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EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Ninety-eighth Meeting  
Montreal, 22–26 June 2026  
Item 8(d) of the provisional agenda<sup>1</sup>

**PROJECT PROPOSALS: NIGERIA**

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, UNIDO, and Italy      | Individual consideration |
| • HCFC phase-out management plan (stage IV, first tranche)  | UNDP and the United Kingdom | Individual consideration |

Phase-down

- |                                                     |                             |                          |
|-----------------------------------------------------|-----------------------------|--------------------------|
| • Kigali HFC implementation plan (stage I, updated) | UNDP, UNIDO, UNEP and Italy | Individual consideration |
|-----------------------------------------------------|-----------------------------|--------------------------|

<sup>1</sup> UNEP/OzL.Pro/ExCom/98/1

## PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

## Nigeria

| PROJECT TITLE                  | AGENCY                                  | MEETING APPROVED | CONTROL MEASURE       |
|--------------------------------|-----------------------------------------|------------------|-----------------------|
| HCFC phase-out plan (stage II) | UNDP (lead), UNIDO, Government of Italy | 81 <sup>st</sup> | 65% phase-out by 2025 |

|                                   |            |                  |
|-----------------------------------|------------|------------------|
| ARTICLE 7 DATA (Annex C, Group I) | Year: 2024 | 94.23 ODP tonnes |
|-----------------------------------|------------|------------------|

| COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes) |         |      |              |               |           |         | Year: 2025               |
|----------------------------------------------|---------|------|--------------|---------------|-----------|---------|--------------------------|
| Substance                                    | Aerosol | Foam | Firefighting | Refrigeration |           | Solvent | Total sector consumption |
|                                              |         |      |              | Manufacturing | Servicing |         |                          |
| HCFC-22                                      |         |      |              | 12.78         | 79.28     |         | 92.06                    |

| CONSUMPTION DATA (ODP tonnes)    |        |                                                    |        |
|----------------------------------|--------|----------------------------------------------------|--------|
| 2009–2010 baseline:              | 344.92 | Starting point for sustained aggregate reductions: | 398.22 |
| CONSUMPTION ELIGIBLE FOR FUNDING |        |                                                    |        |
| Already approved:                | 301.01 | Remaining:                                         | 97.21  |

| ENDORSED BUSINESS PLAN |                            | 2026      | 2027 | 2028 | Total     |
|------------------------|----------------------------|-----------|------|------|-----------|
| UNDP                   | ODS phase-out (ODP tonnes) | 25.47     | 0.00 | 0.00 | 25.47     |
|                        | Funding (US \$)            | 1,723,205 | 0    | 0    | 1,723,205 |
| UNIDO                  | ODS phase-out (ODP tonnes) | 0.00      | 0.00 | 0.00 | 0.00      |
|                        | Funding (US \$)            | 0         | 0    | 0    | 0         |
| Italy                  | ODS phase-out (ODP tonnes) | 0.00      | 0.00 | 0.00 | 0.00      |
|                        | Funding (US \$)            | 0         | 0    | 0    | 0         |

| PROJECT DATA                                                 |                          |               | 2018-2019 | 2020*     | 2021-2022 | 2023      | 2024   | 2025**    | Total     |
|--------------------------------------------------------------|--------------------------|---------------|-----------|-----------|-----------|-----------|--------|-----------|-----------|
| Consumption (ODP tonnes)                                     | Montreal Protocol limits |               | 310.41    | 224.19    | 224.19    | 224.19    | 224.19 | 112.09    | n/a       |
|                                                              | Maximum allowable        |               | 310.41    | 224.19    | 224.19    | 167.81    | 167.81 | 112.09    | n/a       |
| Amounts approved in principle (US \$)                        | UNDP                     | Project costs | 2,600,000 | 1,400,000 | 0         | 2,600,000 | 0      | 1,610,472 | 8,210,472 |
|                                                              |                          | Support costs | 182,000   | 98,000    | 0         | 182,000   | 0      | 112,733   | 574,733   |
|                                                              | UNIDO                    | Project costs | 176,837   | 0         | 0         | 0         | 0      | 0         | 176,837   |
|                                                              |                          | Support costs | 15,915    | 0         | 0         | 0         | 0      | 0         | 15,915    |
|                                                              | Italy                    | Project costs | 269,025   | 234,400   | 0         | 0         | 0      | 0         | 503,425   |
|                                                              |                          | Support costs | 34,973    | 30,472    | 0         | 0         | 0      | 0         | 65,445    |
| Funds approved by ExCom (US \$)                              |                          | Project costs | 3,045,862 |           | 1,634,400 | 2,600,000 |        |           | 7,280,262 |
|                                                              |                          | Support costs | 232,888   |           | 128,472   | 182,000   |        |           | 543,360   |
| Total funds recommended for approval at this meeting (US \$) |                          | Project costs |           |           |           |           |        | 1,610,472 | 1,610,472 |
|                                                              |                          | Support costs |           |           |           |           |        | 112,733   | 112,733   |

\* Funding for the 2020 tranche was approved in 2021.

\*\* The 2025 tranche is being submitted in 2026.

|                               |                          |
|-------------------------------|--------------------------|
| Secretariat's recommendation: | Individual consideration |
|-------------------------------|--------------------------|

## PROJECT DESCRIPTION

1. On behalf of the Government of Nigeria, 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), in the amount of US \$1,610,472, plus agency support costs of US \$112,733, for UNDP only.<sup>2</sup> The submission includes a progress report on the implementation of the third tranche of stage II, a progress report on the implementation of stage III,<sup>3</sup> the verification report on HCFC consumption for 2024-2025, and the tranche implementation plan for 2026-2027.

### Report on HCFC consumption

2. The Government of Nigeria reported under the country programme (CP) implementation report a consumption of 92.06 ODP tonnes of HCFCs in 2025, which is 73.3 per cent below the HCFC baseline for compliance. The Article 7 data for 2025 has not been reported yet. The 2021–2025 HCFC consumption is shown in table 1.

**Table 1. HCFC consumption in 2021–2025 in Nigeria (Article 7 data)**

| HCFC                                       | 2021            | 2022            | 2023            | 2024            | 2025*           | Baseline        |
|--------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Metric tonnes (mt)</b>                  |                 |                 |                 |                 |                 |                 |
| HCFC-22                                    | 2,395.28        | 2,105.50        | 1,884.72        | 1,713.32        | 1,673.84        | 4,518.77        |
| HCFC-124                                   | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            |
| HCFC-141b                                  | 167.60          | 0.00            | 0.00            | 0.00            | 0.00            | 875.90          |
| <b>Total (mt)</b>                          | <b>2,562.88</b> | <b>2,105.50</b> | <b>1,884.72</b> | <b>1,713.32</b> | <b>1,673.84</b> | <b>5,394.67</b> |
| HCFC-141b in imported pre-blended polyols* | 19.85           | 10.05           | 0.00            | 0.00            | 0.00            | 484.43          |
| <b>ODP tonnes</b>                          |                 |                 |                 |                 |                 |                 |
| HCFC-22                                    | 131.74          | 115.80          | 103.66          | 94.23           | 92.06           | 248.53          |
| HCFC-124                                   | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            |
| HCFC-141b                                  | 18.44           | 0.00            | 0.00            | 0.00            | 0.00            | 96.35           |
| <b>Total (ODP tonnes)</b>                  | <b>150.18</b>   | <b>115.80</b>   | <b>103.66</b>   | <b>94.23</b>    | <b>92.06</b>    | <b>344.88</b>   |
| HCFC-141b in imported pre-blended polyols* | 2.18            | 1.11            | 0.00            | 0.00            | 0.00            | 53.29           |

\* Data from the verification report on HCFC consumption

3. HCFC consumption has been steadily decreasing, driven by the implementation of phase-out activities under the HPMP. These activities include the completion of manufacturing conversions undertaken in stage III, technician training, demonstration of alternative technologies, awareness-raising efforts in the servicing sector, and the reduction of allocated quotas. In addition, imports of HFCs have been increasing and replacing HCFC-22 in the servicing sector. All HCFCs other than HCFC-22 and HCFC-141b have been banned since 1 January 2020. A ban on the import and use of HCFC-141b, including in pre-blended polyols, took effect on 1 January 2023. Nigeria has not consumed any HCFC-141b from 2022 onward, except for 1.11 ODP tonnes of HCFC-141b contained in imported pre-blended polyols in 2022, following the conversions at four commercial refrigeration foam manufacturing enterprises.

### *Country programme implementation report*

4. The Government of Nigeria reported HCFC sector consumption data under the 2024 country programme (CP) implementation report that is consistent with the data reported under Article 7 of the Montreal Protocol.

<sup>2</sup> As per the letter of 2 April 2026 from the Ministry of Environment of Nigeria to UNDP.

<sup>3</sup> Decision 94/67(b) inter alia requests the Government of Nigeria, UNDP and UNIDO to include, in future progress reports for stage II of the HPMP, the status of progress in the implementation of stage III of the HPMP.

### *Verification report*

5. The verification report confirmed that the Government was implementing a licensing and quota system for HCFC imports and exports, and that the total HCFC consumption reported under Article 7 of the Montreal Protocol for 2024 and under CP implementation report for 2025 is correct (as shown in table 1 above). The verification noted considerable improvement in record-keeping by importers and recommended that the National Ozone Office (NOO) sustain periodic visits to importers to monitor their records. It also recommended further strengthening of the quota allocation process and ongoing monitoring through enhanced coordination with the National Agency for Food and Drugs Administration and Control (NAFDAC),<sup>4</sup> customs, and ODS importers. The recommendations will be implemented during the implementation of the fourth tranche of stage II. The verification concluded that Nigeria remains well below the compliance levels for 2024 and 2025.

### Progress report on the implementation of the third tranche of stage II and the second tranche of stage III of the HCFC phase-out management plan

#### *Legal framework*

6. The Government of Nigeria has banned the import of all HCFCs except HCFC-22, and including HCFC-141b pure and in pre-blended polyols. In line with decision 91/46(b), the country has initiated the ban on the import of HCFC-22-based equipment, but its implementation is delayed. In addition, the Government is developing a ban on the use of HCFC-22 in the manufacturing of RAC equipment that will be imposed upon completion of conversion projects included in stage III and is in the process of developing a tax reduction policy for equipment using R-290 and HFC-32.

7. Nigeria ratified the Kigali Amendment in December 2018. On 27 April 2023, the Ozone Layer Protection and Hydrofluorocarbons Phase Down Regulation was gazetted, updating the 2009 regulation to include HFC control measures in line with the Kigali Amendment; the update also mandates technicians to promote energy-efficient servicing practices. HFCs were subsequently added to the licensing and quota system, alongside provisions addressing energy efficiency.

#### *Manufacturing sector*

8. During the third tranche of stage II, the group project for the conversion of 35 downstream foam enterprises to replace 301.32 mt of HCFC-141b with methyl formate (MF) in spray foam, insulation panel, and thermoware applications was completed, with incremental operating costs (IOCs) expected to be paid by March 2027. The conversion of the Slaviv Group (Slaviv) to replace 96.00 mt of HCFC-141b with cyclopentane in the manufacturing of insulation foam was completed in September 2025; the enterprise has been producing MF- and HFO-based systems. The ban on the import and use of HCFC-141b is being enforced since 1 January 2023.

9. Stage III of the HPMP for Nigeria includes projects to completely phase out HCFC-22 in the manufacturing sector through conversions to alternative technologies in the RAC manufacturing sector. The status of implementation of activities is as follows:

- (a) Technical assistance and training were provided to the 13 enterprises in the first of three groups<sup>5</sup> of enterprises to be assisted in the commercial refrigeration umbrella project, with equipment procurement and assistance to the remaining two groups ongoing;

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<sup>4</sup> NAFDAC issues the HCFC import licences and quotas based on the national quota provided by the NOO.

<sup>5</sup> Group I included 13 enterprises with consumption between 3 and 6 mt, Group II included 53 enterprises with consumption between 1 and 3 mt, and Group III included 115 enterprises with consumption below 1 mt of HCFCs.

- (b) The conversion of the residential air-conditioning (AC) manufacturing line from HCFC-22 to HFC-32 at Sacral Industries Ltd. (Sacral) is complete;
- (c) Equipment installation, testing, trials, commissioning, and staff training were completed for the conversion of residential AC manufacturing line to HFC-32 at Somotex Nigeria Ltd. (Somotex); remaining activities include obtaining the safety certification and submitting the final report; and
- (d) The first round of the Kpabep scholarship programme<sup>6</sup> was completed, for a total of 32 scholarship recipients under stage III and 20 remaining to be selected.

#### *Refrigeration servicing sector*

10. The following activities were implemented in the servicing sector during the third tranche of stage II:

- (a) *Strengthening policy and regulatory framework*: Dissemination of 1,000 copies of the code of practice that had been updated to include hydrocarbons, ammonia, and CO<sub>2</sub> refrigerants, and a feasibility study for incentive schemes;
- (b) *Strengthening customs and import control capacity*: Training of 316 customs officers on data recording and reporting and the identification of refrigerants; and training for 230 importers on the licensing system;
- (c) *Strengthening RAC training and capacity*: Update of national training curricula to include CO<sub>2</sub> and ammonia; provision of additional equipment for two master training centres to support the trainings on CO<sub>2</sub> and ammonia; targeted support on training and knowledge management for two master training centres and 16 training centres; training workshops for 250 dealers, consultants, installers, and designers on the technician certification scheme;
- (d) *RAC technician certification scheme*: Development of the framework for the certification system, with information on the registry and website; training of 70 trainers and 30 assessors on local certification; pilot certification programme for 30 technicians; training and certification of 1,250 technicians; monitoring of certification process; and support to RAC associations;
- (e) *Refrigerant recovery and reclamation (RRR) programme*: Stakeholder review of local guidelines for reclamation facilities; distribution of 200 refrigerant servicing kits procured under the second tranche; three awareness-raising workshops to promote RRR and training of 550 technicians from small/medium workshops and service enterprises on RRR operations; and two awareness-raising campaigns on the negative impacts of using counterfeit refrigerants; and
- (f) *Demonstration of technologies with low global-warming potential (GWP)*: Procurement of equipment for the conversion of a supermarket from HCFC-22 to CO<sub>2</sub> technology and for the conversion of *one* small-sized cold storage to ammonia technology (for medium temperature), and installation of safety monitoring systems; and installation of 100 R-290-based split AC units in public offices and RAC training centres.

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<sup>6</sup> The Kpabep scholarship programme intends to develop the potential of female technicians and engineers and to create a group of experts and policy makers advocating for women employed in the RAC manufacturing sector in Nigeria.

11. The following activities were implemented in the servicing sector during the second tranche of stage III:

- (a) Sanden Intercool received designation as a national R-290 commercial refrigeration manufacturing pioneer;
- (b) A vender was contracted and initial deliverables received for development of training material on commercial refrigeration manufacturing with R-290;
- (c) A contract was awarded and initial deliverables received to support the research and collection of information on local accidents with flammable refrigerants and to develop a report to raise awareness on their proper handling;
- (d) Demonstration of R-290 technology took place at an international forum to support its market adoption; and
- (e) For the establishment of a technical group for refrigerant technologies with low GWP, terms of reference were developed, and the Association of Heating, Ventilation, Air Conditioning and Refrigeration Practitioners of Nigeria was identified as the host.

*Project implementation and monitoring*

12. The national ozone unit (NOU) and UNDP have been monitoring activities, reporting on progress, and working with stakeholders to phase out HCFCs. Of the US \$170,000 approved for project monitoring activities under the third tranche of stage II, US \$170,000 was disbursed for staff and consultants (US \$144,000), travel (US \$22,700), and miscellaneous costs (US \$3,300).

Level of fund disbursement

*Stage II of the HCFC phase out management plan*

13. As of April 2026, of the US \$7,280,262 approved so far under stage II, US \$6,843,356 had been disbursed (US \$6,163,094 for UNDP, US \$176,837 for UNIDO, and US \$503,425 for the Government of Italy), as shown in table 2. The balance of US \$436,906 will be disbursed in 2026 and 2027.

**Table 2. Financial report of stage II of the HPMP for Nigeria (US \$)**

| Tranche |           | UNDP      | UNIDO   | Italy   | Total     | Disbursement rate (%) |
|---------|-----------|-----------|---------|---------|-----------|-----------------------|
| First   | Approved  | 2,600,000 | 176,837 | 269,025 | 3,045,862 | 99                    |
|         | Disbursed | 2,565,548 | 176,837 | 269,025 | 3,011,410 |                       |
| Second  | Approved  | 1,400,000 | 0       | 234,400 | 1,634,400 | 96                    |
|         | Disbursed | 1,330,197 | 0       | 234,400 | 1,564,597 |                       |
| Third   | Approved  | 2,600,000 | 0       | 0       | 2,600,000 | 87                    |
|         | Disbursed | 2,267,349 | 0       | 0       | 2,267,349 |                       |
| Total   | Approved  | 6,600,000 | 176,837 | 503,425 | 7,280,262 | 94                    |
|         | Disbursed | 6,163,094 | 176,837 | 503,425 | 6,843,356 |                       |
|         | Balance   | 436,906   | 0       | 0       | 436,906   |                       |

*Stage III of the HCFC phase out management plan*

14. As of April 2026, of the US \$3,144,194 approved under stage III, US \$1,892,553 had been disbursed, as shown in table 3. The balance of US \$1,251,641 will be disbursed in 2026.

**Table 3. Financial report of stage III of the HPMP for Nigeria (US \$)**

| Agency                       | First tranche    |                | Second tranche   |                | Total            |                  |                  |
|------------------------------|------------------|----------------|------------------|----------------|------------------|------------------|------------------|
|                              | Approved         | Disbursed      | Approved         | Disbursed      | Approved         | Disbursed        | Balance          |
| UNDP                         | 0                | 0              | 0                | 0              | 0                | 0                | 0                |
| UNIDO                        | 1,944,347        | 968,257        | 1,199,847        | 924,296        | 3,144,194        | 1,892,553        | 1,251,641        |
| <b>Total</b>                 | <b>1,944,347</b> | <b>968,257</b> | <b>1,199,847</b> | <b>924,296</b> | <b>3,144,194</b> | <b>1,892,553</b> | <b>1,251,641</b> |
| <b>Disbursement rate (%)</b> | <b>50</b>        |                | <b>77</b>        |                | <b>60</b>        |                  |                  |

Implementation plan for the fourth and final tranche of stage II of the HCFC phase-out management plan

15. IOCs for the group project for the conversion of 35 downstream foam enterprise will be paid by March 2027 using funds from previous tranches.

16. The following activities will be implemented between July 2026 and December 2027 by UNDP under the servicing sector:

- (a) *Strengthening policy and regulatory framework:* Recruitment of an enterprise to develop the online system for implementation of the integrated control system for ODS lifecycle management; an exchange visit with another Article 5 party on the licensing system and the online registry for customs import permits, to be combined with a visit to RRR centres and review of their certification process; and training of 50 stakeholders on the code of practice updated to include hydrocarbons, ammonia, and CO<sub>2</sub> refrigerants, and dissemination of an additional 1,000 copies (US \$64,946 plus funds from the previous tranche);
- (b) *Strengthening customs and import control capacity:* Procurement of the 48 remaining refrigerant identifiers, delayed due to supply chain issues; training of a further 150 customs officers on data recording and reporting and the identification of refrigerants; and a campaign against counterfeit refrigerants (US \$362,163);
- (c) *Extending the scope of RAC education (US \$645,900):*
  - (i) Support to 19 remaining training centres through equipment procurement,<sup>7</sup> and train and certify 250 technicians (US \$525,400);
  - (ii) Production and dissemination of awareness and promotional materials to RAC technicians on the existence of the training centres and training strategies (US \$60,000);
  - (iii) Support to the Nigeria Association of Refrigeration and Air-Conditioning Practitioners (NARAP), including awareness-raising (through a newsletter) and technician, organizational, and infrastructural support (i.e., office equipment, event organization) (US \$25,000);
  - (iv) Five organizational seminars to increase the sustainability of NARAP (US \$35,500);

<sup>7</sup> Includes refrigeration handling tools (recovery cylinders, HCFC-22 recovery station and leak detector, charging unit), safety equipment, hydrocarbon servicing tools (charging equipment, leak detector, hoses), refrigerant identifier, and recycling equipment (filter kits and accessories).

- (v) Workshops for a further 250 dealers, consultants, installers, and designers on certification (funds from the previous tranche);
- (d) *RRR programme*: Establishment of an additional, medium-sized HCFC-22 reclamation centre, including the procurement and installation of 80 further reclamation kits (US \$190,000); and supply of recycling and recovery equipment and service kits to 60 technicians, as well as awareness-raising (US \$253,463);
- (e) *Demonstration of low-GWP technologies*: Preparation and publication of case studies (US \$10,000); and
- (f) Project monitoring (US \$84,000), including US \$72,000 for staff and consultants; US \$10,000 for travel; and US \$2,000 for miscellaneous costs.

## SECRETARIAT'S COMMENTS AND RECOMMENDATION

### COMMENTS

#### Submission delays

17. The fourth tranche of stage II was scheduled to be submitted in 2025 but was delayed. UNDP indicated that this was due to global supply chain disruptions, which caused a delay in the supply of refrigerant identifiers needed for training customs officers and importers under the third tranche. The issue has been resolved with the supply of 48 identifiers arrived in 2025, and the training was concluded in December 2025.

#### Progress report on the implementation of the third tranche of stage II of the HCFC phase-out management plan

#### *Legal framework*

18. The Government of Nigeria has issued HCFC import quotas for 2026 at 1,500 mt (82.50 ODP tonnes), which is lower than the Montreal Protocol control target.

19. Stage III of the HPMP included conversion projects to completely phase out HCFCs in the RAC manufacturing sector. In approving these conversion projects, the Executive Committee noted the commitment of the Government of Nigeria to implement a ban on the import of HCFC-22-based equipment starting from 1 January 2026, as well as a ban on the use of HCFC-22 in the manufacture of HCFC-22-based equipment once the conversion projects under stage III have been completed and no later than 1 January 2027 (decision 91/46(b)(i)–(ii)).

20. The Secretariat requested a report on the progress made in establishing these regulatory measures. UNDP reported that the ban on the import of HCFC-22-based equipment has been initiated in collaboration with the relevant Government agencies and took effect on 1 January 2026. However, its implementation has been delayed until 1 January 2027, following requests from importers for an additional period to meet market demands and prepare for dealership arrangements with local manufacturers of equipment based on alternatives to HCFC-22. To ensure that the ban is implemented by 2027, the Secretariat suggests that the Treasurer withhold US \$25,000 from the approved funds of the fourth tranche until the ban is enforced. The Secretariat further recommended that UNDP report on the status of the ban's implementation to the 100<sup>th</sup> meeting.

21. On the development of a tax incentive for equipment using R-290 and HFC-32 in collaboration with the relevant authorities as committed in decision 91/46(iii), UNDP reported that the tax incentive

policy, initiated by the NOO, has been submitted to the Federal Ministry of Finance for inclusion in the Government fiscal policy. The major proposed elements include: an increase of tariff on imported HCFC-22-based RAC appliances from 7.5 per cent to 40 per cent; a value added tax (VAT) reduction from 7.5 per cent to 5 per cent on sales of locally manufactured low-GWP alternative appliances; reduced duties on such locally made low-GWP appliances; and consideration of reduced corporate income tax rates for local manufacturers of RAC equipment using HCFC alternatives. The proposed tax differentiation scheme for the RAC sector is modeled after a 2024 tax incentive for clean fuels equipment, which currently applies zero duty and VAT. The NOO is leveraging this framework to support HFC conversions in the AC and domestic refrigeration sectors and has initiated discussions with the Federal Ministry of Finance and other relevant agencies. However, finalizing the policy requires stakeholder engagement, inter-agency coordination, and final approval by the Ministry of Finance.

### *Manufacturing sector*

22. The conversion of two AC manufacturing lines from HCFC-22 to HFC-32 at Somotex and Sacral have been completed. The Secretariat noted that the enterprises have been also manufacturing with HCFC-22 and R-410A and that the manufacturing with HFC-32 is very low. In line with decision 77/35(a)(ii), the Secretariat sought information from UNIDO on when these two enterprises began using R-410A and discussed a path forward to a sustainable conversion to the intended technology HFC-32.

23. UNIDO explained that both Somotex and Sacral have technically completed their conversions and acquired the capacity to manufacture HFC-32-based equipment. However, other local manufacturers and importers continue to place R-410A equipment on the market, and the Government plans to implement regulatory restrictions on R-410A manufacturing only after all enterprises are converted, expected by the third quarter of 2027. Under these circumstances, Somotex and Sacral manufactured some R-410A units to meet prevailing market demand and remain commercially viable. At Somotex, R-410A consumption gradually decreased from 23 mt (2023–2024) to 17 mt (2025), while HFC-32 manufacturing slowly increased from 0.16 mt (2023) to 1.92 mt (2025). At Sacral, R-410A consumption fluctuated (15.22 mt (2023), 20.22 mt (2024), and 12.23 mt (2025)) with higher and slowly increasing HFC-32 usage (5.0 mt (2023), 5.3 mt (2024), and 6.6 mt (2025)). Somotex also manufactures a small volume of HCFC-22 equipment to use up existing component stocks. Stage I of the Kigali HFC implementation plan (KIP) will address these market barriers through a comprehensive sector-wide transition to low-GWP, energy-efficient technologies.

24. The Secretariat discussed the temporary use of high-GWP alternatives in converted manufacturing lines, emphasizing the importance of conversion sustainability and stressing that HCFC-22 equipment must be dismantled and destroyed after conversion. UNDP informed that the temporary use of R-410A in the AC manufacturing lines at Somotex and Sacral will cease by December 2026, and the HCFC-22 equipment will be dismantled and destroyed once the project is completed. The Secretariat further recommends that UNDP report on the status of the cessation of R-410A use at both enterprises and the use of HCFC-22 at Somotex to the 99<sup>th</sup> meeting. As further discussed in paragraphs 139, the consumption of R-410A will be phased out through the sector plan to be implemented under the stage I of the KIP, and the associated consumption deducted from the country's remaining HFC consumption eligible for funding.

25. The Secretariat enquired about the sustainability of enterprise conversions in the commercial refrigeration subsector, given the large number of small- and medium-sized enterprises (SMEs) and the associated challenges in monitoring their operations. UNIDO informed that the use of the selected alternatives (mostly R-290) has been emphasized during the training for Group I enterprises and will continue to be reiterated during the training for Groups II and III enterprises. The NOU and UNIDO will develop a monitoring modality to ensure the continued oversight of converted enterprises and the long-term sustainability of the conversions.

### *Refrigeration servicing sector*

26. The Secretariat enquired about the integrated control system for ODS life-cycle management and its function in HCFC phase-out. UNDP explained that the integrated online system is a real-time regulatory engine for cradle-to-grave management of ODS and HCFCs, covering import authorization, sale, transport, storage, recycling, and reclamation. Key features include quota-based import control with customs QR code verification, registries for refrigerant installations (greater than 300 kg) and certified technicians (with automated expiry alerts), in-transit shipment tracking, and automated sale blocks to uncertified entities. A framework has been developed, but full programming and operationalization are planned under the fourth tranche. The Secretariat noted that such an artificial intelligence tool would greatly enhance the efficient implementation of policy measures and compliance monitoring and support the law enforcement once operational.

27. The Secretariat requested UNDP to provide an impact assessment of the R-290 AC demonstration project, specifically regarding the replication as a direct result of the demonstration, since a similar demonstration is proposed under stage IV of the HPMP. UNDP responded that the R-290 units were supplied to training centres and installed in the Green Building of the Federal Ministry of Environment, serving as a technology showcase for key stakeholders and policymakers. Although no AC units have been replaced with R-290 technology following the demonstration, primarily due to the high upfront cost of procuring such units, the demonstration provided an opportunity to train technicians in the installation and servicing of R-290-based AC units.

