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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Ninety-seventh Meeting
Montreal, 1–5 December 2025
Items 9(c) and 9(d) of the provisional agenda¹

PROJECT PROPOSALS: SOUTH AFRICA

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

Phase-out

- | | | | |
|---|--|-------|------------------|
| • | HCFC phase-out management plan
(stage II, second tranche) | UNIDO | Blanket approval |
|---|--|-------|------------------|

Phase-down

- | | | | |
|---|--|-------|-----------------------------|
| • | Kigali HFC implementation plan
(stage I, first tranche) | UNIDO | Individual
consideration |
|---|--|-------|-----------------------------|

¹ UNEP/OzL.Pro/ExCom/97/1

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

South Africa

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase-out plan (stage II)	UNIDO (lead)	91 st	100% phase-out by 2030

(II) LATEST ARTICLE 7 DATA (Annex C, Group I)	Year: 2024	88.7 ODP tonnes
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(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)								Year: 2024	
Chemical	Aerosol	Foam	Fire-fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-22					88.50				88.50
HCFC-123					0.20				0.20

(IV) CONSUMPTION DATA (ODP tonnes)			
2009–2010 baseline:	369.7	Starting point for sustained aggregate reductions:	369.7
CONSUMPTION ELIGIBLE FOR FUNDING			
Already approved:	369.7	Remaining:	0

(V) ENDORSED BUSINESS PLAN		2025	2026	2027	Total
UNIDO	ODS phase-out (ODP tonnes)	59.41	0.0	45.02	104.42
	Funding (US \$)	2,863,366	0	2,169,646	5,033,012

(VI) PROJECT DATA			2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
Montreal Protocol consumption limits (ODP tonnes)			240.31	240.31	240.31	120.15	120.15	120.15	120.15	120.15	0.0	n/a
Maximum allowable consumption (ODP tonnes)			194.18	185.00	148.00	120.15	110.00	90.00	9.24	9.24	0.0	n/a
Funding agreed in principle (US \$)	UNIDO	Project costs	2,993,125	0	0	2,676,043	0	2,027,707	0	993,125	0	8,690,000
		Support costs	209,519	0	0	187,323	0	141,939	0	69,519	0	608,300
Funds approved by ExCom (US \$)		Project costs	2,993,125	0	0		0	0	0	0	0	2,993,125
		Support costs	209,519	0	0		0	0	0	0	0	209,519
Total funds recommended for approval at this meeting (US \$)		Project costs				2,676,043						2,676,043
		Support costs				187,323						187,323

Secretariat's recommendation:	Blanket approval
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PROJECT DESCRIPTION

1. On behalf of the Government of South Africa, UNIDO as the designated implementing agency has submitted a request for funding for the second tranche of stage II of the HCFC phase-out management plan (HPMP), in the amount of US \$2,676,043, plus agency support costs of US \$187,323.² The submission includes a progress report on the implementation of the first tranche, the verification report on HCFC consumption for 2022 to 2024, and the tranche implementation plan for 2026 to 2027.

Report on HCFC consumption

2. The Government of South Africa reported a consumption of 88.70 ODP tonnes of HCFCs in 2024, which is 76 per cent below the country's HCFC baseline for compliance. The 2020–2024 HCFC consumption is shown in table 1.

Table 1. HCFC consumption in South Africa (2020–2024 Article 7 data)

HCFC	2020	2021	2022	2023	2024	Baseline
Metric tonnes (mt)						
HCFC-22	1,739.29	1,605.41	1,338.62	1,354.97	1,609.09	3,833.90
HCFC-123	32.63	20.00	8.89	-0.50	10.00	12.80
HCFC-142b	7.20	0	0	0	0	-12.90
Total (mt)	1,779.12	1,625.41	1,347.51	1,354.47	1,619.09	*5,258.00
ODP tonnes						
HCFC-22	95.66	88.30	73.62	74.52	88.50	210.9
HCFC-123	0.65	0.40	0.18	-0.01	0.20	0.3
HCFC-142b	0.47	0	0	0	0	-0.8
Total (ODP tonnes)	96.78	88.70	73.80	74.51	88.70	*369.7
Maximum allowable consumption (ODP tonnes)	n/a	n/a	n/a	194.18	185.00	n/a

* Including -30.8 mt (-0.7 ODP tonnes) of HCFC-124 and 1,455 mt (160 ODP tonnes) of HCFC-141b.

3. The decrease in the consumption of all HCFCs in advance of the Montreal Protocol control measures is due to regulatory and policy interventions including bans, enforcement measures, and phase-out initiatives, in line with the country's commitment to reduce its use of ozone-depleting substances (ODSs). In 2024, HCFC consumption returned to a level close to that recorded in 2021 but remained 40 per cent below the maximum allowable consumption for the same year, as established in the Agreement between the Government of South Africa and the Executive Committee.

Country programme implementation report

4. The Government of South Africa 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.

Verification report

5. The verification report confirmed that the existing procedures for the licensing and quota system and monitoring of HCFC import and export had been properly followed and that the total consumption of HCFCs reported under Article 7 of the Montreal Protocol for 2022 to 2024 was correct (as shown in table 1

² As per the letter of 22 August 2025 from the Department of Forestry, Fisheries and the Environment of South Africa to UNIDO.

above). The verification concluded that South Africa was in compliance with the targets defined in the Agreement between the country and the Multilateral Fund.

6. In line with decision 91/47(f), the verification included a summary report on the implementation of recommendations from the previous verification, particularly regarding data inconsistencies identified in earlier years.³ The report confirmed that the Customs authority and the national ozone unit (NOU) were actively working on strengthening regulatory compliance through measures such as enforcing correct tariff codes, standardizing reporting units, and strengthening annual reporting. The Department of Forestry, Fisheries and the Environment (DFFE) has enhanced its monitoring operations through market surveys and inspections and continues to work on updating relevant regulations to include the issue of refrigerant leakage and reclamation. The quota and licensing systems' procedures have been updated to include provisions regarding *inter alia* cancellations of unused quotas and annual reviews of enterprise imports against the allocated quotas. On 24 October 2025, the Government submitted the revised Article 7 reports for 2020 and 2021 to reflect adjustments identified in the previous verification.⁴

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

7. Stage I of the HPMP was completed on 31 December 2023, in line with the extension approved by the Executive Committee at the 91st meeting;⁵ UNIDO submitted the project completion report on 1 April 2025.

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

8. The following activities were implemented under the first tranche:

- (a) *Policy and regulatory framework*: Training on the existing legislation and procedures held for 24 customs officers at three seaports; and procurement of 20 refrigerant identifiers for customs officers, expected to be available for delivery by the end of 2025;
- (b) *Refrigeration servicing sector*: Training on the latest developments in refrigeration and emerging technologies, standards and regulations in South Africa delivered to 40 certified trainers (in collaboration with refrigeration and air-conditioning (RAC) associations); training and certification of 600 informal RAC technicians (103 of them women) in good servicing practices and the safe handling of flammable refrigerants; procurement and delivery of 1,200 toolkits⁶ to RAC technicians; procurement and delivery of three sets of training equipment⁷ and three educational training units for simulating RAC systems based on hydrocarbons (HCs), ammonia (NH₃) and carbon dioxide (CO₂) to selected vocational training and certification centres; and training of four technicians on the maintenance and use of training equipment; and

³ The verification report for the years 2019–2021 recommended procedural changes in issuing import quotas and licenses, recording and analyzing import data provided by permit holders, timely sharing of information on imports by the customs, and adoption of a unique customs tariff code for each substance to improve the control and monitoring of ODS imports and uses in the country.

⁴ HCFC consumption reported under Article 7 in 2020 and 2021 was 96.78 and 88.70 ODP tonnes, respectively, while the verified consumption was 97.36 and 90.33 ODP tonnes, respectively.

⁵ Decision 91/41 on blanket approval.

⁶ Consisting of manifold, simple lightweight dual-stage vacuum pump, lightweight refrigerant-charging scale, set of adjustable wrenches, set of screwdrivers, ratcheting flaring tool, a valve core removal tool, simple clamp meter, an electronic refrigerant leak detector, personal safety equipment, and tool case.

⁷ Including *inter alia* electronic leak detector, simple clamp meter, valve core removal tool, ratcheting flaring tool, simple two valve service manifold, simple dual stage vacuum pump, and refrigerant charging scales.

- (c) *Stakeholder engagement and awareness raising:* Organization of two annual meetings (with total attendance of 100 participants from the stakeholder group) to discuss and review aspects of the ongoing HCFC phase-out and HFC phase-down;⁸ setting up two roadshows to inform local stakeholders about alternative technologies and revised regulations and to engage additional institutions in the training programme; and holding a conference workshop to raise awareness on the Montreal Protocol and HPMP-related commitments, regulations and activities among approximately 275 stakeholders including RAC technicians, government officials, environmental officers, managers responsible for the procurement of RAC systems, retailers and other end users.

Project monitoring and implementation

9. The NOU is responsible for coordinating activities under stage II of the HPMP and conducting regular monitoring meetings with a formal stakeholders' group. A total of US \$125,000 were disbursed for project monitoring under the first tranche of stage II to hire national and international experts to provide technical assistance for the implementation of activities (US \$75,000), carry out monitoring-related travel (US \$25,000), organize meetings and workshops, and ongoing data collection and reporting (US \$25,000).

Level of fund disbursement

10. As of October 2025, of the US \$2,993,125 approved so far, US \$2,935,246 (98 per cent) had been disbursed. The balance of US \$57,879 will be disbursed in 2026.

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

11. The following activities will be implemented by UNIDO between January 2026 and December 2027:

- (a) *Policy and regulatory framework:* Strengthening of the electronic licensing and quota system through improvements to the reporting and licence-issuing requirements and delivery of 20 refrigerant identifiers to customs entry points (US \$115,000, plus US \$57,879 from previous tranche); developing and updating ODS management regulations and codes of practice for HCs, NH₃ and CO₂, including consultations with stakeholders (US \$60,000); updating of customs codes and training of additional 35 customs officers (US \$21,876); and organization of review meetings, coordination, and information sharing (US \$25,000) (total of US \$221,876, plus US \$57,879 from previous tranche);
- (b) *Refrigeration servicing sector:* Training of additional 20 certified trainers on latest developments in refrigeration and emerging technologies, standards and national regulations, and training and certification of 800 technicians on good servicing practices and the safe handling of flammable refrigerants, including provision of materials and personal protection equipment (US \$950,000); procurement and delivery of 600 sets of equipment and tools for certified RAC technicians (US \$780,000); procurement and distribution of an additional three educational training units for simulating RAC systems

⁸ The subjects discussed included *inter alia* available technologies and guidance on the selection of alternatives; identifying barriers to the introduction of alternative technologies and proposing activities to remove them; recommending enhancements to local capacity to operate with alternatives that minimize climate impact; evaluating options to reduce refrigerant charges throughout the process of equipment design, assembly, and installation; developing recommended incentives to encourage owners to improve equipment performance and energy use; identifying ways of measuring, reducing and preventing refrigerant loss from larger systems; and providing workshops on the legislative framework.

based on HC, NH₃ and CO₂ for selected training centres (US \$120,000); upgrading the refrigerant laboratory testing facility at one refrigerant reclamation centre, including equipment⁹ procurement, installation, commissioning and related training, laboratory accreditation and certification of laboratory technicians (US \$216,667); and reviewing and updating the curriculum of vocational training and certification centres to include the servicing requirements for fluorinated gases and refrigerants with low global-warming potential (GWP) (US \$130,000) (total of US \$2,196,667);

- (c) *Awareness raising*: Organization of roadshows in at least two additional provinces to continue informing local stakeholders about alternative technologies and revised regulations and to engage additional institutions in the training programme (US \$60,000); and facilitation of two annual meetings for the stakeholder group to discuss and review aspects of the ongoing HCFC phase-out and HFC phase-down (US \$72,500) (total of US \$132,500); and
- (d) *Project monitoring and implementation*: Collaboration with national and international experts to provide technical assistance in the implementation of activities (US \$75,000); carrying out monitoring-related travel (US \$25,000), organization of meetings and workshops, and regular coordination on data collection and reporting (US \$25,000) (total of US \$125,000).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

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

Legal framework

12. The Government of South Africa has issued the HCFC import quota for 2025 at 79.94 ODP tonnes, which is below the Montreal Protocol control target for the same year.

