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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Ninety-first Meeting
Montreal, 5-9 December 2022
Item 9(d) of the provisional agenda[1]

PROJECT PROPOSALS: INDIA

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

Phase-out

- HCFC phase-out management plan (stage II, fourth tranche) — UNDP, UNEP, and Germany
- HCFC phase-out management plan (stage III, first tranche) — UNDP, UNEP, and Germany

[1] UNEP/OzL.Pro/ExCom/91/1

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

INDIA

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out plan (stage II)	UNDP (lead), UNEP, Germany	77th	60% phase-out by 2023

(II) LATEST ARTICLE-7 DATA (Annex C Group l)	Year: 2021	218.47 ODP tonnes

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)									Year: 2021
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-22				31.94	203.40				235.34
HCFC-123			0.48		0.46				0.94

(IV) CONSUMPTION DATA (ODP tonnes)			
2009-2010 baseline:	1,608.2	Starting point for sustained aggregate reductions:	1,691.25
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	1,111.26	Remaining:	579.99

(V) ENDORSED BUSINESS PLAN		2022	2023	2024	Total
UNDP	ODS phase-out (ODP tonnes)	51.43	0.00	0.00	51.43
	Funding (US $)	3,212,096	0	0	3,212,096
UNEP	ODS phase-out (ODP tonnes)	1.54	0.00	0.00	1.54
	Funding (US $)	100,900	0	0	100,900
Germany	ODS phase-out (ODP tonnes)	21.50	0.00	0.00	21.50
	Funding (US $)	1,395,511	0	0	1,395,511

(VI) PROJECT DATA			2016	2017	2018	2019	2020	2021	2022	2023	Total
Montreal Protocol consumption limits			1,447.38	1,447.38	1,447.38	1,447.38	1,045.33	1,045.33	1,045.33	1,045.33	n/a
Maximum allowable consumption (ODP tonnes)			1,447.38	1,447.38	1,433.63	1,103.85	832.32	799.76	698.82	643.28	n/a
Funding agreed in principle (US $)	UNDP	Project costs	9,256,000	0	14,608,000	0	12,045,500	0	3,001,959	0	*38,911,459
		Support costs	647,920	0	1,022,560	0	843,185	0	210,137	0	2,723,802
	UNEP	Project costs	300,000	0	300,000	0	210,000	0	90,000	0	900,000
		Support costs	36,333	0	36,333	0	25,433	0	10,900	0	108,999
	Germany	Project costs	345,000	0	2,000,000	0	**1,500,000	0	1,255,000	0	5,100,000
		Support costs	38,626	0	223,922	0	***167,941	0	140,511	0	571,000
Funds approved by ExCom (US $)		Project costs	9,901,000	0	16,908,000	0	13,755,500	0		0	40,564,500
		Support costs	722,880	0	1,282,815	0	1,036,559	0		0	3,042,254
Total funds recommended for approval at this meeting (US $)		Project costs							4,346,959		4,346,959
		Support costs							361,548		361,548

* US $4,062,046, plus agency support costs of US $284,343, were deducted from the approval for UNDP, in line with decision 77/43(d)(ii).
** Out of this amount, US $1,394,113 was allocated at the 86th meeting, and US $105,887 at the 87th meeting (decision 86/90(c)).
*** Out of this amount, US $156,086 was allocated at the 86th meeting, and US $11,855 at the 87th meeting (decision 86/90(c)).

Secretariat's recommendation:	Individual consideration

PROJECT DESCRIPTION

1. On behalf of the Government of India, UNDP as the lead implementing agency has submitted a request for funding for the fourth and final tranche of stage II of the HCFC phase-out management plan (HPMP), at a total cost of US $4,708,507, consisting of US $3,001,959, plus agency support costs of US $210,137 for UNDP, US $90,000, plus agency support costs of US $10,900 for UNEP, and US $1,255,000, plus agency support costs of US $140,511 for the Government of Germany.[2] The submission includes a progress report on the implementation of the third tranche, a report on the continuous foam panel manufacturing enterprises, the verification report on HCFC consumption for 2020 and 2021, and the tranche implementation plan for 2023 to 2024.

Report on HCFC consumption

2. The Government of India reported a consumption of 218.47 ODP tonnes of HCFC in 2021, which is 86 per cent below the HCFC baseline for compliance. The 2017-2021 HCFC consumption is shown in table 1.

Table 1. HCFC consumption in India (2017-2021 Article 7 data)

HCFC	2017	2018	2019	2020	2021	Baseline
Metric tonnes (mt)						
HCFC-22	9,376.95	9,936.76	9,988.45	5,404.19	4,278.99	10,944.7
HCFC-123	253.47	82.38	77.48	12.99	47.19	176.5
HCFC-141b	2,526.25	2,896.29	3,494.18	0.00	0.00	7,868.4
HCFC-142b	120.00	0.00	0.00	0.00	0.00	1,903.0
Total (mt)	**12,276.67**	**12,915.43**	**13,560.11**	**5,417.18**	**4,326.18**	**[*]21,504.4**
ODP tonnes						
HCFC-22	515.73	546.52	549.37	297.23	235.35	602.0
HCFC-123	5.07	1.65	1.55	0.26	0.94	3.5
HCFC-141b	277.89	318.59	384.36	0.00	0.00	865.5
HCFC-142b	7.80	0.00	0.00	0.00	0.00	123.7
Total (ODP tonnes)	**806.49**	**[**]866.76**	**[**]935.27**	**297.49**	**[**]218.47**	**[*]1,608.2**

[*] Total incudes 611.8 mt (13.5 ODP tonnes) of HCFC-124 that had been consumed during the baseline years and has not been reported since 2012.

[**] The calculated 2021 consumption of 218.47 ODP tonnes reflects the export of HCFC-225 for feedstock uses in that year. At the time of finalization of the present document, the country was revising its 2018 and 2019 data reported under Article 7 of the Montreal Protocol to reflect production of HCFC-225 for feedstock uses that was subsequently exported in 2021.

3. HCFC-22 is produced in India for both controlled and feedstock uses. The growing consumption of HCFC-22 in 2019 was due to increased demand for servicing; that trend reversed in 2020 and 2021 due to restrictions caused by the COVID-19 pandemic, conversion of residential air-conditioning (AC) manufacturing enterprises under the HPMP and those that converted using their own resources, and the implementation of improved servicing practices. Consumption of HCFC-141b was phased out in 2020, in line with the ban in effect since 1 January 2020. Controlled uses of HCFC-142b, which had been used in the manufacture of extruded polystyrene foam, were phased out in 2017; the country also imported HCFC-142b for feedstock uses and, in 2021, produced a small quantity for feedstock uses. HCFC-123 is consumed to manufacture and service fire-protection equipment and to service chillers. That consumption increased in 2021 after having experienced a steady decrease since 2016, which was attributed to fluctuations in market conditions as well as effects caused by the pandemic.

[2] As per the letter of 28 September 2022 from the Ministry of Environment, Forest and Climate Change of India to UNDP.

Country programme (CP) implementation report

4. The Government of India reported HCFC-22 and HCFC-123 sector consumption data under the 2021 CP implementation report that is consistent with the data reported under Article 7 of the Montreal Protocol. The 2021 CP data report did not include the quantity of HCFC-225 that was exported for feedstock uses that year, and that had been deducted from the country's calculated HCFC consumption under Article 7 of the Montreal Protocol, as CP data reports do not include information on exports, imports, or production of HCFCs for feedstock uses.

Verification report

5. The verification report confirmed that the Government is implementing a licensing and quota system for HCFC imports and exports and that the total consumption of HCFCs listed in table 1 above was correct. The verification concluded that India is in compliance for the years 2020 and 2021 as per the accelerated phase-out schedule of the Montreal Protocol, and that consumption is below the maximum allowable consumption for the same years in the Agreement between the Government of India and the Executive Committee.

6. At the 86th meeting, the Secretariat had noted a small difference between the 2019 verified HCFC consumption and that reported under Article 7 of the Montreal Protocol and that, notwithstanding that small difference, the country was in compliance with its Agreement with the Executive Committee for stage II and with the Montreal Protocol.[3] The reason for that difference was that the verification report had included HCFC-123 used for feedstock; the Government of India confirmed there was no such feedstock use in 2020 and 2021.

Progress report on the implementation of the third tranche of stage II of the HPMP

Legal framework

7. In addition to the regulatory measures introduced under stage I, stage II included a ban on the import and use of HCFC-141b pure or contained in pre-blended polyols, in effect since 1 January 2020, and the more recently issued ban on the manufacture of HCFC-based products and equipment that will be in effect from 1 January 2025. Pursuant to the country's ratification of the Kigali Amendment, India established a licensing system for HFCs in March 2022.

AC manufacturing sector

8. Memoranda of Agreement (MoA)[4] have been signed with five of the six AC manufacturing enterprises identified for conversion to HFC-32 technology in stage II (Blue Star, E-Vision, Leel Electricals Ltd, Universal Comforts Pvt Ltd (a wholly owned subsidiary of Voltas), and Zamil (now Subros Ltd)). Three of those enterprises (Blue Star, E-Vision, and Universal Comforts Pvt Ltd) have completed all conversion activities with disbursements made as of December 2021, whereas Subros Ltd was expected to be completed by December 2022. Pursuant to the decision to sell its AC manufacturing lines, Leel Electricals Ltd decided to withdraw from the HPMP and complete the conversion to HFC-32 with its own funding, resulting in a return of US $1,672,902 to the Multilateral Fund. The sixth enterprise, Videocon, declared bankruptcy and is no longer manufacturing AC equipment nor consuming HCFCs on any of its

[3] UNEP/OzL.Pro/ExCom/86/54

[4] UNDP's implementation modality entails that the Government of India, though the NOU (Ozone Cell), establishes MoA with beneficiary enterprises, identifying duties and rights between parties, creating a performance-based implementation plan, and allowing verification of compliance at the enterprise level as well as the disbursement of funds.

five AC manufacturing lines. The list of enterprises and the status of their conversion are presented in table 2.

Table 2. AC manufacturing enterprises included in stage II of the HPMP

Enterprise	Consumption (mt)	Lines at enterprise	Lines to be converted	Cost (US $)	Status (milestones achieved*)
Blue Star	132.84	3	2	1,785,917	Conversion is complete and IOCs disbursed
E-Vision	113.00	4	2	1,574,300	Conversion is complete and IOCs disbursed
Universal Comforts Pvt Ltd (Voltas)	529.65	2	1	4,303,695	Conversion is complete and IOCs disbursed
Subros Ltd**	60.00	2	1	1,161,200	Conversion is complete; awaiting third-party verification
Leel Electricals Ltd (Lloyd Elec.)	141.43	5	3	1,868,372	Withdrawn
Videocon	163.38	1	1	1,817,975	Withdrawn
Total	**1,140.3**	**17**	**10**	**12,511,459**	

*As per the MoA, payments are based on the following milestones: 20 per cent upon signature of the MoA, 40 per cent upon initialization of equipment procurement, 25 per cent upon conversion of the enterprise, 15 per cent once trials and certifications are completed, and IOCs after operationalization of new technology.
** Previously Zamil.

9. The Government of India was proposing to redirect part of the savings associated with the withdrawal of Videocon (US $1,817,975) to support the conversion of the third eligible residential AC manufacturing line at Blue Star to HFC-32 subsequent to an independent verification that had confirmed the eligibility of the line, which in 2021 consumed 57.25 mt of HCFC-22. Incremental capital costs (ICCs) were estimated at US $584,100, and incremental operating costs (IOCs) at US $6.30/kg resulting in requested IOCs of US $360,675; based on co-financing provided by the enterprise of US $316,743, the total funding requested for the conversion was US $628,032, as shown in table 3.

Table 3. Incremental cost of conversion of the third AC manufacturing line at Blue Star, as submitted

Item	Amount (US $)
ICCs	
System, component and process redesign	105,000
Sheet metal processing modifications	150,000
Assembly line modifications	190,000
Fire safety equipment and alarm system	45,000
Leak detectors and flame sensors	13,500
Quality inspection, finishing and testing modifications	7,500
Product certification from external agencies	1,000
Prototype manufacturing, trials and testing	7,500
Process, operation, maintenance and safety training	6,500
Technical assistance from external experts	5,000
Contingencies (10%)	53,100
Sub-total (ICCs)	**584,100**
IOCs	
IOCs (US $6.30/kg)	360,675
Sub-total (IOCs)	**360,675**
Total	**944,775**
Enterprise co-financing	(316,743)
Requested funding	**628,032**

10. UNDP verified the acquisition of the manufacturing line by Subros Ltd from Zamil, and that the Article 5 ownership of Subros Ltd was 66.11 per cent,[5] resulting in a return of US $393,531 to the 91st meeting, in line with decision 86/90(b)(i).

Polyurethane (PU) foam manufacturing sector

11. Upon approval of stage II of the HPMP, UNDP commissioned a firm to verify and determine the eligibility of the foam enterprises. A total of 204 enterprises in the PU foam manufacturing sector with a consumption of 3,312.39 mt of HCFC-141b were found eligible. Of these, 160 enterprises with a consumption of 2,630.11 mt of HCFC-141b had been included in stage II, while the 44 remaining enterprises, with a consumption of 682.28 mt of HCFC-141b, had not sought support for conversion to non-HCFC-141b technology as they converted with their own resources.