### Gender policy implementation

28. In line with the Multilateral Fund gender policy, an initial gender analysis of the servicing sector was carried out and revealed the sector to be male-dominated. As a result, action plans included targeted efforts to increase female participation in all activities under the HPMP. Consequently, female participation in customs training improved significantly (59 women and 257 men), and awareness activities motivated the NARAP to recruit more women for training. In the foam sector, efforts increased female participation at the managerial level from less than 10 per cent to 30 per cent, with further efforts underway. Additionally, under stage III of the HPMP, 32 women and girls received scholarships to support more female technicians and engineers entering the RAC manufacturing sector.

### Request for the extension of stages II and III of the HPMP

29. Stages II and III of the HPMP are scheduled for completion by 31 December 2026. However, the projects in stage II were impacted by the COVID-19 pandemic and supply chain issues, resulting in a shortage of refrigerant identifiers needed for customs training activities and delaying implementation. Stage III also requires more time to complete due to the large number of enterprises requiring training and provision of tools and equipment. UNDP and UNIDO have anticipated to be completed both stages by 31 December 2027 and are requesting an extension. The Secretariat supports the requests for extension of stages II and III to enable completion of the remaining activities in the country.

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

30. The Government is implementing a licensing and quota system to control HCFC imports and has conducted continuous training for customs and enforcement officers to ensure the long-term sustainability of Nigeria's HCFC phase-out and continued compliance with Montreal Protocol targets. Key activities to ensure the sustainability of phase-out in the servicing sector include: mandatory recovery, recycling, and reclamation of refrigerants, supported by a commercialized reclamation model and the provision of recovery kits to technicians and end users; provision of tools and equipment to training institutions to sustain capacity development in the servicing sector; and mandatory technician certification to ensure a safe transition to low-GWP alternatives. The established ban on HCFC-141b will further ensure the

sustainable phase-out of HCFCs in foam manufacturing. A key identified risk is the weak enforcement of regulatory measures, such as the delayed implementation of the ban on HCFC-based equipment imports, which will be mitigated through mandatory practices, regulatory enforcement, and continuous training. The Government has committed to enforcing the ban on the import and manufacture of HCFC-based equipment effective 1 January 2027.

### Conclusion

31. The Government of Nigeria is implementing a licensing and quota system, and HCFC consumption in 2025 remained below the targets set by the Montreal Protocol and its Agreement with the Executive Committee. Implementation of the third tranche of stage II progressed well. Conversions in the foam sector have been completed, pending IOC disbursement. Since the ban on the import and use of HCFC-141b came into force in January 2023, no HCFC-141b has been imported. Training has been provided to technicians and customs officers, and the equipment and tools for RAC sector training and for customs officers to identify refrigerants have been procured and delivered; these will aid the training activities to be conducted in the fourth tranche. The refrigerant recovery and reclamation centre has been established and is operational. Due to delays in customs officer training caused by the late delivery of refrigerant identifiers and challenges related to the COVID-19 pandemic during the third tranche, as well as the late submission of the fourth tranche, stage II will be extended to December 2027. Fund disbursement for the third tranche has reached 87 per cent.

32. The conversion projects in stage III of the HPMP have been completed; however, the enterprises are using R-410A as an interim solution to maintain business viability. The enterprises have committed to ceasing the use of R-410A by the end of 2026. Stage III will also be extended to December 2027 to complete the conversion of a large number of SMEs in the commercial refrigeration sector.

### **RECOMMENDATION**

33. The Executive Committee may wish to consider:

- (a) Noting:
  - (i) The progress report on the implementation of the third tranche of stage II of the HCFC phase-out management plan (HPMP) for Nigeria;
  - (ii) The commitment of the Government of Nigeria to ban, by 1 January 2027, the import and manufacture of HCFC-based equipment;
- (b) Further noting:
  - (i) That two enterprises in air-conditioning (AC) manufacturing, for which conversion to an alternative with low global-warming potential had been approved, were temporarily using R-410A to maintain business viability;
  - (ii) That the two enterprises have committed to ceasing the use of R-410A in AC manufacturing by 31 December 2026;
- (c) Requesting:
  - (i) That UNDP report to the 100<sup>th</sup> meeting on the status of implementation of the ban on the import of HCFC-22-based equipment;

- (ii) That UNIDO report to the 99<sup>th</sup> meeting on the status of use of the interim technology described in subparagraph (b);
- (d) Approving the fourth and final tranche of stage II of the HPMP for Nigeria, and the corresponding 2026–2027 tranche implementation plan, in the amount of US \$1,610,472, plus agency support costs of US \$112,733, for UNDP, on the understanding that US \$25,000 of the agreed funding for the fourth tranche will be withheld by the Treasurer until UNDP informs the Secretariat that the ban on the import and manufacture of HCFC-22-based equipment is being enforced;
- (e) Approving, on an exceptional basis, the extension of the implementation period for stage II and stage III of the HPMP to 31 December 2027, on the understanding that no further extensions would be requested; and
- (f) Requesting the Government of Nigeria, UNDP, UNIDO and the Government of Italy to submit project completion reports to the second meeting of 2028 for stage II and stage III of the HPMP.

# PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

## Nigeria

| PROJECT TITLE                             | AGENCY                                                            |
|-------------------------------------------|-------------------------------------------------------------------|
| HCFC phase-out management plan (stage IV) | UNDP (lead), United Kingdom of Great Britain and Northern Ireland |

|                                   |            |                  |
|-----------------------------------|------------|------------------|
| ARTICLE 7 DATA (Annex C, Group I) | Year: 2024 | 94.23 ODP tonnes |
|-----------------------------------|------------|------------------|

| COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes) |         |      |              |               |           |         | Year: 2025               |
|----------------------------------------------|---------|------|--------------|---------------|-----------|---------|--------------------------|
| Substance                                    | Aerosol | Foam | Firefighting | Refrigeration |           | Solvent | Total sector consumption |
|                                              |         |      |              | Manufacturing | Servicing |         |                          |
| HCFC-22                                      |         |      |              | 12.78         | 79.28     |         | 92.06                    |

| CONSUMPTION DATA (ODP tonnes)    |        |                                                    |        |
|----------------------------------|--------|----------------------------------------------------|--------|
| 2009–2010 baseline:              | 344.92 | Starting point for sustained aggregate reductions: | 398.22 |
| CONSUMPTION ELIGIBLE FOR FUNDING |        |                                                    |        |
| Already approved:                | 301.01 | Remaining:                                         | 97.21  |

| ENDORSED BUSINESS PLAN                               |                            | 2026      | 2027      | 2028 | Total     |
|------------------------------------------------------|----------------------------|-----------|-----------|------|-----------|
| UNDP                                                 | ODS phase-out (ODP tonnes) | 39.54     | 59.31     | 0.00 | 98.85     |
|                                                      | Funding (US \$)            | 3,691,000 | 5,537,000 | 0    | 9,228,000 |
| United Kingdom of Great Britain and Northern Ireland | ODS phase-out (ODP tonnes) | 0.00      | 0.00      | 0.00 | 0.00      |
|                                                      | Funding (US \$)            | 150,000   | 0         | 0    | 150,000   |

| PROJECT DATA AS AGREED                         |                          |               | 2026      | 2027   | 2028      | 2029   | 2030    | Total     |
|------------------------------------------------|--------------------------|---------------|-----------|--------|-----------|--------|---------|-----------|
| Consumption (ODP tonnes)                       | Montreal Protocol limits |               | 112.09    | 112.09 | 112.09    | 112.09 | 0.00    | n/a       |
|                                                | Maximum allowable        |               | 112.09    | 112.09 | 112.09    | 112.09 | 0.00    | n/a       |
| Project costs requested in principle (US \$)   | UNDP                     | Project costs | 3,318,477 | 0      | 2,917,578 | 0      | 759,654 | 6,995,709 |
|                                                |                          | Support costs | 232,293   | 0      | 204,230   | 0      | 53,176  | 489,699   |
|                                                | United Kingdom           | Project costs | 519,000   | 0      | 82,400    | 0      | 0       | 601,400   |
|                                                |                          | Support costs | 65,720    | 0      | 10,434    | 0      | 0       | 76,154    |
| Total amounts recommended in principle (US \$) |                          | Project costs | 3,837,477 | 0      | 2,999,978 | 0      | 759,654 | 7,597,109 |
|                                                |                          | Support costs | 298,013   | 0      | 214,664   | 0      | 53,176  | 565,853   |
|                                                |                          | Total funds   | 4,135,490 | 0      | 3,214,642 | 0      | 812,830 | 8,162,962 |

| Request for funding for the first tranche (2026) |                           |                       |
|--------------------------------------------------|---------------------------|-----------------------|
| Implementing agency                              | Funds recommended (US \$) | Support costs (US \$) |
| UNDP                                             | 3,318,477                 | 232,293               |
| United Kingdom                                   | 519,000                   | 65,720                |
| Total                                            | 3,837,477                 | 298,013               |

|                               |                          |
|-------------------------------|--------------------------|
| Secretariat's recommendation: | Individual consideration |
|-------------------------------|--------------------------|

## PROJECT DESCRIPTION

### Background

34. On behalf of the Government of Nigeria, UNDP as the lead implementing agency has submitted a request for stage IV of the HCFC phase-out management plan (HPMP), at a total cost of US \$9,641,025, consisting of US \$7,931,416, plus agency support costs of US \$555,199, for UNDP and US \$1,031,000, plus agency support costs of US \$123,410, for the Government of the United Kingdom of Great Britain and Northern Ireland, as originally submitted.<sup>8</sup> The implementation of stage IV of the HPMP will phase out the remaining consumption of HCFCs by 2030.

35. The first tranche of stage IV of the HPMP being requested at this meeting amounts to US \$4,671,659, consisting of US \$3,680,613, plus agency support costs of US \$257,643, for UNDP and US \$655,000, plus agency support costs of US \$78,403, for the Government of the United Kingdom of Great Britain and Northern Ireland, as originally submitted.

### Status of implementation of stages II and III of the HCFC phase-out management plan

36. Stage II of the HPMP for Nigeria was originally approved at the 81<sup>st</sup> meeting<sup>9</sup> and revised at the 93<sup>rd</sup> meeting<sup>10</sup> to phase out 140.63 ODP tonnes of HCFCs used in the refrigeration and air-conditioning (RAC) servicing, RAC manufacturing, and foam manufacturing sectors, and to meet the 35 per cent reduction from the baseline by 2020, and a 51.35 per cent reduction by 2023, at a total cost of US \$8,890,734, plus agency support costs. Stage II of the HPMP was originally planned to be completed by December 2024, as stipulated in the Agreement between the Government of Nigeria and the Executive Committee. At the 93<sup>rd</sup> meeting, the Agreement was revised to cover the 67.5 per cent reduction target for 2025, with the implementation period extended to December 2026. At the current meeting, UNDP is requesting an extension of stage II to December 2027, as discussed in paragraph 29 above.

37. Stage III of the HPMP for Nigeria was originally approved at the 91<sup>st</sup> meeting<sup>11</sup> and revised at the 94<sup>th</sup> meeting<sup>12</sup> to phase out 69.34 ODP tonnes of HCFCs used in the RAC manufacturing sector and 1.28 ODP tonnes in the RAC servicing sector, and to meet the 67.5 per cent reduction from the baseline by 2025, at a total cost of US \$3,144,194, plus agency support costs. Stage III of the HPMP was originally planned to be completed by December 2026, as stipulated in the Agreement between the Government of Nigeria and the Executive Committee. At the current meeting, UNIDO is requesting an extension of stage III to December 2027, as discussed in paragraph 29 above.

38. An overview of the implementation of stages II and III, including the analysis of HCFC consumption; progress and financial reports on the implementation; and the request for the fourth and final tranche of stage II submitted to the current meeting, is available in paragraphs 1 to 33 of the present document.

<sup>8</sup> As per the letter of 12 March 2026 from the Ministry of Environment of Nigeria to UNDP.

<sup>9</sup> Decision 81/40

<sup>10</sup> Annex XXVIII of document UNEP/OzL.Pro/ExCom/93/105.

<sup>11</sup> Decision 91/46

<sup>12</sup> Decision 94/37

## Stage IV of the HCFC phase-out management plan

### Remaining consumption eligible for funding

39. At its 94<sup>th</sup> meeting, the Executive Committee approved the updated Agreement for stage III of the HPMP for Nigeria, which included the remaining eligible consumption for funding of 97.21 ODP tonnes (1,767.54 mt) of HCFC-22. This consumption will be completely phased out under stage IV of the HPMP.

### Sector distribution of HCFCs

40. There are approximately 80,000 technicians operating in the RAC and mobile air-conditioning (MAC) servicing sector, of which 36,000 are formally registered and 21,050 have received training in good refrigeration practices; 14,800 of these technicians (including 198 women) were trained under stages I, II, and III of the HPMP with the support of the Multilateral Fund, while the remaining 6,250 were trained by the training centres without the monitoring of the project management unit (PMU). Of the total 80,000 technicians, 10,000 work exclusively on servicing MAC equipment.

41. An estimation of HCFC demand by subsector is shown in table 4.

**Table 4. Estimation of demand for HCFC-22 in the RAC servicing sector in Nigeria in 2024**

| Sector/application                      | Equipment inventory | Average charge (mt) | HCFC bank (mt)  | Estimated leakage rate (%) | HCFC consumption (mt) | Share (%)  |
|-----------------------------------------|---------------------|---------------------|-----------------|----------------------------|-----------------------|------------|
| Domestic AC                             | 1,957,714           | 1.4                 | 2,740.80        | 25                         | 685.20                | 40         |
| Commercial AC                           | 142,750             | 12.0                | 1,713.00        | 25                         | 428.25                | 25         |
| Commercial refrigeration (cold rooms)   | 24,471              | 40.0                | 978.84          | 35                         | 342.60                | 20         |
| Commercial chillers and central systems | 7,448               | 230.0               | 1,713.04        | 15                         | 256.95                | 15         |
| <b>Total</b>                            | <b>2,132,383</b>    | <b>-</b>            | <b>7,145.68</b> | <b>100</b>                 | <b>1,713.00</b>       | <b>100</b> |

### Phase-out strategy

42. Stage IV of the HPMP will focus solely on eliminating HCFC consumption in the servicing sector. The strategy builds on the achievements and infrastructure established during stages I, II, and III of the HPMP. Stage IV recognizes that phasing out the remaining HCFC consumption in the servicing sector presents several challenges, owing to the large number of dated RAC units, the presence of an informal service sector, and deeply entrenched market behaviors. Addressing these challenges requires structural changes within the servicing sector to ensure that HCFCs are permanently displaced from the market.

43. The aim of stage IV is to permanently phase out HCFCs by:

- (a) Establishing a strong regulatory and market exit framework for HCFCs through strengthening the licensing and quota system, trade controls on HCFC-based equipment, green public procurement policies, and the introduction of import bans to ensure sustainable HCFC phase-out;
- (b) Professionalizing the RAC servicing sector by establishing a national framework for technician qualification, certification, and registration, supported by training and

recognition of prior learning, to build the sector's capacity for adopting alternative technologies;

- (c) Implementing refrigerant life-cycle management by establishing a national recovery, recycling, and reclamation (RRR) network to meet the requirements of the HCFC servicing tail, mitigate HCFC emissions, support safe disposal, and provide infrastructure for HFC phase-down; and
- (d) Demonstrating energy-efficient and low-GWP alternative technologies in key subsectors (e.g., cold storage and public sector air-conditioning (AC)) to reduce end-user resistance and catalyze wider market uptake, complementing HFC phase-down.

#### *Proposed activities*

44. Activities proposed for implementation in the servicing sector under stage IV and in the first tranche and their cost breakdown are presented in tables 5 and 6.

**Table 5. Servicing sector activities and their costs under stage IV of the HPMP for Nigeria, as submitted: UNDP**

| Activity                                                                                                                                                                                               | Cost (US \$)     |                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|
|                                                                                                                                                                                                        | Stage IV         | First tranche    |
| <b>Strengthening the HCFC regulatory framework</b>                                                                                                                                                     | <b>191,490</b>   | <b>121,118</b>   |
| Support the enforcement of import regulations and monitoring of the quota and licensing system (meetings, awareness, and capacity-building)                                                            | 48,000           | 16,000           |
| Develop strategy to expand Nigeria's Extended Producer Responsibility (EPR) scheme to cover the RAC sector                                                                                             | 30,000           | 30,000           |
| Create green procurement policy for Government institutions and incentive scheme for local installers and distributors                                                                                 | 20,000           | 20,000           |
| Coordinate stakeholder steering committee for the enforcement of the ban on HCFC-based RAC appliance and system imports, complying with MEPS standards                                                 | 36,000           | 12,000           |
| Establish procedures to replace old HCFC appliances with efficient alternatives                                                                                                                        | 57,490           | 43,118           |
| <b>Customs training and equipment procurement</b>                                                                                                                                                      | <b>347,000</b>   | <b>218,700</b>   |
| Engage national consultant to coordinate training courses and equipment purchases, and to develop a plan for monitoring HCFC-22 imports and the use of recovered refrigerant during the servicing tail | 48,000           | 16,000           |
| Develop an online control system for importers and distributors to register refrigerant imports, RAC equipment imports, and refrigerant distribution                                                   | 75,000           | 50,700           |
| Deliver eight courses to train 160 customs officers and stakeholders                                                                                                                                   | 48,000           | 12,000           |
| Deliver eight courses to train 160 brokers, importers, and other authorities                                                                                                                           | 48,000           | 12,000           |
| Purchase laboratory equipment (gas chromatography and columns) for customs laboratories to maintain reliable test results for HFCs                                                                     | 80,000           | 80,000           |
| Acquire eight wide-range refrigerant identifiers for customs                                                                                                                                           | 48,000           | 48,000           |
| <b>RAC technician training and equipment procurement</b>                                                                                                                                               | <b>4,113,000</b> | <b>2,263,750</b> |
| Deliver 75 courses to train 1,125 technicians                                                                                                                                                          | 375,000          | 100,000          |
| Cover certification costs for 400 trained technicians (at least 200 women)                                                                                                                             | 200,000          | 12,000           |
| Procure RAC equipment for 24 training centres <sup>13</sup>                                                                                                                                            | 1,569,000        | 1,569,000        |

<sup>13</sup> Each centre would receive five of each: R-290-based AC training units, R-600a-based domestic refrigeration units with double door and inverter system, R-290-based medium-temperature vertical commercial refrigeration units, R-290-based low-temperature horizontal commercial refrigeration units.

| Activity                                                                                                                                                                                        | Cost (US \$)   |                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|
|                                                                                                                                                                                                 | Stage IV       | First tranche  |
| Procure CO <sub>2</sub> RAC training module for five Centres of Excellence <sup>14</sup>                                                                                                        | 415,000        | 0              |
| Supply sets of tools to 400 trained technicians <sup>15</sup>                                                                                                                                   | 1,554,000      | 582,750        |
| <b>Strengthening refrigerant recovery, recycling and reclamation (RRR)</b>                                                                                                                      | <b>655,910</b> | <b>421,440</b> |
| Engage a national consultant to design and coordinate the RRR installation project, including installation, training, and awareness activities                                                  | 15,000         | 8,000          |
| Establish one RRR centre with a laboratory certified for AHRI Standard 700, including procurement and installation of RRR equipment, <sup>16</sup> lab certifications, and specialized training | 195,970        | 195,970        |
| Establish eight recovery centres <sup>17</sup>                                                                                                                                                  | 302,880        | 151,440        |
| Purchase 24 sets of equipment and tools for refrigerant recovery teams <sup>18</sup>                                                                                                            | 81,060         | 40,530         |
| Six workshops to train 120 technicians in RRR equipment management and refrigerant recovery                                                                                                     | 21,000         | 10,500         |
| Develop an electronic monitoring system for recovery and recycling activities and a market model for recovered refrigerants                                                                     | 25,000         | 10,000         |
| Run a public awareness campaign promoting the RRR programme                                                                                                                                     | 15,000         | 5,000          |
| <b>Promoting alternative technologies: Demonstration of R-290 technology in cold rooms</b>                                                                                                      | <b>968,000</b> | <b>96,250</b>  |
| Develop strategy to replace HCFC-based cold storage with energy-efficient R-290-based technology, focusing on rural regions                                                                     | 40,000         | 40,000         |
| Hold an inception workshop for cold room users and technicians in each of the five regions to present the project and gather information on existing systems                                    | 37,500         | 37,500         |
| Purchase and install 20 R-290-based, medium-sized cold rooms with leakage detection systems in five regions across the country                                                                  | 800,000        | 0              |
| Provide three workshops to train 40-60 technicians in the maintenance of flammable cold room technology (at least two technicians per cold room)                                                | 18,000         | 0              |
| Monitor and maintain systems during project implementation (at least two years)                                                                                                                 | 35,000         | 0              |
| Hold five workshops to disseminate the results among stakeholders                                                                                                                               | 37,500         | 18,750         |
| <b>Promoting alternative technologies: Room AC replacement project</b>                                                                                                                          | <b>268,000</b> | <b>73,750</b>  |
| Develop strategy to replace HCFC-based room AC equipment with energy-efficient R-290-based units with inverter technology in public buildings                                                   | 40,000         | 40,000         |
| Hold inception workshops in at least three regions                                                                                                                                              | 22,500         | 22,500         |
| Purchase and install 150 R-290-based room AC units across the country                                                                                                                           | 150,000        | 0              |
| Provide three workshops to train 60 technicians in the maintenance of flammable room AC technology                                                                                              | 18,000         | 0              |
| Monitor and maintain systems during project implementation (at least two years)                                                                                                                 | 15,000         | 0              |
| Hold workshops to present the results                                                                                                                                                           | 22,500         | 11,250         |

<sup>14</sup> Each centre would receive a small CO<sub>2</sub>-based heat pump module, including tubing, vacuum, and charging equipment.

<sup>15</sup> Each set would include recovery equipment, leak detector, storage tank, vacuum pump, brazing equipment, nitrogen equipment, charging scale, multimeter, safety protection, and other related tools.

<sup>16</sup> Includes ARI 700 certification laboratory, recovery equipment, refrigerant identifiers, leak detectors, storage tanks, cylinder cleaning equipment, and related equipment and tools.

<sup>17</sup> Includes leak detectors, scales, cylinder cleaning equipment, recovery equipment, filter kits, piercing pliers and valves, and safety and first aid.

<sup>18</sup> Includes recovery cylinders, flaring and swaging tools, leak detectors, recycling system with ball valve hoses, scale, vacuum pump and gauge, and related equipment and basic tools.

| Activity                                                                                                 | Cost (US \$)     |                  |
|----------------------------------------------------------------------------------------------------------|------------------|------------------|
|                                                                                                          | Stage IV         | First tranche    |
| <b>Gender mainstreaming</b>                                                                              | <b>313,000</b>   | <b>196,000</b>   |
| Engage national consultant to integrate and monitor gender mainstreaming across project activities       | 48,000           | 16,000           |
| Update gender needs and priorities across HPMP and KIP activities                                        | 30,000           | 10,000           |
| Deliver six awareness-raising and training workshops for institutions on gender mainstreaming in Nigeria | 60,000           | 30,000           |
| Produce a video to support awareness                                                                     | 175,000          | 140,000          |
| <b>Awareness-raising</b>                                                                                 | <b>335,000</b>   | <b>38,000</b>    |
| Design a comprehensive media campaign                                                                    | 40,000           | 8,000            |
| Execute a comprehensive media campaign                                                                   | 250,000          | 15,000           |
| Deliver six informative workshops for end users on alternative technologies                              | 45,000           | 15,000           |
| <b>Subtotal</b>                                                                                          | <b>7,191,400</b> | <b>3,429,008</b> |
| <b>Project management unit activities (see paragraph 45)</b>                                             | <b>740,016</b>   | <b>251,605</b>   |
| <b>Total for UNDP</b>                                                                                    | <b>7,931,416</b> | <b>3,680,613</b> |

**Table 6. Servicing sector activities and their costs under stage IV of the HPMP for Nigeria, as submitted: the United Kingdom**

| Activity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Cost (US \$)     |                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Stage IV         | First tranche  |
| <b>Developing a qualification, certification, and registration (QCR) framework for RAC professionals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                |
| Establish national occupational standards: <ul style="list-style-type: none"> <li>• Hold a stakeholder consultation meeting and four technical committee meetings (US \$30,000)</li> <li>• Draft and approve standards through the Governing Council (US \$30,000)</li> </ul>                                                                                                                                                                                                                                                                                                            | 60,000           | 60,000         |
| Evaluate and update training curricula: <ul style="list-style-type: none"> <li>• Evaluate and update the RAC training curriculum and assessment modules at 28 institutions (US \$110,000)</li> <li>• Approval and trial run through the National Board for Technical and Vocational Education (NBTE) (US \$50,000)</li> <li>• Develop trainer guides, teaching aids, and trainee handbook (US \$45,000)</li> </ul>                                                                                                                                                                       | 205,000          | 160,000        |
| Establish five Centres of Excellence: <ul style="list-style-type: none"> <li>• Train 10 master trainers on basic, intermediate, and advanced levels of RAC servicing, with half being further trained at diploma level as well as completing a course on handling CO<sub>2</sub> systems (US \$210,000)</li> <li>• Train at least 68 trainers by the master trainers through the country's training-of-trainers programmes (US \$51,000)</li> <li>• Provide five sets of training equipment<sup>19</sup> to each of five Centres of Excellence (25 sets total) (US \$375,000)</li> </ul> | 636,000          | 435,000        |
| Establish a Recognition of Prior Learning (RPL) scheme: <ul style="list-style-type: none"> <li>• Inclusion of RPL into the QCR framework (US \$20,000)</li> <li>• Design assessment tools for RPL (US \$30,000)</li> <li>• Trial run of RPL certification for 100 technicians (US \$50,000)</li> </ul>                                                                                                                                                                                                                                                                                   | 100,000          | 0              |
| Establish a technician registration system: <ul style="list-style-type: none"> <li>• Create a registration system focal point, develop a registration template, and create an Excel-based database searchable online (US \$30,000)</li> </ul>                                                                                                                                                                                                                                                                                                                                            | 30,000           | 0              |
| <b>Total for the United Kingdom</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>1,031,000</b> | <b>655,000</b> |

<sup>19</sup> Each centre would receive five sets of: RAC equipment (R-600a-based domestic refrigerator, R-290-based single split AC unit, low-temperature refrigerator), gauges, cylinders, brazing kit, flaring and swaging set, leak detector, recovery unit and cylinder, thermometers, related tools, work bench, laptop and projector (one set per centre), and first aid and safety equipment.

### *Project implementation and monitoring*

45. The system established under stages I, II, and III of the HPMP will continue into stage IV, with the national ozone unit (NOU) and UNDP monitoring activities, reporting on progress, and working with stakeholders to phase out HCFCs. The cost of those activities amounts to US \$740,016 for UNDP, including national consultant (US \$421,809), international consultant (US \$133,203), coordination meetings and reporting (US \$74,002), and monitoring travel (US \$111,002).

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

46. The total cost of stage IV of the HPMP for Nigeria has been estimated at US \$8,962,416 (plus agency support costs), as originally submitted, for achieving a 100 per cent reduction by 2030. The proposed activities and cost breakdown are summarized in table 7.