13. Some policy and regulatory framework activities have been delayed, including the strengthening of the electronic licensing and quota system, delivery of refrigerant identifiers and development and updates of the ODS management regulations and codes of practice for HCs, NH₃, and CO₂. UNIDO attributed the delays to the complexity of system design for an electronic licensing, quota, and reporting platform (integration with customs databases, information technology (IT) procurement and security protocols), dependence on external IT firms, and time required to build consensus among the Government, the industry and the training institutions. UNIDO reassured the Secretariat that those activities were ongoing and expected to be completed in 2026.

Refrigeration servicing sector

14. Reporting on progress in the training and certification of technicians, UNIDO explained that the DFFE/NOU developed a national implementation strategy for RAC servicing technicians and the safe handling training framework in collaboration with the Department of Employment and Labour (DEL), the Department of Higher Education and Training, the RAC industry, and the RAC contractors' association. The programme is aligned with the National Skills Development Strategy and is officially registered for

⁹ I.e., 100 refrigerant recovery cylinders, 12 sample bottles (containers), one gas chromatographer/analyzer, two coulometric titrators for moisture analysis in refrigerants, one sample injector for liquid injection, headspace and solid phase microextraction.

national application with the Quality Council for Trades and Occupations. It also complies with the standards set by the Qualification and Certification Committee for Gas, as mandated by DEL, ensuring that all gas practitioners are properly trained, certified, and registered under the pressure equipment regulations.

15. In line with decisions 92/36(g) and 94/9(c), the submission included a final report on the completion of the end-user demonstration projects implemented during stage I of the HPMP. These results are summarized in table 2.

Table 2. Results of the end-user demonstration projects implemented under stage I of the HPMP

Subsector	Small commercial refrigeration	Large commercial refrigeration	Industrial refrigeration	Chiller
Beneficiary type	Supermarket	Supermarket	Dairy industry	Hospital
Replaced equipment:				
- Baseline technology	HCFC-22 DX*	HCFC-22 DX	HCFC-22 DX	HCFC-22 water loop
- Unitary charge (kg)	270	500	800	61
- Annual HCFC use (kg)	336	192	498	30
Selected alternative technology	R-290-based systems with a charge below 500 g linked through a water-loop system	Trans-critical R-744-based MT/LT system**	R-717/glycol/R-744 cascade system**	R-290 cold-water chiller
Cooling capacity	R-290: ca.100 kW	MT: 255 kW LT: 50 kW	R-717 MT: 582 kW R-744 LT: 67 kW	Cold water (6°C/12°C): 100 kW
Total cost of replacement including co-financing (US \$/kg)	136,171	409,422	871,267	120,000
Beneficiary co-financing share (%)	87	87	87	15
Energy savings obtained (%)	20 (anticipated)	23 (achieved)	24 (achieved)	TBD***
Replicability	<u>High</u> This model can be easily adapted to small supermarkets widespread in South Africa.	<u>Very high</u> Large retail chains can replace HCFC systems with CO ₂ systems under normal store refurbishment timelines. Requires stronger servicing practices.	<u>High</u> Industrial end users are generally comfortable with complex systems. Can be phased in gradually with minimal disruption.	<u>Promising but in limited supply</u> Once more manufacturers enter the market, the replication potential for public facilities will increase.

*DX=direct expansion; MT/LT=medium temperature/low temperature

**R-717=ammonia/NH₃; R-744=carbon dioxide/CO₂

***Project delayed due to a fire. Replacement of equipment is 90 per cent complete and will be followed by monitoring. Energy consumption is expected reduce by 115,000 kWh.

16. The demonstration projects have clearly demonstrated that the tested alternative technologies are viable, efficient, and scalable within South Africa, offering substantial emission reductions and lower operational costs. South Africa considers that, by replicating these models across sectors, it can fast-track its compliance with the Montreal Protocol, unlock significant climate co-benefits, and enhance the energy efficiency of key industries.

17. Key lessons for replication include: scaling up demonstration projects at such beneficiaries as supermarkets, warehouses and hospitals to highlight the economic and practical benefits of low-GWP refrigerant systems; strengthening technician training to ensure safe handling of alternative refrigerants; embedding support in policies—such as building codes, procurement standards, and incentives—to enable broader adoption; standardizing monitoring tools with digital dashboards for transparent data collection and performance tracking; introducing energy benchmarks such as Specific Energy Intensity to drive accountability and continuous improvement; and engaging original equipment manufacturers, especially suppliers of R-290- and CO₂-based systems, to diversify options, lower costs and accelerate uptake.

18. Noting that the chiller replacement project suffered a delay and is still to be completed, the Secretariat requested UNIDO to include the results of this demonstration project in the third tranche request submission.

Project implementation and monitoring

19. On the project monitoring structure, the Secretariat noted that the project coordinator was currently based outside of South Africa. UNIDO explained that the decision to appoint a coordinator based abroad during the initiation of stage II was primarily aimed at leveraging international technical expertise and ensuring alignment with global best practices in HCFC phase-out strategies, technology transfer, and policy implementation. However, UNIDO and the NOU are currently establishing a country-based project management unit to support the NOU in day-to-day management of project activities. Recognizing the importance of building local capacity, the advantages of local coordination, and the need to ensure a robust project management structure for the implementation of the HPMP and the Kigali HFC implementation plan (KIP), also being considered at the present meeting, the Secretariat recommended that UNIDO report in the next tranche request on the status of progress made toward ensuring that project monitoring was conducted by staff based within the country.

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

20. Improvements to be made to the electronic licensing and quota system include adding flexibility to produce reports with data disaggregated either at importer/exporter level or by chemical, linking the NOU with the international trade administration commission and the customs offices for real-time availability of information to enhance monitoring, and enabling the provision of services such as requesting annual HCFC import quotas or extra quotas, among others.

21. Regarding the refrigerant recycling, recovery and reclamation (RRR) project, the funds requested under the second tranche will focus on the establishment of lab capacity to test reclaimed refrigerants and procurement of additional cylinders, instead of the initially considered cylinder-filling facility. The feasibility study on banning disposable cylinders concluded that this measure was not possible for South Africa yet, as the costs exceeded the benefits, especially for small and medium-sized enterprises. Furthermore, four enterprises that had received reclamation machines under stage I of the HPMP have faced challenges related to the quality of reclaimed refrigerant, as well as the lack of certifying facilities. As a result, the Government and UNIDO explored options to test reclaimed gases for compliance with purity standards such as AHRI 700.¹⁰ Funds from the second tranche will be used to enable one RRR centre to verify and certify refrigerant purity and provide this service to the remaining three centres.

Gender policy implementation

22. During tranche implementation, the NOU will apply gender indicators to measure women's participation in the planning, implementation, and reporting processes of each component, focusing on training and capacity-building activities and other supporting measures and aiming for a 25 per cent participation ratio for women, while meetings and training sessions on ozone-related issues will also include sessions on gender.

Sustainability of the HCFC phase-out and assessment of risks

23. This issue is presented jointly with the issue of sustainability of HFC phase-down for the KIP in paragraphs 84 and 85 below.

¹⁰ AHRI 700 (SI) establishes purity specifications to verify composition and specify methods of testing refrigerant acceptability regardless of source (new, reclaimed, or repackaged, or all three) for use in new and existing RAC products.

Conclusion

24. South Africa has remained in compliance with the maximum allowable consumption levels during the reporting period. In 2024, HCFC consumption was 40 per cent below the annual target and 76 per cent below the HCFC baseline. The level of disbursement of funds approved for the previous tranche is 98 per cent and significant progress has been achieved during the implementation of the tranche, including *inter alia* the training and certification of 600 technicians on good servicing practices and safe handling of alternatives, delivery of 1,200 tool kits to technicians, delivery of three educational training units and training equipment to three training centres, and support for awareness activities. The submission included a report on the implementation of end-user projects completed under the previous stage which demonstrated that the tested alternative technologies were viable, efficient, and scalable within South Africa.

RECOMMENDATION

25. The Fund Secretariat recommends that the Executive Committee:

- (a) Note the progress report on the implementation of the first tranche of stage II of the HCFC phase-out management plan (HPMP) for South Africa; and
- (b) Request UNIDO to include in the request for the third tranche of stage II results of the delayed demonstration project for chiller replacement implemented during stage I of the HPMP for South Africa (decisions 92/36(g) and 94/9(c)) and the progress made toward ensuring that project monitoring was conducted by staff based within the country.

26. The Fund Secretariat further recommends blanket approval of the second tranche of stage II of the HPMP for South Africa and the corresponding 2026 tranche implementation plan at the funding level shown in the table below.

