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EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL Eighty-third Meeting Montreal, 27–31 May 2019

PROJECT PROPOSAL: PAKISTAN

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, second tranche)

UNIDO and UNEP

PROJECT EVALUATION SHEET - MULTI-YEAR PROJECTS

Pakistan

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out management plan (stage II)	UNEP, UNIDO (lead)	76 th	50 % by 2020

(II) LATEST ARTICLE 7 DATA (Annex C Group I)	Year: 2017	206.8 (ODP tonnes)

(III) LATEST	(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)								Year: 2017
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing			•	
HCFC-123					0.04				0.04
HCFC-124									
HCFC-141b		55.46							55.46
HCFC-142b		2.99							2.99
HCFC-22		1.69		44.95	101.69				148.33

(IV) CONSUMPTION DATA (ODP tonnes)					
2009 - 2010 baseline:	2009 - 2010 baseline: 248.11 Starting point for sustained aggregate reductions: 248.1				
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)					
Already approved:	152.08	Remaining:			

(V) BUSIN	ESS PLAN	2019	2020	Total
UNIDO	ODS phase-out (ODP tonnes)	27.35	6.17	33.52
	Funding (US \$)	2,118,442	477,990	2,596,432
UNEP	ODS phase-out (ODP tonnes)	2.76	1.42	4.18
	Funding (US \$)	225,976	116,378	342,354

(VI) PRO	JECT DATA	1	2016	2017	2018*	2019	2020	Total
Montreal	Protocol cons	umption limits	223.30	223.30	223.30	223.30	161.27	n/a
Maximum	allowable co	nsumption	223.30	223.30	223.30	223.30	124.06	n/a
(ODP toni	nes)							
Agreed	UNEP	Project costs	200,000	0	200,000	0	103,000	503,000
funding		Support costs	25,976	0	25,976	0	13,378	65,330
(US \$)	UNIDO	Project costs	2,350,200	0	1,979,852	0	446,720	4,776,772
		Support costs	164,514	0	138,590	0	31,270	334,374
Funds app	roved by	Project costs	2,550,200	0	0	0	0	2,550,200
ExCom (U	JS \$)	Support costs	190,490	0	0	0	0	190,490
Total fund	ls requested	Project costs	0	0	0	2,179,852*		2,179,852
for approv	al at this	Support costs	0	0	0	164,566		164,566
meeting (1	US \$)							

^{*}The second tranche should have been submitted in 2018.

Secretariat's recommendation:	Blanket approval
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PROJECT DESCRIPTION

1. On behalf of the Government of Pakistan, UNIDO as the lead implementing agency, has submitted a request for funding for the second tranche of stage II of the HCFC phase-out management plan (HPMP), at a total cost of US \$2,344,418, consisting of US \$1,979,852, plus agency support costs of US \$138,590 for UNIDO, and US \$200,000, plus agency support costs of US \$25,976 for UNEP.¹ The submission includes a progress report on the implementation of the first tranche, the verification report on HCFC consumption for 2016 to 2017 and the tranche implementation plan for 2019 to 2020.

Report on HCFC consumption

2. The Government of Pakistan reported a consumption of 206.82 ODP tonnes of HCFC in 2017 which is 17 per cent below the revised HCFC baseline for compliance of 248.11 ODP tonnes,² and 7 per cent below the 2017 target in the Agreement with the Executive Committee. The 2014-2017 HCFC consumption is shown in Table 1.