**Table 7. Total cost of stage IV of the HPMP for Nigeria, as submitted**

| Activity                                                        | Agency | Cost (US \$)     |
|-----------------------------------------------------------------|--------|------------------|
| Strengthening the HCFC regulatory framework                     | UNDP   | 191,490          |
| Customs training and equipment procurement                      | UNDP   | 347,000          |
| QCR framework for RAC professionals                             | UK     | 1,031,000        |
| RAC technician training and equipment procurement               | UNDP   | 4,113,000        |
| Strengthening RRR                                               | UNDP   | 655,910          |
| Promoting alternative technologies: Cold rooms                  | UNDP   | 968,000          |
| Promoting alternative technologies: Room AC replacement project | UNDP   | 268,000          |
| Gender mainstreaming                                            | UNDP   | 313,000          |
| Awareness-raising activities                                    | UNDP   | 335,000          |
| Monitoring and reporting                                        | UNDP   | 740,016          |
| <b>Subtotal for UNDP</b>                                        |        | <b>7,931,416</b> |
| <b>Subtotal for the United Kingdom</b>                          |        | <b>1,031,000</b> |
| <b>Total</b>                                                    |        | <b>8,962,416</b> |

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

47. The first funding tranche of stage IV of the HPMP in the total amount of US \$4,335,613 would be implemented between July 2026 and December 2028. Detailed information on the activities included in the first tranche, indicating adjustments made and the level of funds agreed, is presented in paragraph 63 below.

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

### **COMMENTS**

48. The Secretariat reviewed stage IV of the HPMP in light of stages I, II, and III, 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 (decisions 74/50 and 90/31), activities proposed under stage I of the KIP, and the 2026–2028 business plan of the Multilateral Fund.

### Overarching strategy

49. The Government of Nigeria 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>20</sup>

50. In line with decision 86/51, to allow for consideration of the final tranche of its HPMP, the Government of Nigeria 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 Nigeria intended to have consumption in 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.

### Legal framework

51. The Government of Nigeria has issued HCFC import quotas for 2026 at 1,500 mt (82.50 ODP tonnes), which is lower than the Montreal Protocol control target.

### Remaining eligible consumption and funding

52. The Secretariat noted that although Nigeria's remaining eligible consumption of HCFC-22 is 97.21 ODP tonnes (1,767.54 mt), the country reported in its CP data an average of only 81.26 ODP tonnes (1,477.50 mt) of HCFC-22 consumption in the servicing sector for the period 2023–2025. Although Nigeria also reported HCFC-22 consumption in the manufacturing sector during the implementation of the approved conversion projects, the phase-out of manufacturing-sector consumption has already been funded. Therefore, stage IV will address only consumption in the servicing sector. Accordingly, the eligible funding for implementing stage IV of the HPMP to achieve the complete phase-out of HCFCs in Nigeria is calculated based on the eligible consumption of 81.26 ODP tonnes (1,477.50 mt) of HCFC-22 in the servicing sector alone, resulting in a maximum eligible funding amount of US \$7,091,984.

### Technical and cost-related issues

53. Stage IV of the HPMP included an activity to replace HCFC-based room AC with R-290 units in public buildings (e.g., federal offices, hospitals) at a cost of US \$268,000. The activity proposed purchasing 150 AC units and installing them in public buildings. The strategy aimed to promote market transformation in the domestic AC sector through incentives to end users to replace HCFC-based AC with energy efficiency HCFC and HFC free equipment programme in synergy with the AGORA project<sup>21</sup> funded by the Government of France.

54. The Secretariat noted that a similar R-290 demonstration project had been implemented under stage II of the HPMP, during which 100 R-290-based AC units were installed in the Ministry of Environment building and training centres. Although that demonstration provided training opportunities and raised awareness of this low-GWP technology, UNDP reported no replication following the project. Furthermore, Nigeria has yet to enforce a ban on the import of HCFC-based equipment, the price of HCFC-22 remains the lowest among refrigerants, and local manufacturers are transitioning to HFC-32 technologies. Under these circumstances, further replacement of AC equipment with R-290 technology

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<sup>20</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.

<sup>21</sup> The Agora project supports market transformation through a rebate scheme to kickstart the transition to energy-efficient refrigeration and cooling equipment at the consumer level. A feasibility study has been completed but the implementation has not initiated.

using project funds would have limited impact. Taking into account the guidance on end-user conversion provided by decisions 28/44 and 84/84(b) and noting the reduction in eligible funding as outlined in paragraph 52, it was agreed to remove this activity from stage IV.

55. Stage IV also included a study, at a cost of US \$57,490, to develop a strategy for establishing the administrative, financial, and operational procedures for the replacement of old, inefficient appliances with efficient, HCFC-free appliances. The Secretariat noted that while such activities are beneficial to the environment and could be included in the national inventory and plan for unwanted refrigerants developed under decision 91/66, they do not directly relate to the HCFC phase-out and are therefore considered ineligible under the HPMP. Upon discussion, it was agreed to remove this activity from the HPMP.

56. The Secretariat noted that the submission included a new activity for technician qualification, certification, and registration, namely a QCR framework. It was recalled that a technician certification scheme had already been developed under stage II of the HPMP, which included a draft certification scheme, registry, database, website, testing modules, and materials, as previously reported, and that Nigeria is currently implementing it. UNDP explained that the existing certification scheme from stage II covers only good service practices, with no standardized curriculum or international alignment on flammable refrigerants. Therefore, under stage IV, a competency-based certification scheme with a standardized curriculum will be developed. This new QCR framework will build on the system already developed and address the gaps and challenges identified during implementation of the draft certification scheme. It will cover skills for handling flammable refrigerants while allowing existing skills-based technicians to upgrade their qualifications, and it will also equip training centres to meet international standards.

57. Stage IV includes a demonstration project for cold rooms in the commercial refrigeration subsector, directed at end users to transition to zero- or low-GWP alternatives. Upon request, UNDP provided more details of the demonstration. The 20 cold rooms to be installed under the project are all medium-sized systems (90-120 m<sup>3</sup>), and R-290 is the alternative refrigerant proposed due to its better performance and manageable operating pressures similar to HCFCs, despite flammability concerns, which will be addressed through leakage detection systems, anti-spark electrical components, and proper ventilation. Energy efficiency and cooling performance will be monitored via sub-metering or data loggers, and a comparative database will collect baseline data on energy efficiency and refrigerant consumption from existing HCFC-22 equipment. No other replacement programmes funded by other financial resources are currently ongoing for cold rooms or large-scale commercial refrigeration in Nigeria.

58. In response to the Secretariat's request for an assessment on how the activity would meet the conditions in decision 84/84(b), UNDP confirmed that Nigeria will strengthen its domestic policy framework through the adoption of safety standards for flammable refrigerants, HCFC import restrictions, and energy efficiency measures aligned with minimum energy performance standards (MEPS). The project will initially replace 20 cold room installations to demonstrate R-290 technology and overcome market barriers, potentially encouraging an estimated 12,000 enterprises to transition to the new technology. Training will be conducted for 60 technicians on system maintenance. Scalability will be driven by a total cost of ownership model, demonstrating a rapid return on investment given Nigeria's high electricity costs. Results will be disseminated via industry associations, Government platforms, and showrooms. Commercial cold rooms are being prioritized due to their high refrigerant leakage rates. The project follows a stepwise approach covering regulatory readiness, technology demonstration, and policy feedback, and is fully integrated with HPMP training activities. The project includes 20 per cent co-financing from beneficiaries through in-kind contributions, covering civil works, site preparation, structural, electrical, and ventilation system upgrades to meet safety standards for flammable refrigerants, as well as ongoing monitoring, data collection, hosting of technical visits, and sharing of operational data. In line with decision 92/36(g), UNDP will submit a final report on the implementation of the demonstration projects including the HFC phase-out and energy efficiency gains achieved upon completion of the project.

59. The Secretariat enquired about the strategy to ensure the sustainability of the RRR scheme, including how to address the challenges associated with high leakage rates and aged RAC equipment, the lack of economic incentive given the low price of HCFC-22, and the costs of transportation, storage, and reclamation/reuse of recovered refrigerant. UNDP responded that Nigeria would strengthen the policy framework to enforce mandatory refrigerant recovery, maintain adequate recovery and reclamation infrastructure, commercialize reclaimed refrigerants, and conduct continuous awareness-raising. While the price of HCFC-22 remains low at the moment, the main driver for recovery in the future will be refrigerant shortages resulting from quota limitations, making recycled refrigerant the best interim solution for systems reluctant to change, particularly in the commercial refrigeration sector. The programme will also extend recovery efforts to HFCs.

60. Stage IV of the HPMP includes capacity-building for the RAC servicing sector: training 1,125 technicians through 75 courses, strengthening training centres with equipment and tools, and implementing the QCR scheme. The Secretariat noted that this training target is small relative to the country's 80,000 technicians and suggested increasing it to support the transition to low-GWP technologies. In response, UNDP slightly adjusted the number of technicians trained to 1,200 under stage IV, emphasizing that the HPMP focuses on supporting training centres and the QCR scheme, while additional training will be covered under stage I of the KIP.

61. The Secretariat discussed the cost-related issues with UNDP. Due to the change in eligible funding as discussed in paragraph 52, the project cost for stage IV of the HPMP for Nigeria has been reduced from US \$8,222,400 to US \$7,091,984. The cost for the PMU has been adjusted from US \$740,016 (9 per cent of project cost), as originally requested, to US \$505,125 (7.1 per cent of project cost), taking into account the synergies in implementing the HPMP alongside the KIP. Consequently, the total cost for the implementation of stage IV was agreed at US \$7,597,109, plus agency support costs, for the complete phase-out of HCFCs in Nigeria by 2030.

#### Total project cost

62. The total cost of stage IV of the HPMP amounts to US \$7,597,109, at US \$4.8/kg in line with decision 74/50(c)(xiii), as shown in table 8. The funding for the first tranche was agreed at US \$3,837,477.

**Table 8. Total cost of stage IV of the HPMP for Nigeria, as agreed (US \$)**

| Activity                                                                                                                                                                                               | Submitted             | Agreed                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|
| <b><i>Strengthening the HCFC regulatory framework (UNDP)</i></b>                                                                                                                                       | <b><i>191,490</i></b> | <b><i>121,584</i></b> |
| Support the enforcement of import regulations and monitoring of the quota and licensing system (meetings, awareness, and capacity-building)                                                            | 48,000                | 48,584                |
| Develop strategy to expand Nigeria's EPR scheme to cover the RAC sector                                                                                                                                | 30,000                | 0                     |
| Create green procurement policy for Government institutions and incentive scheme for local installers and distributors                                                                                 | 20,000                | 36,500                |
| Coordinate stakeholder steering committee for the enforcement of the ban on HCFC-based RAC appliance and system imports, complying with MEPS standards                                                 | 36,000                | 36,500                |
| Establish procedures to replace old HCFC appliances with efficient alternatives                                                                                                                        | 57,490                | 0                     |
| <b><i>Customs training and equipment procurement (UNDP)</i></b>                                                                                                                                        | <b><i>347,000</i></b> | <b><i>299,000</i></b> |
| Engage national consultant to coordinate training courses and equipment purchases, and to develop a plan for monitoring HCFC-22 imports and the use of recovered refrigerant during the servicing tail | 48,000                | 0                     |
| Develop an online control system for importers and distributors to register refrigerant imports, RAC equipment imports, and refrigerant distribution                                                   | 75,000                | 75,000                |
| Deliver eight courses to train 160 customs officers and stakeholders                                                                                                                                   | 48,000                | 48,000                |

| Activity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Submitted               | Agreed                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------|
| Deliver eight courses to train 160 brokers, importers, and other authorities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 48,000                  | 48,000                  |
| Purchase laboratory equipment (gas chromatography and columns) for customs laboratories to maintain reliable test results for HFCs                                                                                                                                                                                                                                                                                                                                                                                                                                  | 80,000                  | 80,000                  |
| Acquire eight wide-range refrigerant identifiers for customs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 48,000                  | 48,000                  |
| <b><i>QCR framework for RAC professionals (UK)</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b><i>1,031,000</i></b> | <b><i>601,400</i></b>   |
| Establish national occupational standards: <ul style="list-style-type: none"> <li>• Hold at least one stakeholder consultation meeting and four technical committee meetings (US \$25,000)</li> <li>• Draft and approve standards through the Governing Council (US \$30,000)</li> </ul>                                                                                                                                                                                                                                                                            | 60,000                  | 55,000                  |
| Evaluate and update training curricula: <ul style="list-style-type: none"> <li>• Evaluate and update the RAC training curriculum and assessment modules at 28 institutions (US \$110,000)</li> <li>• Approval and trial run through the National Board for Technical and Vocational Education (NBTE) (US \$30,000)</li> <li>• Develop trainer guides, teaching aids, and trainee handbook (US \$45,000)</li> </ul>                                                                                                                                                  | 205,000                 | 185,000                 |
| Establish five Centres of Excellence: <ul style="list-style-type: none"> <li>• Train 10 master trainers on basic, intermediate, and advanced levels of RAC, with two being further trained at diploma level as well as completing a course on handling CO<sub>2</sub> systems (US \$174,000)</li> <li>• Train at least 68 trainers by the master trainers through the country's training-of-trainers programmes (US \$37,400)</li> <li>• Provide five sets of training equipment to two of the five Centres of Excellence (10 sets total) (US \$150,000)</li> </ul> | 636,000                 | 361,400                 |
| Establish an RPL scheme                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 100,000                 | 0                       |
| Establish a technician registration system                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 30,000                  | 0                       |
| <b><i>RAC technician training and equipment procurement (UNDP)</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b><i>4,113,000</i></b> | <b><i>4,347,250</i></b> |
| Deliver 80 courses to train 1,200 technicians (at least 250 women)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 375,000                 | 400,000                 |
| Cover certification costs for 430 trained technicians (at least 200 women)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 200,000                 | 215,000                 |
| Procure RAC equipment for 24 training centres                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1,569,000               | 1,569,000               |
| Procure CO <sub>2</sub> RAC training module for five Centres of Excellence                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 415,000                 | 415,000                 |
| Supply sets of tools to 450 trained technicians (at least 100 women)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1,554,000               | 1,748,250               |
| <b><i>Strengthening RRR (UNDP)</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b><i>655,910</i></b>   | <b><i>538,922</i></b>   |
| Engage a national consultant to design and coordinate the RRR installation project, including installation, training, and awareness activities                                                                                                                                                                                                                                                                                                                                                                                                                      | 15,000                  | 15,000                  |
| Establish one RRR centre with a laboratory certified for AHRI Standard 700, including procurement and installation of RRR equipment, lab certifications, and specialized training for lab staff                                                                                                                                                                                                                                                                                                                                                                     | 195,970                 | 174,970                 |
| Establish eight recovery centres                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 302,880                 | 206,880                 |
| Purchase 24 sets of equipment and tools for refrigerant recovery teams                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 81,060                  | 81,072                  |
| Six workshops to train 120 technicians in RRR equipment management and refrigerant recovery                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 21,000                  | 21,000                  |
| Develop an electronic monitoring system for recovery and recycling activities and a market model for recovered refrigerants                                                                                                                                                                                                                                                                                                                                                                                                                                         | 25,000                  | 25,000                  |
| Run a public awareness campaign promoting the RRR programme                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 15,000                  | 15,000                  |
| <b><i>Promoting alternative technologies: Cold rooms (UNDP)</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b><i>968,000</i></b>   | <b><i>961,828</i></b>   |
| Develop strategy to replace HCFC-based cold storage with energy-efficient R-290-based technology, focusing on rural regions                                                                                                                                                                                                                                                                                                                                                                                                                                         | 40,000                  | 33,828                  |
| Hold an inception workshop for cold room users and technicians in each of the five regions to present the project and gather information on existing systems                                                                                                                                                                                                                                                                                                                                                                                                        | 37,500                  | 37,500                  |

| Activity                                                                                                                                                                 | Submitted        | Agreed           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|
| Purchase and install 20 R-290-based, medium-sized cold rooms with leakage detection systems in five regions across the country                                           | 800,000          | 800,000          |
| Provide three workshops to train 40-60 technicians in the maintenance of flammable cold room technology (at least two technicians per cold room)                         | 18,000           | 18,000           |
| Monitor and maintain systems during project implementation (at least two years)                                                                                          | 35,000           | 35,000           |
| Hold five workshops to disseminate the results among stakeholders                                                                                                        | 37,500           | 37,500           |
| <b>Promoting alternative technologies: Room AC replacement in public institutions (UNDP)</b>                                                                             | <b>268,000</b>   | <b>0</b>         |
| <b>Gender mainstreaming (UNDP)</b>                                                                                                                                       | <b>313,000</b>   | <b>0</b>         |
| <b>Awareness-raising (UNDP)</b>                                                                                                                                          | <b>335,000</b>   | <b>222,000</b>   |
| Design a comprehensive media campaign                                                                                                                                    | 40,000           | 50,000           |
| Execute a comprehensive media campaign                                                                                                                                   | 250,000          | 130,000          |
| Deliver six informative workshops for importers, distributors, and end users on alternative technologies                                                                 | 45,000           | 42,000           |
| <b>Project implementation and monitoring (UNDP)</b>                                                                                                                      | <b>740,016</b>   | <b>505,125</b>   |
| PMU: National consultant (US \$250,000), international consultant (US \$80,000), coordination meetings and reporting (US \$50,000), and monitoring travel (US \$125,125) | 740,016          | 505,125          |
| <b>Subtotal for UNDP</b>                                                                                                                                                 | <b>7,931,416</b> | <b>6,995,709</b> |
| <b>Subtotal for the United Kingdom</b>                                                                                                                                   | <b>1,031,000</b> | <b>601,400</b>   |
| <b>Total</b>                                                                                                                                                             | <b>8,962,416</b> | <b>7,597,109</b> |

Agreed implementation plan for the first tranche of stage IV of the HCFC phase-out management plan

63. The agreed plan of action for the first tranche totals US \$3,837,477, including US \$3,318,477 for UNDP and US \$519,000 for the United Kingdom, as shown in table 9.

**Table 9. Servicing sector activities and their costs under the first tranche of stage IV of the HPMP for Nigeria, as agreed**

| Activity                                                                                                                                             | Cost (US \$)   |
|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Strengthening the HCFC regulatory framework (UNDP)</b>                                                                                            | <b>67,100</b>  |
| Support the enforcement of import regulations and monitoring of the quota and licensing system (meetings, awareness, and capacity-building)          | 16,000         |
| Create green procurement policy for Government institutions and incentive scheme for local installers and distributors                               | 36,500         |
| Coordinate stakeholder steering committee for the ban of HCFC-based RAC appliance and system imports, complying with MEPS standards                  | 14,600         |
| <b>Customs training and equipment procurement (UNDP)</b>                                                                                             | <b>197,000</b> |
| Develop an online control system for importers and distributors to register refrigerant imports, RAC equipment imports, and refrigerant distribution | 45,000         |
| Deliver two courses to train 40 customs officers and stakeholders                                                                                    | 12,000         |
| Deliver two courses to train 40 brokers, importers, and other authorities                                                                            | 12,000         |
| Purchase laboratory equipment (gas chromatography and columns) for customs laboratories to maintain reliable test results for HFCs                   | 80,000         |
| Acquire eight wide-range refrigerant identifiers for customs                                                                                         | 48,000         |

| Activity                                                                                                                                                                                                                                                                                                                                                                                                                           | Cost (US \$)     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| <b>Developing a QCR framework for RAC professionals (UK)</b>                                                                                                                                                                                                                                                                                                                                                                       | <b>519,000</b>   |
| Establish national occupational standards: <ul style="list-style-type: none"> <li>• Hold at least one stakeholder consultation meeting and four technical committee meetings (US \$25,000)</li> <li>• Draft and approve standards through the Governing Council (US \$30,000)</li> </ul>                                                                                                                                           | 55,000           |
| Evaluate and update training curricula: <ul style="list-style-type: none"> <li>• Begin evaluation and update of the RAC training curriculum and assessment modules at 28 institutions (US \$110,000)</li> <li>• Approval and trial run through the NBTE (US \$30,000)</li> </ul>                                                                                                                                                   | 140,000          |
| Establish five Centres of Excellence: <ul style="list-style-type: none"> <li>• Train 10 master trainers on basic, intermediate, and advanced levels of RAC, with two being further trained at diploma level as well as completing a course on handling CO<sub>2</sub> systems (US \$174,000)</li> <li>• Provide five sets of training equipment to two of the five Centres of Excellence (10 sets total) (US \$150,000)</li> </ul> | 324,000          |
| <b>RAC technician training and equipment procurement (UNDP)</b>                                                                                                                                                                                                                                                                                                                                                                    | <b>2,324,110</b> |
| Deliver 35 courses to train 525 technicians                                                                                                                                                                                                                                                                                                                                                                                        | 175,000          |
| Cover certification costs for 26 trained technicians                                                                                                                                                                                                                                                                                                                                                                               | 12,900           |
| Procure RAC equipment for 24 training centres                                                                                                                                                                                                                                                                                                                                                                                      | 1,569,000        |
| Supply sets of tools to 150 trained technicians                                                                                                                                                                                                                                                                                                                                                                                    | 567,210          |
| <b>Strengthening RRR (UNDP)</b>                                                                                                                                                                                                                                                                                                                                                                                                    | <b>361,946</b>   |
| Engage a national consultant to design and coordinate the RRR installation project                                                                                                                                                                                                                                                                                                                                                 | 10,000           |
| Establish one RRR centre with a laboratory certified for AHRI Standard 700, including procurement and installation of RRR equipment, lab certifications, and specialized training                                                                                                                                                                                                                                                  | 174,970          |
| Establish four recovery centres                                                                                                                                                                                                                                                                                                                                                                                                    | 103,440          |
| Purchase 12 sets of equipment and tools for refrigerant recovery teams                                                                                                                                                                                                                                                                                                                                                             | 40,536           |
| Three workshops to train 60 technicians in RRR equipment management and train technical teams in refrigerant recovery                                                                                                                                                                                                                                                                                                              | 10,500           |
| Develop an electronic monitoring system for recovery and recycling activities and a market model for recovered refrigerants                                                                                                                                                                                                                                                                                                        | 12,500           |
| Run a public awareness campaign promoting the RRR programme                                                                                                                                                                                                                                                                                                                                                                        | 10,000           |
| <b>Promoting alternative technologies: HCFC replacement in cold rooms (UNDP)</b>                                                                                                                                                                                                                                                                                                                                                   | <b>90,078</b>    |
| Develop strategy to replace HCFC-based cold storage with energy-efficient R-290-based technology, focusing on rural regions                                                                                                                                                                                                                                                                                                        | 33,828           |
| Hold an inception workshop for cold room users and technicians in each of the five regions to present the project and gather information on existing systems                                                                                                                                                                                                                                                                       | 37,500           |
| Hold 2-3 workshops to disseminate the results among stakeholders                                                                                                                                                                                                                                                                                                                                                                   | 18,750           |
| <b>Awareness-raising (UNDP)</b>                                                                                                                                                                                                                                                                                                                                                                                                    | <b>106,500</b>   |
| Design a comprehensive media campaign                                                                                                                                                                                                                                                                                                                                                                                              | 25,000           |
| Execute a comprehensive media campaign                                                                                                                                                                                                                                                                                                                                                                                             | 60,500           |
| Deliver six informative workshops to importers, distributors, and end users to promote alternative technologies                                                                                                                                                                                                                                                                                                                    | 21,000           |
| <b>PMU (UNDP)</b>                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>171,743</b>   |
| PMU: National consultant (US \$97,893), international consultant (US \$30,914), coordination meetings and reporting (US \$17,175), and monitoring travel (US \$25,761)                                                                                                                                                                                                                                                             | 171,743          |
| <b>Subtotal for UNDP</b>                                                                                                                                                                                                                                                                                                                                                                                                           | <b>3,318,477</b> |
| <b>Subtotal for the United Kingdom</b>                                                                                                                                                                                                                                                                                                                                                                                             | <b>519,000</b>   |
| <b>Total</b>                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>3,837,477</b> |

### Co-financing

64. The Government and key stakeholders of Nigeria will support the implementation of the HPMP by contributing their technical expertise and logistical capacities. Government co-financing will be provided in kind through office space, storage facilities, communication and internet services, and administrative support. In addition, the communications unit of the Ministry of Environment will assist in carrying out awareness-raising activities under the project, utilizing all available outreach channels. Beneficiaries of the cold room demonstration project will also provide in-kind contribution, covering civil works, electrical and ventilation upgrades for safety, and routine maintenance and energy efficiency monitoring, estimated at 20 per cent of the project cost.

### 2026–2028 draft business plan of the Multilateral Fund

65. UNDP and the Government of the United Kingdom of Great Britain and Northern Ireland are requesting US \$7,597,109, plus agency support costs, for the implementation of stage IV of the HPMP for Nigeria. The total requested value of US \$7,350,132, including agency support costs for the period of 2026–2028, is US \$2,027,868 below the amount in the business plan.

### Gender policy implementation

66. The Multilateral Fund gender policy will be applied throughout stage IV, focusing on women's empowerment and expanding women's access to technical and leadership roles in the RAC sector. Nigeria aims to increase the number of female RAC technicians to at least 500 and strengthen women's participation in technical, managerial, and decision-making roles. More specifically, the following targets were incorporated into stage IV: training a minimum 250 female technicians, certifying at least 200 female technicians, and providing tools to a minimum of 100 certified female technicians. The stage IV work plan includes milestones and incorporates indicators for representation and advancement, including tracking the share of women among consultants, trainees, applicants, recruitment panels, and leadership positions; ensuring that terms of reference encourage women to apply; establishing a database of qualified female experts; and confirming that project environments take into account women participation.

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

67. Nigeria is enforcing a licensing and quota system and has established bans on HCFC-141b imports in the foam sector and on HCFC-based equipment, with enforcement of the latter foreseen in 2027. HCFC consumption is declining, indicating that Nigeria is on track to meet its reduction obligations. However, a significant sustainability risk remains: the large installed base of HCFC-22 equipment could create demand that exceeds legitimate supply, leading to price spikes and an increased risk of illegal trade. To address this, the Government, with UNDP's assistance, will strengthen enforcement of the ban on HCFC-based equipment imports, promote refrigerant recovery and reclamation, and support the transition to low-GWP technologies to reduce HCFC demand. Additional measures include strengthening the NOU for project monitoring, enhancing customs enforcement, maintaining a robust HCFC import quota system, and delivering comprehensive training programmes for RAC technicians to build a qualified workforce capable of handling flammable refrigerants.

### Impact on the climate

68. The activities proposed in the servicing sector, including better refrigerant containment through training and provision of equipment, will reduce the use of HCFC-22 in servicing. Each kilogram of HCFC-22 not emitted due to better refrigeration practices results in the savings of approximately 1.8 CO<sub>2</sub>-equivalent tonnes. A calculation of the impact on the climate was provided in the HPMP. The activities planned by Nigeria, including its efforts to promote low-GWP alternatives, as well as refrigerant

RRR, indicate that the implementation of the HPMP will reduce refrigerant emissions in the atmosphere, resulting in climate benefits.

#### Draft Agreement

69. A draft Agreement between the Government of Nigeria and the Executive Committee for stage IV of the HPMP is contained in annex I to the present document.

### **RECOMMENDATION**

70. The Executive Committee may wish to consider:

- (a) Approving, in principle, stage IV of the HCFC phase-out management plan (HPMP) for Nigeria for the period from 2026 to 2030 for the complete phase-out of HCFC consumption, in the amount of US \$8,162,962, consisting of US \$6,995,709, plus agency support costs of US \$489,699, for UNDP and US \$601,400, plus agency support costs of US \$76,154, for the Government of the United Kingdom of Great Britain and Northern Ireland, 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 Nigeria 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) Deducting 97.21 ODP tonnes of HCFCs from the remaining HCFC consumption eligible for funding;
- (d) Approving the draft Agreement between the Government of Nigeria and the Executive Committee for the reduction in consumption of HCFCs, in accordance with stage IV of the HPMP, contained in annex I to the present document;
- (e) Noting that, upon completion of the end-user projects included in stage IV of the HPMP, UNDP will submit a final report on their implementation in line with decision 92/36(g), including the HCFC phase-out and energy-efficiency gains achieved;
- (f) That, to allow for consideration of the final tranche of its HPMP, the Government of Nigeria 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 Nigeria 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
- (g) Approving the first tranche of stage IV of the HPMP for Nigeria, and the corresponding tranche implementation plan, in the amount of US \$4,135,490, consisting of US \$3,318,477, plus agency support costs of US \$232,293, for UNDP, and US \$519,000,

plus agency support costs of US \$65,720, for the Government of the United Kingdom of Great Britain and Northern Ireland.

# PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

## Nigeria

| PROJECT TITLE                            | AGENCY                                        |
|------------------------------------------|-----------------------------------------------|
| Kigali HFC implementation plan (stage I) | UNDP (lead), UNIDO, UNEP, Government of Italy |

|                          |            |              |                                       |
|--------------------------|------------|--------------|---------------------------------------|
| ARTICLE 7 DATA (Annex F) | Year: 2024 | 14,762.19 mt | 24,024,976 CO <sub>2</sub> -eq tonnes |
|--------------------------|------------|--------------|---------------------------------------|

| COUNTRY PROGRAMME SECTORAL DATA (CO <sub>2</sub> -eq tonnes) AND ACTIVITIES |         |         |               |                                         |           |       |            | Year:   | 2025  |
|-----------------------------------------------------------------------------|---------|---------|---------------|-----------------------------------------|-----------|-------|------------|---------|-------|
|                                                                             | Aerosol | Foam    | Fire-fighting | Air-conditioning (AC) and refrigeration |           |       |            | Solvent | Other |
|                                                                             |         |         |               | Manufacturing                           |           |       | Servicing  |         |       |
|                                                                             |         |         |               | Refrigeration                           | AC        | Other |            |         |       |
| HFCs                                                                        |         | 322,285 | 59,570        | 454,382                                 | 1,165,648 |       | 22,922,820 |         |       |
| Planned activities agreed (Y/N)                                             |         | Y       | N             |                                         |           |       | Y          |         |       |

|                                                |              |                                       |
|------------------------------------------------|--------------|---------------------------------------|
| AVERAGE 2020–2022 HFC CONSUMPTION IN SERVICING | 10,037.71 mt | 17,921,513 CO <sub>2</sub> -eq tonnes |
|------------------------------------------------|--------------|---------------------------------------|

| REVISED BASELINE DATA (CO <sub>2</sub> -eq tonnes) | 2020       | 2021       | 2022       | Average 2020–2022 |
|----------------------------------------------------|------------|------------|------------|-------------------|
| HFC annual consumption                             | 13,305,145 | 19,884,612 | 24,582,158 | 19,257,305        |
| HCFC baseline (65%)                                |            |            |            | 5,729,101         |
| HFC baseline                                       |            |            |            | 24,986,406        |

| HFC CONSUMPTION ELIGIBLE FOR FUNDING (CO <sub>2</sub> -eq tonnes) |     |
|-------------------------------------------------------------------|-----|
| Starting point for sustained aggregate reductions                 | TBD |
| Previously approved HFC phase-down investment projects            | No  |
| Aggregate reductions from previously approved projects            | n/a |

| PROJECT DATA AS AGREED                             |                                                   |               | 2024*         | 2026       | 2027       | 2028       | 2029       | 2030       | Total      |
|----------------------------------------------------|---------------------------------------------------|---------------|---------------|------------|------------|------------|------------|------------|------------|
| Consumption<br>(CO <sub>2</sub> -eq tonnes)        | Montreal Protocol limits                          |               | 24,986,406    | 24,986,406 | 24,986,406 | 24,986,406 | 22,487,765 | 22,487,765 | n/a        |
|                                                    | Maximum allowable                                 |               | 24,986,406    | 24,986,406 | 24,986,406 | 24,986,406 | 20,775,549 | 20,775,549 | n/a        |
|                                                    | Maximum allowable (%)                             |               | 100           | 100        | 100        | 100        | 83.15      | 83.15      | n/a        |
| Project costs<br>requested in<br>principle (US \$) | UNDP                                              | Project costs | 1,902,050     | 909,206    | 0          | 3,673,872  | 0          | 1,780,715  | 8,265,843  |
|                                                    |                                                   | Support costs | 133,144       | 63,644     | 0          | 257,171    | 0          | 124,650    | 578,609    |
|                                                    | UNIDO                                             | Project costs | 705,510       | 1,324,774  | 0          | 243,825    | 0          | 0          | 2,274,109  |
|                                                    |                                                   | Support costs | 49,386        | 92,734     | 0          | 17,068     | 0          | 0          | 159,188    |
|                                                    | UNEP                                              | Project costs | 130,800       | 0          | 0          | 130,800    | 0          | 65,400     | 327,000    |
|                                                    |                                                   | Support costs | 17,004        | 0          | 0          | 17,004     | 0          | 8,502      | 42,510     |
|                                                    | Italy                                             | Project costs | 0             | 250,000    | 0          | 250,000    | 0          | 0          | 500,000    |
|                                                    |                                                   | Support costs | 0             | 32,500     | 0          | 32,500     | 0          | 0          | 65,000     |
|                                                    | Total amounts recommended<br>in principle (US \$) |               | Project costs | 2,738,360  | 2,483,980  | 0          | 4,298,497  | 0          | 1,846,115  |
| Support costs                                      |                                                   |               | 199,534       | 188,878    | 0          | 323,743    | 0          | 133,152    | 845,307    |
| Total funds                                        |                                                   |               | 2,937,894     | 2,672,858  | 0          | 4,622,240  | 0          | 1,979,267  | 12,212,259 |

\* Approved at the 95<sup>th</sup> meeting (decision 95/69(e)).

|                                                                                                   |                          |
|---------------------------------------------------------------------------------------------------|--------------------------|
| Reduction from remaining consumption eligible for funding in stage I (CO <sub>2</sub> -eq tonnes) | 4,210,857                |
| Secretariat's recommendation                                                                      | Individual consideration |



## PROJECT DESCRIPTION

71. The present document contains the following sections:

- I. Summary of the proposal as submitted
- II. Background: Status of implementation of the HCFC phase-out management plan and previous HFC-related activities
- III. HFC consumption overview: HFC consumption levels, trends, and consumption by sector
- IV. Stage I of the Kigali HFC implementation plan, as submitted: Regulatory framework, phase-down strategy, total stage cost, and implementation plan for the first tranche
- V. Secretariat's comments, including the agreed cost of activities
- VI. Recommendation

### **I. Summary of the proposal as submitted**

72. At its 95<sup>th</sup> meeting, the Executive Committee *inter alia* approved stage I of the Kigali HFC implementation plan (KIP) for Nigeria at the total cost of US \$4,283,033 plus agency support cost to reduce HFC consumption by 10.13 per cent of the country's baseline by 2029. By approving stage I of the KIP, the Executive Committee, *inter alia*, requested UNDP and the Government of Nigeria, in the event that the country's HFC baseline was revised, to submit an updated project proposal for stage I of the KIP for consideration by the Executive Committee.<sup>22</sup> The original proposal is contained in document UNEP/OzL.Pro/ExCom/95/70.

73. In line with decision 95/69, on behalf of the Government of Nigeria, UNDP as the lead implementing agency has submitted an updated request for stage I of the KIP, at a total cost of US \$15,450,676, consisting of US \$10,140,484, plus agency support costs of US \$709,834, for UNDP; US \$3,426,026, plus agency support costs of US \$239,822, for UNIDO; US \$327,000, plus agency support costs of US \$42,510, for UNEP; and US \$500,000, plus agency support costs of US \$65,000, for the Government of Italy, as originally submitted.<sup>23</sup> These amounts represent the total funding requested for the entire updated stage I of the KIP, including the approved first tranche.

74. The first tranche of stage I of the KIP included in the updated request aligns with that approved at the 95<sup>th</sup> meeting and amounts to US \$2,937,894, consisting of US \$1,902,050, plus agency support costs of US \$133,144, for UNDP; US \$705,510, plus agency support costs of US \$49,386, for UNIDO; and US \$130,800, plus agency support costs of US \$17,004, for UNEP, as originally submitted, for the period of January 2025 to December 2026.

75. The second tranche of the updated stage I of the KIP being requested at this meeting amounts to US \$4,052,581, consisting of US \$994,327, plus agency support costs of US \$69,603, for UNDP, US \$2,720,526, plus agency support costs of US \$190,437, for UNIDO, and US \$68,750, plus agency support costs of US \$8,938, for the Government of Italy, as originally submitted, for the period of July 2026 to December 2028.

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<sup>22</sup> Decision 95/69.

<sup>23</sup> As per the letter of 12 March 2026 from the Ministry of Environment of Nigeria to UNDP.

## II. Background

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

76. Table 10 presents information on the HCFC phase-out management plan (HPMP) in Nigeria as of May 2026.

**Table 10. HPMP implementation status for Nigeria**

| Particulars                                   | Stage I                                              | Stage II                           | Stage III                          |
|-----------------------------------------------|------------------------------------------------------|------------------------------------|------------------------------------|
| Meetings when HPMP was approved/updated       | 62 <sup>nd</sup> /66 <sup>th</sup> /75 <sup>th</sup> | 81 <sup>st</sup> /93 <sup>rd</sup> | 91 <sup>st</sup> /94 <sup>th</sup> |
| Reduction from baseline                       | 10% by 2015                                          | 35% by 2020                        | 67.5% by 2025*                     |
| <b>Total stage cost (US \$)</b>               | 4,938,830                                            | 8,890,734                          | 3,144,194                          |
| <b>Date of completion (actual or planned)</b> | 1 December 2018                                      | 31 December 2026**                 | 31 December 2026**                 |

\* Stage IV of the HPMP is being requested at the present meeting for the complete phase-out of HCFCs by 2030, in line with decision 91/31(d).

\*\* Extensions of stages II and III to 31 December 2027 are being requested at this meeting.

### Status of implementation of previous HFC-related activities

77. Table 11 presents an overview of activities implemented in Nigeria in the context of the Kigali Amendment that have been funded by the Multilateral Fund.

**Table 11. Previously approved HFC-related activities in Nigeria**

| Approval meeting | Project title                                                                                                                             | Implementing agency | Cost (US \$) | Date of completion |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|--------------------|
| 74 <sup>th</sup> | Survey of ODS alternatives                                                                                                                | UNEP                | 65,000       | May 2017           |
| 80 <sup>th</sup> | Enabling activities for HFC phase-down                                                                                                    | UNEP                | 250,000      | Jun 2019           |
| 93 <sup>rd</sup> | Pilot project to maintain and/or enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down | UNIDO               | 145,000      | Dec 2026           |
| 95 <sup>th</sup> | Stage I of the KIP*                                                                                                                       | UNDP, UNIDO, UNEP   | 4,283,033*   | Dec 2030           |

\* The updated request for stage I of the KIP is being presented to the present meeting at the agreed cost of US \$11,366,952.

### *Status of implementation of the pilot project to maintain and/or enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down*

78. The NOO has strengthened its partnership with the Ministry of Energy, organized twinning workshops for national energy efficiency policymakers, and integrated energy efficiency considerations for refrigeration and air-conditioning (RAC) appliances into the National Energy Policy.

79. The Standards Organization of Nigeria (SON) recently (May 2026) initiated the process to establish the mandatory energy labelling framework, though the labelling standard for refrigeration appliances is not yet in place. UNIDO has begun providing technical assistance to SON to support the new standard and the mandatory compliance framework.

80. The project is expected to be operationally complete by 31 December 2026, including formal adoption of the updated minimum energy performance standards (MEPS) and the labelling regulations, with full enforcement expected to begin in 2027.

*Progress report on the implementation of the first tranche of stage I of the Kigali HFC implementation plan*

81. During the implementation of the first tranche of stage I of the KIP, progress has been made across the foam manufacturing, RAC manufacturing, and RAC servicing sectors.

82. In the foam manufacturing sector, tests using HFC alternatives HFO-1233zd, cyclopentane, and methyl formate were conducted at the two foam manufacturing enterprises Vitapur Nigeria Limited (Vitapur) and Lange and Grants Commodities Limited (Lange and Grants) for spray foam insulation and panel applications. The low boiling point (15°C) of HFO-1233zd makes it a gas at room temperature, posing processing challenges and needing additional proprietary modifications. The results of pentane-blown and methyl formate systems are being observed.

83. In the RAC manufacturing sector, meetings were held with Haier Paterson Zochonis Nigeria Limited (HPZ) to agree on the implementation modality. Following this agreement, equipment was purchased and is expected to arrive by July or August 2026, after which installation will proceed. In the meantime, the enterprise has finalized plans to begin the civil works to accommodate the new equipment as well as obtain the required project certifications.

84. For the servicing sector, a coordination meeting was organized with the National Agency for Food and Drug Administration and Control (NAFDAC) (the authority to issue licences and quotas to importers) and relevant stakeholders to raise awareness and to coordinate the implementation of the HFC licensing and quota system. The curriculum for customs training has been developed to integrate HFC controls; 40 customs trainers and 50 customs officers have been trained, while training for 80 clearing agents is ongoing.

85. The mobile air-conditioning (MAC) training curriculum has been updated to include HFCs. A consultant has been providing technical and organizational support to the Nigerian Automobile Technicians Association (NATA), training its executives on the Kigali Amendment provisions and their role in supporting the Government's HFC phase-down efforts. This support will continue to strengthen the association for effective HFC phase-down.

86. A consultant was recruited to develop specifications and procure equipment for five MAC centres of excellence; ten HFC-290-based training units; tool sets for 100 MAC garages; safety equipment for 13 RAC institutes; CO<sub>2</sub> training labs for two RAC institutes; and safety tool sets for 450 RAC technicians. Following the development of the specifications, the procurement process will begin.

87. For the refrigerant recovery and reuse scheme, a report on the assessment of single-use cylinder disposal practices has been completed. Based on the report's recommendations, a workshop is being organized to discuss and validate strategies for the use and disposal of single-use cylinders in Nigeria.

88. For the pilot project in the commercial refrigeration sector, identification and preliminary assessment of suitable candidates are ongoing. To enhance efficiency, equipment procurement for the pilot demonstration will be managed by the same consultant handling general equipment procurement.

89. An analysis of the automotive sector suggested that scholarships could be provided to encourage women to remain in the sector. The modalities of the scholarship are currently being discussed with stakeholders, after which implementation will begin.

90. As of May 2026, of the total US \$2,738,360 approved under the first tranche (US \$1,902,050 for UNDP, US \$705,510 for UNIDO, and US \$130,800 for UNEP), US \$1,444,195 had been disbursed (US \$838,195 for UNDP, US \$606,000 for UNIDO, and US \$0 for UNEP), accounting for 53 per cent.

### III. HFC consumption overview

#### HFC consumption levels

91. Nigeria only imports (does not produce) HFCs for use in the RAC servicing and manufacturing sectors. The most consumed substances in 2025 were HFC-134a (65.0 per cent of total HFC consumption in CO<sub>2</sub>-equivalent (CO<sub>2</sub>-eq) tonnes), R-410A (21.4 per cent), R-404A (8.7 per cent), R-407C (3.2 per cent), and other HFCs (1.8 per cent). Table 12 presents the country's revised HFC consumption as reported to the Ozone Secretariat under Article 7 of the Montreal Protocol, and the country's revised HFC baseline.

**Table 12. 2020–2025 HFC consumption and baseline for Nigeria (Article 7 data)**

| HFC                                     | GWP   | 2020              | 2021              | 2022              | 2023              | 2024              | 2025*             |
|-----------------------------------------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Metric tonnes (mt)</b>               |       |                   |                   |                   |                   |                   |                   |
| HFC-32                                  | 675   | 42.74             | 61.17             | 1.59              | 37.38             | 41.91             | 51.57             |
| HFC-134a                                | 1,430 | 3,853.56          | 6,630.79          | 8,626.12          | 10,185.58         | 10,622.62         | 11,321.40         |
| HFC-227ea                               | 3,220 | 27.59             | 10.57             | 29.56             | 17.89             | 20.30             | 18.50             |
| HFC-365mfc                              | 794   | 180.50            | 280.00            | 350.00            | 462.50            | 503.70            | 405.90            |
| R-404A                                  | 3,922 | 797.62            | 675.13            | 741.93            | 509.77            | 555.18            | 551.40            |
| R-407C                                  | 1,774 | 414.36            | 571.33            | 863.58            | 429.21            | 450.44            | 449.00            |
| R-410A                                  | 2,088 | 1,737.25          | 2,862.12          | 3,358.18          | 2,402.36          | 2,558.74          | 2,557.70          |
| R-417A                                  | 2,346 | 18.79             | 199.99            | 179.47            | 8.02              | 10.00             | 8.70              |
| <b>Total (mt)</b>                       |       | <b>7,072.41</b>   | <b>11,291.12</b>  | <b>14,150.43</b>  | <b>14,052.71</b>  | <b>14,762.53</b>  | <b>15,364.17</b>  |
| <b>CO<sub>2</sub>-eq tonnes</b>         |       |                   |                   |                   |                   |                   |                   |
| HFC-32                                  | 675   | 28,850            | 41,290            | 1,076             | 25,232            | 28,289            | 34,810            |
| HFC-134a                                | 1,430 | 5,510,589         | 9,482,036         | 12,335,345        | 14,565,379        | 15,190,347        | 16,189,602        |
| HFC-227ea                               | 3,220 | 88,833            | 34,048            | 95,196            | 57,606            | 65,366            | 59,570            |
| HFC-365mfc                              | 794   | 143,317           | 222,320           | 277,900           | 367,225           | 399,938           | 322,285           |
| R-404A                                  | 3,922 | 3,127,957         | 2,647,601         | 2,909,538         | 1,999,114         | 2,177,194         | 2,162,370         |
| R-407C                                  | 1,774 | 735,004           | 1,013,461         | 1,531,864         | 761,354           | 799,013           | 796,459           |
| R-410A                                  | 2,088 | 3,626,509         | 5,974,671         | 7,010,202         | 5,014,927         | 5,341,370         | 5,339,199         |
| R-417A                                  | 2,346 | 44,085            | 469,184           | 421,038           | 18,815            | 23,460            | 20,410            |
| <b>Total (CO<sub>2</sub>-eq tonnes)</b> |       | <b>13,305,145</b> | <b>19,884,612</b> | <b>24,582,158</b> | <b>22,809,651</b> | <b>24,024,976</b> | <b>24,924,704</b> |

\* Country programme (CP) data

92. During the preparation of the KIP submitted to the 95<sup>th</sup> meeting, the Government had identified deficiencies in the reporting of HFC consumption data, which was not consistent with the size of the industry in the country and resulted in an underestimated baseline of 15 million CO<sub>2</sub>-eq tonnes, leading to a high risk of non-compliance. In July 2024, UNDP experts undertook a mission to Nigeria and collected more accurate data from NAFDAC, and the national ozone unit (NOU) submitted an official request to the Ozone Secretariat for the revision of their baseline.

93. At the 37<sup>th</sup> Meeting of the Parties, the Parties approved, through decision XXXVII/19, Nigeria's request for a revised HFC consumption data, which resulted in a baseline of 24,986,406 CO<sub>2</sub>-eq tonnes. Table 13 presents the country's original and revised HFC baseline.

**Table 13. HFC baseline calculations for Nigeria (CO<sub>2</sub>-eq tonnes)**

| <b>As approved at the 95<sup>th</sup> meeting</b> |                   |
|---------------------------------------------------|-------------------|
| Average HFC consumption in 2020–2022              | 9,458,678         |
| HCFC baseline (65%)                               | 5,729,101         |
| <b>HFC baseline</b>                               | <b>15,187,779</b> |

| As revised through decision XXXVII/9 |                   |
|--------------------------------------|-------------------|
| Average HFC consumption in 2020–2022 | 19,257,305        |
| HCFC baseline (65%)                  | 5,729,101         |
| <b>HFC baseline</b>                  | <b>24,986,406</b> |

### *Country programme implementation report*

94. The sectoral HFC consumption data provided by the Government of Nigeria in its CP implementation report for 2024 is consistent with the data reported under Article 7 of the Montreal Protocol.

### HFC consumption trends

95. HFC consumption in Nigeria increased significantly from 2021 to 2022 and then stabilized, with very minor growth from 2022 to 2025. The sharp increase is due to the underreporting of HFC consumption data for 2020 and 2021, as the country only began implementing its HFC licensing system in 2022. Prior to that, HFC consumption reporting was voluntary. Therefore, the 2022 data are considered a more accurate reflection of the country's actual HFC consumption level. From 2022 to 2025, HFC consumption remained relatively stable with only slight growth. Looking ahead, consumption is expected to increase further from 2025 onward, in line with economic development under a business-as-usual scenario.

### HFC consumption by sector

96. In Nigeria, HFCs are used in RAC servicing, RAC manufacturing, foam manufacturing and as a fire suppressant. Updated survey data for 2024 reveals that consumption in RAC servicing accounts for 91 per cent (in mt and in CO<sub>2</sub>-eq tonnes) of total HFC consumption, followed by MAC equipment servicing (26 per cent in mt or 23 per cent in CO<sub>2</sub>-eq tonnes), air-conditioning (AC) manufacturing (4 per cent in mt or 5 per cent in CO<sub>2</sub>-eq tonnes); and smaller uses in foam manufacturing, refrigeration equipment manufacturing; and fire suppressant, as shown in table 14 below.

**Table 14. HFC consumption sector distribution (2024)**

| Subsector                                    | Total (mt)       | Share (%)    | Total (CO <sub>2</sub> -eq tonnes) | Share (%)    |
|----------------------------------------------|------------------|--------------|------------------------------------|--------------|
| <i>Manufacturing and assembly subsectors</i> |                  |              |                                    |              |
| AC manufacturing                             | 616.81           | 4.2          | 1,271,933                          | 5.3          |
| Refrigeration manufacturing                  | 185.04           | 1.3          | 467,912                            | 1.9          |
| Foam manufacturing                           | 503.70           | 3.4          | 399,937                            | 1.7          |
| <b>Subtotal manufacturing</b>                | <b>1,305.55</b>  | <b>8.8</b>   | <b>2,139,782</b>                   | <b>8.9</b>   |
| <i>Servicing subsectors</i>                  |                  |              |                                    |              |
| RAC servicing                                | 9,613.25         | 65.1         | 16,351,809                         | 68.1         |
| MAC servicing                                | 3,823.79         | 25.9         | 5,468,020                          | 22.8         |
| <b>Subtotal servicing</b>                    | <b>13,437.04</b> | <b>91.0</b>  | <b>21,819,829</b>                  | <b>90.8</b>  |
| Firefighting                                 | 20.30            | 0.1          | 65,366                             | 0.3          |
| <b>Total</b>                                 | <b>14,762.89</b> | <b>100.0</b> | <b>24,024,977</b>                  | <b>100.0</b> |

### *Manufacturing sectors*

### Refrigeration and air-conditioning

97. A total of 753.32 mt of HFCs were used in the RAC manufacturing sector in 2025. Of this total, 186.20 mt were used for manufacturing refrigeration equipment, while 567.12 mt were used for manufacturing AC equipment, as shown in table 15.

**Table 15. 2025 HFC consumption in the manufacturing sector (mt)**

| Substance    | RAC manufacturing subsector |                  | Total         | Share (%)    |
|--------------|-----------------------------|------------------|---------------|--------------|
|              | Refrigeration               | Air-conditioning |               |              |
| HFC-32       | 0.00                        | 8.52             | 8.52          | 1.1          |
| HFC-134A     | 110.70                      | 9.40             | 120.10        | 15.9         |
| R-404A       | 75.50                       | 0.00             | 75.50         | 10.0         |
| R-410A       | 0.00                        | 549.20           | 549.20        | 72.9         |
| <b>Total</b> | <b>186.20</b>               | <b>567.12</b>    | <b>753.32</b> | <b>100.0</b> |

98. A total of 256 RAC manufacturing enterprises were identified, primarily consisting of small ice block-making enterprises, cold room assemblers, and AC manufacturers. Of these 256 enterprises, 226 consumed less than 1.00 mt of HFCs each. Among them, 212 enterprises used HFC-134a in the production of ice-making machines and cold rooms, while the remaining enterprises were mainly active in the AC sector and used R-410A.

99. While the total HFC consumption reported in the RAC manufacturing sector under the CP data amounted to 753.32 mt in 2025, the KIP survey could not identify all manufacturing enterprises. Some large foreign-owned enterprises did not respond to the survey, potentially due to their ineligibility for funding. Additionally, numerous small enterprises involved in the assembly of cold rooms and ice-making machines were not covered. As a result, some HFC consumption could not be allocated to specific enterprises.

#### Foam

100. In the foam sector, only two foam manufacturing enterprises (Vitapur, and Lange and Grants) still use HFCs for manufacturing discontinuous polyurethane (PU) foam panels; the remaining foam enterprises have been converted to low-GWP alternatives under the HPMP. In 2025, the foam sector consumed 405.90 mt of HFC-365mfc. The conversion of these two enterprises to alternatives (e.g., HFO, cyclopentane) was approved at the 95<sup>th</sup> meeting under technical assistance activities, with conversion ongoing.

#### Firefighting

101. There is limited knowledge and understanding on HFC use in the firefighting sector. The Federal Fire Services of Nigeria is responsible for risk assessment and enforcement of fire safety norms. HFC-227ea has been imported and used as a fire suppressant. There is no evidence indicating that HFC-227ea is used in the manufacture of firefighting equipment. Therefore, it is most likely used for servicing or refilling fire suppressant cylinders. Detailed data of all firefighting installations was still not available, but with increased awareness about HFC controls, any other imports of HFC-227ea would likely be identified in the future.

102. In addition to HFC use in this sector, other substances used include NOVEC and Aqua Film-Forming Foam (AFFF), which can serve as alternatives to HFC-227ea. The enterprise Jk Peez Group Limited produces foam-based AFFF. This enterprise presently has a capacity of 100,000 litres and has the potential to cater for state fire services. However, the firefighting sector will not be addressed in stage 1 of the KIP.

#### *Refrigeration and air-conditioning servicing sector*

103. HFCs are mainly consumed for servicing in MAC (28.5 per cent in mt and 25.1 per cent in CO<sub>2</sub>-eq tonnes) and commercial refrigeration (26.7 per cent in mt and 27.8 per cent in CO<sub>2</sub>-eq tonnes), followed by domestic refrigeration (12.5 per cent in mt and 11.0 per cent in CO<sub>2</sub>-eq tonnes) and other subsectors, as shown in tables 16 and 17.