12. Of the 160 enterprises assisted, 158 have signed MoA, with physical site visits verifying they have phased out the use of HCFC-141b and that no stocks remain. Of those, 92 have completed all milestones and are fully operational with the new technology and 66 enterprises were completing trials and certification; the remaining two enterprises[6] had closed down operations and are no longer manufacturing foam panels nor consuming HCFC-141b.

13. The conversion of the 158 enterprises was supported by the Central Institute of Petrochemicals Engineering and Technology (CIPET), which provided technical support to the enterprises through training workshops, trials and on-site demonstrations, testing facilities, practical hands-on training, and product validation. The preparation of a compendium of global best practices in the conversion to low-global-warming-potential (GWP) alternatives in the foam manufacturing sector was delayed due to the COVID-19 pandemic and was expected to be launched by July 2023.

14. Of US $19,936,234 allocated to the PU foam sector, US $17,562,499 had been disbursed; US $62,175 associated with the two enterprises that had ceased operating will be returned to the Multilateral Fund; and the remaining US $2,311,560 was expected to be disbursed by June 2023, once the Government completed its monitoring and sustainability strategy activities to assure the uptake of the low-GWP technologies (cyclopentane, HFOs, methyl formate, methylal and water-based technology) in the market.

Refrigeration servicing sector

15. The Government of Germany has completed the following activities under the third tranche:

(a) Training 6,152 refrigeration and air-conditioning (RAC) technicians on good refrigeration practices and in the installation and servicing of room air-conditioners with flammable refrigerants;

(b) Two train-the-trainers workshops for approximately 40 Industrial Technical Institute instructors had been planned for 2022 but were delayed; those trainings will be completed by April 2023;

(c) Development of a concept note for the national implementation of a technician qualification, certification, and registration (QCR) scheme and a concept note for a state-of-the-art RAC training centre to support the QCR scheme, and a workshop on the QCR scheme; and

[5] Document UNEP/OzL.Pro/ExCom/86/54 incorrectly indicated the Article 5 ownership was 38.9 per cent.

[6] The MoA for M/s Industrial Foam (spray foam sub-sector with consumption of 0.05 mt and funding allocation of US $5,305) and M/s Viking Engineers Pvt Ltd (discontinuous panels sub-sector with consumption of 5.36 mt and funding allocation of US $56,870) could not be operationalized as the enterprises have closed their operations.

(d) Development of training materials, distributed in three languages across the country.

Enabling activities in the servicing sector

16. Under the MoA between the Ozone Cell and the National Academy of Customs, Indirect Taxes and Narcotics (NACIN), customs and enforcement officers were sensitized to the prohibition of HCFC-141b imports through a new module that was introduced in customs training, and five trainings for 157 customs and enforcement officers in the enforcement of the Montreal Protocol and HCFC control were undertaken. In addition, the following activities were implemented:

(a) The national handbook on regulations related to ODS monitoring and control was updated;

(b) Seventy customs trainers that had been trained under stage I of the HPMP participated in a virtual refresher course, including on the prohibition of imports of HCFC-141b pure and pre-blended;

(c) Completion of studies on: opportunities for the application of low-GWP alternatives in building cooling; the use of flammable refrigerants in split AC units and heat pumps; good management practices for energy efficient buildings via passive cooling design; bulk procurement of low-GWP air conditioners to promote energy-efficient and climate-friendly cooling equipment; and application of low-GWP alternatives in the cold-chain sector;

(d) Two studies (on good management practices for cold storage infrastructure of e-commerce businesses, and on public procurement policies for hiring trained and certified RAC technicians) were commissioned and were expected to be completed by December 2022;

(e) A database of trained servicing sector technicians continues to be updated, with a database of service enterprises and technicians established in one state;

(f) The organization of border dialogues was delayed due to the COVID-19 pandemic; those dialogues were expected to take place in 2023;

(g) Development of a quarterly e-newsletter for RAC technicians on the importance of good servicing practices, including handling of different types of refrigerants, related safety issues and updates on refrigerant transition under the Montreal Protocol; and

(h) Continued implementation of awareness-raising activities, including: information and outreach materials for RAC technicians on good servicing practices for the improvement of energy efficiency in RAC equipment continue to be disseminated through different means, including a YouTube channel, Facebook and Twitter; the Ozone Cell website is regularly updated; ten awareness-raising workshops for RAC dealers' technicians were conducted; and awareness-raising materials marketing good servicing practices, energy efficiency, and how to become an RAC technician were disseminated.

Project management and implementation unit (PMU)

17. The PMU, established within the Ozone Cell, coordinates the implementation of the HPMP, facilitating communication among key stakeholders and increasing awareness on ODS issues amongst senior decision makers. Tasks undertaken by the PMU include *inter alia* commissioning and facilitating third-party verification of enterprises for eligibility and implementation milestones through physical on-site visits; technical assistance to eligible enterprises; managing the implementation of investment projects; organizing missions, meetings and technical visits to enterprises; day-to-day administration of HPMP

activities; and preparing periodic progress and financial reports to the Project Steering Committee, the Ozone Cell, MoEF&CC and UNDP. The PMU disbursement for the first three tranches and the 2023-2024 budget are presented in table 4.

Table 4. PMU budget and disbursement (US $)

Particulars	Budget	Cumulative disbursement*	Expected by December 2022	2023-2024 budget
Staff and consultants	734,454	394,142	140,312	200,000
Travel	148,098	66,145	6,953	75,000
Workshops/meetings	222,526	89,377	8,149	125,000
Monitoring	807,775	415,607	92,168	300,000
Others	487,147	236,658	76,601	173,888
Total	**2,400,000**	**1,201,929**	**324,183**	**873,888**

* As of August 2022.

Level of fund disbursement

18. As of August 2022, of the US $36,502,454 approved so far, US $30,333,274 had been disbursed (US $26,934,474 for UNDP, US $2,795,000 for Germany, and US $603,800 for UNEP) as shown in table 5. The balance of US $6,169,180 will be disbursed in 2023 and 2024.

Table 5. Financial report of stage II of the HPMP for India (US $)

Tranche no.		UNDP	UNEP	Germany	Total	Disbursement rate (%)
First	Approved	9,256,000	300,000	345,000	9,901,000	100
	Disbursed	9,256,000	300,000	345,000	9,901,000	
Second	Approved	14,608,000	300,000	2,000,000	16,908,000	99
	Disbursed	14,409,929	245,000	2,000,000	16,654,929	
Third	Approved	7,983,454*	210,000	1,500,000	9,693,454	39
	Disbursed	3,268,545	58,800	450,000	3,777,345	
Total	**Approved**	**31,847,454***	**810,000**	**3,845,000**	**36,502,454**	**83**
	Disbursed	**26,934,474**	**603,800**	**2,795,000**	**30,333,274**	
	Balance	**4,912,980**	**206,200**	**1,050,000**	**6,169,180**	

* US $4,062,046 was deducted from the third tranche of stage II for UNDP, in line with decision 77/43(d)(ii).

Implementation plan for the fourth and final tranche of the HPMP

19. The following activities will be implemented between January 2023 and December 2024:[7]

(a) *PU foam manufacturing*: Complete the conversion of the remaining PU foam enterprises to low-GWP alternatives, including third-party verification, with technical assistance to the enterprises, including to ensure the sustained conversion of the agreed technology (UNDP) (US $2,311,560 from previous tranche);

(b) *AC manufacturing*: Sign MoA with Blue Star for the conversion of its third line and complete the conversions and verifications of Blue Star and Subros Ltd (UNDP) (US $762,574 from previous tranche);

(c) *RAC servicing sector*: Train 4,348 RAC technicians, and hold an additional six trainings for 120 technicians in industrial training institutes on good servicing practices and in the installation of room air-conditioners, including those with flammable refrigerants; and continue work related to the technician certification system and to the strengthening of an

[7] The remaining balance from earlier tranches is to be used in addition to the funds requested.

existing training facility with the latest equipment and tools, and prepare for their implementation under stage III (Germany) (US $1,255,000);

(d) *Enabling activities in the servicing sector:* Train 250 customs officers in the enforcement of the Montreal Protocol and HCFC control; promote public procurement policies for non-HCFC alternatives by disseminating the findings of the studies commissioned by stakeholders; conduct stakeholder consultations on HCFC-based equipment policies and to promote the HCFC phase-out in the building and cold chain sectors; disseminate the findings of the study on public procurement policies for hiring trained and certified technicians; conduct awareness and capacity-building activities and wider dissemination of knowledge products produced in previous tranches; and continue to update the Ozone Cell website regularly with material from the HPMP (UNEP) (US $90,000); and

(e) *Project implementation and monitoring:* Continue third-party verification of enterprise eligibility and implementation milestones through on-site visits; manage the implementation of investment projects; organize missions, meetings and technical visits to enterprises; and prepare periodic progress and financial reports for submission to the Project Steering Committee, the Ozone Cell and UNDP (UNDP) (US $873,888 from previous tranche).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

Report on HCFC consumption

20. The Government of India reported production of HCFC-225 for feedstock uses in 2018 and 2019; however, some of that production was exported for feedstock uses in 2021, which was deducted from the country's calculated HCFC consumption under Article 7 for that year. At the time of finalization of the present document, the Government of India was revising its data reported under Article 7 for 2018 and 2019 to reflect the production that was subsequently exported, which would be added to the country's calculated HCFC consumption for those years. The Secretariat notes that irrespective of how that production, and hence consumption, is allocated across 2018 and 2019, the country would remain in compliance with the targets specified in the Agreement between the country and the Executive Committee. In addition, the Secretariat notes that independent verification reports submitted under HPMPs generally do not include verification of production, imports or exports of HCFCs for feedstock uses.

21. The Government of India has a comprehensive mechanism in place to monitor and regulate production of controlled substances for feedstock uses, and the import of controlled substances for feedstock uses. In addition to the production of HCFC-225 for feedstock uses in 2018 and 2019, the country produced a small quantity of HCFC-142b for feedstock uses in 2021; the country also produced other controlled substances for feedstock and another exempted use. Over a variety of years India had imported for feedstock uses HCFC-225, HCFC-133,[8] HCFC-142b and, in 2019, HCFC-123.

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

Legal framework

22. The Government had established a quota for HCFC production for controlled uses for 2022 of 1,544.02 ODP tonnes. The Government will not issue HCFC-22 import quotas for 2022.

[8] While the country reported imports of HCFC-133, the Secretariat understands HCFC-133a was intended.

AC manufacturing sector

23. Noting that stage II of the HPMP would be completed by 31 December 2024 and that stage III, which included conversions in the residential AC manufacturing sector, was being submitted to the present meeting, the Secretariat sought to better understand the rationale for including the conversion of the third line at Blue Star under stage II rather than stage III. UNDP explained that the enterprise was already expecting considerable demand for its HFC-32-based residential AC equipment and had confirmed it could complete its conversion by December 2023. Given the administrative steps that will be required for UNDP to establish financial accounts under stage III, the fastest way to support the conversion would be under stage II, which was an ongoing project in which funds would be already under UNDP financial accounts.

24. The Secretariat agreed with that rationale and undertook a detailed review of the costs to convert the manufacturing line. In particular, it appeared that UNDP was proposing costs for the new line at Blue Star that were higher than the costs agreed for the other lines assisted under stage II. The Secretariat proposed to set the ICCs for the remaining line at Blue Star to be on par with the costs of the other lines assisted under stage II, resulting in ICCs of US $298,615. IOCs would be at US $6.30/kg, consistent with the other enterprises assisted under stage II. On that basis, the eligible incremental costs would be US $659,290. Based on those agreed costs, the enterprise would provide co-financing of US $31,258, resulting in agreed incremental costs of US $628,032 and a cost-effectiveness of US $10.97/kg, in line with the average cost-effectiveness of the residential AC manufacturing enterprises agreed at the 77th meeting.

25. E-Vision, Subros Ltd, and Universal Comforts Pvt Ltd have multiple HCFC-22-based AC manufacturing lines, only some of which will be converted under stage II. The MoA signed with each enterprise included a provision that the enterprise commits to not increase consumption of HCFC-22 on the non-converted RAC manufacturing line(s) from the date of signing the MoA, in line with decision 77/43(e)(ii). UNDP confirmed that there had been no increase in manufacturing on the HCFC-22 lines that had not been converted under the project. Regarding the two remaining lines at E-Vision and the remaining lines at Universal Comforts Pvt Ltd that had not been included under stage II, UNDP clarified that the eligibility of those lines could not be established; therefore, those lines would be converted without funding from the Multilateral Fund by 31 December 2024, in line with the ban on the manufacture of HCFC-22-based equipment. The remaining line at Subros Ltd (not funded under stage II) would be converted under stage III.