	Project title	Project funding (US \$)	Support costs (US \$)	Implementing agency
(a)	HCFC phase-out management plan (stage II, second tranche)	2,676,043	187,323	UNIDO

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

South Africa

PROJECT TITLE	AGENCY
Kigali HFC implementation plan (stage I)	UNIDO (lead)

LATEST ARTICLE 7 DATA (Annex F)	Year: 2024	4,088.72 mt	10,048,744 CO ₂ -eq tonnes
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	Aerosol	Fire-fighting	Air-conditioning and refrigeration				Solvent	Other*
			Manufacturing			Servicing		
			Refrigeration	AC	Other			
CP report (2024)	16,486	133,315	76,573	696,767		8,091,643		1,028,604
KIP stage I activities as agreed (Y/N)			Y			Y		Y

*Local installation and assembly

AVERAGE 2020–2022 HFC CONSUMPTION IN SERVICING	2,552.20 mt	6,332,103 CO ₂ -eq tonnes
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BASELINE CONSUMPTION DATA (CO ₂ -eq tonnes)	2020	2021	2022	Average 2020-2022
HFC annual consumption	8,221,905	9,164,240	8,647,454	8,677,866
HCFC baseline (65%)				5,165,273
HFC baseline				13,843,139

HFC CONSUMPTION ELIGIBLE FOR FUNDING (CO ₂ -eq tonnes)	
Starting point for sustained aggregate reductions	TBD
Previously approved HFC phase-down investment projects	0
Aggregate reductions from previously approved projects	n/a

PROJECT DATA AS AGREED		2025*	2026	2027	2028	2029	Total
Consumption (CO ₂ -eq tonnes)	Montreal Protocol limits	13,843,139				12,458,825	n/a
	Maximum allowable	13,136,096				11,822,486	n/a
	Reduction from baseline (%)	5.11	5.11	5.11	5.11	14.60	n/a
Amounts recommended in principle (US \$)	UNIDO	Project costs	1,720,164	0	1,307,237	0	3,027,401
		Support costs	120,411	0	91,507	0	211,918
	Total project costs		1,720,164	0	1,307,237	0	3,027,401
	Total support costs		120,411	0	91,507	0	211,918
	Total funds		1,840,575	0	1,398,744	0	3,239,319

* Recommended for approval at the present meeting

Reduction from remaining consumption eligible for funding in stage I:	2,020,653 CO ₂ -eq tonnes
Secretariat's recommendation	Individual consideration

PROJECT DESCRIPTION

27. 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

28. On behalf of the Government of South Africa, UNIDO as the designated implementing agency has submitted a request for stage I of the Kigali HFC implementation plan (KIP).¹¹ As initially submitted, stage I was to assist the Government of South Africa in meeting the 14.74 per cent reduction target from baseline consumption by 1 January 2029. Upon review, the Secretariat noted several mistakes that had been made in the calculation of relevant targets and reductions.¹² As requested, UNIDO submitted a corrected proposal in the amount of US \$3,151,141, plus agency support costs of US \$220,580, to reach an HFC consumption level of 11,822,486 CO₂-equivalent (CO₂-eq) tonnes by 1 January 2029, which corresponds to a 14.60 per cent reduction from the established baseline, or 10 per cent of the revised baseline, if the consumption levels for 2020–2022 are corrected, as explained in sections III and V of the present document.

29. The first tranche of stage I of the KIP requested at this meeting amounts to US \$1,729,157, plus agency support costs of US \$121,041 for UNIDO, for the period of January 2026 to December 2027.

II. Background

Status of implementation of the HCFC phase-out management plan

30. Table 1 presents information on the HCFC phase-out management plan (HPMP) in South Africa as of October 2025.

Table 1. HPMP implementation status for South Africa

	Stage I	Stage II
Meetings when HPMP was approved/updated	67 th	91 st
Reduction from baseline	35% by 2020	100% by 2030
Total stage cost (US \$)	6,533,556	8,690,000
Date of completion (actual/planned)	31 December 2023	31 December 2031

¹¹ As per the letter of 11 August 2025 from the Department of Forestry, Fisheries and the Environment of South Africa to UNIDO.

¹² The proposal only considered activities designed to reduce HFC consumption by 7 per cent of the baseline but set the proposed target at 49 per cent of the baseline.

Status of implementation of previous HFC-related activities

31. Table 2 presents an overview of activities implemented in South Africa in the context of the Kigali Amendment that have been funded by the Multilateral Fund.

Table 2. Previously approved HFC-related activities in South Africa

Approval meeting	Project title	Implementing agency	Cost (US \$)	Date of completion
82 nd	Enabling activities for HFC phase-down	UNIDO	240,000	December 2020
93 rd	Pilot project to maintain and/or enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down	UNIDO	350,000	December 2026

III. HFC consumption overviewHFC consumption levels

32. South Africa only imports HFCs for use in the refrigeration and air-conditioning (RAC) manufacturing and servicing sectors, the local installation and assembly subsector, and small amounts in the aerosol and the firefighting sectors. In metric tonnes (mt), HFC-134a is the main refrigerant used in the country (36 per cent of total HFC use), followed by R-507A (19.3 per cent), R-410A (18.6 per cent) and R-404A (16.5 per cent). In terms of CO₂-eq tonnes, R-507A accounted for the highest consumption in 2024 (31.3 per cent), followed by R-404A (26.4 per cent), HFC-134a (21.0 per cent), R-410A (15.8 per cent), and other HFCs (5.6 per cent). Table 3 presents the country's HFC consumption as reported to the Ozone Secretariat under Article 7 of the Montreal Protocol, and the country's HFC baseline.

Table 3. HFC consumption (2020–2024 Article 7 data) and baseline in South Africa

HFC	GWP	2020	2021	2022	2023	2024
mt						
HFC-23	14,800	0	0.09	-5.81	19.37	3.58
HFC-32	675	1.60	14.24	-20.44	1.43	28.98
HFC-125	3,500	0	2.50	-1.54	-0.98	38.09
HFC-134a	1,430	1,117.14	1,653.34	1,506.58	1,370.96	1,473.25
HFC-143a	4,470	76.25	11.21	0	0	0
HFC-152a	124	0	133.00	171.51	205.44	132.95
HFC-245fa	1,030	37.86	49.83	0	54.00	0
R-404A	3,921.6	651.51	707.37	627.91	616.85	676.22
R-407A	2,107	0	0	-25.23	-13.89	22.20
R-407C	1,773.85	87.89	135.14	205.45	141.94	166.31
R-410A	2,087.5	543.93	491.55	446.76	564.47	761.82
R-507A	3,985	601.55	658.09	677.36	653.20	788.19
Others*		0	0	34.75	0	-2.87
Total (mt)		3,117.72	3,856.36	3,617.30	3,612.80	4,088.72
CO₂-eq tonnes						
HFC-23	14,800	0	1,332	-86,030	286,743	52,984
HFC-32	675	1,080	9,609	-13,799	967	19,562
HFC-125	3,500		8,757	-5,373	-3,427	133,322
HFC-134a	1,430	1,597,510	2,364,278	2,154,416	1,960,477	2,106,752
HFC-143a	4,470	340,829	50,104	0	0	0
HFC-152a	124	0	16,492	21,268	25,475	16,485
HFC-245fa	1,030	38,991	51,323	0	55,620	0
R-404A	3,922	2,554,949	2,774,021	2,462,395	2,419,036	2,651,847
R-407A	2,107	0	0	-53,158	-29,272	46,784
R-407C	1,773.85	155,905	239,723	364,432	251,782	295,000

HFC	GWP	2020	2021	2022	2023	2024
R-410A	2,088	1,135,446	1,026,120	932,621	1,178,332	1,590,301
R-507A	3,985	2,397,195	2,622,481	2,699,282	2,603,007	3,140,936
Others*		0	0	171,401	0	-5,230
Total (CO₂-eq tonnes)		8,221,905	9,164,240	8,647,454	8,748,739	10,048,744
HFC baseline calculation (CO₂-eq tonnes)						
HFC average consumption in 2020–2022					8,677,866	
HCFC baseline (65%)					5,165,273	
HFC baseline					13,843,139	

* HFC-152, HFC-227ea, R-407F and R-508B

33. Based on the results of a survey carried out during KIP preparation, the Government of South Africa noted that HFC consumption data had been incorrectly reported for several years. Accordingly, the data from the country programme (CP) implementation report for the years 2020 to 2024 were revised, and the country will submit corrected Article 7 data for the same period to the Ozone Secretariat by December 2025. The corrected data, as presented in table 4, will result in a lower HFC baseline.

Table 4. Revised 2020-2024 HFC consumption data and baseline calculation for South Africa based on survey results

HFC	GWP	2020	2021	2022	2023	2024
mt						
HFC-23	14,800	0	0	0	19.37	3.58
HFC-32	675	1.60	11.31	11.31	1.43	28.98
HFC-125	3,500	0	0	0	0	38.09
HFC-134a	1,430	1,117.14	1,518.99	1,518.99	1,370.97	1,473.25
HFC-143a	4,470	76.25	0	0	0	0
HFC-152a	124	0	125.8	125.8	205.44	132.95
HFC-245fa	1,030	37.86	0	0	54.00	0
R-404A	3,921.6	651.51	559.99	559.99	616.85	676.22
R-407C	1,773.85	87.89	126.84	126.84	128.05	166.30
R-407F	1824.5	0	0	0	0	19.82
R-410A	2,087.5	543.93	449.98	449.98	564.47	761.82
R-507A	3,985	601.55	574.53	574.53	653.02	788.19
Total (mt)		3,117.72	3,367.44	3,367.44	3,613.60	4,089.21
CO₂-eq tonnes						
HFC-23	14,800	0	0	0	286,676	52,984
HFC-32	675	1,080	7,634	7,634	965	19,562
HFC-125	3,500	0	0	0	0	133,315
HFC-134a	1,430	1,597,510	2,172,156	2,172,156	1,960,481	2,106,748
HFC-143a	4,470	340,838	0	0	0	0
HFC-152a	124	0	15,599	15,599	25,475	16,486
HFC-245fa	1,030	38,996	0	0	55,620	0
R-404A	3,922	2,554,962	2,196,057	2,196,057	2,419,038	2,651,864
R-407C	1,773.85	155,904	224,995	224,995	227,141	294,991
R-407F	0	0	0	0	0	36,172
R-410A	2,088	1,135,454	939,333	939,333	1,178,331	1,590,299
R-507A	3,985	2,397,177	2,289,502	2,289,502	2,602,285	3,140,977
Total (CO₂-eq tonnes)		8,221,921	7,845,276	7,845,276	8,756,011	10,043,387
HFC baseline calculation (CO₂-eq tonnes)						
HFC average consumption in 2020–2022					7,970,824	
HCFC baseline (65%)					5,165,273	
HFC baseline					13,136,096	

Country programme implementation report

34. The sectoral HFC consumption data provided by the Government of South Africa in its CP report for 2024 is largely consistent with the data reported under Article 7 of the Montreal Protocol, except for a small quantity of R-407F reported as R-407A under the Article 7 report, which will be revised along with the corrections to the Article 7 reports for 2020–2022.

HFC consumption trends

35. Based on the revised Article 7 data, South Africa's overall HFC consumption has been slowly increasing since 2021. In terms of CO₂-eq tonnes, total HFC consumption decreased in 2021 and 2022 due to a temporary reduction in the consumption of R-404A, R-410A and R-507A, but the overall rising trend is expected to continue in the coming years.

HFC consumption by sector

36. The RAC servicing sector accounts for about 81 per cent of South Africa's total HFC consumption expressed in CO₂-eq tonnes, or 76 per cent in mt. The remaining consumption occurs in the local installation and assembly (10 per cent or 7.7 per cent in mt); RAC equipment manufacturing, mostly mobile air-conditioning (MAC) (7.7 per cent or 12.4 per cent in mt); and firefighting and aerosol sectors (1.5 per cent or 4.2 per cent in mt). The HFC consumption by sector is summarized in tables 5 and 6.