**Table 16. HFC consumption in Nigeria in the refrigeration and AC servicing subsectors in mt (2024)**

| Sector                          | HFC-134a         | HFC-32       | R-404A        | R-407C        | R-410A          | Total            | Share of total (%) |
|---------------------------------|------------------|--------------|---------------|---------------|-----------------|------------------|--------------------|
| <b>Refrigeration subsectors</b> |                  |              |               |               |                 |                  |                    |
| Domestic                        | 1,675.12         | 0.00         | 0.00          | 0.00          | 0.00            | 1,675.12         | 12.5               |
| Commercial                      | 3,215.99         | 0.00         | 370.92        | 0.00          | 0.00            | 3,586.91         | 26.7               |
| Industrial                      | 334.07           | 0.00         | 83.54         | 0.00          | 0.00            | 417.61           | 3.1                |
| Transport                       | 1,470.15         | 0.00         | 20.62         | 0.00          | 0.00            | 1,490.77         | 11.1               |
| <b>Subtotal</b>                 | <b>6,695.33</b>  | <b>0.00</b>  | <b>475.08</b> | <b>0.00</b>   | <b>0.00</b>     | <b>7,170.41</b>  | <b>53.4</b>        |
| <b>AC subsectors</b>            |                  |              |               |               |                 |                  |                    |
| Residential                     | 0.00             | 7.04         | 0.00          | 439.60        | 783.22          | 1,229.86         | 9.2                |
| Commercial                      | 0.00             | 28.16        | 0.00          | 0.00          | 1,174.82        | 1,202.98         | 9.0                |
| Mobile                          | 3,823.79         | 0.00         | 0.00          | 0.00          | 0.00            | 3,823.79         | 28.5               |
| <b>Subtotal</b>                 | <b>3,823.79</b>  | <b>35.20</b> | <b>0.00</b>   | <b>439.60</b> | <b>1,958.04</b> | <b>6,256.63</b>  | <b>46.6</b>        |
| <b>Total</b>                    | <b>10,519.12</b> | <b>35.20</b> | <b>475.08</b> | <b>439.60</b> | <b>1,958.04</b> | <b>13,427.04</b> | <b>100</b>         |

**Table 17. HFC consumption in Nigeria in the refrigeration and AC servicing subsectors in CO<sub>2</sub>-eq tonnes (2024)**

| Sector                          | HFC-134a          | HFC-32        | R-404A           | R-407C         | R-410A           | Total             | Share of total (%) |
|---------------------------------|-------------------|---------------|------------------|----------------|------------------|-------------------|--------------------|
| <b>Refrigeration subsectors</b> |                   |               |                  |                |                  |                   |                    |
| Domestic                        | 2,395,422         | 0             | 0                | 0              | 0                | 2,395,422         | 11.0               |
| Commercial                      | 4,598,866         | 0             | 1,454,600        | 0              | 0                | 6,053,466         | 27.8               |
| Industrial                      | 477,720           | 0             | 327,610          | 0              | 0                | 805,331           | 3.7                |
| Transport                       | 2,102,315         | 0             | 80,863           | 0              | 0                | 2,183,178         | 10.0               |
| <b>Subtotal</b>                 | <b>9,574,322</b>  | <b>0</b>      | <b>1,863,074</b> | <b>0</b>       | <b>0</b>         | <b>11,437,396</b> | <b>52.5</b>        |
| <b>AC subsectors</b>            |                   |               |                  |                |                  |                   |                    |
| Residential                     | 0                 | 4,752         | 0                | 779,784        | 1,634,972        | 2,419,508         | 11.1               |
| Commercial                      | 0                 | 19,008        | 0                | 0              | 2,452,437        | 2,471,445         | 11.3               |
| Mobile                          | 5,468,020         | 0             | 0                | 0              | 0                | 5,468,020         | 25.1               |
| <b>Subtotal</b>                 | <b>5,468,020</b>  | <b>23,760</b> | <b>0</b>         | <b>779,784</b> | <b>4,087,409</b> | <b>10,358,973</b> | <b>47.5</b>        |
| <b>Total</b>                    | <b>15,042,342</b> | <b>23,760</b> | <b>1,863,074</b> | <b>779,784</b> | <b>4,087,409</b> | <b>21,796,368</b> | <b>100</b>         |

104. There are approximately 80,000 technicians (including 800 women) and 30,000 workshops consuming HFCs in Nigeria. There are 29 training institutes nationwide conducting RAC courses at the diploma and certificate levels, with approximately 78 trainers. Approximately 1,200 students graduate annually from these courses. A cumulative 14,800 technicians have been trained on good servicing practices and the safe handling of flammable refrigerants under the HPMP and an additional 6,250 trained by the training centres.

*Domestic, commercial, industrial and transport refrigeration servicing*

105. HFC-134a is the dominant refrigerant and only HFC consumed in the servicing of domestic refrigerators and freezers in Nigeria, upheld by the limited availability of R-600a-based refrigeration, at approximately 35 per cent of total units; a strong second-hand market; unsafe practices of reconverting R-600a units to HFC-134a; and the continued use of uncertified technicians. There are an estimated 23.4 million domestic refrigerators and freezers in the country, with high leakage rates at up to 50 per cent.

106. The commercial refrigeration subsector comprises stand-alone display cabinets, condensing units, and cold rooms. There are approximately 3.1 million standalone units, of which 87 per cent use HFC-134a and the remaining use R-404A, R-290 (propane), and occasionally R-744 (CO<sub>2</sub>). The leakage rates of standalone commercial units range from 30 to 45 per cent.

107. There are approximately 68,000 commercial condensing units in the country, primarily serviced by HFC-134a, with a smaller minority using R-404A and R-407C; at least 25 per cent continue to be serviced using HCFC-22. Due to poor installation practices, the leakage rates of commercial condensing units are high and vary with equipment age, installation quality, and maintenance, with variations estimated from 20 to 50 per cent or higher.

108. There are approximately 210,000 medium- and large-sized cold rooms consuming HFC-134a followed by R-404A, with leakage rates averaging 30 per cent.

109. The industrial refrigeration subsector includes large, centralized refrigeration systems and process chillers, with an estimated stock of approximately 70,000 units. These units are primarily installed at food processing plants and large warehouse cold stores, with process chillers also used in various manufacturing processes such as plastics. HFC-134a is the predominant refrigerant used for chillers, whereas R-404A is consumed in centralized systems. Due to poor maintenance practices, the leakage rates in chillers are quite high, averaging 30 to 45 per cent or higher, resulting in frequent refrigerant top-ups.

110. The refrigerated transport subsector comprises refrigerated trucks as well as mobile cold boxes in trains and ships as part of the food cold chain. This subsector includes an estimated 178,000 units, with HFC-134a and R-404A being the dominant refrigerants.

#### Residential and commercial air-conditioning servicing

111. Most residential AC units are imported into the country, with an estimated stock of 15 million units. Approximately 77 per cent use HFCs, with R-410A being the dominant HFC, and R-407C used in much smaller quantities, along with HFC-32 as an emerging refrigerant in the subsector. As with domestic refrigeration, a strong second-hand market exists for residential AC. Although the import of used AC has been banned, a considerable second-hand AC market still exists. Ongoing efforts to support enforcement of the ban are being undertaken including the AGORA project.

112. The commercial AC subsector comprises split ducted, rooftop ducted, multi-split AC units and chillers. Approximately 97 per cent of commercial AC systems use R-410A, with the remaining units using HFC-32 and a very small amount using R-417A. Due to the high cost of HFC-32-based systems, this HFC is used much less frequently. Various HFCs are used to service chillers, with HFC-134a being dominant and R-410A and R-407C used in fewer cases, and there are also some remaining HCFC-22 units. This subsector is a sizeable consumer of HFCs due to recent increases in offices and residential buildings. Due to varied skill levels of servicing technicians across the country, the leakage rates of commercial AC systems are high, leading to significant consumption particularly among multi-split and ducted systems given their large charge size.

#### Mobile air-conditioning servicing

113. There are approximately 10 million vehicles equipped with MAC systems, including public transport and older private cars that have not been functional for several years. Almost all vehicles are using HFC-134a, with about 47 per cent serviced annually, leading to topping up of refrigerant. Only the most recent models are HFO-1234yf-based, which is imported as-needed and not available locally. This sector is a significant contributor to the HFC-134a use in the country, with an estimated consumption of 3,824 mt in 2024.

#### Local installation and assembly subsector

114. While there are many enterprises that could be characterised as assembly enterprises, it was not possible to obtain detailed information on the local installation and assembly subsector in Nigeria. During implementation of the KIP, additional efforts will be made to collect detailed information on the subsector.

#### **IV. Updated stage I of the Kigali HFC implementation plan as submitted**

##### Institutional, policy and regulatory framework

115. A ban on the import of HCFC-141b, both pure and in pre-blended polyols, has been in effect since 1 January 2023. In line with decisions 79/25 and 91/46(b), the complete phase-out of HCFCs in the RAC manufacturing sector will be supported by a ban on the import of HCFC-22-based equipment, originally planned for 1 January 2026 and delayed to 1 January 2027,<sup>24</sup> and a ban on the use of HCFC-22 in the manufacturing of RAC equipment that will be imposed upon completion of conversion projects included in stage III (no later than 1 January 2027); the Government is also in the process of developing a tax reduction policy for equipment using R-290 and HFC-32.

116. The Government of Nigeria ratified the Kigali Amendment on 20 December 2018. The National Environmental (Ozone Layer Protection) regulations, 2009, was amended in 2022 to include HFCs in line with the Montreal Protocol provisions, and stipulate guidelines for the manufacture, import, sale and use of ODS and HFCs in the country. In 2023, the Ozone Layer Protection and Hydrofluorocarbons Phase Down Regulation was updated to include HFC control measures in line with the Kigali Amendment and to mandate technicians to promote energy-efficient servicing practices. HFCs were subsequently added to the licensing and quota system, alongside provisions addressing energy efficiency.

117. The institutional framework for managing energy efficiency is described in paragraphs 33 to 39 of document UNEP/OzL.Pro/ExCom/93/77. In 2017, Nigeria adopted the MEPS for domestic refrigerators and residential air conditioners developed by the African Union and the Economic Community of West African States (ECOWAS). The MEPS requires that the manufacturers affix energy labels to products and that the refrigerant used has zero ODP. The Government is currently working with UNIDO to facilitate the operationalization and enforcement of the MEPS and labelling for RAC appliances. It is expected that the MEPS will be enforced starting from 1 January 2027 for residential AC units and June 2027 for domestic refrigerators and freezers.

##### Phase-down strategy for the updated stage I of the Kigali HFC implementation plan

###### *Overarching strategy*

118. The updated stage I aims to reduce HFCs by 16.85 per cent from the revised baseline by 2029 to allow a prudent buffer to reliably achieve 10 per cent reduction under the Montreal Protocol, given that the 2025 consumption is close to the baseline level.

119. The updated stage I strategy is aligned with the strategy submitted to the 95<sup>th</sup> meeting. The Government proposes to adopt a staged approach to reduce HFCs in line with the Montreal Protocol phase-down schedule. The updated stage I of the KIP builds on ongoing initiatives under the HPMP and will be implemented with it concurrently. All synergies with the HPMP and other ongoing initiatives will be explored and enhanced. The updated stage I of the KIP will primarily target the servicing sector supported by regulatory controls, technician's training and certification, refrigerant recovery and reclamation, and technology promotion while also addressing phase-out in the manufacturing sector (i.e., domestic refrigeration, residential AC, and foam) to further reduce HFC use.

###### *Proposed reductions*

120. HFC consumption is expected to grow slightly by 1 per cent from 2026 to 2028 under the business-as-usual scenario, then begin to decline in 2029 and 2030. This consumption trend was estimated based on the country's economic development, the implementation of activities approved at the

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<sup>24</sup> As explained in paragraph 19 of the present document.

95<sup>th</sup> meeting, the market penetration of HFC alternatives, HCFC phase-out and other ongoing initiatives in the country, as presented in table 18 below.

121. Stage I of the KIP, approved at the 95<sup>th</sup> meeting, included a reduction of 1,538,628 CO<sub>2</sub>-eq tonnes (1,142.54 mt) to achieve a 10.13 per cent reduction from the baseline established at that time by 2029 with a total funding of US \$4,283,033. In view of the revised baseline, additional reductions beyond those already approved at the 95<sup>th</sup> meeting are needed to enable the country to achieve a minimum 10 per cent reduction from the baseline in 2029, in compliance with the Montreal Protocol. Therefore, Nigeria proposes to further reduce 2,672,229 CO<sub>2</sub>-eq tonnes to achieve a total reduction of 4,210,857 CO<sub>2</sub>-eq tonnes in the updated stage I with additional funding of US \$10,110,477. The total funding for the updated stage I of the KIP, including the requested additional funds as submitted, amounts to US \$14,393,510 to achieve a 16.85 per cent reduction from the revised baseline.

**Table 18. HFC consumption forecast under the unconstrained scenario, Montreal Protocol limits, and proposed HFC reductions under the updated stage I (CO<sub>2</sub>-eq tonnes)**

|                                                                            | 2026       | 2027       | 2028       | 2029       | 2030       |
|----------------------------------------------------------------------------|------------|------------|------------|------------|------------|
| HFC consumption forecast at various annual growth rate under BAU scenario* | 25,175,006 | 25,421,684 | 25,671,867 | 25,411,834 | 24,626,973 |
| Montreal Protocol HFC consumption limits                                   | 24,986,406 | 24,986,406 | 24,986,406 | 22,487,765 | 22,487,765 |
| HFC consumption levels proposed under the KIP                              | 24,986,406 | 24,986,406 | 24,986,406 | 20,775,549 | 20,775,549 |
| Proposed reductions from the HFC consumption baseline (%)                  | 0          | 0          | 0          | 16.85      | 16.85      |

\* HFC consumption is expected to grow slightly by 1 per cent from 2026 to 2028 under the business-as-usual scenario, then begin to decline in 2029 and 2030 based on economic development, ongoing activities, the market penetration of HFC alternatives, HFC phased in from HCFC phase-out and other ongoing initiatives in the country.

### *Proposed activities*

122. The implementation plan for the updated stage I of the KIP proposes activities in addition to those agreed at the 95<sup>th</sup> meeting.

### Manufacturing sector

123. At the 95<sup>th</sup> meeting, the Executive Committee approved technical assistance activities for two enterprises manufacturing PU foam to phase out 472.50 mt of HFC-365mfc; the conversion of one residential AC manufacturing line to HFC-32 to phase out 48.90 mt of R-410A consumption; and technical assistance activities for 15 small enterprises involved in manufacturing ice-making machines and cold rooms to phase out 8.97 mt of HFC-134a.

124. The updated KIP proposal submitted to the 98<sup>th</sup> meeting includes the conversion of three domestic refrigeration manufacturing lines at three enterprises to phase out 39.05 mt of HFC-134a; and the conversion of two residential AC manufacturing lines at two enterprises to phase out 104.94 mt of R-410A.

125. An overview of approved and proposed projects for implementation in the manufacturing sector under stage I are presented in table 19.

**Table 19. Summary of approved and proposed manufacturing projects under the updated stage I of the KIP**

| Subsector                         | Enterprise                                     | Activity             | Substance  | Phase-out (mt) | Cost (US \$)     |
|-----------------------------------|------------------------------------------------|----------------------|------------|----------------|------------------|
| <b>Approved (95<sup>th</sup>)</b> |                                                |                      |            |                |                  |
| PU foam                           | Vitapur                                        | Technical assistance | HFC-365mfc | 262.50         | 80,000           |
| PU foam                           | Lange and Grants                               | Technical assistance | HFC-365mfc | 210.00         | 80,000           |
| Residential AC                    | HPZ                                            | Conversion           | R-410A     | 48.90          | 542,250          |
| Commercial refrigeration          | 15 small ice machine and cold room enterprises | Technical assistance | HFC-134a   | 8.97           | 105,000          |
| <b>Subtotal (95<sup>th</sup>)</b> |                                                |                      |            | <b>530.37</b>  | <b>807,250</b>   |
| <b>Proposed (98<sup>th</sup>)</b> |                                                |                      |            |                |                  |
| Residential AC                    | SIMS                                           | Conversion           | R-410A     | 81.10          | 1,046,344        |
| Residential AC                    | Care Global                                    | Conversion           | R-410A     | 23.84          | 365,000          |
| Domestic refrigeration            | SIMS                                           | Conversion           | HFC-134a   | 27.72          | 379,401          |
| Domestic refrigeration            | Somotex                                        | Conversion           | HFC-134a   | 3.15           | 47,250           |
| Domestic refrigeration            | Koolboks                                       | Conversion           | HFC-134a   | 8.17           | 122,900          |
| <b>Subtotal (98<sup>th</sup>)</b> |                                                |                      |            | <b>143.98</b>  | <b>1,960,895</b> |
| <b>Total</b>                      |                                                |                      |            | <b>674.35</b>  | <b>2,768,145</b> |

Residential AC manufacturing conversions proposed at the 98<sup>th</sup> meeting

126. The two residential AC manufacturers SIMS Nigeria Limited (SIMS) and Care Global Consumer Limited (Care Global) were established in 2004 and 2000, respectively. SIMS is 100 per cent Nigerian-owned, while Care Global has 37 per cent of its shares held by a United Arab Emirates-based entity. Both enterprises manufacture using semi-knock-down (SKD) or complete-knock-down (CKD) kits and produce a variety of residential AC products. The refrigerant charge per unit ranges from 0.45 kg to 1.70 kg for SIMS and from 0.425 kg to 3.37 kg for Care Global. R-410A consumption and the proposed reduction through enterprise conversions are presented in table 20 below.

**Table 20: R-410A consumption in enterprise conversions of the residential AC manufacturing subsector (mt)**

| Enterprise      | 2020          | 2021          | 2022          | 2023          | 2024          | 2025          | Proposed reduction |
|-----------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------------|
| SIMS            | 77.36         | 80.89         | 85.04         | 92.19         | 104.49        | 114.50        | 81.10              |
| Care Global     | 26.41         | 23.58         | 21.55         | 28.30         | 55.69         | 59.34         | 23.84              |
| <b>Subtotal</b> | <b>103.77</b> | <b>104.47</b> | <b>106.59</b> | <b>120.49</b> | <b>160.18</b> | <b>173.84</b> | <b>104.94</b>      |
| HPZ             | 52.98         | 40.87         | 66.17         | 39.66         | 39.90         | 20.6          | 48.90*             |
| <b>Total</b>    | <b>156.75</b> | <b>145.34</b> | <b>172.76</b> | <b>160.15</b> | <b>200.08</b> | <b>173.84</b> | <b>153.84</b>      |

\* Approved at the 95<sup>th</sup> meeting.

127. Several alternative technologies were considered. R-290 has a low GWP but poses challenges due to its high flammability, which adds complexity to equipment design, manufacturing, and servicing. It may be suitable for small split AC units; however, experience with this technology is limited. Nigeria is not yet equipped with the necessary safety standards, technicians trained and certified to handle flammable refrigerants, and broader social acceptance of flammable refrigerants by end users. As HFC-32 has a GWP of 675, is widely used globally, exhibits only mild flammability, and delivers higher efficiency and capacity than R-410A, the project proposes for the two lines to initially convert from R-410A to HFC-32, and later

to R-290 once the systems and infrastructure become available for the safe and complete adoption of a highly flammable refrigerant.

128. The main steps in the manufacturing process include unpacking the SKD or CKD outdoor unit, fixing the compressor and tubing, brazing, wiring, vacuuming, refrigerant charging, leak testing, performance testing, and packing the final products. The incremental capital costs (ICCs) of conversion include the replacement of baseline equipment (such as refrigerant charging machines, leak detectors, and performance testing equipment), as well as the installation of refrigerant storage tanks, leak detection and ventilation systems for the safe handling of flammable refrigerants.

129. As shown in table 21, the total cost requested for the conversion of the two AC manufacturing lines amounts to US \$1,411,344, which will phase out 104.95 mt of R-410A at an average cost effectiveness of US \$13.45/kg, as originally submitted.

**Table 21. Proposed costs of conversion activities at residential AC manufacturers SIMS and Care Global (US \$)**

| Description                                                                                                                                                                                                                              | No. of units | Unit cost | Total cost       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------|------------------|
| <i><b>SIMS</b></i>                                                                                                                                                                                                                       |              |           |                  |
| <b>Production (US \$235,000)</b>                                                                                                                                                                                                         |              |           |                  |
| Refrigerant storage                                                                                                                                                                                                                      | 1            | 40,000    | 40,000           |
| Refrigerant transfer system                                                                                                                                                                                                              | 1            | 25,000    | 25,000           |
| New refrigerant charging boards incorporating the necessary safety features                                                                                                                                                              | 2            | 70,000    | 140,000          |
| New leak detectors                                                                                                                                                                                                                       | 3            | 10,000    | 30,000           |
| <b>Plant safety (US \$185,000)</b>                                                                                                                                                                                                       |              |           |                  |
| Ventilation and exhaust system for storage, charging, and test areas                                                                                                                                                                     | 3            | 25,000    | 75,000           |
| Gas sensors and alarm monitoring system for the plant                                                                                                                                                                                    | 3            | 25,000    | 75,000           |
| Fire protection/control system for the plant                                                                                                                                                                                             | 1            | 10,000    | 10,000           |
| Lightning protection and grounding                                                                                                                                                                                                       | 1            | 10,000    | 10,000           |
| Safety audit/safety inspection and certification                                                                                                                                                                                         | 1            | 15,000    | 15,000           |
| <b>General work (US \$37,500)</b>                                                                                                                                                                                                        |              |           |                  |
| Modification of existing layout to accommodate installation of new equipment such as grounding, antistatic floor in hazardous area, safety walls around the hazardous areas, explosion proof electrical switches, motor connection, etc. | 1            | 32,500    | 32,500           |
| Firefighting water reservoir                                                                                                                                                                                                             | 1            | 5,000     | 5,000            |
| <b>Training and commission (US \$50,000)</b>                                                                                                                                                                                             |              |           |                  |
| Design, prototype, testing of six models with HFC-32 refrigerant                                                                                                                                                                         | 6            | 5,000     | 30,000           |
| Training for handling of flammable alternate technology                                                                                                                                                                                  | 1            | 10,000    | 10,000           |
| Trial, testing, and commission of the manufacturing lines                                                                                                                                                                                | 1            | 10,000    | 10,000           |
| <i>Contingency (10 per cent of equipment costs)</i>                                                                                                                                                                                      |              |           | <i>45,750</i>    |
| <b>Total ICCs</b>                                                                                                                                                                                                                        |              |           | <b>553,250</b>   |
| One year of incremental operating costs (IOCs)                                                                                                                                                                                           |              |           | 493,094          |
| <b>Total project cost</b>                                                                                                                                                                                                                |              |           | <b>1,046,344</b> |
| <i>Total phase-out (mt)</i>                                                                                                                                                                                                              |              |           | <i>81.10</i>     |
| <i>Cost effectiveness of the project (US \$/kg)</i>                                                                                                                                                                                      |              |           | <i>12.90</i>     |
| <i><b>Care Global</b></i>                                                                                                                                                                                                                |              |           |                  |
| <b>Production (US \$130,000)</b>                                                                                                                                                                                                         |              |           |                  |
| Refrigerant storage                                                                                                                                                                                                                      | 1            | 25,000    | 25,000           |
| Refrigerant transfer system                                                                                                                                                                                                              | 1            | 15,000    | 15,000           |
| New refrigerant charging boards incorporating the necessary safety features                                                                                                                                                              | 1            | 70,000    | 70,000           |
| New leak detectors                                                                                                                                                                                                                       | 2            | 10,000    | 20,000           |

| Description                                                                                                                                                                                                                               | No. of units | Unit cost | Total cost     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------|----------------|
| <b>Plant safety (US \$165,000)</b>                                                                                                                                                                                                        |              |           |                |
| Ventilation and exhaust system for storage, charging, and test areas                                                                                                                                                                      | 3            | 25,000    | 75,000         |
| Gas sensors and alarm monitoring system for the plant                                                                                                                                                                                     | 3            | 25,000    | 75,000         |
| Fire protection/control system for the plant*                                                                                                                                                                                             | 1            | 10,000    | 0              |
| Lightning protection and grounding*                                                                                                                                                                                                       | 1            | 10,000    | 0              |
| Safety audit/safety inspection and certification                                                                                                                                                                                          | 1            | 15,000    | 15,000         |
| <b>General work (US \$5,000)</b>                                                                                                                                                                                                          |              |           |                |
| Modification of existing layout to accommodate installation of new equipment such as grounding, antistatic floor in hazardous area, safety walls around the hazardous areas, explosion proof electrical switches, motor connection, etc.* | 1            | 32,500    | 0              |
| Firefighting water reservoir                                                                                                                                                                                                              | 1            | 5,000     | 5,000          |
| <b>Training and commission (US \$35,000)</b>                                                                                                                                                                                              |              |           |                |
| Design, prototype, testing of three models with HFC-32 refrigerant                                                                                                                                                                        | 3            | 5,000     | 15,000         |
| Training for handling of flammable alternate technology                                                                                                                                                                                   | 1            | 10,000    | 10,000         |
| Trial, testing, and commission of the manufacturing lines                                                                                                                                                                                 | 1            | 10,000    | 10,000         |
| <i>Contingency (10 per cent of equipment costs) *</i>                                                                                                                                                                                     |              |           | 30,000         |
| <b>Total ICCs</b>                                                                                                                                                                                                                         |              |           | <b>365,000</b> |
| One year of IOCs                                                                                                                                                                                                                          |              |           | 0              |
| <b>Total project cost</b>                                                                                                                                                                                                                 |              |           | <b>365,000</b> |
| <i>Total phase-out (mt)</i>                                                                                                                                                                                                               |              |           | <i>23.84</i>   |
| <i>Cost effectiveness of the project (US \$/kg)</i>                                                                                                                                                                                       |              |           | <i>15.31</i>   |

\* Care Global will cover a total of ICC of US \$57,750 as co-funding.

#### Domestic refrigeration manufacturing conversions proposed at the 98<sup>th</sup> meeting

130. The three enterprises in the domestic refrigeration manufacturing subsector, namely SIMS, Somotex Nigeria Limited (Somotex) and Koolboks Limited (Koolboks), were established in 2004, 1997 and 2019, respectively, and all are 100 per cent Nigerian-owned. These enterprises manufacture a variety of domestic and small commercial refrigerators and freezers using SKD or CKD kits with HFC-134a. The refrigerant charge per unit ranges from 0.31 kg to 0.45 kg. HFC-134a consumption and the proposed reduction through enterprise conversions are presented in table 22 below.

**Table 22: HFC-134a consumption in enterprise conversions of the domestic refrigeration manufacturing subsector (mt)**

| Enterprise   | 2020          | 2021          | 2022          | 2023          | 2024          | 2025          | Proposed reduction |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------------|
| SIMS         | 35.45         | 28.36         | 19.35         | 20.02         | 9.88          | 9.61          | 27.72              |
| Somotex      | 2.38          | 3.48          | 3.59          | 4.07          | 4.35          | 3.99          | 3.15               |
| Koolboks     | 6.3           | 6.63          | 11.59         | 9.46          | 10.03         | 10.08         | 8.17               |
| <b>Total</b> | <b>156.75</b> | <b>145.34</b> | <b>172.76</b> | <b>160.15</b> | <b>200.08</b> | <b>173.84</b> | <b>39.04</b>       |

131. R-600a was selected as the alternative technology as it is a widely adopted low-GWP technology. The manufacturing process includes the following major steps: unpacking the SKD or CKD kits; assembling or fixing doors, compressors, and piping; brazing; leakage testing; vacuuming; refrigerant charging; connection; performance testing; and packing the final products. The ICCs of conversion include the replacement of baseline equipment (such as ultrasonic welding machines, refrigerant charging machines, leak detectors, tools for handling flammable refrigerants, and performance testing equipment), as well as the installation of alternative refrigerant storage tanks and ventilation systems for the safe handling of flammable refrigerants.

132. As shown in table 23, the total cost requested for the conversion of three manufacturing lines amounts to US \$549,551 to phase out 39.04 mt of HFC-134a at an average cost effectiveness of US \$14.07/kg, as originally submitted.