Table 1. HCFC consumption in Pakistan (2014-2017 Article 7 data)

HCFC	2014	2015	2016	2017	Baseline
Metric tonnes					
HCFC-22	3,245.01	2,562.39	2,802.00	2,696.84	1,908.25
HCFC-123	0.00	0.00	0.00	2.09	0.00
HCFC-141b	546.50	555.75	552.89	504.16	1,259.10
HCFC-142b	18.44	16.42	16.50	46.02	71.55
Total (mt)	3,809.95	3,134.56	3,371.39	3,249.11	3,238.90
ODP tonnes					
HCFC-22	178.48	140.93	154.11	148.33	104.95
HCFC-123	0.00	0.00	0.00	0.04	0.00
HCFC-141b	60.12	61.13	60.82	55.46	138.50
HCFC-142b	1.20	1.06	1.07	2.99	4.66
Total (ODP tonnes)	239.79	203.13	216.00	206.82	248.11

3. While the overall HCFC consumption had been decreasing, the fluctuations in consumption in 2015 compared to 2014, and in 2017 compared to 2016 was attributed to the normal changes in supply and demand for these substances, noting that these consumption levels were below the import quotas established by the Government. There was an increase in consumption of HCFC-142b due to an increased demand for extruded polystyrene (XPS) foam boards for insulation. The HCFC-123 consumption reported in 2017 was used in servicing refrigeration equipment. It was estimated that the 2018 consumption of HCFCs would not be more than 210 ODP tonnes, similar to the quota allocated for 2017.

Country programme (CP) implementation report

4. The Government of Pakistan reported HCFC sector consumption data under the 2017 CP implementation report which is consistent with the data reported under Article 7 of the Montreal Protocol. The 2018 CP report will be submitted by May 2019.

Verification report

5. The verification report on HCFC consumption confirmed that the Government is implementing a licensing and quota system for HCFC imports and exports and that the total consumption of HCFCs for 2016 to 2017 were 216.00 and 206.81 ODP tonnes, respectively. The verification concluded that Pakistan

¹ As per the letter of 13 March 2019 from the Ministry of Climate Change of Pakistan to UNIDO.

² The HCFC consumption data for the baseline years 2009 and 2010 had been revised to include HCFC-142b consumption in the foam manufacturing sector (decision XXIX/16).

is in compliance with the targets set in its Agreement with the Executive Committee for 2016 and 2017, and has been reducing HCFCs use in the country below its targets.

- 6. The report did not include the verification of consumption for 2018 as this was commissioned in 2017 to support the submission of the second tranche which was due in 2018. The 2018 consumption data is not yet officially available, and needs approval at a high level before it can be submitted. UNIDO had confirmed that 2018 consumption would not be higher than the quota set for 2018.
- 7. The report recommended the continued use of the designated harmonized systems (HS) codes for the most commonly traded fluorinated substitutes for HCFCs and CFCs to improve data collection for the import of ODS and their mixtures.

Progress report on the implementation of the first tranche of the HPMP

Legal framework

- 8. The licensing and quota systems for import/export of HCFCs continues to be operational since 2013; import of substances that have been phased out earlier (i.e., CFCs and halon) is banned; HCFC-142b will be added to the list of controlled substances under regulation SRO 634(1), the Pakistan Customs Rules updated in 2014. The Government is also studying the implementation of additional legislation including a ban on import of products and equipment using or containing HCFC and HCFC blends, tax relief on non-HCFC-based products and higher taxes on HCFC-based products, among others. The Government has also initiated actions to develop regulations to support the phase-down of HFCs and HFC-based mixtures including the inclusion of these substances in the current import quota system.
- 9. Training was provided to 23 officers on regulations for the prevention of illegal ODS trade, and handling and storage of flammable gases; eight refrigerant identifiers were procured and distributed to key entry ports; three Customs officers participated in a regional training workshop organized by UNEP on risk profiling for identification of risk indicators associated with illegal ODS trade; and one Customs officer attended the border dialogue on coordination and data reconciliation for ODS trade, with counterparts from Afghanistan and the Islamic Republic of Iran.
- 10. The National Energy Conservation Agency in collaboration with the Pakistan Standards Quality Control Authority (PSQCA) has developed minimum energy performance standards (MEPS) for window-type and split-type air-conditioners (from 12,000 BTU to 48,000 BTU) and domestic refrigerators. The PSQCA has also adopted relevant standards on safe handling of refrigerants for the refrigeration and air-conditioning (RAC) sector consistent with ISO standards. These standards (ISO-817³ and ISO-5149⁴) will be included in the training programme for technicians.

