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EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Ninety-fourth Meeting  
Montreal, 27-31 May 2024  
Item 9(d) of the provisional agenda<sup>1</sup>

**PROJECT PROPOSAL: SAUDI ARABIA**

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

Phase-out

- HCFC phase-out management plan (stage II, first tranche) UNIDO and UNEP

<sup>1</sup> UNEP/OzL.Pro/ExCom/94/1

## PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

## Saudi Arabia

<b>(I) PROJECT TITLE</b>	<b>AGENCY</b>
HCFC phase-out plan (stage II)	UNIDO (lead), UNEP

<b>(II) LATEST ARTICLE 7 DATA (Annex C Group I)</b>	Year: 2022	876.00 ODP tonnes
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<b>(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)</b>							<b>Year: 2023</b>		
Chemical	Aerosol	Foam	Fire-fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-22				125.50	572.10				697.60

<b>(IV) CONSUMPTION DATA (ODP tonnes)</b>			
2009-2010 baseline:	1,468.7	Starting point for sustained aggregate reductions:	1,468.7
<b>CONSUMPTION ELIGIBLE FOR FUNDING</b>			
Already approved:	703.29	Remaining:	765.41

<b>(V) ENDORSED BUSINESS PLAN</b>		<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>Total</b>
UNIDO	ODS phase-out (ODP tonnes)	12.00	30.65	59.00	101.65
	Funding (US \$)	1,120,582	5,007,950	5,509,714	11,638,246
UNEP	ODS phase-out (ODP tonnes)	0.00	0.00	0.00	0.00
	Funding (US \$)	0	0	3,886,775	3,886,775

<b>(VI) PROJECT DATA</b>		<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>Total</b>	
Montreal Protocol consumption limits (ODP tonnes)		954.66	477.33	477.33	477.33	477.33	477.33	0.00	n/a	
Maximum allowable consumption (ODP tonnes)		881.22	477.33	477.33	477.33	477.33	477.33	0.00	n/a	
Project costs requested in principle (US \$)	UNIDO	Project costs	4,708,516	0	4,088,516	0	3,573,516	0	1,055,016	13,425,564
		Support costs	329,596	0	286,196	0	250,146	0	73,851	939,789
	UNEP	Project costs	2,161,213	0	2,207,463	0	1,789,214	0	1,218,214	7,376,104
		Support costs	240,663	0	245,814	0	199,239	0	135,655	821,371
Total requested project costs (US \$)		6,869,729	0	6,295,979	0	5,362,730	0	2,273,230	20,801,668	
Total requested support costs (US \$)		570,259	0	532,010	0	449,385	0	209,506	1,761,160	
Total funds requested (US \$)		7,439,988	0	6,827,989	0	5,812,115	0	2,482,736	22,562,828	

<b>(VII) Request for approval of funding for the first tranche (2024)</b>		
<b>Implementing agency</b>	<b>Funds recommended (US \$)</b>	<b>Support costs (US \$)</b>
UNIDO	4,708,516	329,596
UNEP	2,161,213	240,663
Total	6,869,729	570,259

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

### Background

1. On behalf of the Government of Saudi Arabia, UNIDO as the lead implementing agency has submitted a request for stage II of the HCFC phase-out management plan (HPMP), at a total cost of US \$22,562,828, consisting of US \$13,425,564, plus agency support costs of US \$939,789 for UNIDO and US \$7,376,104, plus agency support costs of US \$821,371 for UNEP, as originally submitted.<sup>2</sup> The implementation of stage II of the HPMP will phase out the remaining consumption of HCFCs by 2030.

2. The first tranche of stage II of the HPMP being requested at this meeting amounts to US \$7,439,988, consisting of US \$4,708,516, plus agency support costs of US \$329,596 for UNIDO and US \$2,161,213, plus agency support costs of US \$240,663 for UNEP, as originally submitted.

### Status of implementation of stage I of the HCFC phase-out management plan

3. Stage I of the HPMP for Saudi Arabia was approved at the 68<sup>th</sup> meeting<sup>3</sup> and revised at the 72<sup>nd</sup> meeting<sup>4</sup> to phase out 703.29 ODP tonnes of HCFCs used in the refrigeration and air-conditioning (RAC) servicing sector to meet the 40 per cent reduction from the baseline by 2020, at a total cost of US \$13,420,971, plus agency support costs; this includes the two projects to phase out 180.6 ODP tonnes of HCFC-22 and HCFC-142b in the extruded polystyrene (XPS) foam sector that had already been approved at the 62<sup>nd</sup> meeting.<sup>5</sup> Stage I of the HPMP was completed on 31 December 2022 and financially completed at the 93<sup>rd</sup> meeting, and the project completion report submitted on 5 February 2024.<sup>6</sup>

### Report on HCFC consumption

4. The Government of Saudi Arabia reported under country programme (CP) implementation report a consumption of 697.60 ODP tonnes of HCFC in 2023, which is 52.5 per cent below the HCFC baseline for compliance. The Article 7 data for 2023 has not been reported yet. The 2019-2023 HCFC consumption is shown in table 1.

**Table 1. HCFC consumption in Saudi Arabia (2019-2023 Article 7 data)**

HCFC-22	2019	2020	2021	2022	2023*	Baseline**
Metric tonnes (mt)	17,330.06	16,009.09	15,998.01	15,927.28	12,683.61	18,393.50
ODP tonnes	953.15	880.50	879.89	876.00	697.60	1,011.64

\* CP data.

\*\* The country's baseline for compliance of 1,468.70 ODP tonnes also includes 0.19 ODP tonnes of HCFC-123, 341.00 ODP tonnes of HCFC-141b, and 115.86 ODP tonnes of HCFC-142b. Those substances were last consumed in 2016, 2017, and 2013, respectively.

5. Since 2018, the country only consumed HCFC-22 in the servicing sector and to manufacture residential and commercial air-conditioning (AC) equipment. Consumption of HCFC-22 in AC manufacturing has decreased steadily with the increased manufacturing of non-HCFC-based equipment, while consumption of HCFC-22 for servicing has increased (as shown in table 2). The reasons for that increase are discussed in paragraph 19 of the present document.

<sup>2</sup> As per the letter of 13 February 2024 from the National Center for Environmental Compliance of Saudi Arabia to UNIDO.

<sup>3</sup> Decision 68/37

<sup>4</sup> Decision 72/35

<sup>5</sup> Decision 62/35

<sup>6</sup> In line with decision 86/16(f)(iii), stage II of the HPMP for Saudi Arabia would be considered only after the project completion report had been submitted, stage I had been financially completed and all funding balances had been returned to the Multilateral Fund. Those steps had been completed.