**Table 23. Proposed costs of conversion activities at domestic refrigeration manufacturers SIMS, Somotex, and Koolboks (US \$)**

| Description                                                                                                                                                                                                                               | No. of units | Unit cost | Total cost     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------|----------------|
| <b>SIMS</b>                                                                                                                                                                                                                               |              |           |                |
| <b>Production (US \$105,000)</b>                                                                                                                                                                                                          |              |           |                |
| New refrigerant charging and supply system incorporating the necessary safety features                                                                                                                                                    | 1            | 85,000    | 85,000         |
| New leak detectors                                                                                                                                                                                                                        | 2            | 10,000    | 20,000         |
| <b>Plant safety (US \$85,000)</b>                                                                                                                                                                                                         |              |           |                |
| Ventilation and exhaust system                                                                                                                                                                                                            | 1            | 25,000    | 25,000         |
| Gas sensors and alarm monitoring system for the plant                                                                                                                                                                                     | 1            | 25,000    | 25,000         |
| Fire protection/control system for the plant                                                                                                                                                                                              | 1            | 10,000    | 10,000         |
| Lightning protection and grounding                                                                                                                                                                                                        | 1            | 10,000    | 10,000         |
| Safety audit/safety inspection and certification                                                                                                                                                                                          | 1            | 15,000    | 15,000         |
| <b>General work (US \$37,500)</b>                                                                                                                                                                                                         |              |           |                |
| Modification of existing layout to accommodate installation of new equipment such as grounding, antistatic floor in hazardous area, safety walls around the hazardous areas, explosion proof electrical switches, motor connection, etc.  | 1            | 32,500    | 32,500         |
| Firefighting water reservoir                                                                                                                                                                                                              | 1            | 5,000     | 5,000          |
| <b>Training and commission (US \$50,000)</b>                                                                                                                                                                                              |              |           |                |
| Design, prototype, testing of six models with R-600a refrigerant                                                                                                                                                                          | 6            | 5,000     | 30,000         |
| Training for handling of flammable alternate technology                                                                                                                                                                                   | 1            | 10,000    | 10,000         |
| Trial, testing, and commission of the manufacturing lines                                                                                                                                                                                 | 1            | 10,000    | 10,000         |
| <i>Contingency (10 per cent of equipment costs)</i>                                                                                                                                                                                       |              |           | 22,700         |
| <b>Total ICCs</b>                                                                                                                                                                                                                         |              |           | <b>299,700</b> |
| One year of IOCs                                                                                                                                                                                                                          |              |           | 79,701         |
| <b>Total project cost</b>                                                                                                                                                                                                                 |              |           | <b>379,401</b> |
| <i>Total phase-out (mt)</i>                                                                                                                                                                                                               |              |           | 27.72          |
| <i>Cost effectiveness of the project (US \$/kg)</i>                                                                                                                                                                                       |              |           | 13.69          |
| <b>Somotex</b>                                                                                                                                                                                                                            |              |           |                |
| <b>Production (US \$45,000)</b>                                                                                                                                                                                                           |              |           |                |
| New refrigerant charging system incorporating the necessary safety features                                                                                                                                                               | 1            | 45,000    | 45,000         |
| New leak detector*                                                                                                                                                                                                                        | 1            | 10,000    | 0              |
| <b>Plant safety (US \$0)</b>                                                                                                                                                                                                              |              |           |                |
| Ventilation and exhaust system*                                                                                                                                                                                                           | 1            | 15,000    | 0              |
| Gas sensors and alarm monitoring system for the plant*                                                                                                                                                                                    | 1            | 15,000    | 0              |
| Fire protection/control system for the plant*                                                                                                                                                                                             | 1            | 10,000    | 0              |
| Lightning protection and grounding*                                                                                                                                                                                                       | 1            | 10,000    | 0              |
| Safety audit/safety inspection and certification*                                                                                                                                                                                         | 1            | 15,000    | 0              |
| <b>General work (US \$0)</b>                                                                                                                                                                                                              |              |           |                |
| Modification of existing layout to accommodate installation of new equipment such as grounding, antistatic floor in hazardous area, safety walls around the hazardous areas, explosion proof electrical switches, motor connection, etc.* | 1            | 5,000     | 0              |
| Firefighting water reservoir*                                                                                                                                                                                                             | 1            | 2,000     | 0              |

| Description                                                                                                                                                                                                                               | No. of units | Unit cost | Total cost     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------|----------------|
| <b>Training and commission (US \$0)</b>                                                                                                                                                                                                   |              |           |                |
| Training for handling of flammable alternate technology*                                                                                                                                                                                  | 1            | 5,000     | 0              |
| Trial, testing, and commission of the manufacturing lines*                                                                                                                                                                                | 1            | 5,000     | 0              |
| <i>Contingency (5 per cent of equipment costs)*</i>                                                                                                                                                                                       |              |           | 2,250          |
| <b>Total ICCs</b>                                                                                                                                                                                                                         |              |           | <b>47,250</b>  |
| One year of IOCs                                                                                                                                                                                                                          |              |           | 0              |
| <b>Total project cost</b>                                                                                                                                                                                                                 |              |           | <b>47,250</b>  |
| <i>Total phase-out (mt)</i>                                                                                                                                                                                                               |              |           | 3.15           |
| <i>Cost effectiveness of the project (US \$/kg)</i>                                                                                                                                                                                       |              |           | 15.00          |
| <b>Koolboks</b>                                                                                                                                                                                                                           |              |           |                |
| <b>Production (US \$70,000)</b>                                                                                                                                                                                                           |              |           |                |
| New refrigerant charging system incorporating the necessary safety features                                                                                                                                                               | 1            | 60,000    | 60,000         |
| New leak detectors                                                                                                                                                                                                                        | 1            | 10,000    | 10,000         |
| <b>Plant safety (US \$28,000)</b>                                                                                                                                                                                                         |              |           |                |
| Ventilation and exhaust system                                                                                                                                                                                                            | 1            | 14,000    | 14,000         |
| Gas sensors and alarm monitoring system for the plant                                                                                                                                                                                     | 1            | 14,000    | 14,000         |
| Fire protection/control system for the plant*                                                                                                                                                                                             | 1            | 10,000    | 0              |
| Lightning protection and grounding*                                                                                                                                                                                                       | 1            | 10,000    | 0              |
| Safety audit/safety inspection and certification*                                                                                                                                                                                         | 1            | 10,000    | 0              |
| <b>General work (US \$0)</b>                                                                                                                                                                                                              |              |           |                |
| Modification of existing layout to accommodate installation of new equipment such as grounding, antistatic floor in hazardous area, safety walls around the hazardous areas, explosion proof electrical switches, motor connection, etc.* | 1            | 10,000    | 0              |
| Firefighting water reservoir*                                                                                                                                                                                                             | 1            | 5,000     | 0              |
| <b>Training and commission (US \$50,000)</b>                                                                                                                                                                                              |              |           |                |
| Training for handling of flammable alternate technology                                                                                                                                                                                   | 1            | 10,000    | 10,000         |
| Trial, testing, and commission of the manufacturing lines                                                                                                                                                                                 | 1            | 10,000    | 10,000         |
| <i>Contingency (5 per cent of equipment costs)</i>                                                                                                                                                                                        |              |           | 4,900          |
| <b>Total ICCs</b>                                                                                                                                                                                                                         |              |           | <b>122,900</b> |
| One year of IOCs                                                                                                                                                                                                                          |              |           | 0              |
| <b>Total project cost</b>                                                                                                                                                                                                                 |              |           | <b>122,900</b> |
| <i>Total phase-out (mt)</i>                                                                                                                                                                                                               |              |           | 8.17           |
| <i>Cost effectiveness of the project (US \$/kg)</i>                                                                                                                                                                                       |              |           | 15.04          |

\* Somotex will cover a total of US \$96,100 of costs and Koolboks a total of US \$45,000 of costs.

#### Refrigeration and air-conditioning servicing sector

133. In addition to the activities approved at the 95<sup>th</sup> meeting, further servicing sector activities are proposed under the updated stage I. A cost breakdown of those agreed at the 95<sup>th</sup> meeting as well as the total updated costs are presented in table 24.

**Table 24. Servicing sector activities and their costs in stage I of the KIP for Nigeria, as agreed at the 95<sup>th</sup> meeting and as submitted to the present meeting (US \$)**

| Project component                                                                 | Agency | Agreed at the 95 <sup>th</sup> meeting | Updated costs, as submitted* |
|-----------------------------------------------------------------------------------|--------|----------------------------------------|------------------------------|
| <b>Servicing sector</b>                                                           |        |                                        |                              |
| <b>Strengthening the HFC licensing and quota system</b>                           |        | <b>350,000</b>                         | <b>350,000</b>               |
| Conducting 10 workshops to create stakeholders' awareness on HFC licensing system | UNEP   | 250,000                                | 250,000                      |

| Project component                                                                                                                                                                                                                                                                                                                                                                       | Agency | Agreed at the 95 <sup>th</sup> meeting | Updated costs, as submitted* |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------------------|------------------------------|
| Drafting additional controls on imports, fiscal incentives, additional controls                                                                                                                                                                                                                                                                                                         |        | 50,000                                 | 50,000                       |
| Implementing HFC quotas through the online imports' licence registry                                                                                                                                                                                                                                                                                                                    | UNDP   | 50,000                                 | 50,000                       |
| <b>Customs capacity-building</b>                                                                                                                                                                                                                                                                                                                                                        |        | <b>320,000</b>                         | <b>320,000</b>               |
| Update training curriculum at the customs training institute to include HFCs, controls for energy efficiency measures and used RAC equipment                                                                                                                                                                                                                                            | UNDP   | 30,000                                 | 30,000                       |
| Train of 20 trainers on HFC control measures using the updated curriculum                                                                                                                                                                                                                                                                                                               |        | 20,000                                 | 20,000                       |
| Train 300 customs officers HFC control measures using the updated curriculum                                                                                                                                                                                                                                                                                                            |        | 150,000                                | 150,000                      |
| Train 200 clearance agents on HFC control measures                                                                                                                                                                                                                                                                                                                                      |        | 120,000                                | 120,000                      |
| <b>RAC and MAC technician capacity-building</b>                                                                                                                                                                                                                                                                                                                                         |        | <b>610,000</b>                         | <b>1,510,000</b>             |
| Update MAC training curriculum and include MAC technicians into the RAC certification scheme                                                                                                                                                                                                                                                                                            | UNDP   | 100,000                                | 100,000                      |
| Train 60 trainers on good servicing practices using the updated curriculum                                                                                                                                                                                                                                                                                                              |        | 60,000                                 | 60,000                       |
| Train 500 MAC technicians on good practices using the updated curriculum                                                                                                                                                                                                                                                                                                                |        | 200,000                                | 200,000                      |
| Hold 50 workshops to train an additional 1,000 MAC technicians                                                                                                                                                                                                                                                                                                                          |        | -                                      | 300,000                      |
| Hold 30 specialized workshops to train 600 RAC technicians in hydrocarbon systems                                                                                                                                                                                                                                                                                                       |        | -                                      | 150,000                      |
| Hold 10 specialized workshops to train 200 RAC technicians in CO <sub>2</sub> systems                                                                                                                                                                                                                                                                                                   |        | -                                      | 50,000                       |
| Cover certification costs for 800 trained technicians, including at least 400 women                                                                                                                                                                                                                                                                                                     |        | -                                      | 400,000                      |
| Technical assistance to 50 large refrigeration systems on leak proofing                                                                                                                                                                                                                                                                                                                 |        | 150,000                                | 150,000                      |
| Provide support to the Nigerian Automobile Technicians Association (NATA)                                                                                                                                                                                                                                                                                                               |        | 100,000                                | 100,000                      |
| <b>Equipment procurement</b>                                                                                                                                                                                                                                                                                                                                                            |        | <b>874,133</b>                         | <b>4,420,883</b>             |
| Establish five centres of excellence for MAC sector; establish 10 HFC-290-based commercial refrigeration training units; provide sets of tools and equipment to 100 MAC garages; equip 13 RAC institutes with safety tools and equipment; equip two RAC institutes with trans-critical CO <sub>2</sub> training laboratories; and provide basic safety tool sets to 450 RAC technicians | UNDP   | 874,133                                | 874,133                      |
| Procure additional sets of servicing tools to 800 RAC technicians                                                                                                                                                                                                                                                                                                                       |        | -                                      | 3,108,000                    |
| Procure additional sets of servicing tools to 125 MAC technicians                                                                                                                                                                                                                                                                                                                       |        | -                                      | 438,750                      |
| <b>Refrigerant recovery and reuse scheme</b>                                                                                                                                                                                                                                                                                                                                            |        | <b>123,000</b>                         | <b>123,000</b>               |
| Assess practices of single use cylinders disposal                                                                                                                                                                                                                                                                                                                                       | UNDP   | 20,000                                 | 20,000                       |
| Establish a collection and recovery centre for single use cylinders                                                                                                                                                                                                                                                                                                                     |        | 20,000                                 | 20,000                       |
| Establish an incentive scheme for return of cylinders                                                                                                                                                                                                                                                                                                                                   |        | 63,000                                 | 63,000                       |
| Evaluation and adjustments of the scheme                                                                                                                                                                                                                                                                                                                                                |        | 20,000                                 | 20,000                       |
| <b>Pilot project for commercial refrigeration sector</b>                                                                                                                                                                                                                                                                                                                                |        | <b>745,000</b>                         | <b>745,000</b>               |
| Identify suitable candidates for the pilots including preliminary assessment                                                                                                                                                                                                                                                                                                            | UNDP   | 25,000                                 | 25,000                       |

| Project component                                                                                                                                                            | Agency | Agreed at the 95 <sup>th</sup> meeting | Updated costs, as submitted* |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------------------|------------------------------|
| Conduct two pilot projects on R-290 monoblocs in cold rooms for food storage and preservation, including equipment, installation, commissioning and training                 |        | 100,000                                | 100,000                      |
| Demonstrate the use of natural refrigerants in an indirect glycol/chilled water-cooling system in large cold room or industrial warehouse cooling application                |        | 250,000                                | 250,000                      |
| Demonstration of replacement of a multi-split commercial AC system using R-410A with R-290-based centralized AC system                                                       |        | 300,000                                | 300,000                      |
| Monitoring and evaluation of project impacts and energy efficiency improvements, and provide training to technicians and end-users for six months                            |        | 20,000                                 | 20,000                       |
| Raise awareness on the demonstrated low-GWP technologies and establish a supply chain for these low-GWP technologies                                                         |        | 30,000                                 | 30,000                       |
| Site visits for importers to understand new technologies                                                                                                                     |        | 20,000                                 | 20,000                       |
| <b>Pilot project to introduce hydrocarbon/CO<sub>2</sub> cascade systems and water loop technologies in commercial refrigeration</b>                                         |        | -                                      | <b>1,350,000</b>             |
| Develop a strategy to replace HFC-based minimarket and supermarket installations with F-gas-free technologies, including cascade and/or waterloop systems)                   | UNDP   | -                                      | 35,000                       |
| Inception workshops in at least three regions                                                                                                                                |        | -                                      | 22,500                       |
| Purchase and install eight minimarket or supermarket refrigeration systems across different regions                                                                          | UNDP   | -                                      | 950,000                      |
|                                                                                                                                                                              | Italy  | -                                      | 250,000                      |
| Training in the operation and maintenance of installed systems                                                                                                               | UNDP   | -                                      | 30,000                       |
| Ongoing monitoring and maintenance of installed systems throughout the project period (at least two years)                                                                   |        | -                                      | 40,000                       |
| Closing workshop for the dissemination of project results and lessons learned                                                                                                |        | -                                      | 22,500                       |
| <b>Techno-economic feasibility study for the local production of hydrocarbons</b>                                                                                            |        | -                                      | <b>153,000</b>               |
| A detailed technical and financial assessment of the viability of establishing a hydrocarbon production facility, covering financial, economic, and technical considerations | UNIDO  | -                                      | 153,000                      |
| <b>Market readiness assessment for the replacement of inefficient fluorinated refrigerant cooling appliances in Nigeria</b>                                                  |        | -                                      | <b>500,000</b>               |
| Project management and governance                                                                                                                                            | UNDP   | -                                      | 90,000                       |
| Preparatory consultancy covering the administrative, financial, and operational framework                                                                                    |        | -                                      | 50,000                       |
| Capacity-building for financial institutions                                                                                                                                 |        | -                                      | 75,000                       |
| Technical training for installers, equipment vendors, and scrapping centre operators                                                                                         |        | -                                      | 30,000                       |
| Missions and field visits                                                                                                                                                    |        | -                                      | 18,000                       |
| Four stakeholder validation workshops                                                                                                                                        |        | -                                      | 32,000                       |
| Assessment of emerging market opportunities                                                                                                                                  |        | -                                      | 15,000                       |
| Consumer awareness and outreach campaign                                                                                                                                     |        | -                                      | 30,000                       |
| Pilot replacement of 320 domestic refrigerators to assess system readiness                                                                                                   |        | -                                      | 160,000                      |

| Project component                                                                                                                                                                                                                                                                                                    | Agency | Agreed at the 95 <sup>th</sup> meeting | Updated costs, as submitted* |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------------------|------------------------------|
| <b>Support for the conversion of HFC-based cold storage to solar-powered hydrocarbon technology, targeting women's cooperatives in rural Nigeria</b>                                                                                                                                                                 |        | -                                      | <b>337,000</b>               |
| Develop a strategy to replace HFC-based cold storage installations to F-gas-free alternatives, with a specific focus on women's cooperatives in rural regions                                                                                                                                                        | UNDP   | -                                      | 10,000                       |
| Inception workshops in at least two regions                                                                                                                                                                                                                                                                          |        | -                                      | 6,000                        |
| Purchase and install eight cold storage units across different regions                                                                                                                                                                                                                                               |        | -                                      | 315,000                      |
| Training in the operation and maintenance of installed systems (costs covered under the HPMP)                                                                                                                                                                                                                        |        | -                                      | 0                            |
| Ongoing monitoring and maintenance of installed systems throughout the project period (at least two years) (costs covered under the HPMP)                                                                                                                                                                            |        | -                                      | 0                            |
| Closing workshop for the dissemination of project results and lessons learned                                                                                                                                                                                                                                        |        | -                                      | 6,000                        |
| <b>Gender mainstreaming</b>                                                                                                                                                                                                                                                                                          |        | <b>100,000</b>                         | <b>482,000</b>               |
| Development of a gender assessment, and training of key stakeholders based on the results and recommendations of the assessment                                                                                                                                                                                      | UNDP   | 50,000                                 | 50,000                       |
| Scholarship for 40 women in MAC sector to promote women's participation                                                                                                                                                                                                                                              |        | 50,000                                 | 50,000                       |
| Further the scholarship programme through scholarships to 60 women in accredited RAC institutions, mentorship and career support, advocacy and outreach, impact monitoring, dissemination of results, tool kits for 60 graduates (including hand tools, diagnostic tools, refrigeration tools, and safety equipment) | UNIDO  | -                                      | 382,000                      |
| <b>End-user engagement and advocacy</b>                                                                                                                                                                                                                                                                              |        | -                                      | <b>146,022</b>               |
| Training and information sessions for end-users to promote alternatives to HFC-based technologies in commercial refrigeration                                                                                                                                                                                        | UNDP   | -                                      | 36,000                       |
| Study tour for at least 10 end users to an Article 5 country to observe hydrocarbon technologies in commercial RAC applications                                                                                                                                                                                      |        | -                                      | 50,000                       |
| Study tour for at least 10 end users to a non-Article 5 country to observe HFC-free transcritical CO <sub>2</sub> , waterloop, and cascade systems                                                                                                                                                                   |        | -                                      | 50,000                       |
| Update the registry system for large and medium end users with annual consumption above 5 mt                                                                                                                                                                                                                         |        | -                                      | 10,022                       |
| <b>Subtotal (servicing)</b>                                                                                                                                                                                                                                                                                          |        | <b>3,122,133</b>                       | <b>10,436,905</b>            |
| <b>Project management unit (PMU)</b>                                                                                                                                                                                                                                                                                 |        |                                        |                              |
| <b>Project coordination and monitoring activities (see paragraph 134)</b>                                                                                                                                                                                                                                            |        | <b>353,650</b>                         | <b>1,188,460</b>             |
| PMU activities for UNDP                                                                                                                                                                                                                                                                                              | UNDP   | 268,390                                | 878,579                      |
| PMU activities for UNIDO                                                                                                                                                                                                                                                                                             | UNIDO  | 58,260                                 | 282,881                      |
| PMU activities for UNEP                                                                                                                                                                                                                                                                                              | UNEP   | 27,000                                 | 27,000                       |
| <b>Subtotal for UNDP</b>                                                                                                                                                                                                                                                                                             |        | <b>3,090,533</b>                       | <b>9,980,484</b>             |
| <b>Subtotal for UNIDO</b>                                                                                                                                                                                                                                                                                            |        | <b>58,250</b>                          | <b>817,881</b>               |
| <b>Subtotal for UNEP</b>                                                                                                                                                                                                                                                                                             |        | <b>327,000</b>                         | <b>327,000</b>               |
| <b>Subtotal for Italy</b>                                                                                                                                                                                                                                                                                            |        | -                                      | <b>500,000</b>               |
| <b>Total</b>                                                                                                                                                                                                                                                                                                         |        | <b>3,475,783</b>                       | <b>11,625,365</b>            |

\* Updated costs include those agreed at the 95<sup>th</sup> meeting as well as the newly proposed costs.

*Project implementation, coordination and monitoring*

134. The PMU established under the HPMP will continue to support stage I of the KIP, with UNDP, UNIDO, and UNEP working with the NOU to plan and implement project initiatives, monitor activities, report on progress, and work with stakeholders to phase out HFCs. The original cost of those activities, agreed at the 95<sup>th</sup> meeting, amounted to US \$353,650; the updated cost of those activities amounts to US \$1,188,460 and includes staff and consultants (US \$909,028), coordination meetings and reporting (US \$83,480), and monitoring travel (US \$195,952). The breakdown of PMU costs between agencies is presented in table 25.

**Table 25. Proposed PMU costs of stage I of the KIP for Nigeria by agency (US \$)**

| Agency       | Agreed at the 95 <sup>th</sup> meeting | Additional costs proposed | Total            |
|--------------|----------------------------------------|---------------------------|------------------|
| UNDP         | 268,400                                | 610,179                   | 878,579          |
| UNIDO        | 58,250                                 | 224,631                   | 282,881          |
| UNEP         | 27,000                                 | 0                         | 27,000           |
| <b>Total</b> | <b>353,650</b>                         | <b>834,810</b>            | <b>1,188,460</b> |

Total cost of the updated stage I of the Kigali HFC implementation plan

135. The updated budget for stage I has been proposed at US \$14,393,510. The costs of activities in the refrigeration servicing sector have been proposed in line with decision 92/37.

136. The proposed activities and cost of the updated stage I of the KIP are summarized in table 26.

**Table 26. Summary of proposed costs to be implemented in the updated stage I of the KIP for Nigeria (US \$)**

| Subsector                                                                                                                                     | Stage I   | Second tranche |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------|
| <b>Manufacturing conversions (US \$2,768,145)</b>                                                                                             |           |                |
| PU foam                                                                                                                                       | 160,000   | 0              |
| Residential AC                                                                                                                                | 1,953,594 | 1,411,344      |
| Domestic refrigeration                                                                                                                        | 549,551   | 549,551        |
| Commercial refrigeration                                                                                                                      | 105,000   | 0              |
| <b>RAC servicing activities (US \$10,436,905)</b>                                                                                             |           |                |
| Strengthening the HFC licensing and quota system                                                                                              | 350,000   | 0              |
| Customs capacity-building                                                                                                                     | 320,000   | 0              |
| RAC and MAC technician capacity-building                                                                                                      | 1,510,000 | 74,000         |
| Equipment procurement                                                                                                                         | 4,420,883 | 582,750        |
| Refrigerant recovery and reuse scheme                                                                                                         | 123,000   | 0              |
| Pilot project for commercial refrigeration sector                                                                                             | 745,000   | 0              |
| Pilot project to introduce hydrocarbon/CO <sub>2</sub> cascade systems and waterloop technologies in commercial refrigeration settings        | 1,350,000 | 68,750         |
| Techno-economic feasibility study for the local production of hydrocarbons                                                                    | 153,000   | 153,000        |
| Market readiness assessment for the replacement of inefficient fluorinated refrigerant cooling appliances in Nigeria                          | 500,000   | 118,800        |
| Support for the conversion of HFC-based cold storage to solar-powered hydrocarbon technology, targeting women's cooperatives in rural Nigeria | 337,000   | 19,000         |
| Gender mainstreaming                                                                                                                          | 482,000   | 382,000        |
| End-user engagement and advocacy                                                                                                              | 146,022   | 112,000        |

| Subsector                                  | Stage I           | Second tranche   |
|--------------------------------------------|-------------------|------------------|
| <b>PMU (US \$1,188,460)</b>                |                   |                  |
| Project coordination and monitoring: UNDP  | 878,579           | 87,777           |
| Project coordination and monitoring: UNIDO | 282,881           | 224,631          |
| Project coordination and monitoring: UNEP  | 27,000            | 0                |
| <b>Subtotal for UNDP</b>                   | <b>10,140,484</b> | <b>994,327</b>   |
| <b>Subtotal for UNIDO</b>                  | <b>3,426,026</b>  | <b>2,720,526</b> |
| <b>Subtotal for UNEP</b>                   | <b>327,000</b>    | <b>0</b>         |
| <b>Subtotal for Italy</b>                  | <b>500,000</b>    | <b>68,750</b>    |
| <b>Total</b>                               | <b>14,393,510</b> | <b>3,783,603</b> |

#### Implementation plan for the first tranche

137. The first funding tranche of stage I of the KIP was submitted as approved at the 95<sup>th</sup> meeting in the amount of US \$2,738,360, to be implemented between January 2025 and December 2027. The second funding tranche of the updated stage I of the KIP, requested at the present meeting, was submitted in the total amount of US \$3,783,603, as shown in table 26 above, to be implemented between July 2026 and December 2028. Detailed information on the activities to be implemented under the second tranche, including adjustments and level of funds as agreed, are presented in paragraph 159 below.

### SECRETARIAT'S COMMENTS AND RECOMMENDATION

#### V. Comments

##### Overarching strategy

138. In line with decision 92/44, the Government of Nigeria has expressed strong commitment to supporting reductions in HFC consumption in advance of the Montreal Protocol targets.<sup>25</sup>

139. The Secretariat noted that the updated stage I of the KIP will only partially address HFC consumption in the residential AC and domestic refrigeration manufacturing subsectors, as some enterprises could not be identified at this moment. The Secretariat recalled the challenges faced by enterprises in the country that had agreed to convert from HCFC-22 to HFC-32 under the HPMP and that had, in the absence of a sectoral approach, temporarily manufactured with R-410A instead.<sup>26</sup> Further discussions were held with the Government through UNDP to adopt a sectoral approach, ensuring a timely transition of the subsectors and the sustainability of the conversions. Following substantial discussion, it was agreed that stage I will phase out all R-410A consumption in the AC manufacturing subsector and all HFC-134a consumption in the domestic refrigeration manufacturing subsector. The Government will establish a ban on the import and manufacture of R-410A-based AC and HFC-134a-based domestic refrigeration equipment by 30 June 2030. The Secretariat encouraged UNDP and UNIDO to identify all enterprises in those subsectors so that all eligible enterprises could be included in the project and benefit from Multilateral Fund assistance; however, the implementing agencies needed additional time to identify such enterprises. Accordingly, and on an exceptional basis and without setting a precedent, it was further agreed that Nigeria could submit up to the 100<sup>th</sup> meeting a request to convert remaining eligible enterprises manufacturing R-410A residential AC units and HFC-134a-based domestic refrigerators that had been inadvertently omitted from the present project on the understanding that the eligible consumption to be addressed by such

<sup>25</sup> As per the letter of 12 March 2026 from the Federal Ministry of Environment of Nigeria to UNDP.

<sup>26</sup> Discussed in paragraphs 22-24 of the present document.

additional projects will be determined by the subsector's consumption during the HFC baseline years minus the HFC amount covered by the conversion projects submitted to the present meeting.

### Institutional, policy and regulatory framework

#### *HFC licensing and quota system*

140. In line with decision 87/50(g), UNDP has confirmed that Nigeria has an established and enforceable system of licensing and quotas for monitoring HFC imports/exports in place. The quotas issued for 2025 and 2026 are 24,985,021 CO<sub>2</sub>-eq tonnes, below the Montreal Protocol control targets.