Polyurethane (PU) manufacturing sector

11. Stage II of the HPMP included the conversions of seven enterprises manufacturing PU thermoware to phase out 34.06 ODP tonnes and four enterprises manufacturing discontinuous panels to phase out 24.64 ODP tonnes. Contracts with the seven thermoware enterprises had been signed following UNIDO's procedures. Equipment procurement (i.e., high pressure low-dosing foaming machine including control panel and chillers) had been completed, and had been delivered and are currently being installed. Commissioning, start-up and training will be provided by the equipment supplier by May 2019. Bidding was carried out for the main equipment and accessories for the four discontinuous panel enterprises; procurement was delayed due to technical reasons associated with the final specifications of the equipment; this is now expected to be completed before the end of the first half of 2019.

³ ISO 817:2014, on designation and safety classification for refrigerants.

⁴ ISO 5149-1:2014, on safety and environmental requirements for refrigeration systems and heat pumps.

Extruded polystyrene foam sector

12. In line with decision 76/39(f)⁵, UNIDO had also submitted a project for the phase out of 76.68 mt (4.68 ODP tonnes) of HCFC-142b and HCFC-22 through the conversion of an XPS foam enterprise (Symbol Industry) to dimethyl ether (DME), CO₂, and HFO. The total cost of the project as submitted was US \$871,527 (incremental capital costs (ICC) of US \$694,700 and incremental operating costs (IOC) of US \$107,357) plus support costs for UNIDO. The cost effectiveness of the project as submitted was US \$11.36/kg.⁶

Refrigeration servicing sector

- 13. Training on emerging technologies and safe handling and storage of flammable refrigerants was provided to 91 technicians; the code of practice on handling refrigerants for servicing technicians and workshops had been drafted and is being reviewed by a technical committee; and procurement of training equipment and tools (e.g. vacuum pumps, refrigerant recovery units, leak detectors for hydrocarbons) for the National Vocational and Technical Training Commission (NVTTC) had been initiated. The training curriculum for RAC servicing technicians is being revised to include information on new refrigerants and related technologies, and safe handling of flammable refrigerants. The pilot implementation of the technician certification programme is currently being implemented with the Sindh Board of Technical Education (SBTE), and is linked with the revision of the curriculum for RAC training. This certification system is being designed to fit within national process of vocational qualification framework implementation.
- 14. Awareness sessions were carried out to promote low-global warming potential (GWP) alternative technologies and handling and storage of flammable refrigerants; the UNEP guide on flammable refrigerants was translated into the local language and distributed to technicians.

Project implementation and monitoring unit (PMU)

15. The NOU/National Ozone Cell, within the Ministry of Climate Change (MoCC) is responsible for project management, coordination, assessment and monitoring. It is also responsible for facilitating communication among key stakeholders and increasing awareness on ODS issues amongst decision makers. A consultant was recruited by the NOU to support the implementation of the activities related to UNEP's component in the HPMP.

Level of fund disbursement

16. As of March 2019, of the US \$2,550,200 approved so far (US \$2,350,200 for UNIDO and US \$200,000 for UNEP), US \$619,469 (24 per cent) had been disbursed (US \$487,469 for UNIDO and US \$132,000 for UNEP). The balance of US \$1,930,731 will be disbursed in 2019-2020.

Implementation plan for the second tranche of the HPMP

17. The following activities will be implemented between June 2019 and December 2020:

⁵ The Executive Committee decided to note that during the implementation of stage II of the HPMP, the Government of Pakistan could submit an investment project to phase out the use of HCFC-142b in the XPS foam manufacturing sector on the condition that the country's baseline consumption was revised to include HCFC-142b and approved by the Meeting of the Parties.

⁶ Cost effectiveness threshold established by the Executive Committee for the XPS foam sector is US \$10.27/kg.