Table 5. HFC consumption in South Africa by sector in mt (2024)

Sector	HFC-134a	R-404A	R-407C	R-410A	R-507A	Others*	Total	Share of total (%)
<i>Manufacturing</i>								
Small commercial refrigeration	1.47	0.32					1.79	0.0
Large commercial refrigeration		18.67					18.67	0.5
MAC	484.09						484.09	11.8
Commercial AC	0.24			2.00			2.24	0.1
Aerosol						132.95	132.95	3.3
Firefighting						38.09	38.09	0.9
Subtotal manufacturing	485.80	18.99		2.00		171.04	677.83	16.6
<i>Servicing</i>								
Refrigeration subsectors								
Domestic	185.19						185.19	4.5
Commercial	23.00	287.00			357.00		667.00	16.3
Industrial and transport		264.08			322.94		587.02	14.4
Air-conditioning subsectors								
Residential				722.45		28.98	751.43	18.4
Commercial	1.00		85.77	20.00			106.77	2.6
Mobile	777.00						777.00	19.0
Other*						23.40	23.40	0.6
Subtotal servicing	986.19	551.08	85.77	742.45	679.94	52.38	3,097.81	75.8
Local installation and assembly	1.26	106.15	80.53	17.37	108.26		313.57	7.7
Total	1,473.25	676.22	166.30	761.82	788.20	223.42	4,089.21	100

*Including HFC-152a in aerosol, HFC-125 in firefighting, and HFC-23, HFC-32 and R-407F in servicing

Table 6. HFC consumption in South Africa by sector in CO₂-eq tonnes (2024)

Sector	HFC-134a	R-404A	R-407C	R-410A	R-507A	Others*	Total	Share of total (%)
<i>Manufacturing</i>								
Small commercial refrigeration	2,102	1,255					3,357	0.0
Large commercial refrigeration		73,216					73,216	0.7

Sector	HFC-134a	R-404A	R-407C	R-410A	R-507A	Others*	Total	Share of total (%)
MAC	692,249						692,249	6.9
Commercial AC	343			4,175			4,518	0.0
Aerosol						16,486	16,486	0.2
Firefighting						133,315	133,315	1.3
Subtotal manufacturing	694,694	74,471		4,175		149,801	923,141	9.2
Servicing								
Refrigeration subsectors								
Domestic	264,822						264,822	2.6
Commercial	32,890	1,125,499			1,422,645		2,581,034	25.7
Industrial and transport		1,035,616			1,286,916		2,322,532	23.1
Air-conditioning subsectors								
Residential				1,508,114		19,562	1,527,676	15.2
Commercial	1,430		152,143	41,750			195,323	1.9
Mobile	1,111,110						1,111,110	11.1
Other*						89,146	89,146	0.9
Subtotal servicing	1,410,252	2,161,115	152,143	1,549,864	2,709,561	108,707	8,091,643	80.6
Local installation and assembly	1,802	416,278	142,848	36,260	431,416		1,028,604	10.2
Total	2,106,748	2,651,864	294,991	1,590,299	3,140,977	258,508	10,043,387	100

*Including HFC-152a in aerosol, HFC-125 in firefighting, and HFC-23, HFC-32 and R-407F in servicing

Manufacturing sectors

37. South Africa's HFC consumption in manufacturing is relatively low. HFC users in manufacturing are generally small- and medium-sized enterprises (SMEs), as described below.

Commercial refrigeration

38. No HFC consumption was identified in the domestic, industrial, or transport refrigeration manufacturing sectors in South Africa.

39. Three enterprises eligible for funding in this sector consume 1.79 mt of HFC-134a and R-404A in the manufacturing of small (refrigerant charge up to 500 g) stand-alone commercial refrigeration equipment, including small freezers, underbars, beverage coolers, solid-door medical fridges and medical chest freezers; and two other eligible enterprises consume 18.67 mt of R-404A in the manufacturing of large commercial refrigeration systems, including remote chiller display cabinets, freezer display cabinets and larger self-contained cabinets (refrigerant charge between 500 g and 3.62 kg).

Commercial and industrial air-conditioning

40. No consumption of HFCs was identified in the residential air-conditioning (AC) manufacturing sector in South Africa. In the commercial AC sector, two enterprises eligible for funding consume 2.24 mt of R-410A and HFC-134a in the manufacturing of rooftop package units, modular AC and air-handling equipment units. Three enterprises, including one of the above, manufacture heat exchangers.

Mobile air-conditioning

41. The automotive industry is the third largest contributor to the country's economy after mining and financial services. Annual vehicle sales over the last three years were above 500,000 units, including all types of vehicles. MAC is the largest HFC-consuming manufacturing sector, with a consumption of 484.09 mt of HFC-134a in systems for cars (300.58 mt), light and medium commercial vehicles (97.85 mt), heavy and extra heavy commercial vehicles (80.56 mt) and buses (5.10 mt). Many MAC systems are

produced by or for known brands owned by non-Article 5 countries. It is not yet clear whether these enterprises are manufacturing their MAC systems themselves or outsourcing it to locally owned enterprises; more information on this sector is being collected to be included in a future stage of the KIP.

Firefighting, aerosol, foam and solvent sectors

42. No HFC consumption was identified in the polyurethane foam, extruded polystyrene foam, or solvent sectors, and HFC consumption in the aerosol and firefighting sectors was difficult to assess. Small amounts of HFC-152a were reported in the aerosol sector over the last four years, and use of HFC-125 was reported in the firefighting sector in 2024. It is believed that HFC consumption in those sectors is for the refilling of existing equipment. Stage I of the KIP includes a study to obtain more information on the consumption and use of HFCs in the aerosol, solvent, firefighting and foam sectors.

Refrigeration servicing sector

43. There are an estimated 5,000 technicians and 1,700 formal workshops currently using HFCs in South Africa. However, the number of informal technicians and workshops is believed to be several times higher. While women currently represent a fraction of technicians in this field, there is a gradual increase in interest among women to pursue careers in this area. Seven well-equipped colleges offer practical RAC training programmes granting certificates and diplomas, and numerous training institutes provide short-term courses.

44. Under stage I of the HPMP, South Africa established four mid-sized reclamation facilities for HCFCs. In addition, a private-sector enterprise also established a reclamation center. The amount of refrigerant reclaimed is still limited due to the limitations of transport infrastructure, logistics and networks, financial incentives, awareness, and regulation enforcement, among others. Activities under the HPMP and the KIP are expected to strengthen the reclamation of refrigerants.

45. HFCs are mainly consumed for servicing in the commercial and industrial refrigeration (30.7 per cent in mt and 48.8 per cent in CO₂-eq tonnes), MAC (19.0 per cent in mt and 11.1 per cent in CO₂-eq tonnes), residential AC (18.4 per cent in mt and 15.2 per cent in CO₂-eq tonnes) and other subsectors, as shown in tables 5 and 6 above. The description of each main subsector is presented below.

Domestic, commercial, industrial and transport refrigeration servicing

46. HFC-134a is the predominant refrigerant used in domestic refrigeration (including household refrigerators, residential water coolers and freezers) and small commercial refrigeration units. It is estimated that around 11.5 million domestic refrigeration units are still based on HFC-134a, and 5.4 million units are using R-600a and R-290. In the small commercial refrigeration subsector, 1.4 million units use HFC-134a, while 269,079 units use R-600a or R-290. Leakage rates in the domestic and small commercial refrigeration units are between 4 and 5 per cent per year.

47. R-507A and R-404A dominate in large commercial refrigeration applications (e.g., remote display cases for supermarkets, walk-in cold rooms and freezers, centralized rack systems), as well as in industrial and transport refrigeration. Unlike small, self-contained commercial units, large commercial and industrial refrigeration systems are associated with large leakage rates, estimated at around 56 per cent in South Africa. Transport refrigeration units also exhibit substantial leakage, with rates around 29 per cent. Given the high global-warming potential (GWP) of these refrigerants, improving servicing practices for large commercial refrigeration systems is considered a priority under stage I of the KIP.

Residential, commercial and mobile air-conditioning servicing

48. As of 2024, an estimated 4.4 million residential AC units were in use in South Africa. R-410A is the dominant HFC used in these systems, with a smaller share utilizing HFC-32 and some residential units

still operating with HCFC-22. In commercial AC applications—such as centralized systems, variable refrigerant flow (VRF) systems, and packaged units—R-407C and R-410A are the most common and HFC-134a is used to a lesser extent. The average refrigerant leakage rate across both residential and commercial AC systems is estimated at approximately 11 per cent.

49. HFC-134a is used in the MAC sector, with an estimated 10.9 million vehicles in circulation. HFO-1234yf is starting to be used in the MAC systems of vehicles sold in South Africa, with an estimated 212,672 vehicles already in operation.

Local installation and assembly subsector

50. It is estimated that in 2024, 313.57 mt of HFCs were used in the assembly, installation and first in situ charge of large commercial refrigeration or AC systems. The main refrigerants used in this subsector are R-507A, R-404A and R-407C, with smaller amounts of R-410A and HFC-134a. Additional work is required to obtain detailed data on enterprise profiles, types of equipment assembled and refrigerant use. Stage I includes a technical assistance activity to gain a better understanding of this subsector.

IV. Stage I of the Kigali HFC implementation plan as submitted

Institutional, policy and regulatory framework

51. Embedded within the Department of Forestry, Fisheries and the Environment (DFFE), the national ozone unit (NOU) is responsible for the preparation and implementation of the KIP, development and enforcement of related policies and regulations, operation of the licensing and quota system for HFC imports, and monitoring of the import and use of controlled substances in cooperation with the customs authorities. Other relevant institutions include, *inter alia*, the International Trade Administration Commission, Customs Revenue Services, Department of Higher Education, and Department of Trade Industry and Competition. The South African Refrigeration and Air-Conditioning Contractor Association (SARACCA) plays a key role in the implementation of refrigerant management projects in the country.

52. South Africa ratified the Kigali Amendment on 1 August 2019 and enacted a Climate Change Act that provides for the development of HFC regulations. The DFFE is in the process of developing regulatory measures to control the consumption and production of HFCs in the country. The licensing system is operational, whereas the legal framework for the quota system for the import/export/production of HFCs is in progress and expected to be implemented from January 2026.

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

Overarching strategy

53. As per the revised submission, stage I of the KIP proposes to reach an HFC consumption level of 11,822,486 CO₂-eq tonnes, corresponding to a 14.6 per cent reduction of the established baseline of 13,843,139 CO₂-eq tonnes. If the HFC baseline is revised to 13,136,096 CO₂-eq tonnes per the Government's request, the consumption level proposed by the end of stage I corresponds to a 10 per cent reduction of the revised baseline.

Proposed reductions

54. In UNIDO's business-as-usual (BAU) forecast, shown in table 7, the country's HFC consumption would increase at an annual rate of 6.8–8.8 per cent, based on an estimated 3 per cent annual market growth and additional HFCs phased in as a result of HCFC phase-out.

Table 7. HFC consumption forecast under the unconstrained scenario, Montreal Protocol limits, and proposed HFC reductions under stage I (CO₂-eq tonnes)

	2025	2026	2027	2028	2029
HFC consumption forecast at an annual growth rate of 6.8 to 8.8 %	10,928,130	11,821,139	12,723,460	13,635,370	14,557,159
Montreal Protocol HFC consumption limits	13,843,139	13,843,139	13,843,139	13,843,139	12,458,825
Proposed revised Montreal Protocol HFC consumption limits	13,136,096	13,136,096	13,136,096	13,136,096	11,822,486
HFC consumption levels proposed under the KIP	13,136,096	13,136,096	13,136,096	13,136,096	11,822,486
Proposed reductions from the established HFC consumption baseline (%)	5.1	5.1	5.1	5.1	14.6
Proposed reductions from the HFC consumption baseline – if revised (%)	0	0	0	0	10

55. Based on the currently reported HFC data and the above forecast, the country would have difficulty complying with the 2029 consumption target, and with the 2028 target if revised HFC data is taken as a reference. The Secretariat notes that under the more conservative BAU scenarios (with annual growth projected at 4 to 5 per cent), the country may still have difficulty complying with the 2030 consumption target based on the currently reported HFC data, and with the 2029 target if the revised HFC data is taken as a reference.