141. The Secretariat discussed the establishment of a ban on the manufacture of foam containing HFCs once the conversion projects in the foam sector under Stage I of the KIP are completed. UNIDO reported that the conversion projects are still ongoing. The Government proposes to implement the ban on the import of HFCs, both in pure form and contained in imported pre-blended polyols, for foam production by 1 January 2028. By that time, it is expected that foam enterprises will have converted to HFC alternatives, following successful demonstrations, adequate awareness-raising, and full conversions to these alternatives.

### Technical and cost-related issues

#### *Manufacturing sector*

142. Based on the discussion of the total phase-out in the residential AC and domestic refrigeration subsectors in paragraph 139, and noting that a ban on the import and manufacture of HFC-based equipment using R-410A in the residential AC subsector and HFC-134a in the domestic refrigeration subsector will be established after the completion of the conversion projects, it was agreed that the total sector consumption of 286 mt of R-410A (residential AC) and 101.87 mt of HFC-134a (domestic refrigeration), calculated using the average consumption for 2020–2022, will be deducted from the remaining eligible consumption for funding.

143. The proposed phase-out in the two sector plans, as originally submitted, was calculated based on each enterprise's average consumption in baseline years (2020–2022). However, as the phase-out amount for a conversion project should be calculated based on either the most recent year or the average of the most recent three years, the phase-out amounts were subsequently adjusted using 2025 consumption data. After adjustment of the phase-out amounts using 2025 consumption, the total phase-out, including the projects approved at the 95th meeting for HPZ (48.9 mt R-410A) and TA for 15 SMEs (8.97 mt of HFC-134a), in stage I of the KIP amounts to 222.74 mt in the residential AC subsector and 32.65 mt in the domestic refrigeration subsector. The remaining consumption to be addressed by additional conversions that could be submitted up to the 100<sup>th</sup> meeting as discussed in paragraph 139 will be the difference between the total sector consumption and the phase-out amount already planned in the current proposal, i.e. 63.26 mt of R-410A in the residential AC manufacturing subsector and 69.22 mt of HFC-134a in the domestic refrigeration manufacturing subsector. It was agreed that these amounts would constitute the maximum eligible consumption for the potential projects to be submitted before the 100<sup>th</sup> meeting. Should UNDP and UNIDO find eligible enterprises whose aggregate consumption goes beyond that remaining consumption in the subsector (i.e., 63.26 mt in the residential AC subsector and 69.22 mt in the domestic refrigeration), that additional consumption would be phased out without additional funding from the Multilateral Fund.

144. The Secretariat noted that the conversion of the two AC manufacturing lines at SIMS and Care Global will initially be from R-410A to HFC-32, and later to R-290 once systems and infrastructure become available for the safe and complete adoption of a highly flammable refrigerant, and enquired about future conversion plans and associated costs. UNIDO advised that the enterprises will convert from R-32 to R-290 at their own cost.

145. The Secretariat reviewed the costs of the manufacturing conversions in the residential AC and domestic refrigeration sectors. In line with decision 95/86 and past precedent projects, the cost of conversions in the manufacturing sector were adjusted as follows:

- (a) The IOCs for the conversions of SIMS in residential AC manufacturing and Somotex in domestic refrigeration manufacturing were removed;
- (b) The ICC for the conversion of SIMS in the residential AC manufacturing was adjusted from US \$553,250 to US \$463,500, following the reduction of costs for the refrigerant charging system, plant safety, and modification of plant layout. This resulted in an improved cost effectiveness of US \$5.72/kg;
- (c) The ICC for the conversion of Care Global in the residential AC manufacturing was adjusted from US \$422,750 to US \$365,000, following the reduction of costs for the modification of plant layout and plant safety. This resulted in an improved cost effectiveness of US \$6.15/kg. Deducting the 37 per cent of the UAE ownership, the eligible cost was agreed at US \$160,965; and
- (d) The ICC for the conversion of SIMs in the domestic refrigeration manufacturing was adjusted from US \$299,700 to US \$214,200, following the adjustment of costs for the refrigerant charging system<sup>27</sup>, plant safety, and training for handling flammable refrigerant, resulting in a cost effectiveness of US \$22.29/kg. Applying the cost effectiveness threshold of US \$13.76/kg in the domestic refrigeration sector, the final cost was agreed at US \$132,234.

146. Based on the sectoral phase-out approach outlined in paragraph 143, the agreed total cost for converting residential AC manufacturing (including HPZ approved at the 95<sup>th</sup> meeting) is US \$1,166,715 to phase out 597,025 CO<sub>2</sub>-eq tonnes (286 mt) of R-410A at a CE of US \$4.08/kg. For domestic refrigeration manufacturing (including technical assistance to 15 SMEs approved at the 95th meeting), the agreed total cost is US \$407,384 to phase out 145,674 CO<sub>2</sub>-eq tonnes (101.87 mt) of HFC-134a at a CE of US \$4.00/kg.

#### *RAC and MAC servicing sector*

147. The KIP originally included a technical and financial assessment study, at a total cost of US \$153,000, for the local production of hydrocarbon refrigerants at commercial scale in Nigeria. The Secretariat advised UNIDO that the cost of producing alternative refrigerants (hydrocarbons) would be eligible for funding under the production sector but not under the servicing sector and noted that Nigeria has no baseline production of HFCs or HCFCs. Subsequently, this project was revised to training for RAC technical personnel at manufacturing enterprises on the installation of appliances using flammable refrigerants, aiming to address the skill gap in safely installing, commissioning, and servicing such appliances. The training will target a minimum of 32 technicians from each of the 10 enterprise (30 per cent women), including manufacturers and appliance assembly plants that use flammable refrigerants, and will also develop an after-sales guidance document tailored to manufacturing enterprises to support standardized and safe servicing practices.

148. The updated stage I of the KIP had also proposed a standalone project, at a cost of US \$382,000, to advancing women's participation and technical excellence in RAC sector through provision of scholarship and tools to graduate. After discussion with the Secretariat, the activity was modified to training of young professionals in the manufacturing sector to develop a more job-ready and women-balanced pool of RAC manufacturing talent to support the transition to low-GWP, energy-efficient cooling technologies. The activity establishes a three-year, co-funded industrial training programme with rotational placements

<sup>27</sup> As the machine was purchased in 2004, a 25 per cent discount was applied to the cost of a new machine.

across six RAC manufacturing functions<sup>28</sup> at a total reduced cost of US \$360,000, targeting at least 30 per cent female participation, to develop a job-ready workforce for low-GWP, energy-efficient cooling technologies.

149. The updated KIP included a replacement programme, implemented in synergy with the AGORA project funded by the Government of France<sup>29</sup>, to replace 320 HFC-134a-based domestic refrigerators with R-600a equipment. The project aims to validate administrative procedures, eligibility criteria, vendor accreditation, installation and decommissioning procedures, and monitoring arrangements. It also seeks to demonstrate the benefits of HC-based technology for large-scale replacement of HFC-based refrigerators, including waste management, material handling and remarketing, environmentally responsible recovery of refrigerant gases and proper disposal of oils, as well as the calculation of unit costs, transport, handling, destruction, and the time and space required for larger-scale operations. The Secretariat noted the uncertainty regarding how the project would sustainably support the subsector's transition, given that it relies on end-user incentives while R-600a technology is already dominant in Nigeria. Questions were also raised regarding the eligibility of certain cost elements, including project management, governance, preparatory consultations, capacity building for financial institutions, and emerging market assessments. Following discussion, it was agreed to remove this project from the updated KIP.

150. The technician training activities were discussed. In view of the discussion in paragraph 60 under the HPMP, the number of technicians to be trained under the KIP was increased from 600 (through 30 training sessions) to 6,640 (through 332 training sessions) in stage I of the KIP, including 12 courses for CO<sub>2</sub> technology and 320 courses for hydrocarbon technology. The corresponding budget was adjusted accordingly.

151. The Secretariat noted that a demonstration of hydrocarbon refrigerants in the commercial refrigeration sector was included in the updated KIP, recalling that a US \$1,475,000 R-290 pilot project for the same sector was already approved at the 95<sup>th</sup> meeting. UNDP explained that the earlier pilot uses glycol/waterloop systems with lower, controlled hydrocarbon charges, suitable for densely populated markets. In contrast, the current project targets rural women's groups using 100 per cent R-290 systems for horticultural preservation, where facilities are less dense and public contact is minimal, though safety measures will remain in place. The updated KIP proposed technology demonstrations on cascade systems (R-290/CO<sub>2</sub>) and water-loop technologies in supermarkets and minimarkets across different regions of Nigeria to demonstrate the technical and operational feasibility of R-290/CO<sub>2</sub> technology in diverse climatic and commercial contexts. The Secretariat noted that both projects will support the development of a sector transition strategy for moving commercial refrigeration away from HFC-based systems, and will include training for technicians, monitoring of energy efficiency gains, and information dissemination activities to leverage greater impact, therefore the Secretariat supports the activity noting the large size of the country and the variety of the refrigeration applications.

152. In line with decision 92/36(g), UNDP will submit a final report on the implementation of the demonstration projects discussed in paragraph 149, including the HFC phase-out and energy efficiency gains achieved upon completion of the projects.

153. In view of the baseline revision, the Secretariat noted that the average GWP in the servicing sector in the baseline years has changed from 1,712.84 for the project approved at the 95<sup>th</sup> meeting to 1,785.42 based on the revised country programme data reporting. The revised GWP value of 1,785.42 was used to calculate the reduction in the servicing sector under the upgraded stage I of the KIP.

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<sup>28</sup> Including production and assembly line; brazing, joining and charging station; leak testing; quality assurance and lab testing; research and development on product improvement; and after sale service (quality return analysis).

<sup>29</sup> Abating Greenhouse Gas Emissions from obsolete RAC Equipment in Ghana and Nigeria, funded by the Government of France, outside of the KIP.

### Target, reduction and funding

154. After adjusting manufacturing phase-out and costs, as well as servicing-sector activities and GWP values, the cost of the updated stage I of the KIP was agreed at US \$11,366,952 to achieve 16.85 per cent reduction from the revised baseline, enabling the country to meet the Montreal Protocol's 10 per cent reduction target by 2029.

155. Stage I of the KIP was approved at the 95<sup>th</sup> meeting to achieve a 10.13 per cent reduction from the baseline established at that time by 2029. Approved funding amounted to US \$4,283,033 to phase out 1,518,628 CO<sub>2</sub>-eq tonnes (1,142.54 mt at a GWP of 1,712.84 in the servicing sector). Following the revision of the baseline and the associated adjustments, the total reduction under approved activities was recalculated as 1,583,059 CO<sub>2</sub>-eq tonnes, representing 6.34 percent of the revised baseline.

156. The net top up funding requested is calculated at US \$7,083,919 to reduce additional 10.51 per cent of the revised baseline.

157. Based on the cost of activities in the servicing sector, agreed at US \$8,835,053, reductions from the remaining HFC consumption eligible for funding in the servicing sector amount to 3,092,993 CO<sub>2</sub>-eq tonnes, as summarized in table 27.<sup>30</sup> Accordingly, the Government of Nigeria has agreed to reduce its 2029 HFC consumption to 20,775,549 CO<sub>2</sub>-eq tonnes, representing 16.85 per cent of the country's revised HFC baseline for compliance.

**Table 27. Agreed costs and reductions from HFC consumption eligible for funding and final target**

| <b>Servicing sector</b>                                             |                            |            |
|---------------------------------------------------------------------|----------------------------|------------|
| Average HFC consumption in the servicing sector in baseline years   | mt                         | 10,038     |
|                                                                     | CO <sub>2</sub> -eq tonnes | 17,921,513 |
| Average GWP of all HFCs consumed in the sector                      |                            | 1,785.42   |
| Agreed funding                                                      | US \$                      | 8,835,053  |
| Agreed cost-effectiveness threshold                                 | US \$/kg                   | 5.10       |
| Reductions in the servicing sector                                  | mt                         | 1,732.36   |
|                                                                     | CO <sub>2</sub> -eq tonnes | 3,092,993  |
| <b>Reductions from all sectors</b>                                  |                            |            |
| Established HFC consumption baseline                                | CO <sub>2</sub> -eq tonnes | 24,986,406 |
| Reductions achieved through conversions in the manufacturing sector | CO <sub>2</sub> -eq tonnes | 1,117,864  |
| Reductions achieved through activities in the servicing sector      | CO <sub>2</sub> -eq tonnes | 3,092,993  |
| Total reduction in stage I of the KIP                               | CO <sub>2</sub> -eq tonnes | 4,210,857  |
| <b>Target</b>                                                       |                            |            |
| 2029 and 2030 target                                                | CO <sub>2</sub> -eq tonnes | 20,775,549 |

### Total project cost

158. At a total cost of US \$11,366,952, the updated stage I of the KIP for Nigeria will result in a reduction of 4,210,857 CO<sub>2</sub>-eq tonnes from the country's HFC consumption eligible for funding, as summarized in table 28.

<sup>30</sup> Calculated in line with the methodology presented in annex I of document UNEP/OzL.Pro/ExCom/92/46.

**Table 28. Agreed cost of activities to be implemented during stage I of the KIP in Nigeria**

| Sector        | IA    | HFC                 | Phase-out to be achieved |            |                            |            | Cost<br>US \$ | CE*      |                                         |
|---------------|-------|---------------------|--------------------------|------------|----------------------------|------------|---------------|----------|-----------------------------------------|
|               |       |                     | mt                       |            | CO <sub>2</sub> -eq tonnes |            |               | US \$/kg | US \$/<br>CO <sub>2</sub> -eq<br>tonnes |
|               |       |                     | Funded                   | Non-funded | Funded                     | Non-funded |               |          |                                         |
| Manufacturing | UNIDO | R-410A,<br>HFC-134a | 255.39                   | 132.48     | 511,659                    | 231,040    | 1,574,099     | 4.06     | 2.12                                    |
| Manufacturing | UNDP  | HFC-365mfc          | 472.50                   | 0          | 375,165                    | 0          | 160,000       | 0.34     | 0.43                                    |
| Servicing     | UNIDO | HFC-32,             | 100.59                   | 0          | 179,592                    | 0          | 513,000       | 5.10     | 2.86                                    |
| Servicing     | UNDP  | HFC-134a,           | 1,469.62                 | 0          | 2,623,882                  | 0          | 7,495,052     | 5.10     | 2.86                                    |
| Servicing     | UNEP  | R-404A,<br>R-410A   | 64.12                    | 0          | 114,477                    | 0          | 327,000       | 5.10     | 2.86                                    |
| Servicing     | UK    |                     | 98.04                    | 0          | 175,041                    | 0          | 500,000       | 5.10     | 2.86                                    |
| PMU           | UNIDO | n/a                 | 0                        | 0          | 0                          | 0          | 187,000       | n/a      | n/a                                     |
| PMU           | UNDP  | n/a                 | 0                        | 0          | 0                          | 0          | 583,800       | n/a      | n/a                                     |
| PMU           | UNEP  | n/a                 | 0                        | 0          | 0                          | 0          | 27,000        | n/a      | n/a                                     |
| Total         |       |                     | 2,592.73                 |            | 4,210,857                  |            | 11,366,952    | 4.38     | 2.70                                    |

\*CE=cost-effectiveness

159. The updated stage I of the KIP will be implemented in four tranches. The detailed activities of the updated stage I are presented in table 29.

**Table 29. Summary of costs to be implemented in stage I of the KIP for Nigeria as agreed (US \$)**

| Subsector                                                                                                                              | Agency         | Submitted | Agreed    |
|----------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|-----------|
| <b>Manufacturing conversions (US \$1,734,099)</b>                                                                                      |                |           |           |
| PU foam                                                                                                                                |                | 160,000   | 160,000   |
| <i>Vitapur/Lange and Grants*</i>                                                                                                       | UNDP           | 160,000   | 160,000   |
| Residential AC                                                                                                                         |                | 1,953,594 | 1,166,715 |
| <i>HPZ*</i>                                                                                                                            | UNIDO          | 542,250   | 542,250   |
| <i>SIMS/Care Global</i>                                                                                                                | UNIDO          | 1,411,344 | 624,465   |
| Domestic refrigeration                                                                                                                 |                | 549,551   | 302,384   |
| <i>SIMS/Somotex/Koolboks</i>                                                                                                           | UNIDO          | 549,551   | 302,384   |
| Commercial refrigeration                                                                                                               |                | 105,000   | 105,000   |
| <i>15 small ice machine and cold room enterprises*</i>                                                                                 | UNIDO          | 105,000   | 105,000   |
| <b>RAC servicing activities (US \$8,835,053)</b>                                                                                       |                |           |           |
| Strengthening the HFC licensing and quota system*                                                                                      | UNEP/<br>UNDP  | 350,000   | 350,000   |
| Customs capacity-building*                                                                                                             | UNDP           | 320,000   | 320,000   |
| RAC and MAC technician capacity-building                                                                                               |                | 1,510,000 | 2,684,000 |
| <i>Training and technical assistance*</i>                                                                                              | UNDP           | 610,000   | 610,000   |
| <i>Additional training, specialized workshops, certification</i>                                                                       | UNDP           | 900,000   | 2,074,000 |
| Equipment procurement                                                                                                                  |                | 4,420,883 | 2,291,093 |
| <i>Five centres of excellence*</i>                                                                                                     | UNDP           | 874,133   | 874,133   |
| <i>Servicing tools to MAC/RAC technicians (UNDP)</i>                                                                                   | UNDP           | 3,546,750 | 1,166,960 |
| <i>Servicing tools to MAC/RAC technicians (Italy)</i>                                                                                  | Italy          | 0         | 250,000   |
| Refrigerant recovery and reuse scheme*                                                                                                 | UNDP           | 123,000   | 123,000   |
| Pilot project for commercial refrigeration sector                                                                                      | UNDP           | 745,000   | 745,000   |
| Pilot project to introduce hydrocarbon/CO <sub>2</sub> cascade systems and waterloop technologies in commercial refrigeration settings | UNDP/<br>Italy | 1,350,000 | 1,270,000 |
| Techno-economic feasibility study for the local production of hydrocarbons                                                             | UNIDO          | 153,000   | 0         |

| Subsector                                                                                                                                                 | Agency       | Submitted         | Agreed            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|-------------------|
| Enterprise-level training for RAC manufacturing staff on the installation of flammable refrigerant appliances                                             | UNIDO        | 0                 | 153,000           |
| Market readiness assessment for the replacement of inefficient fluorinated refrigerant cooling appliances in Nigeria                                      | UNDP         | 500,000           | 0                 |
| Support for the conversion of HFC-based cold storage to solar-powered hydrocarbon technology, targeting women's cooperatives in rural Nigeria             | UNDP         | 337,000           | 302,000           |
| Gender mainstreaming                                                                                                                                      |              | 482,000           | 100,000           |
| <i>Gender assessment, scholarship*</i>                                                                                                                    | <i>UNDP</i>  | <i>100,000</i>    | <i>100,000</i>    |
| <i>Further scholarships and toolkits</i>                                                                                                                  | <i>UNIDO</i> | <i>382,000</i>    | <i>0</i>          |
| Three-year industrial training programme training of young professionals in the manufacturing sector, targeting at least 30 per cent female participation | UNIDO        | 0                 | 360,000           |
| End-user engagement and advocacy                                                                                                                          | UNDP         | 146,022           | 136,960           |
| <b>PMU (US \$797,800)</b>                                                                                                                                 |              |                   |                   |
| Project coordination and monitoring: UNDP                                                                                                                 | UNDP         | 878,579           | 583,790           |
| Project coordination and monitoring: UNIDO                                                                                                                | UNIDO        | 282,881           | 187,010           |
| Project coordination and monitoring: UNEP                                                                                                                 | UNEP         | 27,000            | 27,000            |
| <b>Subtotal for UNDP</b>                                                                                                                                  |              | <b>10,140,484</b> | <b>8,265,843</b>  |
| <b>Subtotal for UNIDO</b>                                                                                                                                 |              | <b>3,426,026</b>  | <b>2,274,109</b>  |
| <b>Subtotal for UNEP</b>                                                                                                                                  |              | <b>327,000</b>    | <b>327,000</b>    |
| <b>Subtotal for Italy</b>                                                                                                                                 |              | <b>500,000</b>    | <b>500,000</b>    |
| <b>Total</b>                                                                                                                                              |              | <b>14,393,510</b> | <b>11,366,952</b> |

\* Agreed at the 95<sup>th</sup> meeting

#### Implementation plan for the first and second tranches of the updated Kigali HFC implementation plan

160. The funding for the first tranche was agreed at the 95<sup>th</sup> meeting at US \$2,738,360, plus agency support costs of US \$199,534. Further details can be found in paragraph 66 of document UNEP/OzL.Pro/ExCom/95/70.

161. The funding for the second tranche is being requested at the present meeting, and comprises solely of new activities contained in the updated stage I of the KIP. The cost of those activities was agreed at US \$2,483,980, plus agency support costs of US \$188,879, as shown in table 30.

**Table 30. Summary of agreed costs to be implemented in the second tranche of the updated stage I of the KIP for Nigeria (US \$)**

| Project component/activity                                                                                                                                              | Agency         | Agreed costs |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------|
| <b>Manufacturing sector (US \$926,849)</b>                                                                                                                              |                |              |
| Residential AC: Conversions at SIMS and Care Global                                                                                                                     | UNIDO          | 624,465      |
| Domestic refrigeration: Conversions at SIMS, Somotex, and Koolboks                                                                                                      | UNIDO          | 302,384      |
| <b>RAC servicing sector (US \$1,353,250)</b>                                                                                                                            |                |              |
| RAC and MAC technician capacity-building:<br>Technician training (US \$202,500), specialized training in CO <sub>2</sub> (US \$25,000), and certification (US \$45,450) | UNDP           | 272,950      |
| Equipment procurement:<br>RAC tools and equipment (UNDP US \$332,750, Italy US \$250,000)                                                                               | UNDP/<br>Italy | 582,750      |

| Project component/activity                                                                                                                                                                     | Agency | Agreed costs     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------|
| Pilot project to introduce hydrocarbon/CO <sub>2</sub> cascade systems and water loop technologies in commercial refrigeration:<br>Strategy development (US \$57,500), workshops (US \$33,750) | UNDP   | 68,750           |
| Support for the conversion of HFC-based cold storage:<br>Strategy development (US \$10,000), workshops (US \$9,000)                                                                            | UNDP   | 19,000           |
| Enterprise-level training for RAC manufacturing staff on the installation of flammable refrigerant appliances                                                                                  | UNIDO  | 91,800           |
| Industrial placement programme for young professionals in the RAC sector                                                                                                                       | UNIDO  | 216,000          |
| End-user engagement:<br>Information workshops (US \$36,000); study tours (US \$90,000), and registry update (US \$10,961)                                                                      | UNDP   | 102,000          |
| <b>Project coordination and monitoring (US \$203,881)</b>                                                                                                                                      |        |                  |
| PMU UNDP:<br>Staff and consultants (US \$85,316) and monitoring travel (US \$28,439)                                                                                                           | UNDP   | 113,755          |
| PMU UNIDO:<br>Staff and consultants (US \$67,594) and monitoring travel (US \$22,531)                                                                                                          | UNIDO  | 90,125           |
| <b>Subtotal UNDP</b>                                                                                                                                                                           |        | <b>909,206</b>   |
| <b>Subtotal UNIDO</b>                                                                                                                                                                          |        | <b>1,324,774</b> |
| <b>Subtotal Italy</b>                                                                                                                                                                          |        | <b>250,000</b>   |
| <b>Total</b>                                                                                                                                                                                   |        | <b>2,483,980</b> |

#### Exemption for high-ambient temperature parties

162. Nigeria is one of the countries operating under the high-ambient temperature (HAT) exemption in line with decision XXVIII/2. The decision allows these countries to request exemptions for specific subsectors or uses where suitable alternatives do not exist.<sup>31</sup> Additionally, the amount of Annex F substances subject to the HAT exemption is not eligible for funding under the Multilateral Fund while those substances are exempted for that party. Nigeria does not intend to use the HAT exemption.

#### Co-financing

163. The Government and key stakeholders of Nigeria will support the implementation of the KIP by contributing their technical expertise and logistical capacities. Government co-financing will be provided in kind through office space, storage facilities, communication and internet services, and administrative support. The communications unit of the Ministry of Environment will assist in carrying out project-related awareness-raising activities, utilizing all available outreach channels.

164. Beneficiaries of the residential air conditioning and domestic refrigeration conversion projects will contribute to the conversion by covering the costs of replacement equipment that are not eligible under the Multilateral Fund policy. Additionally, beneficiaries of demonstration projects in the commercial refrigeration sector will provide in-kind contributions, including civil works, electrical and ventilation upgrades for safety, as well as routine maintenance and energy efficiency monitoring.

<sup>31</sup> Exempted equipment under the HAT exemption includes multi-split air conditioners (commercial and residential); split-ducted air conditioners (commercial and residential); and ducted commercial packaged (self-contained) air conditioners.

## 2026–2028 business plan of the Multilateral Fund

165. UNDP, UNIDO, UNEP, and the Government of Italy are requesting US \$11,366,952, plus agency support costs, for the implementation of stage I of the KIP for Nigeria. The total value of US \$7,295,098, including agency support costs, requested for the period of 2026–2028, is US \$534,212 below the amount in the business plan.

### Gender policy implementation

166. In line with the Multilateral Fund gender policy, UNDP, UNIDO, and Italy have made efforts to mainstream the policy into stage I of the KIP. An initial analysis identified the RAC sector as overwhelmingly male-dominated, with women comprising a very small share of technicians and engineers. In response, the action plan includes targeted activities to increase female participation across project components. The activity on advancing technical excellence of women in the RAC sector directly addresses structural barriers to women's participation, while the technician training project aims to include at least 200 women among the 400 technicians supported for certification. The industrial placement programme targets at least 30 per cent female participation to build a more balanced workforce in the RAC manufacturing sector, with a focus on promoting women's engagement in technical and operational roles. Additionally, the activity to support women-led agricultural cooperatives in rural Nigeria promotes access to sustainable cooling technologies by converting HFC-based cold storage systems to hydrocarbon and solar-powered alternatives.

### Sustainability of the HFC phase-down and assessment of risks

167. The project identified supply chain constraints limiting the availability of low-GWP technologies as the biggest risk. To address this, measures include enhancing the supply chain for new technologies, facilitating local importer buy-in through external support, ensuring active project participation, and leveraging complementary initiatives such as the AGORA project to support market penetration. Other key risks and their mitigation measures are as follows: difficulty enforcing the HFC quota system will be addressed by providing necessary support to the NOU and enforcement authorities to build their capacity; higher-than-expected HFC consumption growth will be managed through enforcement of import quotas, control measures, and consultations with importers and end-users; increased availability of lower-priced HFC-based equipment will be controlled via regulatory measures; and limited stakeholder buy-in to reducing HFC use will be mitigated through continuous stakeholder consultations throughout the planning and implementation of activities.

### Impact on the climate

168. The activities proposed, including HFC phase-out through conversion to low-GWP alternatives, efforts to promote alternatives with low-GWP and refrigerant recovery and reuse, indicate that the implementation of stage I of the KIP will reduce refrigerant emissions in the atmosphere, resulting in climate benefits. A calculation of the impact on the climate of the activities in the KIP indicates that by 2030, Nigeria will have reduced its HFC emissions by approximately 4,210,857 CO<sub>2</sub>-eq tonnes, calculated as the difference between the HFC baseline for compliance and the 2029 target, assuming that all consumed HFCs would have eventually been emitted.

### Update of the Agreement

169. An updated draft Agreement between the Government of Nigeria and the Executive Committee for the updated stage I of the KIP is contained in annex II to the present document.