**Table 2. HCFC-22 consumption in AC manufacturing and servicing (mt)**

Sectors	2017	2018	2019	2020	2021	2022	2023
AC manufacturing	7,430.18	7,388.70	6,295.35	5,569.62	5,513.46	5,272.73	2,281.82
Servicing	8,346.29	9,941.36	11,034.71	10,439.47	10,484.55	10,654.55	10,401.79
<b>Total</b>	<b>15,776.47</b>	<b>17,330.06</b>	<b>17,330.06</b>	<b>16,009.09</b>	<b>15,998.01</b>	<b>15,927.28</b>	<b>12,683.61</b>

*Country programme implementation report*

6. The Government of Saudi Arabia reported HCFC sector consumption data under the 2022 CP implementation report that is consistent with the data reported under Article 7 of the Montreal Protocol.

**Stage II of the HCFC phase-out management plan**Remaining consumption eligible for funding

7. After deducting 703.29 ODP tonnes of HCFCs associated with stage I of the HPMP, the remaining consumption eligible for funding in stage II amounts to 765.41 ODP tonnes of HCFC-22.

Sector distribution of HCFCs

8. Approximately two thirds of the country's HCFC-22 consumption is used to service RAC equipment, including domestic AC, commercial AC, transport refrigeration, large commercial refrigeration, and industrial refrigeration, while the remaining third is used to manufacture residential and commercial AC equipment.

9. There are between 30,000 and 50,000 technicians and 7,250 registered workshops in the country, consuming HCFC-22 to service unitary and split room AC, ducted rooftop AC systems and chillers, transport refrigeration (ships and fishing vessels), and medium to large condensing units, and shown in table 3. HCFC-22 represents 58 per cent of refrigerants used in the servicing sector, followed by R-410A, R-407C and R-404A; and approximately 19 per cent in the domestic AC manufacturing sector, with R-410A accounting for virtually all the remaining manufacturing in the country.

**Table 3: Estimation of demand for HCFC-22 in the RAC servicing sector in Saudi Arabia (2022)**

Applications	Equipment inventory	Average charge (kg)	HCFC bank (mt)	Estimated leakage rate (%)	Annual need for servicing (mt)
Room AC (unitary and split)	10,693,983	1.88	20,091.81	11	2,210.10
Commercial and industrial AC (ducted package units) and chillers	429,913	112.88	48,529.59	11	5,338.26
Transport refrigeration	39,276	6.77	265.72	20	53.14
Commercial refrigeration (medium condensing units)	18,026	73.75	1,329.40	20	265.88
Industrial refrigeration (large condensing units)	7,321	36.05	263.91	20	52.78
<b>Total</b>	<b>11,188,519</b>	<b>-</b>	<b>70,480.43</b>	<b>-</b>	<b>7,920.16*</b>

\*An additional 2,725.39 mt of HCFC-22 was consumed in 2022 to service unspecified RAC equipment.

Phase-out strategy

10. Stage II of the HPMP will further strengthen the capacity of the servicing sector, with a focus on the domestic and commercial AC and commercial and industrial refrigeration subsectors; further strengthen the regulatory framework; and promote the transition to technologies with low global-warming potential (GWP) in the RAC sector. Enterprises manufacturing residential and commercial AC equipment will phase out their consumption of HCFC-22 by converting to R-410A and R-407C with their own resources.

*Proposed activities*

## 11. Stage II proposes the following activities:

- (a) Policy and enforcement: Develop a ban on the import and manufacture of HCFC-based equipment and products by 1 January 2025, and review existing policies and regulations for the 2030-2040 servicing tail; stakeholder consultation and analysis of the legal framework including enforcement mechanisms; upgrade and implement the electronic licensing (e-licensing) system, and train the NOU, the licensing authority, and importers to use the system for monitoring and reporting and to issue e-permits; establish a national certification system for RAC technicians including mandatory qualification requirements and required legal framework, and development and implementation of an e-registration system for certified technicians; and develop and implement an e-registration system for servicing workshops (UNEP) (US \$730,000); and develop regulations on the management of HCFC-based refrigerants to support implementation of a refrigerant recovery, reuse and reclamation scheme, expected to enter into force by 1 January 2026 (UNIDO) (US \$25,000);
- (b) Customs capacity-building: Two workshops to train at least 22 trainers (at least one from each customs port) for the customs department, and 16 workshops to train 320 customs officers on HCFC control, including risk profiling; three border dialogues with neighbouring countries on combating illegal ODS trade; 10 workshops to train 200 enforcement officers from 22 ports on ODS regulations to support enforcement beyond customs check points; five workshops to train 80 customs agents and importers of HCFCs, refrigerants and RAC equipment on new regulatory measures; and technical assistance to strengthen customs operations to control import/export of HCFCs through risk profiling management (UNEP) (US \$575,000); and provision of equipment to support trade control (UNIDO) (US \$682,500);<sup>7</sup>
- (c) Standards development: Update the national standards of RAC products in accordance with international standards; and develop and implement standard operating procedures (SOPs) for servicing workshops for handling flammable and hazardous refrigerants (UNEP) (US \$60,000);
- (d) Technician capacity-building:
  - (i) Training of trainers: Eighteen workshops to train 126 master trainers across 13 provinces; 26 workshops to train at least 260 teachers on the new good servicing practices training curriculum; and two pilot trainings for the owner of HCFC-123 chillers for the complete phase-out of this refrigerant in the servicing sector (UNEP) (US \$690,000);
  - (ii) Training and certification of technicians: UNEP proposes 194 three-day workshops to train 3,880 technicians on good servicing practices and the safe handling of new refrigerants, with costs including venue, marketing, consumables, and a consultant for organization and logistics (US \$2,910,000); and support to cover the assessment test for the certification of 3,880 RAC technicians (US \$1,164,000). UNIDO would provide equipment and tools<sup>8</sup> to 3,880 technicians as an incentive for their participation in the training and certification

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<sup>7</sup> See annex I for the full list of equipment proposed.

<sup>8</sup> See annex I for the full list of tools and equipment proposed.

programme (US \$2,328,000), resulting in an average cost for training and certification of US \$1,650 per technician;