Proposed activities

Manufacturing sector

56. Stage I of the KIP includes technical assistance projects to assist six eligible enterprises¹³ in three manufacturing subsectors to phase out 5.23 mt (11,092 CO₂-eq tonnes) of HFCs, at a total cost of US \$142,065, as described below:

- (a) *Small commercial refrigeration subsector:* Technical assistance for converting from the use of HFC-134a and R-404A to R-600a and R-290 at the only three manufacturers of small commercial refrigeration equipment in the country: Staycold, with an annual output of 3,000-4,000 freezers and refrigerators charged with HFC-134a (the enterprise can also manufacture R-290-based equipment); Just Refrigeration, which manufactures underbars (1,000-2,700 per year) and beverage coolers (360 per year); and Minus 40, which manufactures medical RAC equipment, namely solid-door medical fridges (720 per year) and medical chest freezers (720 per year). No incremental operational costs (IOCs) are being requested. The project's HFC reductions and costs are presented in table 8 below;
- (b) *Large commercial refrigeration subsector:* Technical assistance to the enterprise Concord Retail Solutions to convert from R-404A to R-290-based technology in the manufacturing of chiller display cabinets (200 units per year), freezer display cabinets (200 units per year), and self-contained display cabinets (200 units per year). No IOCs are being requested. The project's HFC reductions and costs are presented in table 8; and
- (c) *Commercial and industrial AC subsector:* Technical assistance to the enterprise HC Heat Exchangers to convert from HFC-134a to R-290 in the manufacturing of rooftop AC units (annual output of 24 units) and the enterprise Air Options to convert from R-410A to HFC-32 in the manufacturing of modular AC and air handler units (annual output of 20 units). No IOCs are being requested. The project's HFC reductions and costs are

¹³ All enterprises are Article 5 owned with manufacturing capacity installed before the cut-off date of 1 January 2020.

presented in table 8.

Table 8. HFC reductions and cost of manufacturing projects as submitted

Enterprise	Refrigerant		Avg. consumption 2020–2022 (mt)	Cost (US \$)	CE* (US \$/kg)
	Baseline	Alternative			
Small commercial refrigeration subsector					
Staycold	HFC-134a	R-600a R-290	1.53	33,295	21.78
Just Refrigeration (Pty) Ltd	HFC-134a		0.43	17,897	41.25
Minus 40	HFC-134a		0.10	17,523	41.25
	R-404A		0.32		
Total			2.39	68,715	28.75
Large commercial refrigeration subsector					
Concord Retail Solutions	R-404a	R-290	0.60	24,750	41.25
Total			0.60	24,750	41.25
Commercial and industrial air-conditioning subsector					
HC Heat Exchangers (Pty) Ltd.	HFC-134a	R-290	0.24	9,000	37.50
Air Options	R-410A	HFC-32	2.00	39,600	19.80
Total			2.24	48,600	21.70
Grand Total			5.23	142,065	27.16

* CE=cost-effectiveness

Local installation and assembly subsector

57. Stage I of the KIP includes activities to assist the local installation and assembly subsector, i.e., a national survey to identify enterprises in the subsector; training in good servicing practices, tools and equipment provided to 40 identified enterprises; and raising awareness on the latest developments and emerging technologies in the industry, undertaken in collaboration with RAC associations. During stage I, assistance to this subsector will focus on commercial and industrial AC applications; it is estimated that partial phase-down of HFC-134a (1.21 mt) and R-410A (11.94 mt) will be achieved, out of the 313.57 mt of HFCs consumed in 2024. Project activities and costs are presented in table 9.

Table 9: Activities and their cost for the local installation and assembly subsector

Project component activities	Cost (US \$)
Survey of enterprises in the installation and assembly subsector	30,000
Training on good RAC servicing practices provided to 40 installation and assembly enterprises	16,000
Basic tools and equipment ¹⁴ for good servicing practices provided to 40 installation and assembly enterprises	48,000
Dissemination of information on the latest developments and emerging technologies with a special focus on RAC manufacturing and servicing (in collaboration with RAC associations)	5,893
Total	99,893

Refrigeration servicing sector

58. Activities in the refrigeration servicing sector proposed for implementation under stage I and in the first tranche and their cost breakdown are presented in table 10.

¹⁴ Safety equipment needed for on-site installation, including sensors and ventilation; however, specific items to be included will be determined upon completion of the survey.

Table 10. Servicing sector activities and their cost in stage I and in the first tranche of the KIP for South Africa (as submitted)

Activity	Cost (US \$)	
	Stage I	1 st tranche
<i>I. Policy development and implementation</i>		
Review of and updates to the existing policies and regulations, and development of new legislative measures to support and sustain HFC phase-down and to prevent illegal trade in controlled substances	100,000	50,000
Introduction of the mandatory certification scheme for RAC technicians and enterprises (US \$10,000) and mandatory labelling of HFC containers and cylinders (US \$10,000); inclusion of HFC-based equipment into the scope of the existing leakage check system (US \$10,000); development of additional legal and regulatory measures to strengthen refrigerant life cycle management (US \$15,000); and creation of “green” procurement guidelines (US \$15,000)	60,000	17,500
Subtotal I	160,000	67,500
<i>II. Training of customs officers, importers and clearing agents</i>		
Upgrading the Public Training Institute’s curriculum to include, <i>inter alia</i> , HFCs, low-GWP refrigerants and new customs codes (US \$25,000); training of trainers at the Customs Department and of 120 customs officers on risk profiling, HFC control measures and the safe handling of flammable and toxic substances (US \$68,000); training of 180 provincial enforcement officers to support control measures beyond the customs check points (US \$72,000) and of 40 importers and clearing/forwarding agents on HFC regulatory measures, data management and reporting (US \$16,000); organization of two enforcement cooperation meetings (border dialogue) with neighboring countries (US \$10,000); and provision of technical assistance to strengthen the customs’ operations through risk profiling management (US \$30,000)	221,000	127,000
Subtotal II	221,000	127,000
<i>III. Capacity building for RAC and MAC servicing technicians and workshops</i>		
RAC: Provision of training on good servicing practices and the safe handling of flammable and toxic refrigerants to 10 technical institute trainers in each province (90 in total) and to at least 1,080 technicians (US \$504,000); provision of tools and equipment ¹⁵ to 900 certified technicians (US \$324,000); and provision of tools and equipment ¹⁶ to 200 selected registered servicing workshops (US \$336,000) and 10 public training institutes ¹⁷ offering RAC programmes (US \$120,000)	1,284,000	646,000
MAC: Assessment and updating of the curriculum for MAC servicing and its incorporation into technician certification scheme (US \$40,000); establishment of 9 provincial MAC centres of excellence (US \$270,000); training of at least 9 MAC trainers and 180 technicians (US \$110,000); and distribution of servicing equipment ¹⁸ for 90 garages across the country (US \$216,000)	636,000	380,000
Development and strengthening of a national RAC and MAC association, and training scholarships for women in the RAC and MAC sectors	30,000	17,500
Subtotal III	1,950,000	1,043,500

¹⁵ Including, *inter alia*, electronic leak detector for HFC and flammable refrigerants, tubing tools, pinch-off pliers, piercing pliers, flaring and swaging tools, multimeter, thermometer, combination wrenches and/or adjustable wrenches, ratchet wrenches and personal protection.

¹⁶ Including, *inter alia*, vacuum pump, refrigerant weight scale (for charging refrigerant), vacuum gauge or vacuum meter, leak detector for HFCs and HC and refrigerant refillable service cylinders.

¹⁷ Including, *inter alia*, refrigerant identifiers, recovery units, cylinders, scales, manifolds, brazing sets, leak detectors, tube cutters and expanders, vacuum pumps, filters, nitrogen regulators, piercing pliers.

¹⁸ Recovery and recycling units compatible with HFC-134a and HFO-1234yf, refrigerant identifier, scale, manifold gauge set, vacuum pump, cylinders and electronic leak detector.

Activity	Cost (US \$)	
	Stage I	1 st tranche
IV. Sectoral studies		
Carrying out a study on the consumption and use of HFCs in the aerosol, solvent, firefighting and foam sectors	30,000	30,000
Subtotal IV	30,000	30,000
V. Refrigerant recycling, recovery and reclamation scheme		
Updating the existing guidelines for refrigerant reclamation facilities and development of additional ones; and development of a business model to include HFCs in the operational scope of reclamation centres	15,000	15,000
Subtotal V	15,000	15,000
VI. Support for the adoption of low-GWP alternatives and technologies		
Carrying out a feasibility study on alternative technologies with low GWP	15,000	15,000
Dissemination of information on the latest developments and emerging technologies in servicing (in collaboration with RAC associations)	60,000	30,000
Technical assistance provided to large end user to reduce leaks and transition to non-ODS and low-GWP alternatives	31,716	15,858
Technical assistance to establish a country-wide registration system for refrigerant users and distributors, including refrigerant tracking	50,000	25,000
Organization of 4 awareness-raising campaigns on HFCs and low-GWP technologies, including campaigns targeting women (US \$60,000); and of information and awareness-raising workshops for importers, distributors, service providers and compliance officers (US \$30,000)	90,000	45,000
Subtotal VI	246,716	130,858
Total	2,622,716	1,413,858

Project management unit

59. The expenditures of the project management unit (PMU) have been estimated at 10 per cent of the value of activities proposed for all sectors, amounting to US \$286,467, including staff and consultants (US \$192,000), office rent (US \$29,600), travel (US \$24,168), meetings and workshops (US \$32,000), and miscellaneous expenses (US \$8,699).

Total cost of stage I of the Kigali HFC implementation plan

60. The budget for stage I has been proposed at US \$3,151,141. The costs of activities in the refrigeration servicing sector have been proposed in line with decision 92/37. The funding requested for activities in the local installation and assembly sector is the best available estimate provided by UNIDO. The proposed activities and their costs in stage I of the KIP are summarized in table 11.

Table 11. Proposed cost of activities to be implemented in stage I of the KIP for South Africa (US \$)

Sector	Substance	Phase-out		Cost (US \$)	CE (US \$/kg)	First tranche (US \$)
		mt	CO ₂ -eq tonnes			
Manufacturing:						
Small commercial refrigeration	HFC-134a, R-404A	2.39	4,221	68,715	28.75	68,715
Large commercial refrigeration	R-404A	0.60	2,353	24,750	41.25	24,750
Commercial and industrial AC	HFC-134a, R-410A	2.24	4,518	48,600	21.70	48,600
Subtotal manufacturing		5.23	11,092	142,065	27.16	142,065

Sector	Substance	Phase-out		Cost (US \$)	CE (US \$/kg)	First tranche (US \$)
		mt	CO ₂ -eq tonnes			
Local installation and assembly	HFC-134a, R-410A	13.14	26,643	99,893	7.60	30,000
Servicing	-	514.25	1,275,874	2,622,716	5.10	1,413,858
PMU	-			286,467	n/a	143,234
Total		532.63	1,313,610	3,151,141	5.92	1,729,157

Implementation plan for the first tranche

61. The first funding tranche of stage I of the KIP was submitted in the total amount of US \$1,729,157, as shown in table 11 above, to be implemented between January 2026 and December 2027. Detailed information on the activities to be implemented under the first tranche, including adjustments to level of funds agreed, are presented in paragraph 80 below.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

V. Comments

Overarching strategy

Baseline revision

62. For the purpose of calculating the HFC baseline and reductions under stage I, the Secretariat is required to use the officially reported Article 7 data. The Government of South Africa will submit in December 2025 the revised HFC consumption data for baseline years (as explained in section III) to the Ozone Secretariat for consideration of the Meeting of the Parties. If these changes are approved, the average HFC consumption for the baseline years will be adjusted from 8,677,866 to 7,970,824 CO₂-eq tonnes, and the HFC baseline from 13,843,139 to 13,136,096 CO₂-eq tonnes. Once the Ozone Secretariat publishes the revised data, these adjustments will be accordingly applied to the Agreement between the Government of South Africa and the Executive Committee.