⁷ The balances remaining from the previous tranche will be used in addition to the funds being requested.

- (a) Air-conditioning (AC) manufacturing: Conversion of one eligible enterprise in the AC manufacturing sector (Dawlance Industry) from HCFC-22 to R-290 technology (UNIDO) (US \$1,115,000);
- (b) *PU foam manufacturing*: Finalise the conversion of the seven thermoware enterprises; complete procurement and installation of equipment for the four PU discontinuous panels enterprises to finalise the conversion (UNIDO) (US \$570,352 plus funds from previous tranche);
- (c) Refrigeration servicing sector: Training of 100 Customs and enforcement officers on regulations for the prevention of illegal ODS trade; training additional 500 technicians on emerging technologies and safe handling and storage of flammable refrigerants; two workshops to outreach training and certification programmes in other provinces (i.e., Khyber Pakhtunkhwa and Gilgit Baltistan); translation of quick guide on flammable refrigerants in local languages; consultation workshops on finalisation of code of practice/standard operating procedure for servicing workshops for handling flammable refrigerants; awareness raising for the public and relevant industry on safe handling and use of flammable refrigerants (UNEP) (US \$170,000 plus funds from previous tranche); and
- (d) Project coordination, management and monitoring (UNEP US \$30,000; and UNIDO, US \$294,500).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

Revision of the starting point and modification to the Agreement

18. The Secretariat noted that the baseline for HCFC compliance for Pakistan was revised by the Meeting of the Parties to the Montreal Protocol⁸ to include HCFC-142b, as shown in Table 2 below.

Table 2: Revision of the baseline for Pakistan

Calandaria	Previous l	baseline (ODP t	onnes)	Revised baseline (ODP tonnes)			
Substance	2009	2010	Baseline	2009	2010	Baseline	
HCFC-141b	134.2	142.8	138.50	134.2	142.8	138.50	
HCFC-142b	-	-	-	4.62	4.68	4.65	
HCFC-22	105.6	112.2	108.90	101.69	108.22	104.96	
Total	239.8	255	247.4	240.51	255.7	248.11	

19. As the Government of Pakistan selected the baseline for compliance as the starting point for aggregate reduction on HCFC consumption, a revision to the Agreement between the Government and the Executive Committee is required. Accordingly, Annex I to the present document presents the changes required to the Agreement. The complete updated Agreement will be annexed to the report of the 83rd meeting.

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⁸ Decision XXIX/16

Progress report on the implementation of the first tranche of the HPMP

Legal framework

20. The Government of Pakistan has already issued HCFC import quotas for 2019 at 210 ODP tonnes, which are lower than the Montreal Protocol control targets.

PU foam manufacturing sector

- 21. UNIDO explained that the delay in the implementation of the PU foam projects was due to a change in the NOU which required additional consultations to explain the process of selection of technology and eligible enterprises. This issue had been resolved and the conversion of the foam projects is proceeding.
- 22. Regarding the limited progress on the conversion of the foam enterprises manufacturing discontinuous panels, UNIDO clarified that the bidding process took longer time than originally estimated; however, bids have been received, are being evaluated by technical staff from the beneficiary enterprises, and is expected to be completed by June 2019. It is expected that the enterprises will be converted by mid-2020. UNIDO had also indicated that the Government is aware of their commitment to reduce HCFC consumption by 50 per cent of the baseline by 2020, and will do its utmost to ensure the completion of these investment projects.
- 23. In reviewing the information provided on fund disbursements, the Secretariat noted that no allocations were made for each individual beneficiary enterprise, but that an aggregated amount was reported. According to UNIDO, as they are responsible for the equipment procurement, their internal disbursement and financial process require that these costs be aggregated. The funding provided directly to the enterprises would only be for those activities that they have to implement themselves (i.e. civil works, grounding). The Secretariat reminded UNIDO to ensure that the capital and operating costs of the enterprise conversions must be consistent with what had been approved for each enterprise, and to report to the Executive Committee accordingly.