- (iii) Equipment and tools: Provide 100 sets of training equipment to vocational training and assessment institutes, and tools and equipment for 5,655 selected servicing workshops registered under the e-registration program (UNIDO) (US \$7,986,000);<sup>9</sup>
- (iv) RAC networking: Establish a RAC association and network to raise awareness among technicians and to support the training and certification programme (UNEP) (US \$75,248);
- (e) Recycling, recovery and reclamation (RRR): Develop local guidelines for reclamation facilities and a reclamation centre business model, establish two additional national RRR centres to reclaim refrigerants to return to the servicing sector,<sup>10</sup> and build RRR networks by supplying 400 service kits to workshops with certified technicians<sup>11</sup> (UNIDO) (US \$1,320,000); four workshops to train certified RAC technicians on recovery and reclamation (one in each of the four vocational training centres); develop certification procedures for reclamation centre hosts, RAC technicians, and servicing workshops; and conduct a feasibility study of the final disposal of unwanted refrigerants (UNEP) (US \$140,000);
- (f) Manufacturing capacity-building: Organization of two week-long study tours for 22 representatives from 11 manufacturers on the manufacture of low-GWP technologies; specialized trainings for five AC manufacturing enterprises on production, storage, transportation and installation of AC products based on low-GWP and hydrocarbon technologies; conduct research on the safety and performance of low-GWP technologies and disseminate results to technicians and stakeholders; 20 sessions to disseminate information on emerging technologies in RAC manufacturing and servicing, including preparation of a leaflet; technical assistance to large end-users on leak reduction; and create a market profile of HCFC- and low-GWP-based equipment (UNEP) (US \$435,000); and provide five domestic and commercial AC manufacturers with equipment and training for installers<sup>12</sup> (UNIDO) (US \$600,000); and
- (g) Awareness-raising: Campaign on the HCFC phase-out and low-GWP alternatives, including production and distribution of printed materials (e.g. newspaper ads, journal articles) and through mass media (e.g. short films) in the local language; organize annual events to promote ozone- and climate-friendly technologies; and outreach to service workshops on training programmes, a recognized prior learning programme, and emerging technologies (UNEP) (US \$435,500).

#### *Project implementation and monitoring*

12. The system established under stage I of the HPMP will continue into stage II, with UNIDO, UNEP, and the NOU monitoring activities, reporting on progress, and working with stakeholders to phase-out HCFCs. The cost of those activities for UNIDO and UNEP amounts to US \$645,420, and includes project

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<sup>9</sup> See annex I for the full list of tools and equipment proposed.

<sup>10</sup> Costs include equipment provision, installation, two-day training, and transportation; a laboratory will not be included.

<sup>11</sup> See annex I for the full list of tools and equipment proposed.

<sup>12</sup> See annex I for the full list of tools and equipment proposed.

staff and consultants (US \$360,000), office rent (US \$60,000), travel including terminal charges (US \$154,170), meetings and workshops (US \$60,000) and other miscellaneous costs (US \$11,250).

#### *Gender policy implementation*

13. During the implementation of stage II of the HPMP, the NOU will make efforts to collect gender disaggregated data and information to track and enable reporting of gender requirement and performance indicators. Gender balance will also be considered in the selection of consultants and implementation teams, project monitoring teams, and trainees for the training of technicians, custom officers and enforcement officers. The implementation team will strive to ensure active participation of women in consultative workshops, stakeholder meetings, and capacity-building programmes. When planning for studies and surveys funded by the project, the NOU will actively seek input from gender experts. The trainings and meeting sessions on ozone issues will further incorporate sessions on gender to sensitize participants on the importance of gender mainstreaming and women's participation and empowerment.

#### Total cost of stage II of the HCFC phase-out management plan

14. The total cost of stage II of the HPMP for Saudi Arabia has been estimated at US \$20,801,668 (plus agency support costs), as originally submitted, for achieving a 67.5 per cent reduction from its HCFC baseline consumption by 2025 and a 100 per cent reduction by 2030. The proposed activities and cost breakdown are summarized in table 4.

**Table 4. Total cost of stage II of the HPMP for Saudi Arabia as submitted**

Activity	UNIDO	UNEP	Total (US \$)
Policy and enforcement	25,000	730,000	755,000
Customs capacity-building	682,500	575,000	1,257,500
Standards development	0	60,000	60,000
Technician capacity-building	10,314,000	4,839,248	15,153,248
RRR	1,320,000	140,000	1,460,000
Manufacturing capacity-building	600,000	435,000	1,035,000
Awareness-raising	0	435,500	435,500
Project implementation and monitoring	484,065	161,355	645,420
<b>Total</b>	<b>13,425,565</b>	<b>7,376,103</b>	<b>20,801,668</b>

#### Implementation plan for the first tranche of stage II of the HCFC phase-out management plan

15. The first funding tranche of stage II of the HPMP, in the total amount of US \$6,869,729, will be implemented between July 2024 and June 2026 and include the following activities:

- (a) Policy and enforcement: Develop a ban on the import and manufacture of HCFC-based equipment and products by 1 January 2025, and review seven existing policies and regulations; conduct a stakeholder consultation and analysis of the legal framework; begin upgrade and implementation of the e-licensing system; develop qualification requirements for the certification of RAC technicians; and begin development of the e-registration system for servicing workshops (UNEP) (US \$330,000); and develop a regulation on the management of HCFC-based refrigerants to support implementation of the RRR scheme (UNIDO) (US \$25,000);
- (b) Customs capacity-building: One workshop to train 11 trainers for the customs department, and four workshops to train 80 customs officers on HCFC control, including risk profiling; one border dialogue with neighbouring countries on combating illegal ODS trade; three workshops to train 60 enforcement officers on ODS regulations to support enforcement beyond customs check points; and a workshop to train 16 customs agents and importers of HCFCs, refrigerants and RAC equipment on new regulatory measures;

- (UNEP) (US \$145,000); and provision of equipment to support trade control, including 21 flammable refrigerant identifiers, a gas chromatography mass spectrometry (GC-MS) bench top instrument, and three portable GS-MS instruments (UNIDO) (US \$577,500);
- (c) Standards development: Update the national standards of RAC products in accordance with international standards; and begin development of SOPs for servicing workshops for handling flammable and hazardous refrigerants (UNEP) (US \$48,000);
- (d) Technician capacity-building:
- (i) Training of trainers: Three workshops to train 21 master trainers; eight workshops to train 80 teachers on the new good servicing practices training curriculum; one pilot training for the owner of HCFC-123 chillers to begin the phase-out of this refrigerant in the servicing sector (UNEP) (US \$210,000);
- (ii) Training and certification of technicians: 50 three-day workshops to train 1,000 technicians on good servicing practices and the safe handling of new refrigerants; assess and certify 1,200 RAC technicians (UNEP) (US \$1,110,000); and provide tools and equipment to those 1,200 certified technicians (UNIDO) (US \$720,000);
- (iii) Equipment and tools: Provide 30 sets of training equipment to vocational training and assessment institutes, and tools and equipment for 1,800 selected servicing workshops registered under the e-registration program (UNIDO) (US \$2,520,000);<sup>13</sup>
- (iv) RAC networking: An awareness-raising session on the establishment of an RAC association and network to support the training and certification programme (UNEP) (US \$37,624);
- (e) RRR: Develop local guidelines for reclamation facilities written in English and Arabic; establish a national RRR centre to reclaim refrigerants to return to the servicing sector;<sup>14</sup> and build RRR networks by supplying 150 service kits to workshops with certified technicians<sup>15</sup> (UNIDO) (US \$545,000); and two workshops to train certified RAC technicians on recovery and reclamation (covering two of the four vocational training centres) (UNEP) (US \$50,000);
- (f) Manufacturing capacity-building: Conduct research on the safety and performance of low-GWP technologies and disseminate results to technicians and stakeholders; at least five sessions to disseminate information on emerging technologies in RAC manufacturing and servicing; and create a market profile of HCFC- and low-GWP-based equipment (UNEP) (US \$95,000); and provide one third of the equipment and training for installers of the five domestic and commercial AC manufacturers<sup>16</sup> (UNIDO) (US \$200,000);
- (g) Awareness-raising: Begin campaign on the HCFC phase-out and low-GWP alternatives, including production and distribution of printed materials and through mass media in the local language; and organize four events to promote ozone- and climate-friendly

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<sup>13</sup> See annex I for the full list of tools and equipment proposed.