26. The agreed funding for the conversion of Leel Electricals Ltd was US $1,868,372. As the enterprise had met the first milestone before its decision to withdraw from the project, and as the enterprise had converted its AC manufacturing lines to HFC-32 as stipulated in the MoA, the return associated with the enterprise was US $1,672,902. In line with and in addition to that return, adding the return associated with the enterprise Videocon that had declared bankruptcy (US $1,817,975) and the return associated with the non-Article-5 ownership of Subros Ltd (US $393,531), and removing the addition of the conversion of the third manufacturing line at Blue Star (US $628,032), results in a total return from the AC manufacturing sector of US $3,256,376. In addition, 3.15 ODP tonnes (57.25 mt) of HCFC-22 from the conversion of the third manufacturing line at Blue Star would be deducted from the country's remaining HCFC consumption eligible for funding under stage III.

Returns to the Multilateral Fund

27. Given that the return from the AC manufacturing sector (US $3,256,376) and the two enterprises in the PU foam manufacturing sector (US $62,175) was greater than the funding for UNDP under the fourth tranche, it was agreed that UNDP would return US $3,001,959, plus agency support costs of US $210,137, to the 91st meeting, and return the remaining US $316,592, plus agency costs of US $22,161, to the 92nd meeting.

Adjustment related to the PMU

28. The Secretariat recalled that at the 86th meeting, UNDP returned US $4,062,046, plus agency support costs of US $284,343, in line with decision 77/43(d)(ii). Based on the additional return of US $3,256,376 (plus agency support costs) associated with the residential AC manufacturing sector and US $62,175 (plus agency support costs) associated with the PU foam sector (M/s Industrial Foam and M/s Viking Engineers), the total returns under stage II will be US $7,380,597. Noting the major adjustments made to stage II of the HPMP, which include removal of enterprises in both the PU foam and AC manufacturing sectors, it was expected that the needs for the PMU also changed. UNDP emphasized that the PMU had to screen all enterprises irrespective of their subsequent decision not to participate in the project or if that screening determined an enterprise was ineligible, and that the PMU undertook additional tasks that had not originally been anticipated, such as verifying changes in ownership and developing the MoA for the participation of the third line at Blue Star.

29. The Secretariat noted the additional efforts the PMU would have to undertake in 2023 and 2024 to ensure the successful and sustainable implementation of stage II of the HPMP. Accordingly, and in order to be equitable across Article 5 countries, the Secretariat calculated the potential amount of funds that could be associated to the projects that did not participate (5.6 per cent of the funding to be returned), deducted the (estimated) amount already spent (50 per cent) and, as it has been done in precedent cases, associated that amount to additional HCFC-22 consumption to be reduced, resulting in an additional reduction of 43.42 mt (2.39 ODP tonnes) of HCFC-22 from the country's remaining HCFC consumption eligible for funding. It was agreed that this reduction would be taken during stage III of the HPMP.

Completion of stage II

30. UNDP confirmed that stage II for India will be completed by 31 December 2024 as established in paragraph 14 of the Agreement.

Gender policy implementation[9]

31. In line with decision 84/92(d), the operational policy on gender mainstreaming was applied wherever feasible in the implementation of stage II of the HPMP by encouraging the participation of women in the events and activities organized under stage II, such as meetings, training courses, workshops, capacity-building activities and outreach activities; promoting training and awareness campaigns to develop staff competency and awareness on gender mainstreaming; and discussing gender issues in thematic workshops to share experiences and lessons learned on gender mainstreaming. Participation of women in the workforce during site verifications of assisted enterprises was found at more than 50 per cent of assisted enterprises, with participation of women up to more than a third of the total workforce in some enterprises.

32. Gender disaggregated information was collected from all participating enterprises on the following parameters: percentage of women in the shop floor area, special amenities for women for safety and hygiene; flexible working hours for women; financial and maternity benefits for women; equal pay; women in leadership positions; steps taken for enhancing women's participation in the workforce; and counselling facilities. Thirty-nine per cent of assisted enterprises had met most of those parameters; 18 per cent had met more than 50% per cent of the parameters; 13 per cent had met between 30 and 50 per cent of the parameters; and 30 per cent had met less than 30 per cent of the parameters.

[9] In line with decision 84/92(d), decision 90/48(c) encouraged bilateral and implementing agencies to continue ensuring that the operational gender mainstreaming policy was applied to all projects, taking into consideration the specific activities presented in table 2 of document UNEP/OzL.Pro/ExCom/90/37.

Sustainability of the HCFC phase-out and assessment of risks

33. Implementation of the project was in line with UNDP's enterprise risk management framework.[10] In coordination with the Government, the PMU undertook analyses and risk assessment of enterprises to ensure their financial viability during and after implementation. In addition, for the PU foam sector, the PMU supported the coordination and deployment of technical assistance from CIPET and liaised with systems houses to ensure the proper supply chain of alternatives for the PU foam sector. Regarding the availability and affordability of low-GWP technologies adopted by the PU foam enterprises, UNDP reported that participating enterprises had not raised concerns relating to the availability of cyclopentane, methyl formate, methylal or water-blown alternatives; however, while the supply chain of HFOs had improved since the 86th meeting, affordability continued to be an issue. MoA signed by the enterprises specifically mandate the technology to be adopted by the enterprise, and PU foam enterprises may request technical support from CIPET for a period of three years under a competency enhancement framework. None of the AC manufacturing enterprises that had completed their conversion reported challenges in selling HFC-32-based residential AC units manufactured on the converted lines in the market, and IOCs were disbursed in line with decision 77/35. The 1 January 2025 ban on the manufacture and import of HCFC-22-based equipment will support the transition of the residential AC manufacturing sector to HFC-32.

34. The relevant provisions in the ODS (Regulation and Control) Amendment Rules concerning already phased-out ODS for controlled uses have been widely disseminated to all concerned stakeholders. The national authorities operating the licensing system[11] also track the trade of these chemicals and are aware of the provisions contained in the ODS Amendment Rules. The enforcement bodies and customs are also aware and informed about the relevant phased-out chemicals. The Ozone Cell interacts regularly with these bodies to enforce the bans. Subsequent to the implementation of the ban on the import and use of HCFC-141b pure and contained in pre-blended polyols, and the activities to sensitize customs officers on that prohibition, there have been no reported cases of illegal imports of HCFC-141b in bulk or contained in pre-blended polyols. There is not any known controlled use of ODS that have been phased out in the market in India, and the data collected by the Ozone Cell indicates that there are no stocks of phased-out controlled substances in the country.

Conclusion

35. The verified 2020 and 2021 consumption of the country was within the targets stipulated in the Agreement between the country and the Executive Committee, and the licensing and quota system is operational and will enable HCFC consumption reductions in line with the Montreal Protocol's phase-out schedule. The ban on the import and use of HCFC-141b pure and contained in pre-blended polyols came into force on 1 January 2020, and the conversions in the PU foam manufacturing sector have or will soon be completed. Three of the four AC manufacturing enterprises participating in the project have completed their conversion to HFC-32, and the fourth enterprise is expected to complete its conversion by December 2022. The proposal to add the conversion of the third AC manufacturing line at Blue Star to stage II will help ensure that the line is converted as soon as possible, and that the enterprise is able to actively participate in the market transition to HFC-32 that is taking place. Training continued to be provided to customs officers as well as to refrigeration technicians in good refrigeration practices and the installation of room air-conditioners. The country's 2021 consumption was 86 per cent below the HCFC baseline for compliance, and 39 per cent of the second tranche and 83 per cent of the total funds approved have been disbursed.

[10] Described in Annex I of UNEP/OzL.Pro/ExCom/91/68.

[11] Directorate General of Foreign Trade and Directorate General of Commercial Intelligence and Statistics.

RECOMMENDATION

36. The Executive Committee may wish to consider:

(a) Noting the progress report on the implementation of the third tranche of stage II of the HCFC phase-out management plan (HPMP) for India;

(b) Further noting:

(i) That in the polyurethane foam manufacturing sector, the enterprises M/s Industrial Foam and M/s Viking Engineers, with an associated funding of US $62,175, plus agency support costs of US $4,352, had ceased manufacturing foam and would not participate in the project;

(ii) That in the residential air-conditioning (AC) manufacturing sector, the enterprise Videocon, with an associated funding of US $1,817,975, had gone into bankruptcy, and the enterprise Lloyd Electricals Ltd (now Leel Electricals Ltd) had changed ownership and decided to complete its conversion to HFC-32 with its own resources, resulting in a return of US $1,672,902, plus agency support costs of US $117,103;

(iii) That in line with decision 86/90, the return associated with the 33.89 per cent non-Article-5 ownership of the residential AC manufacturing enterprise Subros was US $393,531, plus agency support costs of US $27,547;

(c) Approving the project for the conversion of a third residential AC manufacturing line at the enterprise Blue Star, with an associated phaseout of 3.15 ODP tonnes of HCFC-22, to HFC-32 in the amount of US $628,032, plus agency support costs of US $43,962;

(d) Further noting, based on the returns described in sub-paragraph (b) above, the addition to stage II of the HPMP of the conversion at the enterprise Blue Star described in sub-paragraph (c) above, and the agreed deduction from the country's remaining HCFC-22 consumption eligible for funding associated with the project management and implementation unit described in document UNEP/OzL.Pro/ExCom/91/42:

(i) The return to the 91st meeting of US $3,001,959, plus agency support costs of US $210,137 for UNDP;

(ii) That UNDP would return US $316,592, plus agency support costs of US $22,161, to the 92nd meeting;

(iii) That an additional 5.54 ODP tonnes of HCFC-22 associated with the conversion of the enterprise Blue Star (3.15 ODP tonnes) and the project management and implementation unit (2.39 ODP tonnes) would be deducted from the country's remaining HCFC consumption eligible for funding under stage III of the HPMP;

(e) Requesting the Government of India, UNDP, UNEP and the Government of Germany to submit a progress report on the implementation of the work programme associated with the final tranche to the first meeting of 2025; and

(f) Approving the fourth and final tranche of stage II of the HPMP for India and the corresponding 2023-2024 tranche implementation plan in the amount of US $4,708,507, consisting of US $3,001,959, plus agency support costs of US $210,137 for UNDP,

US $90,000, plus agency support costs of US $10,900 for UNEP, and US $1,255,000, plus agency support costs of US $140,511 for the Government of Germany.

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

INDIA

(I) PROJECT TITLE	AGENCY
HCFC phase-out plan (stage III)	UNDP (lead), UNEP

(II) LATEST ARTICLE 7 DATA (Annex C Group l)	Year: 2021	218.47 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)									Year: 2021
Chemical	Aerosol	Foam	Fire-fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-22				31.94	203.40				235.34
HCFC-123			0.48		0.46				0.94

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline:	1,608.2	Starting point for sustained aggregate reductions:	1,691.25
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	1,111.26	Remaining:	579.99

(V) ENDORSED BUSINESS PLAN		2022	2023	2024	Total
UNDP	ODS phase-out (ODP tonnes)	0.00	136.18	307.50	443.68
	Funding (US $)	0	16,409,000	24,613,000	41,022,000
UNEP	ODS phase-out (ODP tonnes)	0.00	33.69	0.00	33.69
	Funding (US $)	0	2,780,000	0	2,780,000
Germany	ODS phase-out (ODP tonnes)	0.00	0.00	0.00	0.00
	Funding (US $)	0	0	0	0

(VI) PROJECT DATA			2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
Montreal Protocol consumption limits			1,045.33	1,045.33	1,045.33	522.67	522.67	522.67	522.67	522.67	0.00	n/a
Maximum allowable consumption (ODP tonnes)			698.82	643.28	643.28	75.85	75.85	75.85	75.85	75.85	0.00	n/a
Project costs requested in principle (US $)	UNDP	Project costs	6,166,500	0	5,495,933	0	2,663,295	0	0	509,332	0	14,835,060
		Support costs	431,655	0	384,715	0	186,431	0	0	35,653	0	1,038,454
	UNEP	Project costs	668,215	0	1,011,000	0	1,168,825	0	0	521,960	0	3,370,000
		Support costs	75,486	0	114,210	0	132,039	0	0	58,965	0	380,700
	Germany	Project costs	1,700,643	0	2,140,772	0	2,396,887	0	0	714,270	0	6,952,572
		Support costs	189,517	0	238,564	0	267,105	0	0	79,597	0	774,783
Total project costs recommended in principle (US $)			8,535,358	0	8,647,705	0	6,229,007	0	0	1,745,562	0	25,157,632
Total support costs recommended in principle (US $)			696,658	0	737,489	0	585,575	0	0	174,215	0	2,193,937
Total funds recommended in principle (US $)			9,232,016	0	9,385,194	0	6,814,582	0	0	1,919,777	0	27,351,569

(VII) Request for approval of funding for the first tranche (2022)		
Implementing agency	**Funds recommended (US $)**	**Support costs (US $)**
UNDP	6,166,500	431,655
UNEP	668,215	75,486
Germany	1,700,643	189,517
Total	8,535,358	696,658

Secretariat's recommendation:	Individual consideration

PROJECT DESCRIPTION

Background

37. On behalf of the Government of India, UNDP as the lead implementing agency has submitted a request for stage III of the HCFC phase-out management plan (HPMP), at a total cost of US $31,224,848, consisting of US $17,832,517, plus agency support costs of US $1,248,276 for UNDP; US $3,470,000, plus agency support costs of US $391,700 for UNEP; and US $7,452,572, plus agency support costs of US $829,783 for the Government of Germany, as originally submitted.[12] The implementation of stage III of the HPMP will phase out 97.5 per cent of HCFCs by 2030.