Reductions proposed and reductions funded

63. The Secretariat noted that the proposed 2029 HFC consumption target of 11,822,486 CO₂-eq tonnes corresponded to a reduction of 2,020,653 CO₂-eq tonnes (14.60 per cent) from the established HFC baseline, but stage I of the KIP requested funding only for a reduction of 1,313,610 CO₂-eq tonnes. This was due to the Government of South Africa and UNIDO basing their proposal on the correct (revised) HFC baseline of 13,136,096 CO₂-eq tonnes, with 10 per cent reduction amounting to 1,313,610 CO₂-eq tonnes. The Secretariat considers this a prudent approach, as the funding request aligns with reductions required based on accurate data, and regardless of whether the HFC baseline correction is approved or not, the country will remain in compliance with the proposed 2029 target. The deduction from the remaining eligible consumption would thus be 2,020,653 CO₂-eq tonnes (14.60 per cent) reduced from the established HFC baseline of 13,843,139 CO₂-eq tonnes. If the baseline is corrected to 13,136,096 CO₂-eq tonnes, the deduction from the remaining eligible consumption will be accordingly adjusted to 1,313,610 CO₂-eq tonnes.

64. The Secretariat consulted with UNIDO on the possibility of achieving additional HFC reductions under stage I of the KIP. Following discussions with the Government, UNIDO conveyed that the Government preferred to maintain the proposal as originally discussed and agreed upon with stakeholders. UNIDO enquired whether additional servicing sector activities could be included during stage I; however, this was not feasible, as it would alter the agreement already established for the stage. Acknowledging that during stage I South Africa would continue collecting additional data on key manufacturing sectors and

that activities in those sectors could achieve additional HFC reductions, the Secretariat informed UNIDO that, if necessary, the country could submit stage II of the KIP in 2028 (one year before the last stage I target in 2029) to propose further reductions and start the work needed to obtain them as soon as possible.

Institutional, policy and regulatory framework

65. In line with decision 87/50(g), UNIDO confirmed that South Africa had an established and functioning licensing system to monitor the import and export of HFCs. While the HFC quota system is not yet operational, UNIDO clarified that interim measures were in place to ensure compliance with the Montreal Protocol's baseline limits for 2024 and 2025 and that the NOU issued import permits on a first-come, first-served basis, denying any application that could result in exceeding the HFC consumption baseline. In 2024, South Africa's HFC consumption was below the Montreal Protocol target, and it is anticipated to remain below target in 2025.

66. UNIDO also confirmed that the HFC quota system would become operational in January 2026. The allocations will be in CO₂-equivalent tonnes, allowing importers to exercise some flexibility; the possibility of restricting quotas for specific substances, if needed, is also being considered. Import quotas will be allocated to established importers based on historical import data, with a reserve set aside for new market entrants. No specific export quotas are expected to be issued; however, export volumes will be monitored and reported accordingly.

67. UNIDO provided further details on the planned review and updates to the existing policies and regulations for the refrigeration servicing sector. These updates, tentatively planned to be gradually issued by 2027, include regulatory measures to prevent the venting of HFCs during the installation, servicing and decommissioning of RAC equipment, with penalties for non-compliance; periodic reporting on the quantities of recovered, reclaimed and reused refrigerants and stocks of unusable refrigerants; limiting the sales and purchases of refrigerants only to trained and certified technicians and servicing workshops; mandating record-keeping practices for controlled substances and related equipment, e.g., in the form of logbooks for systems above a certain charge; mandatory labelling of containers and cylinders containing HFCs; and introduction of differentiated bans on the installation of new systems using high-GWP HFCs.

Technical and cost-related issues

Manufacturing sector

68. The following was agreed in relation to projects included in the manufacturing sector:

- (a) *Small commercial refrigeration project:* Upon request, UNIDO confirmed the eligibility and SME status of the enterprises. In line with the existing policies, the Secretariat suggested calculating project costs based either on the enterprises' consumption in the preceding year or their average consumption over the last three years rather than in the baseline years. Using the 2022–2024 average consumption, the level of funds was slightly modified: from US \$68,715 to phase out 2.39 mt of HFCs, to US \$67,627 to phase out 2.07 mt of HFCs, calculated in line with decision 95/86. Noting the small scale of the project and its focus on providing technical assistance rather than equipment to each enterprise, it was agreed that UNIDO would have flexibility in the use of funds to ensure that the three enterprises received adequate technical assistance;
- (b) *Large commercial refrigeration project:* The Secretariat noted that the project included only one microenterprise, while the largest manufacturer in the sector would only be addressed in stage II. Given the wide range of large commercial refrigeration applications—some of which currently lack low-GWP alternatives—and recognizing that converting the small enterprise would not be sustainable if the largest continued using

HFCs, UNIDO agreed to defer the project to stage II of the KIP, when it will be presented as part of a comprehensive sector plan; and

- (c) *Larger commercial and industrial AC project:* Upon discussion, it was noted that it was uncertain whether there were additional eligible enterprises manufacturing similar products and that it would be difficult to establish a regulatory measure at the end of the project. Without a suitable regulation, the converted enterprises would have to compete with similar HFC-based equipment from importers and other local manufacturers, putting at risk the sustainability of conversions. Accordingly, UNIDO agreed to remove this project from stage I and to continue collecting data for this sector during the stage implementation, with the aim of including a sectoral approach under stage II.

69. UNIDO confirmed that, upon completion of the project for small commercial refrigeration equipment, the Government of South Africa would issue a ban on the import and manufacturing of small stand-alone commercial refrigeration equipment using HFCs by 1 January 2029.

70. Noting that MAC was the largest HFC user in South Africa's manufacturing sector, the Secretariat enquired why no activities to achieve HFC reductions in this sector had been included in stage I of the KIP. UNIDO explained that no information was yet available on the enterprises' profiles, their production processes and output, their HFC consumption data, the baseline equipment installed, or the availability of alternatives. This information will be collected during stage I of the KIP to determine whether activities for this subsector would be needed under stage II.

Technical assistance to the local installation and assembly subsector

71. In line with decision 92/39, the project in the local installation and assembly subsector was assessed on a case-by-case basis. UNIDO explained that the project included a survey to identify relevant enterprises, along with training and tooling support for 40 selected enterprises focused on commercial and industrial AC applications—specifically VRF and ducted packaged systems using mostly R-410A and smaller amounts of HFC-134a.

72. The Secretariat noted that the activities proposed in this project resembled those typically found in the servicing sector, and that no specific strategy had been defined to ensure that the targeted applications would cease using HFCs following the technical assistance. Further analysis is needed to better understand the subsector and the specific enterprises and applications involved. Accordingly, it was agreed that these activities would be funded at the same cost-effectiveness level as servicing sector activities—i.e., US \$5.10/kg—for a total of US \$67,014, with the number of enterprises to receive training and tooling reduced to 20. The Secretariat considers that assistance to be provided under stage I would help the country gain a clearer understanding of the subsector and determine whether a strategic approach to address it would be necessary under stage II.

Refrigeration servicing sector

73. Activities included in the refrigeration servicing sector are consistent with and complementary to the ongoing activities in the HPMP. The Secretariat noted that the strategy proposed for the refrigeration servicing sector, while comprehensive, did not include specific activities to address high leakage rates (around 56 per cent of equipment charge per year) recorded in commercial and industrial refrigeration appliances. The main refrigerants used in those sectors are R-404A and R-507A, both substances with a GWP above 3,000, representing close to 50 per cent of HFC consumption in servicing in CO₂-eq tonnes.

74. Following discussions on the matter, UNIDO adjusted the servicing sector project to include targeted activities to reduce leakage in the commercial refrigeration sector, as well as activities to improve the operation of the technician certification and the refrigerant recycling, recovery and reclamation (RRR)

schemes. To allow for these additional activities, UNIDO reduced targets associated with the number of customs officers and technicians to receive training and tools, and partially reallocated funds initially planned for those activities, noting that the ongoing training programmes under the HPMP could still be expanded under stage II of the KIP. In addition, the 7,339 CO₂-eq tonnes initially planned to be reduced in the manufacturing sectors will be partly reduced through activities agreed for the servicing sector. The summary of the servicing sector plan with agreed adjustments is presented in table 12 below, noting that the following activities were added to the servicing sector component:

- (a) *Demonstration of leakage monitoring systems¹⁹ for refrigeration racks at four supermarkets*: Unlike manual leak detectors, these systems continuously or periodically monitor predefined areas for the presence of refrigerants, providing early leak warnings and facilitating preventive maintenance. Project results will be disseminated to other supermarkets to promote the adoption of similar systems (US \$90,000);
- (b) *Provision of electronic leak detectors for small and medium-sized applications*: 90 leak detectors, compatible with all refrigerants and combustible gases, will be distributed among nine provinces (10 per province) to demonstrate and promote their use in small and medium-sized applications (US \$27,000);
- (c) *Technical assistance to large end users to reduce leaks and transition to low-GWP alternatives*: This activity, initially estimated at US \$31,716, was enhanced to allow the provision of training and technical assistance to large end users in all nine provinces (one workshop per province) on the improved design and maintenance of large RAC systems (US \$81,000);
- (d) *Study for the expansion of local technician certification systems to a mutually recognized regional harmonized system*: Noting population mobility across the neighbouring countries and to address issues associated with a shortage of technicians, a harmonized certification scheme would allow technicians in the region to work in countries that are part of the harmonized system (US \$50,000); and
- (e) *Distribution of 40 recovery units with filter conversion kits and 80 recovery cylinders*: To expand the existing RRR services to areas not covered under the earlier programme, and to explore the extension of RRR services to countries in the region that are interested in utilizing reclamation facilities located in South Africa (US \$48,000).

Table 12. Adjustments to the activities and costs agreed for the refrigeration servicing sector

Activity	Cost (US \$)	
	Stage I	1 st tranche
I. Policy development and implementation <u>No adjustment</u>	160,000	67,500
II. Training of customs officers, importers and clearing agents <u>Adjustment</u> : Reduction in the number of customs officers trained from 120 to 80	181,000	103,000

¹⁹ Includes control panel, sensors, ancillary hardware, cabling and conduit, installation, testing, commissioning and training.