<sup>14</sup> Costs include equipment provision, installation, two-day training, and transportation; a laboratory will not be included.

<sup>15</sup> See annex I for the full list of tools and equipment proposed.

<sup>16</sup> See annex I for the full list of tools and equipment proposed.

technologies (two Ozone2Climate roadshows and two celebrations of World Refrigeration Day) (UNEP) (US \$95,250); and

- (h) Project implementation and monitoring (UNIDO) (US \$121,016) and (UNEP) (US \$40,339).

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

### **COMMENTS**

16. The Secretariat reviewed stage II of the HPMP in light of stage I, the policies and guidelines of the Multilateral Fund, including the criteria for funding HCFC phase-out in the consumption sector for stage II of HPMPs (decision 74/50), and the 2024-2026 business plan of the Multilateral Fund.

#### Overarching strategy

17. The Government of Saudi Arabia proposes to meet the 100 per cent reduction of its HCFC baseline consumption by 2030, and to maintain a maximum annual consumption of HCFCs in the period of 2030 to 2040 at a level consistent with Article 5, paragraph 8 ter(e)(i) of the Montreal Protocol.<sup>17</sup>

18. In line with decision 86/51, to allow for consideration of the final tranche of its HPMP, the Government of Saudi Arabia agreed to submit a detailed description of the regulatory and policy framework in place to implement measures to ensure that HCFC consumption is in compliance with paragraph 8 ter(e)(i) of Article 5 of the Montreal Protocol for the period 2030–2040, and if Saudi Arabia intends 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.

#### HCFC consumption

19. Consumption of HCFC-22 in AC manufacturing has decreased steadily with the increased manufacturing of non-HCFC-based equipment. In contrast, consumption of HCFC-22 for servicing increased notwithstanding the policy and regulatory measures implemented by the country to strengthen the servicing sector, including inter alia a requirement that all persons working in maintenance and repair of appliances and equipment containing controlled substances must obtain a license or permit; all persons working in the maintenance and repair of appliances and equipment containing controlled substances must adhere to using one or more recovery equipment when recovering such substances, and must refrain from discharging controlled substances from appliances and equipment to the surrounding environment; and the training and certification of 9,903 RAC technicians. UNIDO explained that the increased consumption in servicing can be attributed to the enduring prevalence of old HCFC-22-based RAC equipment requiring more frequent servicing and maintenance. Many service workshops have not fully adopted recovery and recycling equipment, often due to a lack of equipment, training, or both, which leads to continued reliance on fresh supplies of HCFC-22 instead of maximizing the reuse of recovered refrigerant. Recognizing these issues, the planned initiatives under stage II aim to enhance the enforcement of existing regulations and increase the availability and use of recovery and recycling equipment. This approach intends to reduce the dependency on fresh HCFC-22 supplies by improving the efficiency and compliance in refrigerant recovery practices during servicing.

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<sup>17</sup> 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.

20. Regarding the increased manufacturing of non-HCFC-based equipment, the Secretariat recalled that the Executive Committee had approved two demonstration projects in AC manufacturing in Saudi Arabia, one at Petra Engineering Industries (KSA) Co. Ltd. (to build, test, and optimize prototypes of packaged AC units based on HFC-32 and R-290 refrigerants; evaluate incremental cost of the conversion and the energy performance of the HFC-32 and R-290-based ACs; and disseminate the findings and results to interested manufacturers in Saudi Arabia and other countries) and the other at Alessa Industries Co. (to test and optimize pilot model ACs with R-290, to undertake a demonstration production run and to convert a production line). As those projects have been completed,<sup>18</sup> the Secretariat enquired on the status of manufacturing at those enterprises. UNIDO clarified that those enterprises are not manufacturing equipment with the technology that was demonstrated and are instead manufacturing equipment based on high-GWP HFCs given limited availability of key components, high manufacturing costs, flammability concerns, and limited consumer acceptance of the demonstrated technologies.

21. Noting that the last year for which the country's HCFC consumption had been verified was 2015, the Secretariat suggested UNIDO submit with the request for the second tranche of stage II of the HPMP a verification of HCFC consumption from 2016 to the year preceding the submission of the second tranche of stage II. UNEP kindly provided the country's 2016-2019 HCFC verification report, which had not been submitted previously, on 5 May 2024. The Secretariat will include its review of that verification report as part of its review of the request for the second tranche of stage II, which will also include the verification report for the period of 2020 until the year immediately preceding the submission of the second tranche.

#### Implementation of stage I of the HPMP

22. Including the stand-alone projects approved at the 62<sup>nd</sup> meeting, the total funding approved in principle for stage I of the HPMP was US \$13,420,971 (plus agency support costs). Of that funding approved in principle, the Government requested, and the Executive Committee approved, US \$10,587,388 (79 per cent of the funding approved in principle), from which a total of US \$2,841,287 were returned. Accordingly, only 58 per cent of the funding approved in principle was used to implement activities in the country. Considering that limited utilization of approved funding and noting that the funding requested under stage II was almost three times the funding used under stage I, and that stage II would be implemented in approximately half the time of stage I, the Secretariat considered prudent to identify mechanisms to ensure that this higher level of annual funding can be smoothly absorbed so that implementation can proceed as planned. To that end, the Secretariat identified specific milestones to allow implementation of the project to proceed in a stepwise manner, further described in paragraph 36 below.

23. One challenge experienced during the implementation of stage I was that equipment imported into the country under the project was held at customs, including due to the need to pay import duties. Noting the substantial quantity of equipment to be procured under stage II, and in line with decision 22/55, the Government confirmed that equipment imported into the country under stage II of the HPMP would be exempt from levies, taxes and duties, or the Government would bear the cost of any such levies, taxes and duties.

24. Stage I had originally included the establishment of five reclamation centres; due to the changes in the implementation of the stage, only one centre was established. In 2023, the centre recovered or reclaimed 6.85 mt of HCFC-22, 1.8 mt of HFC-134a, and 1.08 mt of CFC-12.

25. The Secretariat noted that a ban of disposable refrigerant containers for HCFC refrigerants had been issued, and a national certification scheme was in place for RAC technicians since January 2017. The bylaws of the Unified Gulf Cooperation Council (GCC) regulations cover the Code of Good Practice (CGP) for technicians, including the conditions related to certification, and the usage of refrigerants by certified

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<sup>18</sup> Final report submitted to the 83<sup>rd</sup> and 92<sup>nd</sup> meetings.

technicians. The national CGP has been reviewed, revised and adopted under the Royal Decree M/165 of 10 September 2020.