38. The first tranche of stage II of the HPMP being requested at this meeting amounts to US $11,007,564, consisting of US $8,592,462, plus agency support costs of US $601,472 for UNDP; US $1,030,500, plus agency support costs of US $116,325 for UNEP; and US $600,000, plus agency support costs of US $66,805 for the Government of Germany, as originally submitted.

Status of implementation of stages I and II of the HPMP

39. Stage I of the HPMP for India was originally approved at the 66th meeting[13] and revised at the 71st meeting[14] to meet the 10 per cent reduction from the baseline by 2015 and phase out 341.77 ODP tonnes of HCFCs through conversions in the polyurethane (PU) foam manufacturing sector and activities in the servicing sector, as well as enabling activities to strengthen customs, at a total cost of US $21,294,490, plus agency support costs. The third and final tranche of stage I was approved at the 75th meeting.

40. Stage II of the HPMP for India was approved at the 77th meeting[15] to meet the 60 per cent reduction from the baseline by 2023 and phase out 769.49 ODP tonnes of HCFCs used in the air-conditioning (AC) and PU foam manufacturing sectors and in the servicing sector, as well as enabling activities to strengthen customs, at a total cost of US $44,911,459, plus agency support costs.

41. An overview of the implementation of stage II, including the analysis of HCFC consumption; progress and financial reports on the implementation; and the request for the fourth and final tranche submitted to the current meeting, is available in paragraphs 1 to 35 of the present document.

Stage III of the HPMP

Remaining consumption eligible for funding

42. After deducting 1,111.26 ODP tonnes of HCFCs associated with stages I and II of the HPMP, the remaining consumption eligible for funding in stage III amounts to 579.99 ODP tonnes.[16]

Sector distribution of HCFCs

43. HCFC-22 is used to manufacture and service refrigeration and air-conditioning (RAC) equipment, including residential AC, commercial AC, process chillers, and commercial refrigeration equipment; there are approximately 350,000 technicians in the country. HCFC-123 is used to manufacture and service fire

[12] As per the letter of 8 August 2022 from the Ministry of Environment, Forest and Climate Change of India to UNDP.
[13] Decision 66/45, document UNEP/OzL.Pro/ExCom/66/54
[14] Decision 71/37(b), document UNEP/OzL.Pro/ExCom/71/64
[15] Decision 77/43, document UNEP/OzL.Pro/ExCom/77/76
[16] Of this amount, the Secretariat was recommending at the present meeting to deduct 5.54 ODP tonnes under the fourth tranche of stage II.

fighting equipment (principally handheld fire extinguishers), and to service chillers. The country imports and at times produces a variety of HCFCs for feedstock uses.

Phase-out strategy in stage III of the HPMP

44. Stage III of the HPMP will focus on strengthening regulatory measures, supporting RAC manufacturing enterprises in transitioning to low-global-warming-potential (GWP) technologies, further strengthening the capacity of the servicing sector, and raising awareness on low-GWP technologies and implementation of the HPMP. Activities will be coordinated closely to allow for cohesive implementation across the country.

Proposed activities in stage III of the HPMP

45. The activities to be implemented under stage III include conversion of the AC manufacturing sector; conversion of the refrigeration manufacturing sector; strengthening capacity of the refrigeration servicing sector; technical assistance (TA) and enabling activities, including regulatory actions; and implementation and monitoring.

Legal framework

46. During stage II of the HPMP, the Government issued a ban on the manufacture of HCFC-based products and equipment, which will be effective from 1 January 2025. Additional measures are proposed as part of the enabling activities in the servicing sector to support the HCFC phase-out.

AC manufacturing sector (UNDP)

47. Stage III of the HPMP proposes to phase out 222.92 mt (12.26 ODP tonnes) of HCFC-22 through the conversion to HFC-32 of 13 micro-, small-, and medium-sized[17] enterprises (MSMEs) manufacturing room AC, and through the conversion of one small- and two large-sized enterprises manufacturing commercial AC and chillers to HFC-32 and, for equipment with cooling capacity greater than 4.5 tonnes of refrigeration (TR), to R-448A.[18] Funding is being requested for the conversion of these 16 AC manufacturing enterprises, out of an identified 30 remaining after stage II,[19] in the amount of US $3,820,937 for UNDP, and includes system and process redesign, prototyping, and testing; refrigerant storage and distribution; assembly line modifications (including sheet metal processing modifications, charging machine or modifications to the charging station, for smaller enterprises, vacuum pumps, pressure testing equipment and leak detectors); plant fire safety; quality inspection, testing modifications and safety training; product certification; and TA. In addition, funding for heat exchanger modifications and a helium leak detector were requested for the two large-sized enterprises manufacturing commercial AC equipment. Incremental operating costs (IOCs) were requested at US $6.30/kg, in line with decision 74/50, as summarized in table 6. The remaining 14 enterprises, with an associated consumption of 155.71 mt of HCFC-22, that were established after 1 September 2007 or were non-Article-5 owned, would convert to non-HCFC alternatives without assistance from the Multilateral Fund.

[17] Enterprises are divided into four sizes based on annual HCFC-22 consumption: micro is less than 1.0 mt, small is between 1.0 and 5.0 mt, medium is between 5.0 and 20.0 mt, and large is 20.0 mt or greater.

[18] R-448A is an HFC/HFO blend (26 per cent HFC-125, 26 per cent HFC-32, 21 per cent HFC-134a, 20 per cent HFO-1234yf, and 7 per cent HFO-1234ze(E)) with a GWP of 1,273.

[19] Out of 30 AC manufacturing enterprises identified, 21 were responsive and 18 were preliminarily found to be eligible. Through physical site verification, 16 were found to be eligible to receive funding under the Multilateral Fund.

Table 6: Summary of incremental capital costs (ICCs) and IOCs for AC manufacturing conversions

Description	Enterprise size	HCFC-22 phase-out		Total ICC US $	Total IOC US $	Total US $	CE US $/kg
		mt	ODP tonnes				
Residential AC	Micro and small (10)	15.65	0.86	422,400	98,541	520,941	33.29
	Medium (3)	33.57	1.85	285,450	211,462	496,912	14.80
Sub-total		**49.22**	**2.71**	**707,850**	**310,003**	**1,017,853**	**20.68**
Commercial AC	Small (1)	3.86	0.21	162,118	24,324	186,442	48.30
	Large (2)	169.85	9.34	1,546,600	1,070,042	2,616,642	15.41
Sub-total		**173.71**	**9.55**	**1,708,718**	**1,094,366**	**2,803,084**	**16.14**
Total		**222.92**	**12.26**	**2,416,568**	**1,404,369**	**3,820,937**	**17.14**

Commercial refrigeration manufacturing sector (UNDP)

48. Stage III proposes to phase out 163.19 mt (8.98 ODP tonnes) of HCFC-22 through the conversion of 41 commercial refrigeration enterprises to R-290 and R-600a, depending on the cooling capacity and application, and seven enterprises manufacturing process chillers to R-290 and, for larger capacity equipment, R-448A. With the exception of one process chiller manufacturer, all enterprises are MSMEs. Funding is being requested for UNDP in the amount of US $3,582,580, and includes system and process redesign, prototyping, and testing; refrigerant storage and distribution; assembly line modifications (including sheet metal processing modifications, charging machine or modifications to the charging station, depending on the size of the enterprise,[20] vacuum pumps, pressure testing equipment and leak detectors); plant fire safety; quality inspection, testing modifications and safety training; product certification; and TA. In line with decision 74/50, IOCs were requested at US $3.80/kg for enterprises in commercial refrigeration and the large process chiller manufacturer; IOCs for the remaining process chiller manufacturers were requested at US $7.60/kg. An additional 91 enterprises, with an associated consumption of 38.93 mt of HCFC-22, manufacturing commercial refrigeration equipment were identified; those enterprises were established after 1 September 2007 or were non-Article-5 owned and, therefore, would convert to non-HCFC alternatives without assistance from the Multilateral Fund.

Table 7: Summary of ICCs and IOCs for refrigeration manufacturing conversions

Description	Enterprise size	HCFC-22 phase-out		Total ICC US $	Total IOC US $	Total US $	CE US $/kg
		mt	ODP tonnes				
Process chillers	Micro and small (5)	8.12	0.44	286,550	61,671	348,221	42.88
	Medium (1)	12.25	0.67	105,050	93,072	198,122	16.17
	Large (1)	20.90	1.15	188,650	79,420	268,070	12.83
Sub-total		**41.26**	**2.27**	**580,250**	**234,163**	**814,413**	**19.74**
Commercial refrigeration	Micro and small (32)	17.79	0.98	1,239,488	67,572	1,307,060	73.47
	Medium (9)	104.15	5.73	1,065,350	395,757	1,461,107	14.03
Sub-total		**121.93**	**6.71**	**2,304,838**	**463,329**	**2,768,167**	**22.70**
Total		**163.19**	**8.98**	**2,885,088**	**697,492**	**3,582,580**	**21.95**

Strengthening capacity of the refrigeration servicing sector

49. The refrigeration servicing sector would be supported through strengthening technician training and access; improving national training capacity in low-GWP commercial refrigeration; streamlining training curricula; and providing TA and equipment support to technicians and training institutions.

[20] For process chillers, micro enterprises would receive modifications to the charging station, and small, medium and large enterprises would receive a charging machine. In commercial refrigeration, micro and small enterprises would receive modifications to the charging station, while medium enterprises would receive a charging machine.

Funding is being requested in the amount of US $6,829,000 for UNDP and US $7,452,572 for the Government of Germany, and includes:

(a) Technician certification and licensing scheme (Germany) (US $800,000): Implement a national qualification, certification, and registration (QCR) system by developing: a qualification network to facilitate consistent training of good servicing practices in RAC; a certification network; a governing structure; implementation of a pilot training programme; and a public registration database containing a directory of trained and certified technicians. A licensing system for technicians would also be developed and introduced;

(b) Strengthening of institutions (Germany) (US $300,000): Update industrial training institute (ITI) training courses and course material, including revision of the syllabus to include updates on new technologies, refrigerant recovery, recycling, and reclamation (RRR), and energy efficiency; and training of trainers on the revisions to the syllabus;

(c) RRR assessment (Germany) (US $150,000): Conduct studies and assessments to develop a business model by December 2026 determining the necessity and feasibility of a refrigerant RRR infrastructure;

(d) Training and capacity-building (Germany) (US $5,432,572): Training of at least 25,000 RAC technicians for room AC and commercial and centralized systems, covering good servicing practices; the safe handling of flammable refrigerants; refrigerant RRR; and energy efficiency in servicing. Training would be conducted across the country through the 15 government training centres (ITIs), with additional public and private training providers becoming increasingly involved;

(e) Equipment support (UNDP):

(i) Strengthen training capacity of ITIs: Verify equipment needs of at least one training centre in each province, and procure and deliver four sets of training equipment each in coordination with the training schedule (US $2,170,000);[21]

(ii) Provide equipment for RAC technicians: Provide basic tools and servicing equipment to 250 RAC servicing centres (US $1,839,000);[22] and provide basic tools to 1,500 trained technicians to support good servicing practices and the safe handling of flammable refrigerants (US $2,500,000);[23]

(iii) Retrofit packages for assembly and installation enterprises: Provide component kits to five small commercial refrigeration enterprises to support them in redesigning their products to operate with R-290;[24] the products would be used for

[21] Including 25 each of basic refrigeration cycle equipment, split AC training unit, commercial refrigeration training unit for condensers, and commercial refrigeration unit for rack systems.

[22] Including a gauge manifold set, tube piercing pliers, tube cutting tool, tube bender tool, ratchet wrenches, flaring tool set, pinch-off pliers or compression lockers, protective gloves and glasses, vacuum pump, valve core remover, thermometer, refrigerant recovery equipment, 30 lb refrigerant cylinder, refrigerant weigh scale, electronic vacuum gauge, portable refrigerant charging unit, portable leak detector, nitrogen servicing cylinder set, nitrogen cylinder, flammable refrigerant warning signs, flammable refrigerant labels, and R-290/R-600A thermodynamic data tables.

[23] Including a gauge manifold set, tube locking pliers, tube piercing pliers, tube cutting tool, tube bender tool, ratchet wrenches, flaring tool set, pressure regulator, protective gloves and glasses, leak detector, vacuum pump, refrigerant weigh scale, valve cord remover, and thermometer.