Coordination of activities in the servicing sector under HCFC phase-out and HFC phase-down plans

170. Annex III summarizes the simultaneous implementation of activities under the HPMP and the KIP.

**VI. Recommendation**

171. The Executive Committee may wish to consider:

- (a) Approving, in principle, the updated stage I of the Kigali HFC implementation plan (KIP) for Nigeria for the period 2024–2030 to reduce HFC consumption by 16.85 per cent of the country's baseline by 2029, in the amount of US \$12,212,259, consisting of US \$8,265,843, plus agency support costs of US \$578,609, for UNDP, US \$2,274,109, plus agency support costs of 159,188 for UNIDO, US \$327,000, plus agency support costs of US \$42,510, for UNEP, and US \$500,000, plus agency support costs of US \$65,000, for the Government of Italy;
- (b) Noting that the funding specified in subparagraph (a) above includes the funding for the first tranche of stage I of the KIP approved under decision 95/69(e);
- (c) Further to note the commitment of the Government of Nigeria to implement the following regulatory measures to support the complete phase-out of HFCs in the residential air-conditioning and domestic refrigeration manufacturing sectors:
  - (i) A ban on the import and manufacture of residential air-conditioning equipment based on R-410A upon completion of the conversion projects included in stage I of the KIP, no later than June 2030;
  - (ii) A ban on the import and manufacture of domestic refrigeration equipment based on HFC-134a upon completion of the conversion projects included in stage I of the KIP, no later than June 2030;
  - (iii) A ban on the import and manufacture of foams containing HFCs once the conversion project in the foam sector under stage I of the KIP is completed, no later than 1 January 2028;
- (d) Deducting 4,210,857 CO<sub>2</sub>-equivalent tonnes of HFCs from the starting point for sustained aggregate reductions in HFC consumption that will be established on the basis of guidance provided by the Executive Committee;
- (e) Noting that, upon completion of the end-user projects included in stage I of the KIP, UNDP and the Government of Italy will submit a final report on their implementation in line with decision 92/36(g), including the HFC phase-out and energy-efficiency gains achieved;
- (f) Inviting, on an exceptional basis, the Government of Nigeria to submit, by the 100<sup>th</sup> meeting of the Executive Committee, a proposal to convert any remaining eligible enterprises manufacturing residential air-conditioning units using R-410A and domestic refrigerators using HFC-134a, on the understanding that:
  - (i) The maximum remaining consumption of R-410A eligible for funding was 132,055 CO<sub>2</sub>-eq tonnes (63.26 mt);
  - (ii) The maximum remaining consumption of HFC-134a eligible for funding was 98,985 CO<sub>2</sub>-eq tonnes (69.22 mt);

- (g) Approving:
  - (i) The second tranche of updated stage I of the KIP for Nigeria and the corresponding tranche implementation plan, in the amount of US \$2,672,858, consisting of US \$909,206, plus agency support costs of US \$63,644, for UNDP, US \$1,324,774, plus agency support costs of US \$92,734, for UNIDO and US \$250,000, plus agency support costs of US \$32,500 for the Government of Italy; and
  - (ii) The updated draft Agreement between the Government of Nigeria and the Executive Committee for the reduction in consumption of HFCs in accordance with stage I of the updated KIP, contained in annex II to the present document.



## **Annex I**

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

#### **Purpose**

1. This Agreement represents the understanding of the Government of Nigeria (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 0 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, and 4.3.3 (remaining consumption eligible for funding).
3. Subject to compliance by the Country with its obligations set out in this Agreement, the Executive Committee agrees, in principle, to provide the funding set out in row 3.1 of Appendix 2-A to the Country. The Executive Committee will, in principle, provide this funding at the Executive Committee meetings specified in Appendix 3-A (“Funding Approval Schedule”).
4. The Country agrees to implement this Agreement in accordance with stage IV of the HCFC phase-out management plan approved (“the Plan”). In accordance with subparagraph 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 10 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 subparagraph 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;
  - (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; and
- (c) 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 the Government of the United Kingdom of Great Britain and Northern Ireland has agreed to be the cooperating implementing agency (the “Cooperating IA”) 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 IA taking part in this Agreement.

10. The Lead IA will be responsible for ensuring coordinated planning, implementation and reporting of all activities under this Agreement, including but not limited to independent verification as per subparagraph 5(b). The Cooperating IA will support the Lead IA by implementing the Plan under the overall coordination of the Lead IA. The roles of the Lead IA and Cooperating IA 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 IA with the fees set out in rows 2.2 and 2.4 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 IA to facilitate implementation of this Agreement. In particular, it will provide the Lead IA and the Cooperating IA with access to the information necessary to verify compliance with this Agreement.

## Date of completion

14. The completion of the Plan and the associated Agreement will take place at the end of the year following the last year for which a maximum allowable total consumption level has been specified in Appendix 2-A. Should at that time there still be activities that are outstanding, and which were foreseen in the last Tranche Implementation Plan and its subsequent revisions as per subparagraph 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 subparagraphs 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 between the Government of the Country and the Executive Committee of the Multilateral Fund.

## APPENDICES

### APPENDIX 1-A: THE SUBSTANCES

| Substance                                           | Annex | Group | Starting point for aggregate reductions in consumption (ODP tonnes) |
|-----------------------------------------------------|-------|-------|---------------------------------------------------------------------|
| HCFC-22                                             | C     | I     | 248.5                                                               |
| HCFC-141b                                           | C     | I     | 96.4                                                                |
| <b>Subtotal</b>                                     |       |       | <b>344.9</b>                                                        |
| HCFC-141b contained in imported pre-blended polyols |       |       | 53.2                                                                |
| <b>Total</b>                                        |       |       | <b>398.2</b>                                                        |

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

| Row   | Particulars                                                                                  | 2026      | 2027   | 2028      | 2029   | 2030    | Total     |
|-------|----------------------------------------------------------------------------------------------|-----------|--------|-----------|--------|---------|-----------|
| 1.1   | Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)             | 112.09    | 112.09 | 112.09    | 112.09 | 0.00    | n/a       |
| 1.2   | Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)              | 112.09    | 112.09 | 112.09    | 112.09 | 0.00    | n/a       |
| 2.1   | Lead IA (UNDP) agreed funding (US \$)                                                        | 3,318,477 | 0      | 2,917,578 |        | 759,654 | 6,995,709 |
| 2.2   | Support costs for Lead IA (US \$)                                                            | 232,293   | 0      | 204,230   | 0      | 53,176  | 489,699   |
| 2.3   | Cooperating IA (United Kingdom of Great Britain and Northern Ireland) agreed funding (US \$) | 519,000   | 0      | 82,400    | 0      | 0       | 601,400   |
| 2.4   | Support costs for Cooperating IA (US \$)                                                     | 65,720    | 0      | 10,434    | 0      | 0       | 76,154    |
| 3.1   | Total agreed funding (US \$)                                                                 | 3,837,477 | 0      | 2,999,978 | 0      | 759,654 | 7,597,109 |
| 3.2   | Total support costs (US \$)                                                                  | 298,013   | 0      | 214,664   | 0      | 53,176  | 565,853   |
| 3.3   | Total agreed costs (US \$)                                                                   | 4,135,490 | 0      | 3,214,642 | 0      | 812,830 | 8,162,962 |
| 4.1.1 | Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)           |           |        |           |        |         | 97.21     |
| 4.1.2 | Phase-out of HCFC-22 to be achieved in previous stages (ODP tonnes)                          |           |        |           |        |         | 151.31    |
| 4.1.3 | Remaining eligible consumption for HCFC-22 (ODP tonnes)                                      |           |        |           |        |         | 0.00      |

| Row   | Particulars                                                                                                                    | 2026 | 2027 | 2028 | 2029 | 2030 | Total |
|-------|--------------------------------------------------------------------------------------------------------------------------------|------|------|------|------|------|-------|
| 4.2.1 | Total phase-out of HCFC-141b agreed to be achieved under this Agreement (ODP tonnes)                                           |      |      |      |      |      | 0.00  |
| 4.2.2 | Phase-out of HCFC-141b to be achieved in previous stages (ODP tonnes)                                                          |      |      |      |      |      | 96.40 |
| 4.2.3 | Remaining eligible consumption for HCFC-141b (ODP tonnes)                                                                      |      |      |      |      |      | 0.00  |
| 4.3.1 | Total phase-out of HCFC-141b contained in imported pre-blended polyols agreed to be achieved under this Agreement (ODP tonnes) |      |      |      |      |      | 0.00  |
| 4.3.2 | Phase-out of HCFC-141b contained in imported pre-blended polyols to be achieved in previous stages (ODP tonnes)                |      |      |      |      |      | 53.30 |
| 4.3.3 | Remaining eligible consumption for HCFC-141b contained in imported pre-blended polyols (ODP tonnes)                            |      |      |      |      |      | 0.00  |

\* Date of completion of stages II and III as per their respective Agreements: 31 December 2026. Extension of both Agreements to 31 December 2027 requested at the 98<sup>th</sup> meeting.

### APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

1. Funding for the future tranches will be considered for approval at the first 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 subparagraph 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 subparagraph 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 subparagraph (a) 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 subparagraphs 1(a) to 1(d).
2. In the event that in a particular year two stages of the Plan 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. Overall supervision will be provided by the Ministry of Environment, through the National Ozone Office (NOO), with assistance from the Lead IA.
2. Consumption will be monitored and determined from official data of the import and export of substances as registered by the relevant Government departments.
3. The NOO will compile and report the following data and information each year on or before the deadlines:
- (a) Annual reports on the consumption of the substances to be submitted to the Ozone Secretariat; and
  - (b) Annual reports on progress in implementing the Plan to be submitted to the Executive Committee of the Multilateral Fund.
4. The agency responsible for evaluation will have full access to relevant technical and financial information related to the implementation of the Plan.

#### **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 Plan;
  - (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 subparagraphs 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 IA;
- (f) In the event that the last funding tranche is requested one or more years prior to the last year for which a consumption target had been established, annual tranche implementation reports and, where applicable, verification reports on the current stage of the Plan should be submitted until all activities foreseen had been completed and HCFC consumption targets had been met;
- (g) Ensuring that appropriate independent technical experts carry out the technical reviews;
- (h) Carrying out required supervision missions;
- (i) Ensuring the presence of an operating mechanism to allow effective, transparent implementation of the Tranche Implementation Plan and accurate data reporting;
- (j) Coordinating the activities of the Cooperating IA, 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 IA, the allocation of the reductions to the different budget items and to the funding of the Lead IA and 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 IA on any planning, coordination 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 Plan's results and the consumption of the Substances mentioned in Appendix 1-A, as per subparagraph 5(b) of the Agreement and subparagraph 1(b) of Appendix 4-A.

## **APPENDIX 6-B: ROLE OF THE COOPERATING IMPLEMENTING AGENCIES**

1. The Cooperating IA 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 coordinated 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, coordination 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 \$156.30 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 Plan 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.

## **Annex II**

**DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF NIGERIA  
AND THE EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND  
FOR THE REDUCTION IN CONSUMPTION OF HYDROFLUOROCARBONS  
IN ACCORDANCE WITH STAGE I OF THE KIGALI HFC IMPLEMENTATION PLAN  
(Period: 2024–2029)**

### **Purpose**

1. This Agreement represents the understanding of the Government of Nigeria (“the Country”) and the Executive Committee with respect to the reduction of controlled use of Annex F substances set out in Appendix 1-A (“The Substances”) to a sustained level of 20,775,549 CO<sub>2</sub>-equivalent (CO<sub>2</sub>-eq) tonnes by 1 January 2029 in compliance with the Montreal Protocol schedule and the terms of this Agreement.
2. The Country agrees to meet the annual consumption limits of Annex F 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 Annex F 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 Annex F substances that exceeds the level defined in row 1.2 of Appendix 2-A as the final reduction step under this Agreement for Annex F substances specified in Appendix 1-A, and in respect to any consumption of Annex F substances that exceeds the level defined in row 4.1.3 (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 I of the Kigali HFC implementation plan (“the Plan”) as approved. In accordance with subparagraph 5(b) of this Agreement, the Country will accept independent verification of the achievement of the annual consumption limits of Annex F substances 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 10 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 accordance with 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 accordance with Appendix 4-A covering each calendar year until and including the year for which the Funding Approval 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 approved funds, according to the evolving circumstances, to achieve the smoothest reduction of consumption and phase-down of Annex F substances specified in Appendix 1-A, in accordance with the following considerations:

- (a) Reallocations categorized as major changes must be documented in advance, either in a Tranche Implementation Plan as foreseen in subparagraph 5(d) above, or as a revision to an existing Tranche Implementation Plan to be submitted 10 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 that would modify any clause of this Agreement;
  - (iii) Changes in the annual levels of funding allocated to the 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;
  - (v) Changes in alternative technologies, on the understanding that any submission for such a request would identify the associated incremental costs, the potential impact on the climate, and any differences in CO<sub>2</sub>-eq tonnes to be phased down if applicable, as well as confirm that the Country agrees that potential savings related to the change of technology would accordingly decrease the overall funding level under this Agreement;
- (b) Reallocations not categorized as major changes may be incorporated into 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 included in the Plan that would be found to be ineligible under the policies of the Multilateral Fund (i.e., due to foreign ownership or establishment after the applicable

cut off date) would not receive financial assistance. This information would be reported as part of the Tranche Implementation Plan; and

- (d) Any remaining funds held by the bilateral or implementing agencies or the Country under the Plan will be returned to the Multilateral Fund upon completion of the last tranche foreseen under this Agreement.

8. Specific attention will be paid to the execution of activities in the refrigeration servicing sector included in the Plan, in particular that the Country may use the flexibility available under this Agreement to address specific needs that might arise during project implementation.

### **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 UNIDO, UNEP, and the Government of Italy 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 coordinated planning, implementation and reporting of all activities under this Agreement, including but not limited to the independent verification as per subparagraph 5(b). The Cooperating IAs will support the Lead IA by implementing the Plan under the overall coordination 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, 2.6, and 2.8 of Appendix 2-A.

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

11. Should the Country, for any reason, not meet the Targets for the elimination of Annex F 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 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 CO<sub>2</sub>-eq 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 subparagraph 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 subparagraphs 1(a), 1(b), and 1(d) 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 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

| Substances | Starting point for aggregate reductions in consumption (CO <sub>2</sub> -eq tonnes) |
|------------|-------------------------------------------------------------------------------------|
| HFCs       | To be determined (TBD)                                                              |

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

| Row | Particulars                                                                             |                            | 2024       | 2026       | 2027       | 2028       | 2029       | 2030       | Total     |
|-----|-----------------------------------------------------------------------------------------|----------------------------|------------|------------|------------|------------|------------|------------|-----------|
| 1.1 | Montreal Protocol reduction schedule of Annex F substances (CO <sub>2</sub> -eq tonnes) | %                          | 24,986,406 | freeze     | freeze     | freeze     | freeze     | 10         | n/a       |
|     |                                                                                         | CO <sub>2</sub> -eq tonnes | 24,986,406 | 24,986,406 | 24,986,406 | 24,986,406 | 22,487,765 | 22,487,765 | n/a       |
| 1.2 | Maximum allowable total consumption of Annex F substances (CO <sub>2</sub> -eq tonnes)  | Reduction in %             | 0.0        | 0.0        | 0.0        | 0.0        | 16.85      | 16.85      | n/a       |
|     |                                                                                         | CO <sub>2</sub> -eq tonnes | 24,986,406 | 24,986,406 | 24,986,406 | 24,986,406 | 20,775,549 | 20,775,549 | n/a       |
| 2.1 | Lead IA (UNDP) agreed funding (US \$)                                                   |                            | 1,902,050  | 909,206    | 0          | 3,673,872  | 0          | 1,780,715  | 8,265,843 |
| 2.2 | Support costs for Lead IA (US \$)                                                       |                            | 133,144    | 63,644     | 0          | 257,171    | 0          | 124,650    | 578,609   |
| 2.3 | Cooperating IA (UNIDO) agreed funding (US \$)                                           |                            | 705,510    | 1,324,774  | 0          | 243,825    | 0          | 0          | 2,274,109 |
| 2.4 | Support costs for Cooperating IA (US \$)                                                |                            | 49,386     | 92,734     | 0          | 17,068     | 0          | 0          | 159,188   |
| 2.5 | Cooperating IA (UNEP) agreed funding (US \$)                                            |                            | 130,800    | 0          | 0          | 130,800    | 0          | 65,400     | 327,000   |
| 2.6 | Support costs for Cooperating IA (US \$)                                                |                            | 17,004     | 0          | 0          | 17,004     | 0          | 8,502      | 42,510    |
| 2.7 | Cooperating IA (Italy) agreed funding (US \$)                                           |                            | 0          | 250,000    | 0          | 250,000    | 0          | 0          | 500,000   |

| Row | Particulars                                                                      | 2024      | 2026      | 2027 | 2028      | 2029 | 2030      | Total      |
|-----|----------------------------------------------------------------------------------|-----------|-----------|------|-----------|------|-----------|------------|
| 2.8 | Support costs for Cooperating IA (US \$)                                         | 0         | 32,500    | 0    | 32,500    | 0    | 0         | 65,000     |
| 3.1 | Total agreed funding (US \$)                                                     | 2,738,360 | 2,483,980 | 0    | 4,298,497 | 0    | 1,846,115 | 11,366,952 |
| 3.2 | Total support costs (US \$)                                                      | 199,534   | 188,878   | 0    | 323,743   | 0    | 133,152   | 845,307    |
| 3.3 | Total agreed costs (US \$)                                                       | 2,937,894 | 2,672,858 | 0    | 4,622,240 | 0    | 1,979,267 | 12,212,259 |
| 4.1 | Deduction of HFCs under this Agreement (CO <sub>2</sub> -eq tonnes)              |           |           |      |           |      |           | 4,210,857  |
| 4.2 | Deduction of HFCs from previously approved projects (CO <sub>2</sub> -eq tonnes) |           |           |      |           |      |           | 0          |
| 4.3 | Remaining eligible consumption for HFCs (CO <sub>2</sub> -eq tonnes)             |           |           |      |           |      |           | TBD        |

### APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

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

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

1. The submission of the Tranche Implementation Report and Plans for each tranche request will consist of four 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-down of Annex F substances, how the different activities contribute to it, and how they relate to each other, including, where applicable, activities related to energy efficiency approved in the context of HFC phase-down pursuant to decision 91/65. The report should include the amount of Annex F substances consumption reduced as a direct result of the implementation of activities, by substance, the alternative technology used and the related phase in of alternatives, to allow the Secretariat to inform the Executive Committee on the resulting change in climate relevant emissions. The report should also include quantitative information on the activities implemented and further highlight the 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, use of flexibility for the 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 on the Plan's results and the consumption of Annex F substances, as per subparagraph 5(b) of the Agreement. If not decided otherwise by the Executive Committee, such a verification of consumption data must be provided with each tranche request, covering all relevant years for which a verification report has not yet been acknowledged by the Committee, as specified in subparagraph 5(a) of the Agreement;
- (c) A written description of the activities to be undertaken during the period covered by the requested tranche including quantitative information, 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 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 subparagraph 1(a) above; and

- (d) An Executive Summary of about five paragraphs, summarizing the information contained in subparagraphs 1(a) to 1(c) above.

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

1. The Ministry of Environment (MOE) of Nigeria is the entity responsible for the overall coordination, strategic management, and policy direction of programmes and activities under the Plan and broader Montreal Protocol initiatives. The MOE is directly supported by the national ozone office (NOO), which serves as the dedicated implementing office responsible for the day-to-day execution of all Plan activities.
2. The NOO operates as the primary national focal point to coordinate and drive the operational activities of the Plan. Supported by the MOE, the NOO works in close coordination with key national entities, including the Nigeria Customs Service, the National Agency for Food and Drug Administration and Control, and the Federal Ministry of Power, alongside other implementing partners and private sector stakeholders. These collaborations are essential to facilitate the development, implementation, and rigorous monitoring of the Plan, ensuring Nigeria's strict adherence to its commitments under the Montreal Protocol.
3. Coordination and monitoring of the Plan will be accomplished through the NOO's continuous operational oversight of Plan activities. This framework includes the verification of project milestones, the tracking of funding disbursements, and the comprehensive monitoring and assessment of implemented phase-down activities to ensure sustained progress in reducing HFC consumption across the Country.

#### **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 Plan;
  - (b) Assisting the Country in the 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 are reflected in the updates to the overall Plan and in the future Tranche Implementation Plans, consistent with subparagraph 1(c) of Appendix 4-A;
  - (e) Fulfilling the reporting requirements of the Tranche Implementation Reports and Plans and of the overall Plan as specified in Appendix 4-A for submission to the Executive Committee including 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 HFC consumption targets had been met;
  - (g) Ensuring that appropriate independent technical experts carry out the technical reviews;

- (h) Carrying out the required supervision missions;
- (i) Ensuring the presence of an operating mechanism to allow for an effective and transparent implementation of the Tranche Implementation Plan and accurate data reporting;
- (j) Coordinating the activities of the Cooperating IAs and ensuring the 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 the policy, management and technical support when required;
- (n) Reaching consensus with the Cooperating IAs on any planning, coordination 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 Plan's results and of the consumption of Annex F substances mentioned in Appendix 1-A, as per subparagraph 5(b) of the Agreement and subparagraph 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 IAs, and referring to the Lead IA to ensure a coordinated sequence of 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, coordination and reporting arrangements required to facilitate the implementation of the Plan.

#### **APPENDIX 7-A: REDUCTIONS IN FUNDING FOR FAILURE TO COMPLY WITH THE TARGETS IN THE AGREEMENT**

1. In accordance with paragraph 11 of the Agreement, the amount of funding provided may be reduced by US \$5.40 per CO<sub>2</sub>-eq tonne 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. Where the Country has failed to comply with the Agreement due to illegal trade, the reduction in funding would not be applied if the illegally traded controlled substances are seized and subsequently confiscated, destroyed, exported, or returned to the country of origin.

#### **APPENDIX 8-A: SECTOR-SPECIFIC ARRANGEMENTS**

1. During the implementation of stage I of the Plan, the Government will be allowed, on an exceptional basis, to submit, by the 100<sup>th</sup> meeting of the Executive Committee, a proposal to convert any remaining eligible enterprises manufacturing residential air-conditioning units using R-410A and domestic refrigerators using HFC-134a, on the understanding that:

- (a) The maximum remaining consumption of R-410A eligible for funding was 132,055 CO<sub>2</sub>-eq tonnes (63.26 mt); and
- (b) The maximum remaining consumption of HFC-134a eligible for funding was 98,985 CO<sub>2</sub>-eq tonnes (69.22 mt).

**Annex III**

**SIMULTANEOUS IMPLEMENTATION OF THE HCFC PHASE-OUT MANAGEMENT PLAN  
AND THE KIGALI HFC IMPLEMENTATION PLAN IN NIGERIA**

|                                                       | HPMP – stage IV                                                                                                                                                                              |                 | KIP – stage I                                                                                                                                                                    |                 | HPMP+KIP<br>combined<br>cost<br>(US \$) |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------|
| Category of<br>activity                               | Activity                                                                                                                                                                                     | Cost<br>(US \$) | Activity                                                                                                                                                                         | Cost<br>(US \$) |                                         |
| Manufacturing                                         |                                                                                                                                                                                              |                 |                                                                                                                                                                                  |                 |                                         |
| Foam                                                  |                                                                                                                                                                                              |                 | TA to the two remaining enterprises, Vitapur and Lange and Grants                                                                                                                | 160,000         | 160,000                                 |
| Residential AC                                        |                                                                                                                                                                                              |                 | Phase out R-410A at three residential AC manufacturers                                                                                                                           | 1,166,715       | 1,166,715                               |
| Domestic refrigeration                                |                                                                                                                                                                                              |                 | Conversions to phase out of HFC-134a at three domestic refrigeration enterprises                                                                                                 | 302,384         | 302,384                                 |
| Commercial refrigeration                              |                                                                                                                                                                                              |                 | TA to 15 small ice machine and cold room enterprises to phase out HFC-134a                                                                                                       | 105,000         | 105,000                                 |
| Servicing                                             |                                                                                                                                                                                              |                 |                                                                                                                                                                                  |                 |                                         |
| Strengthening the HCFC regulatory framework           | Strengthen enforcement and quota system                                                                                                                                                      | 121,584         | Workshops, import controls, implement HFC quotas                                                                                                                                 | 350,000         | 471,584                                 |
| Customs training and equipment procurement            | Develop refrigerant monitoring system, train 320 customs officers, importers, stakeholders<br><br>Purchase lab equipment and refrigerant identifiers                                         | 299,000         | Update curriculum to include HFCs, train 20 trainers and 500 customs officers and clearance agents                                                                               | 320,000         | 619,000                                 |
| RAC/MAC technician training and equipment procurement | Train and certify technicians, provide equipment to training centers and tools to technicians<br><br>QCR framework: Update training institution curricula, establish 5 centres of excellence | 4,948,650       | Update MAC curriculum, train MAC trainers and MAC and RAC technicians<br><br>Establish centres of excellence, provide tools and equipment to training institutes and technicians | 4,975,093       | 9,923,743                               |
| Strengthening RRR                                     | Establish am RRR centers and 8 recovery centres, train technicians in RRR, monitor RR activities                                                                                             | 538,922         | Establish a recovery centre and incentive schemes                                                                                                                                | 123,000         | 661,922                                 |
| Promoting alternative technologies                    | Installation of R-290-based cold rooms in rural regions                                                                                                                                      | 961,828         | Two pilot projects on R-290 monoblocs in cold rooms for food storage and preservation                                                                                            | 2,317,000       | 3,278,828                               |

|                                                 | HPMP – stage IV                        |                  | KIP – stage I                                                                                                                                                                                                                                                                                                                                                                                                          |                   | HPMP+KIP<br>combined<br>cost<br>(US \$) |
|-------------------------------------------------|----------------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------|
| Category of<br>activity                         | Activity                               | Cost<br>(US \$)  | Activity                                                                                                                                                                                                                                                                                                                                                                                                               | Cost<br>(US \$)   |                                         |
|                                                 |                                        |                  | Demonstration of<br>natural refrigerants in an<br>indirect glycol/chilled<br>water-cooling system in<br>large cold room or<br>industrial warehouse<br>cooling application<br><br>Demonstration of an<br>R-290-based centralized<br>AC system<br><br>Support for the<br>conversion of<br>HFC-based cold storage<br>to solar-powered<br>hydrocarbon technology,<br>targeting women's<br>cooperatives in rural<br>Nigeria |                   |                                         |
| Enterprise-level<br>training                    |                                        |                  | Enterprise-level training<br>for RAC manufacturing<br>staff on the installation<br>of flammable refrigerant<br>appliances                                                                                                                                                                                                                                                                                              | 153,000           | 153,000                                 |
| Gender<br>mainstreaming                         |                                        |                  | Gender assessment and<br>scholarships                                                                                                                                                                                                                                                                                                                                                                                  | 100,000           | 100,000                                 |
| Young<br>professionals<br>training<br>programme |                                        |                  | Three-year industrial<br>training programme<br>training of young<br>professionals in the<br>manufacturing sector                                                                                                                                                                                                                                                                                                       | 360,000           | 360,000                                 |
| Awareness-<br>raising                           |                                        | 222,000          | Commercial<br>refrigeration information<br>sessions, study tours for<br>alternate systems and<br>technologies                                                                                                                                                                                                                                                                                                          | 136,960           | 340,372                                 |
| PMU                                             | Monitoring and<br>reporting activities | 505,125          | Monitoring and<br>reporting activities                                                                                                                                                                                                                                                                                                                                                                                 | 797,800           | 1,436,079                               |
| <b>Total</b>                                    |                                        | <b>7,597,109</b> |                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>11,366,952</b> | <b>19,097,215</b>                       |
| <b>Percentage of<br/>total (%)</b>              |                                        | <b>40</b>        |                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>60</b>         | <b>100</b>                              |