#### Determination of HCFC consumption eligible for funding

26. The country's remaining HCFC-22 consumption eligible for funding is 765.21 ODP tonnes. The Government proposed to consider a separate starting point for HCFC-22 for the servicing and manufacturing sectors. In particular, the Government proposed to base those starting points on the average 2009-2010 consumption in each respective sector, resulting in an HCFC-22 starting point for the manufacturing sector of 508.39 ODP tonnes and of 503.25 ODP tonnes for the servicing sector. Stage I resulted in the phase-out of 64.74 ODP tonnes of HCFC-22 in the manufacturing sector and of 181.69 ODP tonnes in the servicing sector, resulting in remaining HCFC-22 consumption in servicing eligible for funding of 321.56 ODP tonnes, which is higher than the servicing sector consumption in the year, and the average of the three years, immediately preceding project preparation, as shown in table 5 below. The remaining HCFC-22 consumption eligible for funding of 431.65 ODP tonnes, and the remaining consumption of HCFC-123 eligible for funding of 0.19 ODP tonnes, will be deducted from the country's remaining HCFC consumption for funding by the country, without additional funding from the Multilateral Fund.

**Table 5. Starting point by sector proposed by the Government, stage I phase-out and 2021-2023 consumption (ODP tonnes)**

Sector/substance	Starting point	Stage I phase-out	Remaining after stage I	2023 consumption	2021-2023 average consumption
<b>Manufacturing sector</b>					
HCFC-141b	341.00	341.00	0.00	0.00	0.00
HCFC-142b	115.86	115.86	0.00	0.00	0.00
HCFC-22	508.39*	64.74	443.65	125.50	239.58
<b>Subtotal manufacturing</b>	<b>965.26</b>	<b>521.6</b>	<b>443.65</b>	<b>125.50</b>	<b>239.58</b>
<b>Servicing sector</b>					
HCFC-22	503.25	181.69	321.56	572.10	578.25
HCFC-123	0.19	0.00	0.19	0.00	0.00
<b>Subtotal servicing</b>	<b>503.44</b>	<b>181.69</b>	<b>321.75</b>	<b>572.10</b>	<b>578.25</b>
<b>Total</b>	<b>1468.7</b>	<b>703.29</b>	<b>765.41</b>	<b>697.60</b>	<b>817.83</b>

\* Includes both XPS foam and AC manufacturing.

27. The Secretariat noted with appreciation the proposal to consider a separate starting point for the servicing sector, which was in line with the request that only requested funding for that sector, and noted that based on the remaining consumption of HCFC-22 in the servicing sector proposed by the Government, the country would have been eligible for up to US \$28,063,418, which is a higher level of funding than was being requested; and that based on the country's 2023 consumption in servicing (10,401.79 mt), it would have been eligible for up to US \$49,928,592.

#### Conversion of the AC manufacturing sector

28. Residential and commercial AC manufacturing enterprises will phase-out their consumption of HCFC-22 with their own resources. Those enterprises were expected to convert to R-410A and R-407C. The Secretariat noted that in line with the planned ban on the import and manufacture of HCFC-based equipment by 1 January 2025, the Government intended to ensure that those conversions were undertaken by 1 January 2025, and that the proposal submitted the present meeting was on the understanding that this would allow the enterprises to be eligible for the HFC phase-down, in line with paragraph 18(d) of decision XXVIII/2 (second and third conversions). While noting that this was the Secretariat's understanding of paragraph 18(d), subject to the usual eligibility criteria (i.e., ratification of the Kigali Amendment, non-Article 5 ownership, and exports to non-Article 5 countries), in line with paragraph 17 of decision XXVIII/2 (cut-off date for eligible capacity), the cut-off date for eligible capacity is 1 January 2024

for those parties with baseline years from 2024 to 2026. Accordingly, the Secretariat suggested that the Government may wish to confirm with the Executive Committee that enterprises that established HFC manufacturing capacity by converting their HCFC manufacturing capacity with their own resources after 1 January 2024 and before 1 January 2025 were eligible for the HFC phase-down, subject to the usual eligibility criteria.

#### Legal framework

29. Article 4 of the Royal Decree M/165 Article 4 stipulates that the disposal of controlled substances, as well as related appliances, equipment, and products, is prohibited without prior approval from the designated regulatory authority. A new national center for waste management has been established under the Ministry of Environment, Water and Agriculture (MEWA). This center is tasked with overseeing and regulating all types of waste management activities across Saudi Arabia. UNIDO informed that NOU will collaborate with this newly established waste management center to formulate and implement guidelines and requirements for the appropriate disposal of controlled substances.

30. The Secretariat sought to better understand the planned green procurement policy for RAC equipment that would be developed as part of the first tranche. UNEP clarified that this policy would aim to promote the use of energy-efficient and low-GWP alternatives in the RAC sector. As part of the policy development process, the country plans to explore mechanisms to encourage the adoption of such technologies, for example by establishing minimum energy performance standards (MEPS) for different types of RAC equipment, and by setting GWP thresholds for refrigerants used in various applications. UNEP will include an update on progress in the development of the policy as part of the progress report submitted with the request for the second tranche. The public procurement policy will also include a requirement that only certified RAC technicians are allowed to service RAC equipment under government contracts; that requirement was expected to enter force into force in 2027.

31. The Secretariat noted with appreciation the request for three portable GC-MS and the benchtop GC-MS and sought to better understand how those would be used to strengthen the country's import controls. UNIDO clarified that the GC-MS instruments were a critical enhancement to the country's current legal capabilities, aimed at bolstering inspection and enforcement measures. The portable GC-MS instruments would be used during initial inspections to quickly verify the contents of suspect cargo and refrigerants. If a shipment is flagged during the initial inspection, samples will be sent to a laboratory where the benchtop GC-MS instrument will be used for a more precise analysis, the results of which will serve as evidence and can be used for applying penalties, and other legal and enforcement actions. In cases where a shipment is found to contain mis-declared or banned controlled substances, the customs officer will document the violation and notify the appropriate regulatory and enforcement bodies. According to the prevailing rules and practices, the responsibility to return unacceptable shipment falls on the importer, who must arrange for the shipment to be sent back to the country of origin. In light of that explanation, the number of customs checkpoints in the country, and the quantities of controlled substances and equipment containing controlled substances imported into the country, and as further detailed below, the Secretariat proposed, and it was agreed, to increase the number of instruments procured to six portable GC-MS instruments and two benchtop instruments.