[24] Including a compressor, electric parts (e.g., thermostats), filter dryers, evaporators, condenser, and expansion valve, along with technical support and training.

installation and assembly in supermarkets with on-site installation and charging (US $320,000);

(f) TA, impact-monitoring, and coordination (Germany) (US $620,000): Conduct an assessment during implementation of stage III to determine if technicians are following good servicing and refrigerant recovery practices, and to receive feedback on the effectiveness of outreach materials (US $120,000); support consistency of skills throughout the country by making training material available in local languages and supporting knowledge-sharing networks, and coordinate with training providers, the Ozone Cell, UNDP, and UNEP on how to optimize the organization and effectiveness of the programmes and training (US $500,000); and

(g) Awareness-raising (Germany) (US $150,000): Develop awareness-raising material to promote project results, showcase new products and alternative refrigerants, and communicate good servicing practices; material would be distributed to technicians across the country.

Enabling activities in the servicing sector

50. The enabling activities for stage III of the HPMP were designed based on the lessons learned from activities under stage II, with additional activities to complement the current work being implemented. The purpose of this component is to expand awareness-raising activities, increase interaction of stakeholders, and provide TA. Funding is being requested for UNEP in the amount of US $3,470,000, and includes:

(a) *Policy and enforcement framework (US $902,500):* Strengthen the capacity of local authorities to enforce licencing and national regulations:

(i) Pollution Control Board (PCB) capacity-building (US $205,000): Develop a PCB training manual, with stakeholder input, on the enforcement of ODS regulations and how to conduct inspections, and an update after approximately five years (US $100,000); and conduct seven workshops targeting local PCBs on Montreal Protocol issues and ODS regulations to support enforcement capabilities (US $105,000);

(ii) Customs authority risk profiling (US $75,000): Develop a customs training module, with stakeholder input, on risk-profiling techniques in ODS trade, and an update after approximately five years (US $40,000); and conduct five workshops targeting specific customs officials on risk profiling and HCFC trade to support enforcement capabilities (US $35,000);

(iii) Customs officers capacity-building (US $357,500): In cooperation with NACIN, review and update the current training module, with stakeholder input, to support trade control and identification of refrigerants (US $20,000); create at least 10 training videos on various relevant topics, e.g., case studies on confiscated refrigerants, global examples of illegal trade (US $100,000); four training-of-trainers workshops on HCFC trade control and proper equipment use (US $40,000); conduct ten workshops to train 400 to 500 customs officers on HCFC trade control (US $100,000); procure approximately 25 advanced refrigerant identifiers for NACIN training centres and customs ports (US $87,500); and conduct two border dialogue meetings with neighbouring countries to discuss cooperation of enforcement (US $10,000);

(iv) Combating illegal trade (US $85,000): Develop four new standard operating procedures (SOPs), with stakeholder input, for enforcement officers on licence application procedures, reporting imports and exports, checking declarations, inspecting shipments, detecting mislabeled refrigerants and false documentation, handling confiscated ODS, and applying penalties and fines, and an update after approximately five years (US $60,000); and conduct five workshops for importers and exporters, producers, and customs brokers on data reporting and record-keeping (US $25,000);

(v) Occupational safety of RAC servicing workshops (US $180,000): Develop an information factsheet, with stakeholder input, for occupational safety enforcement staff on proper inspection of facilities using low-GWP refrigerants (plants and servicing workshops), and an update after approximately five years (US $30,000); and conduct 20 annual occupational safety workshops in five cities (five workshops per year) for supervisors and managers of occupational safety enforcement authorities (US $150,000);

(b) *Sector-based ODS policy development (US $1,530,500):*

(i) Strengthening the regulatory and policy framework (US $180,000): Review legislation and policies relevant to ODS phase-out and make recommendations to enhance the regulatory framework (US $80,000), conduct study on women in the refrigeration servicing sector to identify policies integrating gender equality (US $50,000), and translate into eight languages the code of good servicing practices for RAC technicians, including an update after approximately five years (US $50,000);

(ii) Space cooling capacity-building (US $320,000): Assist stakeholders in the transition from HCFC to low-GWP alternatives in space cooling through: the development of three guides, including one guide on green buildings, based on a previously conducted study, and one guide each on best practices for the operation and maintenance of cooling equipment in IT data centres and for the installation and maintenance of chillers (US $120,000); a study on passive cooling in the country to reduce refrigerant needs in urban development (US $40,000); a university course module for architects, building designers, and engineers, and an update after approximately five years (US $100,000); and six workshops with distribution materials discussing these alternatives along with the benefits of energy efficiency in building design (US $60,000);

(iii) Cold chain TA (US $210,000): Assist stakeholders in the transition from HCFC to low-GWP alternatives in the cold chain sector through: the development of a guide on ammonia and other low-GWP alternatives (US $50,000); three studies, including one on the use of low-GWP alternatives within the current infrastructure, and one study each on transportation refrigeration and convenience stores (US $120,000); and four workshops with distribution materials discussing these alternatives along with the benefits of energy efficiency in cold chain systems (US $40,000);

(iv) Promotion of low-GWP technologies (US $480,500): Conduct a study on indigenous RAC cooling systems, with stakeholder input (US $40,000), and a study on equipment labelling standards (US $40,500); and implement a leak-reduction and awareness campaign to assist large end-users on a voluntary basis to form a refrigerant-management plan (US $400,000);

(v) Sector codes and standards (US $240,000): Develop approximately six sector-specific national codes and standards, with stakeholder input;

(vi) Unwanted ODS TA (US $100,000): Conduct a desk study on regulations, current practices, and needs for handing unwanted HCFCs from maintenance or retirement of HCFC-based equipment;

(c) *Awareness, outreach and communication (US $737,000):*

(i) Awareness-raising materials and campaigns (US $657,000): Develop a quarterly e-newsletter for technicians, 32 distributed in total (US $160,000); five educational videos for servicing technicians (US $50,000); eight awareness campaigns covering the HCFC phase-out, consumer appliances, and rural areas (US $240,000); annual maintenance and updates of website developed in stage I (US $32,000); outreach material and activities on gender mainstreaming (US $105,000); and seven workshops on women in RAC (US $70,000);

(ii) Roundtable events (US $80,000): Hold four biennial Ozone2Climate roundtable and technology roadshows in various locations to promote low-GWP alternative technologies; and

(d) *Project management and implementation unit (PMU) for the enabling component (US $300,000):* Project manager salary (US $240,000), operational costs (US $20,000), and monitoring missions (US $40,000).

PMU

51. The system established under stages I and II of the HPMP will continue into stage III, where the PMU, established within the Ozone Cell, coordinates the implementation of the HPMP, facilitating communication amongst key stakeholders and increasing awareness on ODS issues amongst senior decision makers. Tasks undertaken by the PMU include third-party verification of enterprise eligibility and implementation milestones through on-site visits; providing TA to eligible enterprises; managing the implementation of investment projects; organizing missions, meetings and technical visits to enterprises; and preparing periodic progress and financial reports for submission to the Project Steering Committee, the Ozone Cell and UNDP. In addition, a gender specialist will be recruited and gender action plan implemented to support and monitor gender-responsive activities of the HPMP.

52. The cost of these activities for UNDP amounts to US $3,600,000, and includes five project staff (US $1,150,000); operational costs (US $550,000); meetings, workshops, awareness-raising, and development of a gender action plan (US $880,000); third party verification of enterprises for eligibility and milestone achievement, and independent verification of consumption (US $520,000); and TA focused on handholding to MSMEs to reduce risks and ensure the sustainability of the conversions, including TA and troubleshooting during the conversion process, and marketing of products after conversion (US $500,000).

Gender policy implementation[25]

53. As in stage II, and in line with decision 84/92(d), the operational policy on gender mainstreaming will be applied wherever feasible in the implementation of stage III of the HPMP, by encouraging the

[25] In line with decision 84/92(d), decision 90/48(c) encouraged bilateral and implementing agencies to continue ensuring that the operational gender mainstreaming policy was applied to all projects, taking into consideration the specific activities presented in table 2 of document UNEP/OzL.Pro/ExCom/90/37.

participation of women in the events and activities organized under stage II, such as meetings, training courses, workshops, capacity-building activities and outreach activities; promoting training and awareness campaigns to develop staff competency and awareness on gender mainstreaming; and discussing gender issues in thematic workshops to share experiences and lessons learned on gender mainstreaming.

54. Further, the PMU will recruit a gender specialist to support and monitor the implementation of gender-responsive activities, and an action plan for gender equality under stage III will be developed and implemented, including specific indicators to assess progress. A baseline assessment on gender will be conducted and the budgets of each project component will take gender mainstreaming into account. Additional activities for stage III include addressing unequal access to safe, low-GWP technologies; holding workshops targeting women in RAC; promoting science and technology in post-secondary education; consulting with women's groups and relevant stakeholders on gender issues; searching for solutions to unequal treatment of women already in RAC; and codifying measures to reduce systemic discrimination of women.

Total cost of stage III of the HPMP

55. The total cost of stage III of the HPMP for India has been estimated at US $28,755,089 (plus agency support costs), as originally submitted, for achieving a 97.5 per cent reduction from the country's HCFC baseline consumption by 2030. The proposed activities and cost breakdown are summarized in table 8.

Table 8. Total cost of stage III of the HPMP for India, as submitted

Component	Agency	Consumption		Funding request (US $)	CE US $/kg
		mt	ODP tonnes		
AC manufacturing section plan	UNDP	222.92	12.26	3,820,937	17.14
		*155.71	*8.56	0	0.00
Refrigeration manufacturing sector plan	UNDP	163.19	8.97	3,582,580	21.95
		*38.93	*2.14	0	0.00
Servicing sector plan	Germany	3,698.24	203.40	7,452,572	4.80
	UNDP			6,829,000	
Enabling activities (servicing sector)	UNEP			3,470,000	
PMU	UNDP	0.00	0.00	3,600,000	n/a
Sub-total funded by the MLF		**4,084.35**	**224.63**	**28,755,089**	**7.04**
Total stage III		**4,278.99**	**235.33**	**28,755,089**	**6.72**

* Consumption at enterprises using HCFC-22 in the manufacture of RAC equipment that are non-Article-5 owned or established after the cut-off date for eligible capacity.

Activities planned for the first tranche of stage III

56. The first funding tranche of stage III of the HPMP in the total amount of US $10,222,962 will be implemented between January 2023 and December 2025 and will include the following activities:

(a) *Conversion of the AC manufacturing sector:* Establish Memoranda of Agreement (MoA) with the 13 room AC manufacturing enterprises and three commercial and chiller AC manufacturing enterprises to be converted; carry out plant redesign, procure equipment, and provide TA for product redesign; complete all conversions including independent verification of completion; and initiate the marketing and sale of new products (UNDP) (US $2,696,097);

(b) *Conversion of the refrigeration manufacturing sector:* Establish MoA with the 48 commercial refrigeration and process chiller manufacturing enterprises to be converted; carry out plant redesign, procure equipment, and provide TA for product redesign;

complete all conversions including independent verification of completion; and initiate the marketing and sale of new products (UNDP) (US $2,486,365);

(c) *Strengthening capacity in the refrigeration servicing sector (UNDP):* Provide equipment support to ITIs by verifying equipment needs of at least one training centre in each province, and procuring and delivering four sets of training equipment each in coordination with the training schedule (US $2,170,000);

(d) *Strengthening capacity in the refrigeration servicing sector (Germany):* Develop plan for the training and capacity-building program, and prepare by updating training materials, preparing reference handbooks, conducting training-of-trainers courses, and holding meetings to develop coordination of training across the country (US $300,000); begin further revision of the ITI syllabus to include updates on new technologies, refrigerant RRR, and energy efficiency, and conceptualize technician certification scheme (US $200,000); and begin TA, impact-monitoring, and coordination activities (US $100,000);

(e) *Enabling activities for the servicing sector:* Enabling activities will be implemented with the assistance of UNEP at a total cost of US $1,030,500 and include:

(i) *Policy and enforcement framework:* Hold capacity-building workshops for the PCB and develop the PCB training manual; develop a customs training module on risk profiling techniques in ODS trade, including training videos; conduct two workshops to train 80-100 customs officers on HCFC trade control, and procure approximately 25 advanced refrigerant identifiers for NACIN training centres and customs ports; develop a new SOP for enforcement officers on illegal trade; and develop occupational safety materials for RAC servicing workshops (US $292,500);

(ii) *Sector-based ODS policy development:* Review legislation and policies relevant to ODS phase-out and make recommendations to enhance the regulatory framework, conduct study on women in the refrigeration servicing sector to identify policies integrating gender equality, and translate into eight languages the code of good servicing practices for RAC technicians; develop green buildings guide, conduct study on passive cooling in the country to reduce refrigerant needs in urban development, and develop the guide on best practices for the installation and maintenance of chillers; develop guide on ammonia and other low-GWP alternatives, conduct study on good practices in cold chain, and conduct study on HCFC phase-out in refrigeration transportation; conduct a study on indigenous RAC cooling systems; and conduct a desk study on regulations, current practices, and needs for handing unwanted HCFCs from maintenance or retired equipment (US $545,000);

(iii) *Awareness, outreach and communication:* Develop e-newsletter for technicians, conduct awareness campaigns on the HCFC phase-out, maintain website developed in stage I, develop outreach material on gender mainstreaming, and conduct a workshop on women in RAC; and hold an Ozone2Climate roundtable and technology roadshow (US $118,000); and

(iv) *PMU for the enabling component:* Project manager salary (US $60,000), operational costs (US $5,000), and monitoring missions (US $10,000); and

(f) *Project implementation and monitoring:* The PMU will coordinate implementation of the first tranche by extending staff contracts, establishing necessary agreements to facilitate project implementation, preparing MoA, monitoring the progress of investment projects, coordinating the provision of TA to MSMEs, and organizing stakeholder meetings. The cost breakdown includes project staff and consultants (US $375,000); TA for MSMEs (US $200,000); meetings, workshops, and awareness-raising (US $285,000); verification of consumption (US $230,000); and operational costs (US $150,000) (UNDP).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

57. The Secretariat reviewed stage III of the HPMP in light of stages I and II, the policies and guidelines of the Multilateral Fund, including the criteria for funding HCFC phase-out in the consumption sector for stage III of HPMPs (decision 74/50), and the 2022-2024 business plan of the Multilateral Fund.