Refrigeration servicing sector

- 24. With regard to the refrigerant identifiers and their delivery, it was explained that the units planned from the first tranche will be delivered only in late 2019, and that UNEP used those identifiers that had been purchased as part of stage I in the training for Customs officers. The training of customs officers would focus on the effective implementation of the HS codes to improve data collection for the import of ODS and their mixtures, consistent with the recommendations of the verification report on HCFC consumption.
- 25. The Secretariat also inquired on the progress of the component for promotion of alternative technologies, noting that only the translation of material to local language had been reported. UNEP explained that the NOU, in cooperation with the refrigeration association in Pakistan held workshops as part of the annual Heating, Ventilation, Refrigeration and Air-Conditioning (HVRAC) conference, which included the setting up of an information booth to disseminate outreach materials on the country's efforts phase out HCFCs.
- 26. With regard to the sustainability of the training programme, UNEP emphasized that the institutional linkages with the vocational schools and education board will ensure that these are integrated into regular programmes.

XPS foam sector

27. The Secretariat undertook a thorough review of the project proposal for the conversion of Symbol Industry from HCFC-142b/HCFC-22 (60:40 ratio) to CO₂/DME/HFO. In summary, after review it was

noted that: the enterprise's consumption of HCFC-142b and its resulting production appeared to have been reported based on the revised HCFC-142b baseline consumption; the cost-effectiveness of the project as submitted was higher than the established cost-effectiveness threshold for the XPS foam sector; the technology selected (i.e., HFO) might not be commercially available in the country at the time the enterprise will be converted⁹; the capital cost components were not clearly consistent with the baseline equipment described, and were higher than costs of similar items in approved projects; and the incremental operating costs calculations were not provided.

- 28. Discussions between UNIDO and the Secretariat included, *inter alia*, consideration of the need for all equipment requested, especially the replacement of the extruder line; cost of safety-related items; technical assistance and trials. The Secretariat proposed adjustments to the capital costs consistent with similar XPS projects that have been approved, and taking into account the specific needs of Symbol Industry.
- 29. With regard to the incremental operating costs, the Secretariat noted that the request was for the maximum level of US\$1.4/kg without the supporting calculations; when the additional information on the calculation was provided, it was noted that costs of the components of the system were higher than previously approved XPS projects (e.g., HFO cost was US\$20/kg while in other projects was US\$10/kg).
- 30. Despite exhaustive consultations, UNIDO and the Secretariat could not reach an agreement on the overall eligible incremental cost of the project by the deadline for project negotiation; therefore, UNIDO was requested to resubmit the proposal to the 84th meeting. The Secretariat further noted that deferring the submission of this project to a future meeting would not affect the compliance of Pakistan, as the Government had already agreed to reduce HCFC consumption by 50 per cent of its baseline by 2020 through the activities that were included in stages I and II of the HPMP (and did not include the conversion of the XPS sector plan).

Conclusion

31. The Government of Pakistan is in compliance with the Montreal Protocol and its Agreement with the Executive Committee. The consumption of HCFCs in 2017 is 17 per cent below the baseline for compliance, and 7 per cent lower than the limits established in the Agreement for that year. The level of disbursement is 24 per cent. Training was provided on emerging technologies and safe handling and storage of flammable refrigerants, and a code of conduct for good refrigeration servicing practices is currently under development. The delays in the conversion of the PU foam enterprises have been resolved, and are expected to be completed soon. The activities for the conversion of the thermoware enterprises are proceeding, equipment had been procured and is being installed. Activities planned under the second tranche, including training of Customs and enforcement officers, the advancement of the conversion of 11 PU foam enterprises, and one AC manufacturing enterprise, training of 500 refrigeration technicians, and establishment of the technician certification scheme, will ensure the sustainability of the HCFC phase-out.