#### Technical and cost-related issues

32. Notwithstanding the Secretariat's appreciation for the proposal as submitted, the Secretariat noted that there were between 30,000 and 50,000 RAC technicians in the country, of which 9,903 had to date been trained and certified, and considered that a substantial increase in the number of technicians to be trained and certified under stage II would be required to ensure the successful and sustained implementation of the HCFC phase-out. The original proposal included the organization of 194 workshops to train at least 3,880 technicians, the provision of funding to cover the cost of the assessment test needed to certify those technicians, and the provision of tools and equipment to each technician as an incentive for their

participation, at a total cost of US \$6,402,000. Given the 9,903 technicians that had already been trained and certified, and with the goal of ensuring that approximately half of the technician in the country are trained and certified, the Secretariat recommended increasing the funding for the training, certification and provision of tools and equipment as an incentive for certification to US \$8,993,748 on the understanding that a minimum of 11,000 RAC technicians would be trained and certified under stage II. The reduced cost per technician for training, certification and provision of equipment and tools was achieved by rationalizing the costs of the training workshops, and assuming a progressive reduction in support to cover assessment test costs and tools and equipment, thereby incentivizing the early training and certification of technicians.

33. The Secretariat proposed that the additional US \$2,591,748 for the training, certification, and provision of tools and equipment for at least 11,000 technicians be offset by the following adjustments, as further summarized in table 6 below:

- (a) Policy and enforcement capacity-building: rationalizing the costs of stakeholder consultations; noting that a national certification system had already been established, refocusing this activity on the development and implementation of an e-registration system for certified technicians, and training and awareness raising associated with its use; and rationalizing the costs for the development and implementation of an e-registration system for workshops, and for training and awareness-raising associated with its use, resulting in costs of US \$500,000;
- (b) Customs capacity-building: rationalizing the costs to train customs officers, enforcement officers, customs agents, and importers; rationalizing the costs of refrigerant identifiers and increasing the number procured from 21 to 28; and rationalizing the costs of benchtop gas chromatograph and portable chromatograph, and increasing the number of benchtop gas chromatographs and portable chromatographs to two and six, respectively, resulting in costs of US \$886,500;
- (c) Development of standards for products and services: noting that lessons might be learned from other countries on updating national standards for RAC products in line with international standards, rationalizing the cost of this activity to US \$45,000;
- (d) Capacity-building of RAC servicing technicians and workshops: rationalizing the cost for the formation of RAC associations and networking for raising awareness among technicians and support the training and certification program from US \$75,248 to US \$50,000;<sup>19</sup>
- (e) National RRR scheme: rationalizing the cost of the four training and awareness workshops for RAC technicians on refrigerant recovery and recycling, and adjusting the 400 service kits on recovery and recycling to only include recovery units in light of the equipment being provided to 5,655 servicing workshops and the tools and equipment being provided to certified technicians, resulting in costs of US \$840,000;
- (f) Promotion of alternative technologies: the Secretariat recalled low-GWP demonstration projects undertaken at Petra KSA and Alessa Industries; noted that the Saudi Arabian industry manufacturing domestic and commercial AC plans to convert to R-410A and R-407C; and understood that enterprises would not be in a position at this time to make a commitment as it related to manufacturing with low-GWP alternatives as a result of the implementation of the proposed activities. Accordingly, the Secretariat proposed to remove the study tours, specialized training, and the provision of equipment and training for

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<sup>19</sup> Resulting in costs of US \$17,719,748 given the increase in funding for training, certification and provision of tools and equipment to at least 11,000 technicians of US \$8,993,748.

manufacturers; and research on low-GWP alternatives; to include the information dissemination on emerging technologies under the awareness-raising activities, and to encourage staff at the manufacturing enterprises to participate in those awareness activities, and for technicians and installers from manufacturing enterprises to participate in the training and certification offered under the HPMP. In addition, the Secretariat encouraged the Government to consider including activities such as those proposed under this component of the HPMP under its Kigali HFC Implementation Plan, once the country ratifies the Kigali Amendment. Regarding the technical assistance to end-users to reduce leaks, it was agreed the Government would provide that assistance at its own expense in line with paragraph 1(d) of Appendix 8-A of the Agreement between the country and the Executive Committee for stage I of the HPMP, resulting in costs of US \$25,000; and

- (g) Rationalizing the costs for awareness raising and campaigns, resulting in costs of US \$360,000.

34. Regarding the development of policies and standards for reclamation, and noting the broad use of HCFC-22, R-410A, R-407, and R-404A in the country, UNIDO confirmed that those policies and standards would address both HCFCs and HFCs. This activity will include the development of regulations on refrigerant lifecycle management to enhance the existing refrigerant supply chain by implementing a refrigerant recovery and reuse scheme. Regarding the two reclamation centres that will be established, the original proposal had not included laboratory equipment to certify the refrigerant according to the AHRI-700 standard, and so reclaimed refrigerant would not be recommended to be sold for general reuse; rather, the refrigerant would be used only to service existing appliances with similar characteristics as from where the refrigerant came from. It was agreed to enhance the functionality of the proposed reclamation centers by including laboratory equipment capable of certifying reclaimed refrigerants to the AHRI-700 standard within the funding proposed by the Secretariat above. This approach would expand the utility of reclaimed refrigerant beyond servicing equipment with similar characteristics, allowing it to be used more broadly across various types of equipment.

35. Regarding the RPL programme, UNIDO clarified because many RAC technicians are foreign nationals, and there is considerable movement by RAC technicians between countries in the region, the RDL will reduce the burden on technicians and on the certification scheme management by allowing the training and certification of RAC technicians from recognized certification schemes to also be recognized in Saudi Arabia, thereby allowing those technicians local certification without undergoing a further test.

#### Proposed milestones

36. The Secretariat proposed the following milestones:

- (a) Submission of the second tranche of stage II of the HPMP would be contingent on: the implementation of a ban on the import and manufacture of HCFC-based equipment; the implementation of a green procurement policy that requires that only certified technicians are allowed to service RAC equipment under Government contracts; the development of policy and regulations for reclamation and establishment of one reclamation centre; and the training and certification of at least 1,500 technicians; and
- (b) Submission of the third tranche of stage II of the HPMP would be contingent on: the implementation of an e-registration app for certified technicians; the implementation of e-registration for servicing workshops; the training and certification of at least 5,000 technicians; and the reclamation of at least 20 mt of controlled substances.

Total project cost

37. The total cost for stage II of the HPMP would amount to US \$20,801,668 to phase out 321.56 ODP tonnes (5,846.55 mt) of HCFCs; an additional 765.40 ODP tonnes (8,075.86 mt) of HCFCs would be deducted from the country's remaining HCFC consumption eligible for funding, resulting in an overall cost-effectiveness of the project of US \$1.49/kg, as shown in table 6.