Overarching strategy

58. While noting with appreciation the intention of the Government to phase-out 97.5 per cent of the country's HCFC baseline by 2030, the Secretariat sought to better understand the rationale for extending stage III to 2030, noting that a shorter duration may provide additional time to allow for further development of low-GWP alternatives, thereby avoiding the introduction of R-448A in larger commercial AC equipment and process chillers; a comprehensive plan to address eligible HCFC-123 consumption could be developed under stage IV; and, recalling discussions between UNDP and the Secretariat at the 77th meeting,[26] it was unclear whether there was still HCFC-based XPS manufacturing in the country.

59. UNDP clarified that further to extensive consultations by the Government with industry, civil society, and other stakeholders, the Government had decided to convert the HCFC manufacturing sector by 1 January 2025 and had already implemented a ban on the manufacture and import of HCFC-based equipment and products effective by that date. Regarding XPS foam manufacturing, UNDP clarified that enterprises shifted to blowing foam exclusively with HCFC-22 in 2018 and, in 2019, converted to hydrocarbon technology with their own resources. Accordingly, there was no HCFC-based XPS foam manufacturing in the country. Regarding the servicing sector, given the substantial transactional and TA actions that required complex engagement with numerous stakeholders at national and subnational levels and the need to ensure the sustainability of the phase-out, the Government did not consider feasible committing to such a substantial implementation challenge in only a three- or four-year timeframe. Finally, regarding the proposed introduction of R-448A, further to consultations with industry and other stakeholders, the Government proposed that, notwithstanding the challenges in converting to an A2L refrigerant like HFC-32 for commercial AC equipment above 4.5 TR and larger process chillers, all enterprises participating in the project had agreed to convert such equipment to HFC-32.

60. On that basis, the Secretariat and UNDP had detailed discussions on stage III of the HPMP. The Secretariat noted that if India were to maintain stage III of the HPMP through 2030, the 2030 phase-out target would be zero (vice 97.5 per cent of baseline), while noting the commitment of the Government to phase out HCFCs completely by 1 January 2030 and to ban the import of HCFCs by 1 January 2030, except for those allowed for a servicing tail between 2030 and 2040, where required, consistent with the provisions

[26] At the 77th meeting, the Secretariat and UNDP had agreed to discuss a proposal to address extruded polystyrene (XPS) foam manufacturing submitted in line with the Multilateral Fund guidelines at a future stage, if there were eligible enterprises (paragraph 61 of UNEP/OzL.Pro/ExCom/77/49).

of the Montreal Protocol;[27] the country would have no remaining consumption eligible for funding after the completion of stage III; and, in line with decision 86/51(b), the Government would need to include as part of the final tranche submission:

(a) A detailed description of the regulatory and policy framework in place to implement measures to ensure that HCFC consumption was in compliance with paragraph 8 ter(e)(i) of Article 5 of the Montreal Protocol for the period 2030-2040; and

(b) If the country were intending to have consumption during the period 2030–2040, in line with paragraph 8 ter(e)(i) of Article 5 of the Montreal Protocol, proposed modifications to its Agreement with the Executive Committee covering the period beyond 2030.

61. The Government confirmed it would submit the final tranche in line with decision 86/51(b). While the Government could agree that it would have no remaining HCFC consumption eligible for funding after the completion of stage III, it did so on the understanding that if the country expected to have consumption during the period 2030–2040 when it submitted the last tranche, the Executive Committee would consider the country's needs during that period, including proposed modifications to the Agreement, in line with decision 86/51(b), and any subsequent decisions the Executive Committee may take on this matter.

Technical and cost-related issues

Residential AC manufacturing sector

62. While none of the residential AC manufacturing enterprises converted under stage II reported challenges in ensuring the market uptake of HFC-32-based residential AC equipment, the Secretariat was concerned about the capacity of micro- and small-sized enterprises to continue to manufacture equipment with the agreed alternative after the completion of the project noting that, with few exceptions, the consumption of those enterprises had been falling between 2019 and 2021; that they would be competing with larger enterprises, including those outside of India, that benefitted from economies-of-scale; and that the Government of India was not in a position at this time to implement controls on the manufacture and import of R-410A-based residential AC equipment. In addition, while UNDP had requested IOCs at US $6.30/kg in line with decision 74/50, it had estimated the IOCs at US $17.89/kg and, noting that IOCs are provided for one year, the Secretariat was not clear how enterprises would continue to manufacture equipment with the agreed alternative after the IOCs had been provided to the enterprises.

63. UNDP considered that the trend in consumption over the last three years was a poor proxy for the financial viability of the micro- and small-sized enterprises as those enterprises, as well as many of the other enterprises participating in the project, had been affected by the COVID-19 pandemic; that a comprehensive assessment of partner capacity had been undertaken in line with UNDP's enterprise risk management;[28] and that all the enterprises had been operating since at least September 2007 and had been able to do so in part as they had a market niche: the enterprises typically also offered other services, such as the required installation and electrical work that may be required at homes of less wealthy consumers. Finally, the Government of India had proposed a dedicated TA programme (US $500,000) for the MSMEs precisely because the Government was concerned about the market challenges those enterprises would face.

64. On that basis, the Secretariat had detailed discussions with UNDP on the costs of conversion. The Secretariat noted that with one exception, all the micro- and small-sized residential AC manufacturing enterprises also manufactured commercial refrigeration equipment or, in one case, process chillers; the joint consumption of the RAC manufacturing at some of those enterprises would be categorized as "medium"

[27] HCFC consumption may exceed zero in any year so long as the sum of its calculated levels of consumption over the ten-year period from 1 January 2030 to 1 January 2040, divided by 10, does not exceed 2.5 per cent of the HCFC baseline.

[28] See Annex I of UNEP/OzL.Pro/ExCom/91/68.

or, in one case, "large" (i.e., between 5 and 20 mt, or above 20 mt). The Secretariat considered that the proposed TA programme would be critical to helping ensure the successful and sustainable conversion of the MSMEs across the assisted manufacturing sectors, particularly as it would focus on the micro- and small-sized enterprises. In addition, as further discussed in paragraph 85, the TA programme for MSMEs includes a component to extend the monitoring of the assisted enterprises for three years after the completion of the conversion, which will help mitigate the risk of converted enterprises switching to manufacturing with R-410A or R-407C after the completion of the project. Accordingly, it was agreed to include TA as a separate component under the HPMP.

65. Given the inclusion of the dedicated TA programme for MSMEs, it was agreed to remove the TA-related costs from the 10 micro- and small-sized enterprises (i.e., costs related to system and process redesign, prototyping, and testing; quality inspection, testing modifications and safety training; and TA), resulting in agreed ICCs of US $171,600 for those ten enterprises. ICCs for the two medium enterprises manufacturing split AC units were adjusted based on providing only one (explosion-proof) vacuum pump (for the recovery station), removing the TA from Subros as it had already received such TA under stage II, and adjusting the eligible ICCs based on the enterprise's non-Article-5 ownership. ICCs for the third medium-sized enterprise, which manufactured small capacity chillers for residential AC use, were agreed at US $75,000, in line with the other precedent enterprises, resulting in agreed ICCs of US $209,505 for the three medium-sized enterprises.

66. Regarding IOCs, the Secretariat noted that several Article 5 countries are experiencing a rapid uptake of HFC-32-based residential AC; such manufacturing now accounts for a majority of the equipment manufactured in the largest residential AC manufacturing sector in the world. That latter conversion took place without assistance from the Multilateral Fund, suggesting that IOCs were lower than estimated by UNDP. Based on the thermodynamics of HFC-32 and HCFC-22, there is no theoretical reason that HFC-32-based components (e.g., compressor, heat exchanger) should be more expensive than the baseline components; rather, economies-of-scale are likely to be the primary driver of price. Given the scale of HFC-32-based manufacturing in other countries, including a large Article 5 country, the price of such components is expected to be comparable. Additional costs may be incurred based on safety features (e.g., switches and electric components, control box safety enclosure, sparkless fan) used for the conversion to an A2L refrigerant.

67. Noting that all the enterprises participating in the project are MSMEs and may need some time to establish cost-effective supply chains for the new components, and the additional safety features required, the Secretariat proposed IOCs at US $8.50/unit minus the difference in cost of refrigerant (US $6.50/kg for HCFC-22 and US $4.50/kg for HFC-32) and taking into account the reduction in charge (25 per cent) and the average charge of equipment manufactured by the enterprises, resulting in IOCs that ranged from US $6.30/kg for the micro- and small-sized enterprises, which principally manufacture window units, to US $3.80/kg for the enterprise that manufactured larger split AC units and the enterprise that manufactured small capacity chillers, resulting in an average IOC of US $4.73/kg and total IOCs of US $232,765 for the sector. The Government agreed to the IOCs proposed by the Secretariat, while noting that it considered UNDP's estimated IOCs as a realistic snapshot of the expected IOCs at this time; the Government expected IOCs will decrease as supply chain issues are resolved and with increased market acceptance of the agreed technology and considered that the project can be implemented using the IOCs proposed by the Secretariat.

Commercial AC manufacturing sector

68. Funding was requested for heat exchanger modifications for two large-sized enterprises manufacturing commercial AC equipment that had been assisted under stage II (Blue Star and Voltas). The Secretariat considered that request eligible as the enterprises manufactured commercial and not residential

AC equipment.[29] In contrast, it was agreed that a helium leak detector was not incremental for the type of equipment manufactured. In addition, the following adjustments to the ICCs for the two large-sized enterprises were agreed: costs of heat exchanger and sheet metal processing modifications were adjusted in line with other precedent enterprises; providing only one (explosion-proof) vacuum pump (for the recovery station) and adjusting the cost of that pump in line with other sectors; reducing the number of leak detectors in line with the baseline equipment at one enterprise; rationalizing the cost of TA given that the enterprises had already received assistance to convert to the same alternative for a different application under stage II; and rationalizing the costs for quality inspection, finishing, and testing modifications for the smaller of the two enterprises, given the number of units manufactured by the enterprise. ICCs for the small-sized enterprise, which manufactured large capacity chillers for commercial applications, were agreed at US $60,000, in line with the other precedent enterprises, resulting in agreed ICCs of US $1,240,850 for the three enterprises participating in the project.

69. Consistent with the residential AC manufacturing sector, and based on the larger refrigerant charge of the equipment, IOCs were agreed at US $3.80/kg based on the cost of safety-related features, the relative price of refrigerants, and a 25 per cent reduction in charge, resulting in IOCs of US $660,094.

Commercial refrigeration manufacturing sector

70. Given the inclusion of the dedicated TA programme for MSMEs, and in line with the approach taken for the residential AC manufacturing sector, it was agreed to remove the TA-related costs from the 32 micro- and small-sized enterprises (i.e., costs related to system and process redesign, prototyping, and testing; quality inspection, testing modifications and safety training; product certification; and TA), resulting in agreed ICCs of US $609,848 for those 32 enterprises. ICCs for the remaining eight medium-sized enterprises were adjusted based on providing only one (explosion-proof) vacuum pump (for the recovery station); adjusting the TA as those enterprises would also benefit from the dedicated TA programme for MSMEs; for the two smallest of the medium-sized enterprises, adjusting the assistance provided for redesign, prototyping and testing, and product certification, given the lower consumption and number of units manufactured; and providing only one portable ultrasonic welding machine to the smallest of the medium-sized enterprises, resulting in ICCs of US $955,900 for those eight enterprises. IOCs were agreed at US $3.80/kg, in line with decision 74/50, resulting in total agreed incremental costs of US $2,029,076, in line with the agreed cost-effectiveness threshold and decision 19/32(a)(iv).[30]

Process chiller manufacturing

71. Given the inclusion of the dedicated TA programme for MSMEs, and in line with the approach taken for the residential AC manufacturing sector, it was agreed to remove the TA-related costs from the five micro- and small-sized enterprises (i.e., costs related to system and process redesign, prototyping, and testing; quality inspection, testing modifications and safety training; product certification; and TA), resulting in agreed ICCs of US $209,550 for those 5 enterprises. ICCs for the remaining two enterprises were adjusted based on providing only one (explosion-proof) vacuum pump (for the recovery station) and, for the large-sized enterprise, providing only one portable ultrasonic welding machine, and on rationalizing the costs related to pressure testing equipment, quality inspection, testing modifications and safety training; product certification; and TA. On that basis, the agreed ICCs were US $238,700. IOCs were agreed at US $3.80/kg, in line with decision 74/50, resulting in total agreed incremental costs of US $605,041, in line with the agreed cost-effectiveness threshold and decision 19/32(a)(iv).

