	Indirect impact (outside country)**	[t CO <sub>2</sub> equiv]	-36,604
	Total indirect impact	[t CO <sub>2</sub> equiv]	-36,604
	<b>Total impact</b>	<b>[t CO<sub>2</sub> equiv]</b>	<b>5,003,713</b>
<b>Alternative refrigerant 2</b>			<b>HFC-32</b>
	Total direct impact (post conversion – baseline)*	[t CO <sub>2</sub> equiv]	-521,729
	Indirect impact (country)**	[t CO <sub>2</sub> equiv]	-206,234
	Indirect impact (outside country)**	[t CO <sub>2</sub> equiv]	
	Total indirect impact	[t CO <sub>2</sub> equiv]	-206,234
	<b>Total impact</b>	<b>[t CO<sub>2</sub> equiv]</b>	<b>4,273,013</b>
<b>Alternative refrigerant 3</b>			<b>HC-290</b>
	Total direct impact (post conversion – baseline)*	[t CO <sub>2</sub> equiv]	-780,387
	Total indirect impact (country)**	[t CO <sub>2</sub> equiv]	-185,098
	Total indirect impact (outside country)**	[t CO <sub>2</sub> equiv]	0
	Total indirect impact**	[t CO <sub>2</sub> equiv]	-185,098
	<b>Total impact</b>	<b>[t CO<sub>2</sub> equiv]</b>	<b>4,035,491</b>
*Direct impact: Different impact between alternative technology and HCFC technology for the substance-related emissions.			
**Indirect impact: Difference in impact between alternative technology and HCFC technology for the energy-consumption-related emissions of CO <sub>2</sub> when generating electricity.			

57. The replacement of HCFC-22 by HFC-32 in the AC sector will result in avoiding the emissions of 727,963 tonnes of CO<sub>2</sub>-equivalent (i.e. from the baseline of 5,000,976 tonnes of CO<sub>2</sub>-equivalent emissions to 4,273,013 tonnes of CO<sub>2</sub>-equivalent).

58. In addition, the proposed technical assistance activities in the HPMP for the servicing sector, which include the introduction of better servicing practices and enforcement of HCFC import controls, would also reduce the amount of HCFC-22 used for refrigeration servicing. Each kilogram (kg) of HCFC-22 not emitted due to better refrigeration practices results in the savings of approximately 1.8 CO<sub>2</sub>-equivalent tonnes.

### Co-financing

59. Based on the project as agreed, the total cost of the conversion in the AC sector was estimated at US \$3,355,776, of which US \$1,793,307 was requested from the Multilateral Fund; the difference of US \$1,562,469 will be provided by the enterprises to enable the full phase-out in the sector. The Government of the Philippines is likewise providing co-financing in kind, to cover cost for office space and equipment, and additional staff not paid under the project.

## 2017-2019 draft business plan of the Multilateral Fund

60. The World Bank is requesting US \$2,900,057 plus agency support costs for the implementation of stage II of the HPMP. The total value requested of US \$2,792,756 including agency support costs for the period 2017-2019 is US \$147,279 above the amount in the business plan for 2017 to 2019.

### Draft Agreement

61. A draft Agreement between the Government of the Philippines and the Executive Committee for the phase out of HCFCs in stage II of the HPMP is contained in Annex I to the present document.