**Table 6. Cost of stage II of the HPMP for Saudi Arabia as submitted, and as proposed by the Secretariat**

Activity	As submitted (US \$)	Secretariat (US \$)	Phase-out (mt)	CE (US \$/kg)
Policy and enforcement	755,000	500,000	5,846.55	3.45
Customs capacity-building	1,257,500	886,500		
Standards development	60,000	45,000		
Technician capacity-building*	15,153,248	17,719,748		
RRR	1,460,000	620,000		
Manufacturing capacity-building	1,035,000	25,000		
Awareness-raising	435,500	360,000		
Project implementation and monitoring	645,420	645,420	0	n/a
<b>Subtotal</b>	<b>20,801,668</b>	<b>20,801,668</b>	<b>5,846.55</b>	<b>3.56</b>
Additional reduction from remaining consumption eligible for funding		n/a	8,075.86	n/a
<b>Total</b>		<b>20,801,668</b>	<b>13,922.41</b>	<b>1.49</b>

\* A minimum of 11,000 technicians will be trained and certified under stage II.

Status of discussions between the Secretariat, UNIDO and UNEP

38. While the Government of Saudi Arabia agreed to the adjustments in costs and activities proposed by the Secretariat, and most of the milestones proposed, the Government did not agree to the minimum number of technicians proposed by the Secretariat. In particular, the Government noted that meeting the higher target of technicians trained and certified proposed by the Secretariat within the project timeframe might be challenging, particularly considering ongoing changes within relevant Government training entities, and instead proposed a minimum target for training and certification of 5,000 technicians. In line with that lower target, the Government proposed to adjust the milestone for the submission of the second and third tranche to be at least 1,000 and 3,000 technicians trained and certified, respectively.

39. In addition, the Government proposed shifting the milestone related to the implementation of a green procurement policy from the second to the third tranche and adjusting the milestone by shifting the focus from implementation to exclusively focus on the development of a green procurement policy that requires that only certified technicians are allowed to service RAC equipment under Government contracts, noting that the Government intended to develop the policy in close partnership with related authorities and stakeholders under the second tranche.

40. While the Government had agreed to the milestone related the implementation of an e-registration app for certified technicians, at the time of finalization of the present document the Secretariat was not clear whether the Government had agreed to the milestone related to the implementation of e-registration for servicing workshops.

41. In addition, while the Government had agreed to the adjustments in costs and activities proposed by the Secretariat, the breakdown of those agreed costs between UNIDO and UNEP, and the final tranche distribution, were not yet available. In addition, as the breakdown of agreed costs between UNIDO and

UNEP were not yet available, at the time of finalization of the present document the Secretariat was not yet able to determine the level of agency support costs for each agency.

### **Concluding remarks by the Secretariat**

42. The Secretariat noted with appreciation the considerable flexibility and understanding demonstrated by the Government, as well as UNIDO and UNEP, which had resulted in agreement being reached on almost all adjustments proposed by the Secretariat. Notwithstanding that flexibility, and the constructive discussions held with UNIDO and UNEP, an agreement on the minimum number of technicians to be trained and certified under the adjusted plan, and on all the milestones proposed by the Secretariat, could not be reached by the time of finalization of the present document.

43. In proposing a target of at least 11,000 technicians to be trained and certified, the Secretariat had considered both the costs to achieve that goal and the country's need for properly trained technicians. Regarding the former, the costs proposed by the Secretariat resulted in an average training and certification cost of US \$818/technician; a target of 5,000 technicians would result in an average cost of 1,799/technician. While the cost to train and certify technicians may vary across countries, the Secretariat noted that two other new stages of HPMP for non-low-volume consuming countries (non-LVC) considered at the present meeting had an average training cost of US \$420/technician and US \$485/technician; and the new stage of the HPMP for a non-LVC approved at the 93<sup>rd</sup> meeting had an average training cost of US \$401/technician. Accordingly, the Secretariat considered the proposed funding should be adequate to train and certify at least 11,000 technicians, if not more. Regarding the latter, the Secretariat considered relevant a goal of training and certifying approximately half the technicians in the country given the critical role RAC technicians will play in helping to reduce the country's servicing sector consumption, which was the only remaining HCFC sector in the country and, noting that the stage II of the HPMP would achieve the total phase-out of HCFCs, that ensuring a sufficient pool of trained and certified technicians would similarly be critical in ensuring any HCFC consumption in the 2030-2040 period was in line with paragraph 8 ter(e)(i) of Article 5 of the Montreal Protocol. Moreover, the country had already implemented a mandatory RAC technician certification scheme, suggesting an urgency to rapidly ramp up the training and certification of technicians in the country.

44. Noting that almost all issued had been agreed, that the project was submitted on 13 February 2024, and the substantial reduction in the country's consumption required under the Montreal Protocol control schedule in 2025, the Secretariat proposed to continue its discussions with UNIDO and UNEP, further noting that it would report to the Executive Committee the outcomes, if any, of its continued discussions with UNIDO and UNEP during the 94<sup>th</sup> meeting.

### Impact on the climate

45. 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 kilogram of HCFC-22 and HCFC-123 not emitted due to better refrigeration practices results in the savings of approximately 1.81 CO<sub>2</sub>-equivalent tonnes and 0.08 CO<sub>2</sub>-equivalent tonnes, respectively. Although a calculation of the impact on the climate was not included in the HPMP, the activities planned by Saudi Arabia, including its efforts to promote refrigerant recovery and reuse indicate that the implementation of the HPMP will reduce the emission of refrigerants into the atmosphere, resulting in climate benefits.

### Sustainability of the HCFC phase-out and assessment of risks

46. While the country has a robust licensing and quota system in place that will enable its compliance with the HCFC control schedule under the Montreal Protocol, the continuing and substantial demand for HCFC-22 to service existing RAC equipment, the substantial reduction in consumption in 2025, and the

subsequent HCFC phase-out in 2030, suggest there is a risk the country may have difficulty meeting its control obligations under the Protocol.

47. The regulatory and policy framework to support that phase-out includes the 1 January 2025 ban on the import and manufacture of HCFC-based equipment. The e-licensing system and other measures to build the capacity of customs, including related to detecting and deterring illicit trade in controlled substances, will help the country monitor and control imports. The Secretariat considers that an adequate supply of trained and certified technicians will be key to ensuring the sustained phase-out of HCFCs. In part to enable the sustainability of the training and certification programme after completion of stage II, and to incentivize the early training and certification by technicians, the Secretariat had suggested to gradually reduce the support provided to cover the costs of the technician assessment test and to cover the costs of equipment and tools that would be provided to technicians as an incentive to participate in the programme. The e-registration app for certified technicians, the e-registration system for workshops, and the green procurement policy requiring that only certified technicians are allowed to serve RAC equipment under Government contracts could all help drive the demand for certified technicians.

48. UNIDO emphasized that to ensure the sustainability of the training and certification program after the completion of stage II, the country would inter alia continue to build and strengthen the national certification scheme; enforce regulations required for certification as a prerequisite for granting practice permits to technicians, ensuring the demand for certified technicians; and continue to collaborate with local educational institutions and industry associations in providing ongoing training opportunities and updates to the certification process as industry standards evolve. These combined efforts will help maintain a high level of expertise among HVAC technicians in Saudi Arabia, ensuring that industry practices remain aligned with international environmental standards and contribute effectively to the country's commitments under the Montreal Protocol.