[29] Decision 77/43(e)(i) was applicable to residential AC manufacturing enterprises. In line with that decision, no funding had been requested for heat exchanger processing modifications for the third residential AC manufacturing line at Blue Star that had been proposed to be added to stage II.

[30] No individual enterprise proposal had a cost-effectiveness threshold more than 100 per cent above the established threshold.

Strengthening capacity of the refrigeration servicing sector

72. The proposed activities were based on a comprehensive analysis of the refrigeration servicing sector, identified specific challenges, and included meaningful activities to address those challenges and to continue and expand work undertaken under stage II of the HPMP. While a substantial number of technicians would be trained under stage II (estimated at 17,000) and stage III (estimated at 25,000), the Secretariat sought to better understand how the training centres would be enabled to continue providing training on a regular basis to additional technicians not covered by the project once the HPMP had been completed given the large number of technicians in the country (estimated at 350,000). That regular training would be supported *inter alia* through the capacity-building at the ITIs, the development and implementation of the QCR system, the development of codes and standards, and awareness-raising activities. On that basis, the Government committed to the training of 100,000 trainees through the ITIs and other training partners. In order to ensure that the national QCR system would become fully operational during the implementation period of stage III, it was also agreed that the system would be implemented by December 2028 and at least 3,000 technicians would be certified and registered through a pilot certification programme.

73. Regarding the licensing system for technicians to be developed, UNDP clarified that while restricting the purchase of refrigerants to licensed technicians was not feasible at this time given the very large number of technicians in the country, registration of technicians would be the initial step; restricting the procurement of refrigerants could be explored at a later time under the licensing system to be developed. Similarly, while the QCR system would be a formal mechanism to certify and register technicians, it would be a voluntary system.

74. In order to support future activities that the country could undertake as a result of the RRR feasibility study, the Secretariat suggested whether the Government had considered establishing regulatory measures to control intended emissions of refrigerant during the installation, servicing, and decommissioning. Noting the very large number of technicians in the country, and the very large number and variety of RAC equipment installed, these measures could initially target larger commercial equipment in urban centers. However, given the complexity of regulatory development process, including the required consultations with a variety of line ministries and other stakeholders, and the need for the RRR feasibility study to inform the Government of its options, it was agreed that the awareness-raising activities undertaken under the project would specifically target the control of refrigerant emissions from larger installations; a code of practice would be elaborated and adopted to promote and standardise RRR to address ODS emissions; and the feasibility study would include a focus on how the issue of intended venting of ODS could be addressed.

75. The Secretariat inquired about the sustainability of the retrofit packages provided to refrigeration installation enterprises to support them in redesigning their products to operate with R-290. UNDP clarified that the purpose of this activity was awareness-raising, and to demonstrate that the final operational costs and energy efficiency of R-290 units are competitive with baseline units. It is aimed at installation enterprises that, while not manufacturers, still influence technology choice in the market. The campaign will highlight new technologies and good installation practices, and lessons learned will be shared with similar installation enterprises, including through ITIs that can advise similar enterprises that wish to convert technologies in the installation sector. This activity would be implemented later in the HPMP when HCFC-22 supply will be limited and should promote more widespread use of alternative refrigerants.

Enabling activities in the servicing sector

76. Regarding the sector codes and standards that would be developed, UNEP informed that they may include, for example, an occupational standard on technician qualifications or equipment maintenance codes to reduce leakage or increase energy efficiency. As further consultations with stakeholders would

need to be conducted before specific standards are proposed, they would not be developed until the second and third tranche.

77. Regarding the awareness campaign to assist large end-users, UNEP clarified that the voluntary programme would target enterprises that contract servicing technicians (e.g., supermarkets, small format stores, food processing facilities, cold storage facilities) and allow them to determine their leakage rate and design a personalized leak-reduction plan to reduce HCFC consumption.

78. In addition, the Secretariat noted that as part of the Petroleum and Explosive Safety Organisation regulations, India has a prohibition on disposable cylinders. In line with recommendations included in India's cooling action plan,[31] it was agreed that information on the prohibition on disposable cylinders would be included in capacity-building activities, such as the customs authority risk profiling and capacity building, and various awareness-raising activities.

Activities to address consumption of HCFC-123

79. HCFC-123 is used to manufacture and service fire-fighting equipment (mainly portable fire extinguishers) and to service chillers. While preparing stage III, UNDP had identified 16 enterprises manufacturing fire-fighting equipment, of which 12 had transitioned to non-ODS alternatives (ABC powder, CO_2, or HFC-227ea) using their own resources. The remaining four enterprises, with an associated consumption of 24.00mt of HCFC-123, were found to be ineligible for participation in the project.

80. The Secretariat noted that, in contrast, the 23.19 mt used to service fire-fighting equipment and chillers was eligible for funding, and recalled decision XXX/2, whereby the Parties decided *inter alia* to include the servicing of fire suppression and fire protection equipment existing on 1 January 2030 in the permissible uses for the 2030-2040 servicing tail in Article 5 countries, and suggested that activities to better understand and address the consumption of HCFC-123 to service fire suppression and fire protection equipment, as well as to improve the servicing practices of chillers, would be meaningful. In that regard, the Secretariat noted that under its 2021 CP data report, India had reported significant consumption of HFC-227ea and HFC-236fa, as well as some HFC-23, some portion of which may be used in the fire-fighting sector. Improved servicing of HCFC-123-based fire suppression and fire protection equipment could help avoid further uptake of high and very high-GWP HFCs in the fire-fighting sector.

81. The Secretariat and UNDP had detailed discussions of a plan action to address the eligible HCFC-123 consumption in the country, resulting in the following activities at an agreed cost of US $111,303 that would be undertaken under the third and fourth tranches:

(a) Assessment and mapping of installed capacity of HCFC-123-based chillers; assessment of servicing needs for HCFC-123-based chillers and fire suppression and fire protection equipment; and assessment of the potential impact of those servicing needs to the country's consumption in the 2030-2040 period;

(b) Alternatives assessment for chillers and fire suppression and fire protection equipment, including supply chain, main manufacturers, distributers, and installers;

(c) Development of guidelines for the replacement of HCFC-123-based chillers, including awareness about best practices for recovery and reclamation, and for best practices in the servicing of HCFC-123-based fire suppression and fire protection equipment;

[31] http://ozonecell.nic.in/wp-content/uploads/2019/03/INDIA-COOLING-ACTION-PLAN-e-circulation-version080319.pdf

(d) Exploration of opportunities to use HCFC-123 that was recovered and/or reclaimed from chillers for the servicing of HCFC-123 fire suppression and fire protection equipment; and

(e) Stakeholder consultations, workshops, and an awareness campaign to disseminate the results of the above assessments.

PMU

82. The Secretariat noted that, as submitted, the PMU accounted for 14.6 per cent of the project costs and recalled that under stage II that proportion was 5.6 per cent. In line with the increased number of sectors and complexity of the activities to be undertaken, and the longer duration of the stage, the allocation to the PMU was agreed at 7 per cent of the project costs, resulting in an allocation of US $1,645,826. In addition, it was agreed to include the activities related to field activities and impact monitoring that are components of the servicing sector activities under the PMU at US $600,000, at the cost-effectiveness of US $4.80/kg, in order to enhance the central coordination of activities, streamline reporting lines and deploy effective assistance support, bringing the effective allocation for the PMU to US $2,245,826.

Sustainability of the HCFC phase-out and assessment of risks

83. The sustainability of the HCFC phase-out at manufacturing enterprises will be supported by the ban on the manufacture of HCFC-based equipment and products that will come into effect on 1 January 2025. However, the Government was not in a position at this time to implement controls on the import of R-410A-, R-407C-, R-404A- and HFC-134a-based equipment, nor on the manufacture of such equipment by ineligible enterprises that had not participated in the project. Converted enterprises will have to compete with those ineligible enterprises and those imports. Implementation of the country's Kigali HFC implementation plan, and associated regulatory and policy measures, will reduce challenges that converted enterprises may face in selling equipment based on the agreed technology and, hence, the associated risk to the sustainability of those conversions.

84. In line with UNDP's enterprise risk management policy,[32] UNDP undertook a comprehensive review to identify and assess project risks. The outcome of that review is the project risk register, which was reviewed by a project appraisal committee, and shared with the Secretariat in the course of its review of stage III. One of the risks identified was that manufacturing enterprises, particularly MSMEs, could face low profitability considering other alternatives in the market. Measures identified to mitigate that risk included:

(a) During project preparation, all assisted enterprises were visited for physical verification that established the enterprises' eligibility and checked the financial records to jointly determine the past operations and financial capacities of the enterprises;

(b) Through project design, financial and TA would be provided to minimize economic and financial impacts of the conversion. This includes the provision of IOCs, which would help enterprises introduce their products in the market;

(c) In implementation, through the use of MoA that will be signed with each enterprise, which include provisions to ensure that funding would be provided based on meeting of milestones, which would be independently verified, including a final verification upon completion of the conversion and manufacturing of HCFC-free units; and a funding recovery mechanism if financial risks become a concern; and

(d) Through the dedicated TA programme focused on the MSMEs.

[32] Described in Annex I of document UNEP/OzL.Pro/ExCom/91/68.

85. While noting the comprehensive risk assessment provided by UNDP with appreciation, and sharing the view that the dedicated TA programme focused on the MSMEs was critical to mitigating risk, the Secretariat sought to better understand measures that could help ensure that the MSMEs, and particularly the micro- and small-sized enterprises, continued to manufacture equipment with the agreed alternative after the completion of the conversion, a risk not fully addressed in UNDP's risk assessment. The inclusion of the dedicated TA programme focused on the MSMEs would not only enhance the capacity of those enterprises to participate in the project but also help ensure the continued manufacture of equipment based on the agreed technology after conversion. In addition, the MoA signed with enterprises would include an individual undertaking that specified that the enterprises cannot change technology, including to R-410A, R-407C, R-404A and HFC-134a, and that the enterprises must continue to manufacture with the agreed alternative after the completion of the conversion; this requirement is indefinite. The dedicated TA programme for MSMEs included annual monitoring for three years of a sample of enterprises to ensure compliance with that requirement. The Government would impose a penalty on any enterprise found to have changed technology, in line with the MoA and appropriate administrative procedures.

86. The ban on HCFC-based equipment and products that will enter into force on 1 January 2025 includes a ban on the manufacture of HCFC-based fire extinguishers, fire extinguishing systems, and chillers.

Total project cost and phase-out

87. Assistance would be provided under stage III to phase-out 4,085.35 mt (224.64 ODP tonnes) of HCFC-22 and 23.19 mt (0.46 ODP tonnes) of HCFC-123. In addition, the Government had committed to phase out HCFCs completely by 1 January 2030 through the implementation of stage III, resulting in additional reductions from the country's remaining HCFC consumption eligible for funding of 151.81 mt (3.04 ODP tonnes) of HCFC-123, 613.64 mt (13.50 ODP tonnes) of HCFC-124, 1,903.08 mt (123.70 ODP tonnes) of HCFC-142b, and 3,802.07 mt (209.11 ODP tonnes) of HCFC-22. Combined with the additional reductions from the country's remaining consumption of HCFC-22 eligible for funding of 5.54 ODP tonnes proposed under stage II at the present meeting, the country would have zero remaining HCFC consumption eligible for funding after the completion of stage III. The total cost for stage III of the HPMP amounts to US $25,157,632, as shown in table 9.

Table 9. Total agreed cost of stage III of the HPMP for India

Component	Agency	Consumption		Agreed alternative	ICC	IOC	Total agreed cost (US $)	CE US $/kg
		mt	ODP tonnes					
Manufacturing sector								
Residential AC	UNDP	49.21	2.71	HFC-32	381,105	232,765	613,870	12.48
Commercial AC		173.71	9.55		1,240,850	660,094	1,900,944	10.94
Process chillers		41.26	2.27	R-600a, R-290, HFC-32	448,250	156,791	605,041	14.66
Commercial refrigeration		121.93	6.71		1,565,748	463,328	2,029,076	16.64
TA for MSMEs		0.00	0.00	n/a			500,000	n/a
Sub-total (manufacturing)		**386.11**	**21.24**	**n/a**			**5,648,931**	**14.63**
Non-investment activities								
Servicing sector	Germany	3,573.24	196.53				6,952,572	4.80
	UNDP						6,829,000	
Enabling activities	UNEP						3,370,000	
Fire-protection and chillers	UNDP	23.19	0.46				111,303	4.80
PMU	UNDP	125.00	6.88				600,000	4.80
		0.00	0.00				1,645,826	n/a
Sub-total (non-investment)		**3,721.43**	**203.87**				**19,508,701**	**5.24**

Total	**4,107.54**	**225.11**	**25,157,632**	**6.12**
Additional HCFC reductions[*]	6,470.60	349.35	0.0	0.00
Total stage III	**10,578.14**	**574.46**	**25,157,632**	**2.38**

[*] Does not include the proposed additional reductions of 5.54 ODP tonnes to the country's HCFC-22 consumption eligible for funding proposed under stage II at the present meeting.