### RECOMMENDATION

62. The Executive Committee may wish to consider:

- (a) Approving, in principle, stage II of the HCFC phase-out management plan (HPMP) for the Philippines for the period 2016 to 2021 to reduce HCFC consumption by 35 per cent of the baseline in 2020 and 40 per cent in 2021, in the amount of US \$2,900,057, plus agency support costs of US \$203,004 for the World Bank;
- (b) Noting the commitment of the Government of the Philippines to:
  - (i) Reduce HCFC consumption by 40 per cent by 2021;
  - (ii) Issue a ban on manufacture and import of HCFC-22-based air-conditioners with cooling capacity of less than 36,000 BTU/hour by 31 December 2021;
  - (iii) Issue a ban on the use of HCFC-22 in manufacturing of air-conditioning equipment upon completion of the conversions of all the eligible enterprises and no later than 1 January 2022;
- (c) Deducting 26.31 ODP tonnes of HCFCs from the remaining HCFC consumption eligible for funding;
- (d) Requesting the World Bank to include in the tranche implementation reports the results of the conversion of the air-conditioning manufacturing sector to low-global warming potential alternatives highlighting lessons learned and challenges faced including the Government's efforts to ensure the sustainable adoption of the selected technology in the country and measures to discourage increased penetration of R-410A fixed-speed air-conditioners;
- (e) Approving the draft Agreement between the Government of the Philippines and the Executive Committee for the reduction in consumption of HCFCs, in accordance with stage II of the HPMP, contained in Annex I to the present document; and
- (f) Approving the first tranche of stage II of the HPMP for the Philippines, and the corresponding tranche implementation plan, in the amount of US \$1,160,023, plus agency support costs of US \$81,202 for the World Bank.





## Annex I

### **DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF THE PHILIPPINES AND THE EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE REDUCTION IN CONSUMPTION OF HYDROCHLOROFLUOROCARBONS IN ACCORDANCE WITH STAGE II OF THE HCFC PHASE-OUT MANAGEMENT PLAN**

#### **Purpose**

1. This Agreement represents the understanding of the Government of the Philippines (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 97.7 ODP tonnes by 1 January 2021 in compliance with Montreal Protocol schedule.
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 and 4.3.3.(remaining consumption eligible for funding).
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 stage II of the HCFC phase-out management plan (HPMP) approved (“the Plan”). 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 implementing agency.

#### **Conditions for funding release**

5. The Executive Committee will only provide the Funding in accordance with the Funding Approval Schedule when 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 has 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 there are no due country programme implementation reports 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 for all relevant years, unless the Executive Committee decided that such verification would not be required;
  - (c) That the Country had submitted a Tranche Implementation Report in the form of Appendix 4-A (“Format of Tranche 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; and

- (d) That the Country has submitted a Tranche 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.

### **Monitoring**

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 Tranche Implementation Plans in accordance with their roles and responsibilities set out in the same appendix.

### **Flexibility in the reallocation of funds**

7. The Executive Committee agrees that the Country may have the flexibility to reallocate part or all of the approved 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 a Tranche Implementation Plan as foreseen in sub-paragraph 5(d) above, or as a revision to an existing Tranche 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;
  - (iv) Provision of funding for activities not included in the current endorsed Tranche Implementation Plan, or removal of an activity in the Tranche Implementation Plan, with a cost greater than 30 per cent of the total cost of the last approved tranche; and
  - (v) Changes in alternative technologies, on the understanding that any submission for such a request would identify the associated incremental costs, the potential impact to the climate, and any differences in ODP tonnes to be phased out if applicable, as well as confirm that the Country agrees that potential savings related to the change of technology would decrease the overall funding level under this Agreement accordingly.
- (b) Reallocations not categorized as major changes may be incorporated in the approved Tranche Implementation Plan, under implementation at the time, and reported to the Executive Committee in the subsequent Tranche Implementation Report;
- (c) Any enterprise to be converted to non-HCFC technology included in the Plan and that would be found to be ineligible under the policies of the Multilateral Fund (i.e., due to

foreign ownership or establishment post the 21 September 2007 cut-off date), would not receive financial assistance. This information would be reported as part of the Tranche Implementation Plan;

- (d) The Country commits to examining the possibility of using pre-blended systems with low-global warming potential blowing agents instead of blending them in-house, for those foam enterprises covered under the Plan, should this be technically viable, economically feasible and acceptable to the enterprises;
- (e) The Country agrees, in cases where HFC technologies have been chosen as an alternative to HCFCs, and taking into account national circumstances related to health and safety: to monitor the availability of substitutes and alternatives that further minimize impacts on the climate; to consider, in the review of regulations, standards and incentives, adequate provisions that encourage introduction of such alternatives; and to consider the potential for adoption of cost-effective alternatives that minimize the climate impact in the implementation of the HPMP, as appropriate, and inform the Executive Committee on the progress accordingly in tranche implementation reports; and
- (f) Any remaining funds held by the bilateral or implementing agencies or the Country under the Plan 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 included in the Plan, 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 relevant implementing agencies would take into consideration relevant decisions on the refrigeration servicing sector during the implementation of the Plan.