RECOMMENDATION

- 32. The Fund Secretariat recommends that the Executive Committee notes:
 - (a) The progress report on the implementation of the first tranche of stage II of the HCFC phase-out management plan (HPMP) in Pakistan;
 - (b) That the Fund Secretariat had updated the Agreement between the Government of Pakistan and the Executive Committee, as contained in Annex I to the present document, specifically: paragraph 1, Appendices 1-A and 2-A to reflect the country's baseline of

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⁹ Decisions 74/20(a) and 77/35(a)(v)

248.11 ODP tonnes as reported under Article 7 of the Montreal Protocol; and that a new paragraph 16 had been added to indicate that the updated Agreement superseded that reached at the 76th meeting; and

33. The Fund Secretariat further recommends blanket approval of the second tranche of stage II of the HPMP for Pakistan, and the corresponding 2019-2020 tranche implementation plan, at the funding level shown in the table below:

	Project title	Project funding (US \$)	Support cost (US \$)	Implementing agency
(a)	HCFC phase-out management plan (stage II, second tranche)	1,979,852	138,590	UNIDO
(b)	HCFC phase-out management plan (stage II, second tranche)	200,000	25,976	UNEP

Annex I

TEXT TO BE INCLUDED IN THE UPDATED AGREEMENT BETWEEN THE GOVERNMENT OF PAKISTAN 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

(Relevant changes are in **bold** font for ease of reference)

- 1. This Agreement represents the understanding of the Government of Pakistan (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 **124.06** ODP tonnes by 1 January 2020 in compliance with Montreal Protocol schedule.
- 16. This updated Agreement supersedes the Agreement reached between the Government of Pakistan and the Executive Committee at the 76th meeting of the Executive Committee.

APPENDIX 1-A: THE SUBSTANCES

Substance	Annex	Group	Starting point for aggregate reductions in
			consumption (ODP tonnes)
HCFC-22	C	I	104.96
HCFC-141b	C	I	138.50
HCFC-142b	C	I	4.65
Total	С	I	248.11

APPENDIX 2-A: THE TARGETS, AND FUNDING

Row	Particulars	2016	2017	2018	2019	2020	Total
1.1	Montreal Protocol reduction schedule	223.30	223.30	223.30	223.30	161.27	n/a
	of Annex C, Group I substances						
	(ODP tonnes)						
1.2	Maximum allowable total	223.30	223.30	223.30	223.30	124.06	n/a
	consumption of Annex C, Group I						
	substances (ODP tonnes)						
2.1	Lead IA (UNIDO) agreed funding	2,350,200	0	1,979,852	0	446,720	4,776,772
	(US \$)						
2.2	Support costs for Lead IA (US \$)	164,514	0	138,590	0	31,270	334,374
2.3	Cooperating IA (UNEP) agreed	200,000	0	200,000	0	103,000	503,000
	funding (US \$)						
2.4	Support costs for Cooperating IA	25,976	0	25,976	0	13,378	65,330
	(US \$)						
3.1	Total agreed funding (US \$)	2,550,200	0	2,179,852	0	549,720	5,279,772
3.2	Total support costs (US \$)	190,490	0	164,566	0	44,648	399,704
3.3	Total agreed costs (US \$)	2,740,690	0	2,344,418	0	594,368	5,679,476
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)						14.29
4.1.2	Phase-out of HCFC-22 to be achieved in previously approved projects (ODP tonnes)						7.40
4.1.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)						83.27
4.2.1	Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes)						58.69
4.2.2	Phase-out of HCFC-141b to be achieved in previously approved projects (ODP tonnes)						71.70
4.2.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)						8.11
4.3.1	Total phase-out of HCFC-142b a	agreed to	be achie	ved under	this A	greement	
	(ODP tonnes)						0.00
4.3.2	Phase-out of HCFC-142b to be achieved in previously approved projects (ODP tonnes)						0.00
4.3.3	Remaining eligible consumption for HCFC-142b (ODP tonnes)						4.65