Activity	Cost (US \$)	
	Stage I	1 st tranche
III. <i>Capacity building for RAC and MAC servicing technicians, workshops</i> <u>Adjustments:</u> - In the RAC programme, reduction of the number of technicians trained from 1,080 to 900 - No adjustment to the MAC programme - No adjustment to support to associations <u>Additions:</u> - Establishment of a leakage monitoring system for refrigeration racks at supermarkets (US \$90,000) - Distribution of 90 electronic leak detectors to demonstrate and promote their use in small and medium-sized applications (US \$27,000) - Technical assistance to large end users to reduce leaks and transition to non-ODS and low-GWP alternatives (moved from component VI to III with increased funding) (US \$81,000)	1,938,760	1,066,537
IV. <i>Sectoral studies</i> <u>Addition:</u> Study for the development of a harmonized technician certification system for the region (US \$50,000)	80,000	80,000
V. <i>Refrigerant RRR scheme</i> <u>Addition:</u> Distribution of 40 recovery units and provision of RRR services to the areas not previously covered, and exploration of the extension of RRR services to other countries in the region (US \$48,000)	63,000	63,000
VI. Support for the adoption of low-GWP alternatives and technologies <u>Adjustment:</u> Funding for technical assistance to large end users to reduce leaks and transition to non-ODS and low-GWP alternatives increased to US \$81,000 and moved to component III, along with added leakage-reduction activities	215,000	115,000
Total	2,637,760	1,495,037

75. In relation to component IV, which contains sectoral studies for sectors other than refrigeration servicing (i.e., aerosol, solvent, firefighting and foam), the Secretariat notes that during baseline years only limited amounts of HFCs (less than 1 per cent of annual HFC consumption in CO₂-eq tonnes) were reported in the solvent sector for one year and in the aerosol sector for two years, while no consumption was reported in the firefighting and foam sectors. The funding of activities in the aerosol, solvent and firefighting sectors is to be considered on a case-by-case basis. Noting the limited level of funds proposed, and that the studies are closer to some of the activities in the refrigeration servicing sector than to manufacturing conversions, it was agreed to fund them together with the servicing sector at US \$5.10/kg. The reductions in HFC consumption from the starting point were therefore based on the average GWP of HFCs consumed in the servicing, aerosol and solvent sectors.

Calculation of reductions in HFC consumption from the starting point

76. Based on the cost of activities in the servicing sector, agreed at US \$2,637,760, reductions in the remaining HFC consumption eligible for funding in the servicing sector amount to 1,283,214 CO₂-eq tonnes, as summarized in table 13.²⁰ The Government of South Africa has agreed to reduce its 2029 HFC consumption to 11,822,486 CO₂-eq tonnes, representing 14.60 per cent of the country's established HFC baseline for compliance, until the baseline consumption is revised, at which point it will represent a 10 per cent reduction from the revised baseline.

²⁰ Calculated in line with the methodology presented in annex I of document UNEP/OzL.Pro/ExCom/92/46.

Table 13. Agreed costs and reductions from HFC consumption eligible for funding and final target

Servicing sector		
Average HFC consumption in the servicing sector in baseline years	mt	2,552.20
	CO ₂ -eq tonnes	6,332,103
Average GWP of all HFCs consumed in the sector		2,481.04
Agreed funding	US \$	2,637,760
Agreed cost-effectiveness threshold	US \$/kg	5.10
Reductions in the servicing sector	mt	517.21
	CO ₂ -eq tonnes	1,283,214
Reductions from all sectors		
Established HFC consumption baseline	CO ₂ -eq tonnes	*13,843,139
Reductions achieved through conversions in the manufacturing sector and the local installation and assembly subsector	CO ₂ -eq tonnes	30,396
Reductions achieved through activities in the servicing sector	CO ₂ -eq tonnes	1,283,214
Total reductions funded		1,313,610
Target		
Proposed target 2029	CO ₂ -eq tonnes	11,822,486

*South Africa will request the revision of the HFC baseline to 13,136,096 CO₂-eq tonnes.

Project management unit

77. The level of PMU costs was discussed in light of concurring activities under the HPMP and the KIP and agreed at US \$255,000 (US \$174,227 for staff and consultants, US \$21,911 for office space, US \$21,931 for travel, US \$29,038 for meetings and workshops, and US \$7,894 for miscellaneous expenses, amounting to 8.4 per cent of the total KIP cost. The combined PMU cost for both the HPMP and the KIP represents 5.8 per cent of the overall HPMP and KIP cost.

Total project cost

78. At the total cost of US \$3,027,401, activities funded under stage I of the KIP for South Africa will result in a reduction of 1,313,610 CO₂-eq tonnes from the country's HFC consumption eligible for funding, as summarized in table 14.

Table 14. Agreed cost of activities to be implemented during stage I of the KIP in South Africa

Sector	Substance	Phase-out		Cost (US \$)	CE (US \$/kg)	Tranche 1 (US \$)
		mt	CO ₂ -eq t.			
Small commercial refrigeration	HFC-134a, R-404A	2.07	3,753	67,627	32.67	67,627
Local installation and assembly	HFC-134a, R-410A	13.14	26,643	67,014	5.10	30,000
Servicing	Several	517.21	1,283,214	2,637,760	5.10	1,495,037
PMU		-	-	255,000	-	127,500
Total		532.42	1,313,610	3,027,401	5.69	1,720,164

79. Stage I of the KIP will be implemented in two tranches.

Implementation plan for the first tranche of the Kigali HFC implementation plan

80. The agreed plan of action includes the following activities to be implemented by UNIDO:

- (a) *Manufacturing sector:* Provision of technical assistance for converting three SMEs manufacturing small commercial refrigeration equipment (US \$67,627);
- (b) *Local installation and assembly subsector:* Completion of a survey (US \$30,000);

(c) *Servicing sector:*

- (i) *Policy component:* Progress in the development of policies and regulations, and introduction of a mandatory certification scheme for RAC technicians and workshops (US \$67,500);
- (ii) *Customs training:* Training of 80 customs officers, 80 enforcement officers and 40 importers; organization of one border dialogue meeting; and initiation of technical assistance to customs on risk profiling (US \$103,000);
- (iii) *Capacity building for RAC and MAC:* Training of 50 trainers and 500 RAC technicians; provision of tools to 450 certified technicians, 100 workshops and five training institutes; updating of the MAC training curriculum and its incorporation into the certification scheme; one train-the-trainer session for the MAC sector and training of 100 technicians on MAC; establishment of five MAC centres of excellence; provision of tools to 50 MAC workshops; provision of 25 scholarships for women in RAC/MAC and initiation of support to the RAC association; provision of 45 leak detectors and technical assistance to large end users to reduce leaks (five workshops) (US \$1,066,537);
- (iv) *Sectoral studies:* Completion of studies on the consumption and use of HFCs in the aerosol, solvent, firefighting and foam sectors; and completion of a regional study on the development of a harmonized certification system (US \$80,000);
- (v) *RRR:* Development of guidelines and a business model for reclamation facilities; and procurement and distribution of 40 recovery units and 80 cylinders to RRR centres (US \$63,000);
- (vi) *Support for the adoption of low-GWP alternatives:* Feasibility study on low-GWP alternatives; organization of two sessions to disseminate information on emerging technologies; initiation of a country-wide registration system for refrigerant users and distributors, including refrigerant tracking; organization of two awareness-raising sessions on HFCs and low-GWP technologies and one information and awareness-raising workshop for importers, distributors, service providers and compliance officers (US \$115,000); and
- (vii) *PMU:* Coordination of activities (US \$127,500).

Co-financing

81. Although no specific co-financing was identified for stage I of the KIP, the assisted RAC manufacturing enterprises will co-finance any additional costs related to their conversion. Other assisted institutions, such as the training centres, will provide in-kind financing by providing premises and staff.

2025–2027 business plan of the Multilateral Fund

82. UNIDO is requesting US \$3,027,401, plus agency support costs, for the implementation of stage I of the KIP for South Africa. The total value of US \$3,239,319, including agency support costs, requested for the period 2025–2027, is US \$2,336,166 above the amount in the business plan.

Gender policy implementation

83. In line with decisions 84/92(d), 90/48(c) and 92/40(b), the Government of South Africa has incorporated the Multilateral Fund gender policy into project preparation and the formulation of stage I of

the KIP. The planned training and awareness-raising activities will facilitate women's participation in all targeted groups, including vocational school students, technicians, customs officers, environmental inspectors and importers. Progress in the implementation of the Fund's policy will be tracked through collecting and reporting data on the number of women engaged in project implementation as customs officers, brokers, importers, trainers, and consultants; recipients of training, servicing tools and equipment in both the RAC and MAC servicing sectors; and beneficiaries of scholarships. Staff and stakeholders will be sensitized to the importance of including women in the recruitment processes, as well as in project boards and steering committees.

Sustainability of the HFC phase-down and HCFC phase-out and assessment of risks

84. During stage I of the KIP and stage II of the HPMP, South Africa will continue to strengthen its HCFC and HFC import and export licensing and quota system, to monitor HCFC and HFC uses to ensure compliance with national ODS regulations, and to encourage collaboration among the main stakeholders. The sustainability of conversions at small commercial refrigeration manufacturers will be ensured through bans on the import and manufacturing of equipment using HFCs. The training and certification programme is provided by accredited training institutes; Montreal Protocol matters have been included in the curriculum of the course on Customs Administration; and key areas included in the support to customs authorities, such as the strengthening of HFC risk profiling, will be integrated into customs operations. The country also continues to support the development of a self-sustained RRR network operated by the private sector, which will be strengthened with capacity to verify refrigerant purity.

85. Potential risks to the sustainability of results of both the KIP and the HPMP include insufficient regulatory capacity entailing delays in the introduction of necessary restrictions, lack of stakeholders' commitment to reduce HFC consumption, illegal imports, lack of servicing capacity for equipment based on low-GWP technologies, and limited availability and affordability of low-GWP alternatives. To mitigate those risks, the monitoring and evaluation mechanisms established under the HPMP will be scaled up, with capacity building, digitalization of licensing systems, stakeholder ownership, and continued public-private partnerships prioritized to sustain the HPMP's and KIP's objectives beyond the implementation period. Training programmes for servicing technicians and customs officials will be institutionalized within the national education system, long-term enforcement mechanisms and digital reporting systems will be created and maintained, and the private sector's engagement in the adoption of low-GWP technologies will be incentivized.

Impact on the climate

86. The activities proposed, including conversion of small commercial refrigeration manufacturing capacity to R-290, support for the adoption of low-GWP alternatives, and strengthening of the RRR scheme, indicate that the implementation of stage I of the KIP will reduce refrigerant emissions into the atmosphere, resulting in climate benefits. A calculation of the impact on the climate of the activities in the KIP indicates that by 2029, South Africa will have reduced HFC emissions by approximately 1,313,610 CO₂-eq tonnes, calculated as the difference between the corrected HFC baseline for compliance and the 2029 target, assuming that all consumed HFCs would eventually have been emitted.

Draft Agreement

87. A draft Agreement between the Government of South Africa and the Executive Committee for stage I of the KIP is contained in annex I to the present document.

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

88. The majority of activities included in stage I of the KIP are in the refrigeration servicing sector and are complementary to those being implemented under stage II of the HPMP. The PMU will work on the

implementation of both plans, and the KIP will include activities not addressed under the HPMP, such as assistance to the MAC servicing sector, support for reducing leaks in the commercial refrigeration sector, and activities to expand the ongoing certification and RRR programmes. Annex II summarizes the simultaneous implementation of activities under the HPMP and the KIP.