#### Draft Agreement

49. A draft Agreement between the Government of Saudi Arabia and the Executive Committee for stage II of the HPMP is being prepared.

### **RECOMMENDATION**

50. [The Executive Committee may wish to consider:

- (a) Approving, in principle, stage II of the HCFC phase-out management plan (HPMP) for Saudi Arabia for the period from 2024 to 2030 for the complete phase-out of HCFC consumption, in the amount of US \$[20,801,668 plus agency support costs], consisting of US \$[ ], plus agency support costs of US \$[ ], for UNIDO and US \$[ ], plus agency support costs of US \$[ ], for UNEP, on the understanding that no more funding from the Multilateral Fund will be provided for the phase-out of HCFCs;
- (b) Noting the commitment of the Government of Saudi Arabia to completely phase out HCFCs by 1 January 2030, and that HCFCs will 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) Further noting the commitment of the Government:
  - (i) To ban the import and manufacture of HCFC-based equipment by 1 January 2025;

- (ii) To exempt equipment procured and imported into the country as part of stage II of the HPMP from levies, taxes and duties, or the Government would bear the cost of any such levies, taxes and duties;
- (d) Noting that:
  - (i) The implementation of stage II of the HPMP would be result in the training and certification of at least [11,000][5,000] technicians;
  - (ii) The submission of the second tranche of stage II of the HPMP would be contingent on: the implementation of a ban on the import and manufacture of HCFC-based equipment; [the implementation of a green procurement policy that requires that only certified technicians are allowed to service refrigeration and air-conditioning (RAC) equipment under Government contracts;] the development of policy and regulations for reclamation and establishment of one reclamation centre; and the training and certification of at least [1,500][1,000] technicians;
  - (iii) Submission of the third tranche of stage II of the HPMP would be contingent on: the implementation of an e-registration app for certified technicians; [the implementation of e-registration for servicing workshops;] [the development of a green procurement policy that requires that only certified technicians are allowed to service RAC equipment under Government contracts;] the training and certification of at least [5,000][3,000] technicians; and the reclamation of at least 20 mt of controlled substances;
- (e) Deducting 765.40 ODP tonnes of HCFCs from the remaining HCFC consumption eligible for funding;
- (f) [Approving the draft Agreement between the Government of Saudi Arabia and the Executive Committee for the reduction in consumption of HCFCs, in accordance with stage II of the HPMP];
- (g) That, to allow for consideration of the final tranche of its HPMP, the Government of Saudi Arabia 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 period 2030-2040;
  - (ii) If Saudi Arabia 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; and
- (h) Approving the first tranche of stage II of the HPMP for Saudi Arabia, and the corresponding tranche implementation plan, in the amount of US \$[ ], consisting of US \$[ ], plus agency support costs of US \$[ ] for UNIDO, and US \$[ ], plus agency support costs of US \$[ ] for UNEP.]

**Annex I**

**TOOLS AND EQUIPMENT TO BE PROCURED UNDER STAGE II  
OF THE HCFC PHASE-OUT MANAGEMENT PLAN, AS ORIGINALLY PROPOSED**

<b>Activity</b>	<b>Tools and equipment</b>
<b>Customs capacity-building</b>	
Provision of equipment to support trade control	Includes 21 flammable refrigerant identifiers, a gas chromatography mass spectrometry (GC-MS) bench top instrument, and three portable GS-MS instruments.
<b>Technician capacity-building</b>	
One hundred sets of training equipment to vocational training and assessment institutes	Includes a service manifold, a electronic gauges, an electronic vacuum gauge, hoses and accessories, a set of 29 hoses with valves, service port coupler, a core removal tool, piercing pliers with valve, a charging hose and cylinder connections, 30-lb refrigerant recovery cylinders, a heating belt with thermostat, an oil pump manual, a, HCFC-22 recovery station, a vacuum pump, a charging unit (sight glass/scale), an HCFC-22 leak detector, an electronic thermometer, a multi-meter with clamp-on amp measurement, general tube cutters, a capillary tube cutter, pinch-off pliers, a flaring tool, a tube bender, tube expanders, an inspection mirror, brazing equipment and tips, an igniter, a set of consumables, 60 flaring and swaging tools, ratchet wrenches, a set of screwdrivers, a set of safety goggles, a set of gloves, nitrogen flushing equipment, an HCFC and HFC leak detector, hydrocarbon (HC) charging equipment, and venting hoses and accessories.
Tools and equipment to 3,880 certified technicians	Including a toolbox, a set of screwdrivers, a multi-meter, personal protection equipment, tubing tools (cutter, triple head tube bender, deburrer, reamer), pinch off pliers, piercing pliers, flaring and swaging tools, an HCFC and HFC electronic leak detector, thermometer with surface probes, combination wrenches and/or adjustable wrenches, ratchet wrenches, and tube cutter.
Tools and equipment for the 5,655 selected servicing workshops registered under the e-registration program	Including a vacuum pump, a refrigerant weight scale for charging refrigerants, a vacuum gauge or vacuum meter, an HC leak detector, and refrigerant refillable service cylinders.
<b>Recycling, recovery and reclamation (RRR)</b>	
Establish two additional national RRR centres to reclaim refrigerants to return to the servicing sector	Each centre would receive a refrigerant identifier, two 1,000-lb storage tanks, 20 30-lb storage cylinders, a reclaim station, a filter chiller, a 100-lb storage tank, a 300-kg scale, a check mate kit, two vacuum pumps, two HCFC-22 recovery units, an electric liquid transfer pump (including scale), a leak detector set.
Build RRR networks by supplying 400 service kits to certified technicians	Each kit would include tube cutters, benders, expanders, fittings, a mirror, brazing equipment and accessories, safety equipment, a fire extinguisher, consumables, gauges and manifolds, hoses, valves and couplers, an HCFC recovery station, two 30-lb refrigerant DOT cylinders, a vacuum pump, and a charging unit (sight glass/scale).
<b>Manufacturing capacity-building</b>	
Provide five domestic and commercial AC manufacturers with equipment and training for installers	Each would receive a digital manifold gauge, a vacuum gauge, hoses and accessories, a set of three hoses with valves, a service port coupler set, a core removal tool, piecing pliers with valve, charging hose and cylinder connections, 30-lb refrigerant recovery cylinders, a heating belt with thermostat, an oil pump manual, an HCFC-22/A2L refrigerant recovery station, a vacuum pump, a charging unit (sight glass/scale), leak detector for HCFC-22 and halogen-based A2L refrigerants, a thermometer, an electronic multimeter with clamp-on amp measurement, tools for tubing, general tube cutters, a capillary tube cutter, pinch-off pliers, a flaring tool, a tube bender, tube expanders, an inspection mirror, brazing equipment and tips, an igniter, a set of consumables, safety equipment, safety glasses, gloves, nitrogen flushing equipment, an HC leak detector, HC charging equipment, and venting hoses and accessories.