88. Noting the 1 January 2025 ban on the manufacture of HCFC-based equipment, in order to ensure facilitating the implementation of activities in a coordinated manner as to maintain the engagement of service sector stakeholders and allow trainings in a consistent manner throughout the implementation of stage III, and in line with decision 62/17, UNDP adjusted the tranche distribution in line with the revised level of funding. Given that a sustained reduction of 95 per cent of the HCFC consumption baseline will be achieved by 1 January 2025, a large part of the activities will need to be implemented early. On this basis, it was agreed to maintain the fourth and final tranche in 2029 rather than 2030.

89. Funding for UNDP under the first tranche was reduced to reflect the agreed changes in the eligible costs in the manufacturing sector and to the PMU. Funding to Germany was increased to US $1,700,643 to initiate the training-of-trainers for ITI instructors/trainers, and deliver TA to support the establishment of the QCR system, while funding for UNEP was reduced to US $668,215 by postponing to a later tranche the desk study on regulations, current practices, and needs for handling unwanted HCFCs from maintenance or retired equipment; by removing the funding allocated to monitoring staff and related activities that would be undertaken by the PMU; and by reducing the quantities of knowledge management products commensurate with the reduced budget.

Impact on the climate

90. The replacement of HCFC-22 by HFC-32 in residential and commercial AC manufacturing and by R-600a, R-290 and HFC-32 in process chillers and commercial refrigeration manufacturing will result in avoiding the emissions of approximately 1,344,000 mt CO_2-eq. based on the revised Multilateral Fund climate impact indicator (MCII). The activities proposed in the servicing sector, which include better containment of refrigerants through training and provision of equipment, will reduce the amount of HCFC-22 used for RAC servicing. Each kilogramme of HCFC-22 not emitted due to better refrigeration practices results in the savings of approximately 1.8 CO_2-equivalent tonnes. The climate benefits from the reduction of 23.19 mt of HCFC-123 can be estimated at 178 mt CO_2-eq.

Co-financing

91. The Government of India would provide in-kind contributions under the PMU that include an additional technical advisor position (US $200,000) and a portion of operational office costs (US $150,000). Assisted enterprises would provide co-financing if the cost of conversion was higher than the agreed cost.

2022-2024 draft business plan of the Multilateral Fund

92. UNDP, UNEP and the Government of Germany are requesting US $25,157,632, plus agency support costs, for the implementation of stage III of the HPMP for India. The total requested value of US $18,617,210, including agency support costs for the period of 2022-2024, is US $25,184,790 below the amount in the business plan.

Draft Agreement

93. A draft Agreement between the Government of India and the Executive Committee for stage III of the HPMP is contained in Annex I to the present document.

RECOMMENDATION

94. The Executive Committee may wish to consider:

(a) Approving, in principle, stage III of the HCFC phase-out management plan (HPMP) for India for the period from 2023 to 2030 for the complete phase-out of HCFC consumption, in the amount of US $27,351,569, consisting of US $14,835,060, plus agency support costs of US $1,038,454 for UNDP, US $3,370,000 plus agency support costs of US $380,700 for UNEP and US $6,952,572, plus agency support costs of US $774,783 for the Government of Germany, on the understanding that no more funding from the Multilateral Fund would be provided for the phase-out of HCFCs;

(b) Noting the commitment of the Government of India to completely phase out HCFCs by 1 January 2030, and that HCFCs would not be imported after that date, except for those allowed for a servicing tail between 2030 and 2040, where required, consistent with the provisions of the Montreal Protocol;

(c) Deducting 574.45 ODP tonnes of HCFCs from the remaining HCFC consumption eligible for funding;

(d) Deducting an additional 5.54 ODP tonnes of HCFCs from the remaining HCFC consumption eligible for funding, in line with decision 91/[X[33]];

(e) Approving the draft Agreement between the Government of India and the Executive Committee for the reduction in consumption of HCFCs, in accordance with stage III of the HPMP, contained in Annex I to the present document;

(f) That, to allow for consideration of the final tranche of its HPMP, the Government of India should submit:

(i) A detailed description of the regulatory and policy framework in place to implement measures to ensure that HCFC consumption was in compliance with paragraph 8 ter(e)(i) of Article 5 of the Montreal Protocol for the 2030-2040 period;

(ii) If India were intending to have consumption during the 2030–2040 period, in line with paragraph 8 ter(e)(i) of Article 5 of the Montreal Protocol, proposed modifications to its Agreement with the Executive Committee covering the period beyond 2030; and

(g) Approving the first tranche of stage III of the HPMP for India, and the corresponding tranche implementation plan, in the amount of US $9,232,016, consisting of US $6,166,500, plus agency support costs of US $431,655 for UNDP, US $668,215, plus agency support costs of US $75,486 for UNEP, and US $1,700,643, plus agency support costs of US $189,517 for the Government of Germany.

[33] Paragraph 36(d)(iii) of the present document.

Annex I

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

Purpose

1. This Agreement represents the understanding of the Government of India (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 zero ODP tonnes by 1 January 2030 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, 4.3.3, 4.4.3, 4.5.3 and 4.6.3 (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 stage III 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 bilateral or 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.

Considerations for the refrigeration servicing sector

8. Specific attention will be paid to the execution of the activities in the refrigeration servicing 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 bilateral and/or implementing agencies would take into consideration relevant decisions on the refrigeration servicing sector during the implementation of the Plan.

Bilateral and 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. UNDP has agreed to be the lead implementing agency (the "Lead IA") and UNEP and the Government of Germany have agreed to be the cooperating implementing agencies (the "Cooperating IAs") under the lead of the Lead IA in respect of the Country's activities under this Agreement. The Country agrees to evaluations, which might be carried out under the monitoring and evaluation work programmes of the Multilateral Fund or under the evaluation programme of the Lead IA and/or Cooperating IAs taking part in this Agreement.

10. The Lead IA will be responsible for ensuring co-ordinated planning, implementation and reporting of all activities under this Agreement, including but not limited to independent verification as per sub-paragraph 5(b). The Cooperating IAs will support the Lead IA by implementing the Plan under the overall co-ordination of the Lead IA. The roles of the Lead IA and Cooperating IAs are contained in Appendix 6-A and Appendix 6-B, respectively. The Executive Committee agrees, in principle, to provide the Lead IA and the Cooperating IAs with the fees set out in rows 2.2, 2.4 and 2.6 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 kg of reductions in consumption not achieved in any one year. The Executive Committee will discuss each specific case in which the Country did not comply with this Agreement, and take related decisions. Once 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 decisions that may affect the funding of any other consumption sector projects or any other related activities in the Country.

13. The Country will comply with any reasonable request of the Executive Committee, the Lead IA and the Cooperating IAs to facilitate implementation of this Agreement. In particular, it will provide the Lead IA and the Cooperating IAs 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-123	C	I	3.50
HCFC-124	C	I	13.50
HCFC-141b	C	I	865.50
HCFC-142b	C	I	123.70
HCFC-22	C	I	602.00
Sub-total			1,608.20
HCFC-141b contained in imported pre-blended polyols	C	I	83.05
Total			1,691.25

APPENDIX 2-A: THE TARGETS, AND FUNDING

Row	Particulars	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	1,045.33	1,045.33	1,045.33	522.67	522.67	522.67	522.67	522.67	0.00	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	698.82	643.28	643.28	75.85	75.85	75.85	75.85	75.85	0.00	n/a
2.1	Lead IA (UNDP) agreed funding (US $)	6,166,500	0	5,495,933	0	2,663,295	0	0	509,332	0	14,835,060
2.2	Support costs for Lead IA (US $)	431,655	0	384,715	0	186,431	0	0	35,653	0	1,038,454
2.3	Cooperating IA (UNEP) agreed funding (US $)	668,215	0	1,011,000	0	1,168,825	0	0	521,960	0	3,370,000
2.4	Support costs for Cooperating IA (US $)	75,486	0	114,210	0	132,039	0	0	58,965	0	380,700
2.3	Cooperating IA (Germany) agreed funding (US $)	1,700,643	0	2,140,772	0	2,396,887	0	0	714,270	0	6,952,572
2.4	Support costs for Cooperating IA (US $)	189,517	0	238,564	0	267,105	0	0	79,597	0	774,783
3.1	Total agreed funding (US $)	8,535,358	0	8,647,705	0	6,229,007	0	0	1,745,562	0	25,157,632
3.2	Total support costs (US $)	696,658	0	737,489	0	585,575	0	0	174,215	0	2,193,937
3.3	Total agreed costs (US $)	9,232,016	0	9,385,194	0	6,814,582	0	0	1,919,777	0	27,351,569
4.1.1	Total phase-out of HCFC-123 agreed to be achieved under this Agreement (ODP tonnes)										3.50
4.1.2	Phase-out of HCFC-123 to be achieved in previously approved projects (ODP tonnes)										0.00
4.1.3	Remaining eligible consumption for HCFC-123 (ODP tonnes)										0.00
4.2.1	Total phase-out of HCFC-124 agreed to be achieved under this Agreement (ODP tonnes)										13.50
4.2.2	Phase-out of HCFC-124 to be achieved in previously approved projects(ODP tonnes)										0.00
4.2.3	Remaining eligible consumption for HCFC-124 (ODP tonnes)										0.00
4.3.1	Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes)										0.00
4.3.2	Phase-out of HCFC-141b to be achieved in previously approved projects(ODP tonnes)										865.50
4.3.3	Remaining eligible consumption for HCFC-141b (ODP tonnes)										0.00
4.4.1	Total phase-out of HCFC-142b agreed to be achieved under this Agreement (ODP tonnes)										123.70
4.4.2	Phase-out of HCFC-142b to be achieved in previously approved projects (ODP tonnes)										0.00
4.4.3	Remaining eligible consumption for HCFC-142b (ODP tonnes)										0.00
4.5.1	Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)										439.29
4.5.2	Phase-out of HCFC-22 to be achieved in previously approved projects (ODP tonnes)										162.71
4.5.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)										0.00

Row	Particulars	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
4.6.1	Total phase-out of HCFC-141b contained in imported pre-blended polyols agreed to be achieved under this Agreement (ODP tonnes)										0.00
4.6.2	Phase-out of HCFC-141b contained in imported pre-blended polyols to be achieved in previously approved projects (ODP tonnes)										83.05
4.6.3	Remaining eligible consumption for HCFC-141b contained in imported pre-blended polyols (ODP tonnes)										0.00

*Date of completion of stage II as per stage II Agreement: 31 December 2024

APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

1. Funding for the future tranches will be considered for approval at the second 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 the amount of ODS phased 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. The monitoring process will be managed by Ozone Cell, Ministry of Environment, Forest and Climate Change, with the assistance of the Lead IA.

2. The consumption will be monitored and determined based on official import and export data for the substances recorded by relevant government departments.

3. The Ozone Cell, Ministry of Environment, Forest and Climate Change, shall compile and report the following data and information on an annual basis on or before the relevant due dates:

(a) Annual reports on consumption of the substances to be submitted to the Ozone Secretariat; and

(b) Annual reports on progress of implementation of the Plan to be submitted to the Executive Committee of the Multilateral Fund.

4. The consumption will be monitored annually throughout the implementation of the Plan and accordingly reflected in the progress report on the implementation of the Plan.

5. The Ozone Cell, Ministry of Environment, Forest and Climate Change shall endorse the final report and the Lead IA shall submit the same to the relevant meeting of the Executive Committee along with the annual implementation plan and reports.

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, and should include the activities implemented by the Cooperating IAs;

(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) Co-ordinating the activities of the Cooperating IAs, and ensuring appropriate sequence of activities;

(k) In case of reductions in funding for failure to comply in accordance with paragraph 11 of the Agreement, to determine, in consultation with the Country and the Cooperating IAs, the allocation of the reductions to the different budget items and to the funding of the Lead IA and each Cooperating IA;

(l) Ensuring that disbursements made to the Country are based on the use of the indicators;

(m) Providing assistance with policy, management and technical support when required;

(n) Reaching consensus with the Cooperating IAs on any planning, co-ordination and reporting arrangements required to facilitate the implementation of the Plan; and

(o) 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 6-B: ROLE OF THE COOPERATING IMPLEMENTING AGENCIES

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

(a) Providing assistance for policy development when required;

(b) Assisting the Country in the implementation and assessment of the activities funded by the Cooperating IA, and refer to the Lead IA to ensure a co-ordinated sequence in the activities;

(c) Providing reports to the Lead IA on these activities, for inclusion in the consolidated reports as per Appendix 4-A; and

(d) Reaching consensus with the Lead IA on any planning, co-ordination and reporting arrangements required to facilitate the implementation of the Plan.

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 $86.75 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.