VI. Recommendation

89. The Executive Committee may wish to consider:

- (a) Approving, in principle, stage I of the Kigali HFC implementation plan (KIP) for South Africa for the period 2025–2029 to reduce HFC consumption by 14.60 per cent of the country's baseline, in the amount of US \$3,027,401, plus agency support costs of US \$211,918, for UNIDO;
- (b) Noting:
 - (i) The Government's commitment to establish a ban on the import and manufacturing of small stand-alone commercial refrigeration equipment using HFCs by 1 January 2029;
 - (ii) That 2,020,653 CO₂-equivalent tonnes of HFCs will be deducted from the starting point for sustained aggregate reductions in HFC consumption to be established based on guidance provided by the Executive Committee;
 - (iii) That the Government will submit a request for the HFC baseline revision to the Ozone Secretariat for consideration by the Implementation Committee;
 - (iv) That the Government will be allowed to submit a proposal for stage II of the KIP by 2028;
- (c) Encouraging the Government of South Africa to initiate, during the implementation period of stage I of the KIP, the development of a strategic approach to sustaining the phase-out of HFC consumption in the local assembly and installation subsector for commercial refrigeration, including a consideration of incentives and policy measures to sustain the achieved phase-out and taking into account document UNEP/OzL.Pro/ExCom 95/89, for possible inclusion in stage II;
- (d) Requesting the Fund Secretariat, in the event that the country's baseline is revised, to update Appendix 2-A of the Agreement to include the revised figures for the Montreal Protocol HFC consumption limits, maximum allowable consumption for stage I of the KIP, and deductions of HFCs under the Agreement, and to notify the Executive Committee of the resulting levels of maximum allowable consumption, with any necessary adjustments being made at the 99th meeting;
- (e) Approving the draft Agreement between the Government of South Africa and the Executive Committee for the reduction in consumption of HFCs in accordance with stage I of the KIP, contained in annex I to the present document; and
- (f) Approving the first tranche of stage I of the KIP for South Africa and the corresponding tranche implementation plan, in the amount of US \$1,720,164, plus agency support costs of US \$120,411, for UNIDO.

Annex I

DRAFT AGREEMENT BETWEEN THE GOVERNMENT OF SOUTH AFRICA 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: 2025–2029)

Purpose

1. This Agreement represents the understanding of the Government of South Africa (“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 11,822,486 CO₂-equivalent (CO₂-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 CO₂-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. UNIDO has agreed to be the lead implementing agency (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 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 role of the Lead IA is contained in Appendix 6-A. The Executive Committee agrees, in principle, to provide the Lead IA with the fees set out in row 2.2 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 CO₂-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 and the Lead IA to facilitate implementation of this Agreement. In particular, it will provide the Lead IA with access to the information necessary to verify compliance with this Agreement.

Date of completion

14. The completion of the Plan and the associated Agreement will take place at the end of the year following the last year for which a maximum allowable total consumption level has been specified in Appendix 2-A. Should at that time there still be activities that are outstanding, and which were foreseen in the last Tranche Implementation Plan and its subsequent revisions as per 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 ₂ -eq tonnes)
HFCs	TBD

APPENDIX 2-A: THE TARGETS, AND FUNDING

Row	Particulars	2025	2026	2027	2028	2029	Total
1.1	Montreal Protocol reduction schedule of Annex F substances	freeze				10	n/a
	CO ₂ -eq tonnes	13,843,139				12,458,825	n/a
1.2	Maximum allowable total consumption of Annex F substances	5.11				14.60	n/a
	CO ₂ -eq tonnes	13,136,096				11,822,486	n/a
2.1	Lead IA (UNIDO) agreed funding (US \$)	1,720,164	0	1,307,237	0	0	3,027,401
2.2	Support costs for Lead IA (US \$)	120,411	0	91,507	0	0	211,918
3.1	Total agreed funding (US \$)	1,720,164	0	1,307,237	0	0	3,027,401
3.2	Total support costs (US \$)	120,411	0	91,507	0	0	211,918
3.3	Total agreed costs (US \$)	1,840,575	0	1,398,744	0	0	3,239,319
4.1.1	Deductions of HFCs under this Agreement (CO ₂ -eq tonnes)					2,020,653	
4.1.2	Deductions of HFCs from previously approved projects (CO ₂ -eq tonnes)					n/a	
4.1.3	Remaining eligible consumption of HFCs (CO ₂ -eq tonnes)					TBD	

APPENDIX 3-A: FUNDING APPROVAL SCHEDULE

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

APPENDIX 4-A: FORMAT OF 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 Department of Forestry, Fisheries and the Environment (DFFE) is the focal point of the Montreal Protocol in the Country and it coordinates the Plan with the authorities. The Plan is implemented through the National Ozone Unit (NOU) established within the DFFE. The NOU functions are to coordinate all activities related to the implementation of the country programme for the HFC phase-down in the Country; to monitor and control the consumption of substances controlled under the Montreal Protocol; to disseminate data and pertinent information to all interested parties and inform them of the Montreal Protocol requirements; to promote awareness of issues related to HFCs and HFC alternatives; to report to the Ozone Secretariat, the Multilateral Fund Secretariat, and the Lead IA on the consumption and phase-down of the

HFC consumption in the Country; and to coordinate and implement projects for substances controlled by the Montreal Protocol, including HFCs.

2. The DFFE will be responsible for the sustainability of consumption reduction targets achieved through the Agreement, the monitoring of the Plan, and the enforcement of policies and legislation. The procedures to carry out these activities include the implementation of all activities and components of the the Plan, including detailed activity design, audit of the parties involved, identification and selection of beneficiaries, contracting of goods and services, and continuous technical assistance to project beneficiaries; the regular monitoring of trends and attitudes related to HFC use and possible substitutes in the local private sector; the design, organization and implementation, on an annual basis, of project monitoring activities, including data gathering and instruments of analysis; analysis and reporting on the monitoring results and organization of meetings for the review and management of monitoring procedures; the design and implementation of corrective measures; and the provision of technical assistance to project beneficiaries.

3. The Plan will be managed by a dedicated team that consists of a coordinator, designated by the DFFE and supported by the Lead IA, experts, and the necessary support infrastructure. The component of support to the management and update of the legal instruments of the Plan will include the following activities: Management and coordination of the implementation of the Plan; establishment of a policy development and application programme to allow the Country to exercise the required mandates and ensure that the industry fulfils its obligations related to HFC reductions; development and implementation of training, awareness and capacity building activities to ensure high-level commitment to the Plan's objectives and obligations; and the preparation of annual implementation plans including the determination of sequence of participation of the beneficiaries in the activities.

4. 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 taking part in this Agreement.

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;

- (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) In case of reductions in funding for failure to comply in accordance with paragraph 11 of the Agreement, to determine, in consultation with the Country, the allocation of the reductions to the different budget items and to the funding of the Lead IA;
- (k) Ensuring that disbursements made to the Country are based on the use of the indicators;
- (l) Providing assistance with the policy, management and technical support when required; and
- (m) 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 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 \$4.61 per CO₂-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.

Annex II

 SIMULTANEOUS IMPLEMENTATION OF THE HCFC PHASE-OUT MANAGEMENT PLAN
AND THE KIGALI HFC IMPLEMENTATION PLAN IN SOUTH AFRICA

HPMP – stage II		KIP – stage I		HPMP+KIP cost combined (US \$)
Activity	Cost (US \$)	Activity	Cost (US \$)	
Manufacturing and local installation and assembly				
		Technical assistance for conversions at three manufacturers of small commercial refrigeration equipment	67,627	134,641
		Technical assistance to the local installation and assembly subsector	67,014	
Refrigeration servicing sector				
Policy and regulatory framework and enforcement: Strengthening of the licensing and quota system; development of an electronic licensing, quota and reporting system; training of customs and enforcement officers; procurement of 20 ODS identifiers; strengthening of the regulatory framework for refrigerant management, including updates to current legislation and development of safety standards/codes of practice for flammable refrigerants; consultations with stakeholders; and review and periodical updates of training curricula for customs and enforcement officers	575,000	Policy development and implementation: Review/updates to policies and regulations and new legislative measures for HFC phase-down and illegal trade prevention; introduction of a mandatory certification scheme for RAC technicians and enterprises and of mandatory labelling of HFC containers and cylinders; inclusion of HFC-based equipment into the scope of leakage check systems; additional measures to strengthen refrigerant life cycle management	160,000	916,000
		Training of customs officers, importers and clearing agents: Upgrading the customs training curriculum to include HFCs, low-GWP refrigerants and new customs codes; training of customs trainers, 80 customs officers, 80 provincial enforcement officers, and 40 importers and clearing agents; enforcement border dialogue with neighboring countries; and technical assistance in risk profiling management	181,000	
Refrigeration servicing sector: Provide tools and equipment for 2,400 technicians; train, certify, and provide materials and PPE to at least 3,000 RAC technicians; provide 6 sets of training equipment, update the curricula and train 100 trainers at vocational training organizations/certification bodies	6,760,000	Capacity building for RAC/MAC servicing technicians and workshops: Training of 90 RAC trainers and 900 technicians; provision of tools and equipment to 900 certified RAC technicians, 200 RAC servicing workshops and 10 training institutes; updating and incorporation of the MAC servicing curriculum into technician certification scheme; establishment of 9 MAC centres of excellence; training of 9 MAC trainers and 180 technicians; distribution of MAC servicing equipment for 90 garages; establishment/ strengthening of a RAC/MAC association, and scholarship for women in RAC/MAC	1,740,760	8,698,760

HPMP – stage II		KIP – stage I		HPMP+KIP cost combined (US \$)
Activity	Cost (US \$)	Activity	Cost (US \$)	
		Leakage reduction in commercial refrigeration: Establishment of a leakage monitoring system for refrigeration racks in four supermarkets, distribution of 90 electronic leak detectors for small and medium-sized applications, and technical assistance to large end users in the nine provinces to reduce leaks	198,000	
		Sectoral studies: Carry out studies on the consumption and use of HFCs in aerosol, solvent, firefighting and foam sectors; and on a harmonized technician certification system for the region	80,000	80,000
RRR: Feasibility study on establishing local refrigerant cylinder filling facilities and establishment of lab capacity to test reclaimed refrigerants	357,500	RRR: Updating guidelines for refrigerant reclamation facilities and developing additional ones; development of a business model to include HFCs in the reclamation centres' operation; distribution of 40 recovery units and provision of RRR services to areas not previously covered, and explore extension of RRR services to countries in the region	63,000	420,500
Stakeholder engagement and awareness raising: Organize yearly meetings between the NOU and the HPMP stakeholder group; develop and implement awareness campaigns by publishing information material and organizing eight roadshows	497,500	Support for the adoption of low-GWP alternative technologies: Feasibility study on low-GWP technologies; dissemination of information on the latest developments and emerging technologies in servicing; establishment of a registration and tracking system for refrigerant users and distributors; four awareness-raising campaigns on HFCs and low-GWP technologies; and information and awareness-raising workshops for importers, distributors, service providers and compliance officers	215,000	712,500
Project coordination and monitoring	500,000	Project coordination and monitoring	255,000	755,000
Total	8,690,000		3,027,401	11,717,401