### **Implementing agencies**

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. The World Bank has agreed to be the lead implementing agency (the "Lead IA"). 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 the Lead IA and/or Cooperating IA 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 subparagraph 5(b). The role of the Lead IA is contained in Appendix 6-A. The Executive Committee agrees, in principle, to provide the Lead IA with the fees set out in rows 2.2 of Appendix 2-A.

### **Non-compliance with the Agreement**

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 kilogram 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 decisions are taken, the specific case of non-compliance with this Agreement, will not be an impediment for the provision of funding 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 to facilitate implementation of this Agreement. In particular, it will provide the Lead IA with access to the information necessary to verify compliance with this Agreement.

### **Date of Completion**

14. The completion of the Plan 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 at that time there still be activities that are outstanding, and which were foreseen in the last Tranche Implementation Plan and its subsequent revisions as per sub-paragraph 5(d) and paragraph 7, the completion of the Plan 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 of the Plan unless otherwise specified by the Executive Committee.

### **Validity**

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.

16. This Agreement may be modified or terminated only by mutual written agreement of the Country and the Executive Committee of the Multilateral Fund.

## APPENDICES

### APPENDIX 1-A: THE SUBSTANCES

Substance	Annex	Group	Starting point for aggregate reductions in consumption (ODP tonnes)
HCFC-22	C	I	109.32
HCFC-123	C	I	1.70
HCFC-141b	C	I	51.85
Total	C	I	162.87

### APPENDIX 2-A: THE TARGETS, AND FUNDING

Row	Particulars	2017	2018	2019	2020	2021	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	187.56	187.56	187.56	135.46	135.46	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	146.58	146.58	146.58	105.87	97.7	n/a
2.1	Lead IA (The World Bank) agreed funding (US \$)	1,160,023	0	1,450,029	0	290,005	2,900,057
2.2	Support costs for Lead IA (US \$)	81,202	0	101,502	0	20,300	203,004
3.1	Total agreed funding (US \$)	1,241,225	0	1,551,531	0	310,305	3,103,061
3.2	Total support costs (US \$)	81,202	0	101,502	0	20,300	203,004
3.3	Total agreed costs (US \$)	1,241,225	0	1,551,531	0	310,305	3,103,061
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)						25.16
4.1.2	Phase-out of HCFC-22 to be achieved in previously approved projects (ODP tonnes)						2.00
4.1.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)						82.16
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)						1.70
4.3.1	Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes)						1.15
4.3.2	Phase-out of HCFC-141b to be achieved in previously approved projects (ODP tonnes)						43.00
4.3.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)						7.70

### APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

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

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

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

- (a) A narrative report, with data provided by tranche, describing the progress achieved since 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 Tranche 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;
- (b) An independent verification report of the Plan results and the consumption of the Substances, 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 during the period covered by the requested tranche, highlighting implementation milestones, the time of completion and 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 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 Tranche Implementation Reports and Plans, submitted through an online database; and
- (e) An Executive Summary of about five paragraphs, summarizing the information of the above sub-paragraphs 1(a) to 1(d).

2. In the event that in a particular year two stages of the HPMP are being implemented in parallel, the following considerations should be taken in preparing the Tranche Implementation Reports and Plans:

- (a) The Tranche Implementation Reports and Plans referred to as part of this Agreement, will exclusively refer to activities and funds covered by this Agreement; and
- (b) If the stages under implementation have different HCFC consumption targets under Appendix 2-A of each Agreement in a particular year, the lower HCFC consumption target will be used as reference for compliance with these Agreements and will be the basis for the independent verification.

## **APPENDIX 5-A: MONITORING INSTITUTIONS AND ROLES**

1. In order to assist the Country in monitoring and evaluating the progress of Agreement implementation, the Project Management Unit within the Department of Environment and Natural Resources – Environmental Management Bureau (DENR-EMB) will be responsible for:

- (a) Coordination with stakeholders in the public and private sectors;
- (b) Preparation or review of terms of reference for consultancy services to support implementation, and supervision of HCFC phase-out activities;
- (c) Preparation of monitoring reports in cooperation with the Lead IA and as required by the Executive Committee, including the Tranche Implementation Reports and Plans according to the schedule set forth in Appendix 2-A;
- (d) Facilitating project supervision or evaluation as may be required by the Lead IA and the Monitoring and Evaluation Officer of the Executive Committee;
- (e) Undertaking procurement of goods and services necessary for implementation of the commercial refrigeration and foam sector plans, technical assistance, and monitoring and supervising works of the consultants;
- (f) Financial management to ensure effective use of the Multilateral Fund resources;
- (g) Updating and maintenance of a project management information system;
- (h) Facilitating performance and financial audits as required;
- (i) Organizing meetings and workshops for DENR-EMB's staff and staff of other relevant agencies to ensure full cooperation of all stakeholders in the HCFC phase-out efforts;
- (j) Informing the industry of the availability of funds from the Multilateral Fund;
- (k) Organizing training and technical assistance for the beneficiaries;
- (l) Supervision and evaluation of projects with assistance from technical experts to be engaged as part of the technical assistance component; and
- (m) Monitoring progress of HCFC phase-out on the demand side by direct oversight of subproject implementation.

## **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 Tranche Implementation Reports and Plans as per Appendix 4-A;

- (c) Providing independent verification to the Executive Committee that the Targets have been met and associated tranche activities have been completed as indicated in the Tranche Implementation Plan consistent with Appendix 4-A;
- (d) Ensuring that the experiences and progress is reflected in updates of the overall plan and in future Tranche Implementation Plans consistent with sub-paragraphs 1(c) and 1(d) of Appendix 4-A;
- (e) Fulfilling the reporting requirements for the Tranche Implementation Reports and Plans and the overall plan as specified in Appendix 4-A for submission to the Executive Committee including the activities implemented by the Cooperating IA;
- (f) In the event that the last funding tranche is requested one or more years prior to the last year for which a consumption target had been established, annual tranche implementation reports and, where applicable, verification reports on the current stage of the Plan should be submitted until all activities foreseen had been completed and HCFC consumption targets had been met;
- (g) Ensuring that appropriate independent technical experts carry out the technical reviews;
- (h) Carrying out required supervision missions;
- (i) Ensuring the presence of an operating mechanism to allow effective, transparent implementation of the Tranche Implementation Plan and accurate data reporting;
- (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, the allocation of the reductions to the different budget items and to the funding of the Lead IA and each Cooperating IA;
- (k) Ensuring that disbursements made to the Country are based on the use of the indicators;
- (l) Providing assistance with policy, management and technical support when required;
- (m) Reaching consensus with the Cooperating IA on any planning, coordination and reporting arrangements required to facilitate the implementation of the Plan; and
- (n) Timely releasing funds to the country/participating enterprises for completing the activities related to the project.

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 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 \$220 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, on the understanding that the maximum funding reduction would not exceed the funding level of the tranche being requested.



Additional measures might be considered in cases where non-compliance extends for two consecutive years.

2. In the event that the penalty needs to be applied for a year in which there are two Agreements in force (two stages of the HPMP being implemented in parallel) with different penalty levels, the application of the penalty will be determined on a case-by-case basis taking into consideration the specific sectors that lead to the non-compliance. If it is not possible to determine a sector, or both stages are addressing the same sector, the penalty level to be applied would be the largest.

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