



**United Nations
Environment
Programme**

Distr.
GENERAL

UNEP/OzL.Pro/ExCom/94/46

11 May 2024

ORIGINAL: ENGLISH



EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Ninety-fourth Meeting
Montreal, 27-31 May 2024
Item 9(d) of the provisional agenda¹

PROJECT PROPOSAL: MOZAMBIQUE

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

Phase-down

- Kigali HFC implementation plan (stage I, first tranche) UNEP and UNDP

¹ UNEP/OzL.Pro/ExCom/94/1

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

Mozambique

PROJECT TITLE	AGENCY
Kigali HFC implementation plan (stage I)	UNEP (lead), UNDP

LATEST ARTICLE 7 DATA (Annex F)	Year: 2023	547.90 mt	1,156,651 CO ₂ -eq tonnes
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SECTORAL HFC CONSUMPTION DATA (CO₂-eq tonnes) AND ACTIVITIES									
	Aerosol	Foam	Fire-fighting	AC and refrigeration				Solvent	Other
				Manufacturing			Servicing		
				Refrigeration	AC	Other			
As submitted (2022)	0	0	0	0	0	0	621,850	0	0
Latest CP report (2023)	0	0	0	0	0	0	1,156,651	0	0
KIP stage I activities as agreed (Y/N)	N	N	N	N	N	N	Y	N	N

AVERAGE 2020-2022 HFC CONSUMPTION IN SERVICING	270.15 mt	469,662 CO ₂ -eq tonnes
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BASELINE CONSUMPTION DATA (CO₂-eq tonnes)	2020	2021	2022	Average 2020-2022
HFC annual consumption	348,600	438,536	621,850	469,662
HCFC baseline (65%)				185,593
HFC baseline				655,255

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

PROJECT DATA AS AGREED		2024*	2025	2026	2027	2028-2029	2030	Total	
Consumption (CO ₂ -eq tonnes)	Montreal Protocol limits	655,255	655,255	655,255	655,255	655,255	589,730	n/a	
	Maximum allowable	655,255	655,255	655,255	655,255	655,255	589,730	n/a	
	Maximum allowable (%)	100	100	100	100	100	90	n/a	
Amounts recommended in principle (US \$)	UNEP	Project costs	83,500	0	81,500	0	0	42,000	207,000
		Support costs	10,855	0	10,595	0	0	5,460	26,910
	UNDP	Project costs	86,000	0	6,000	0	0	26,000	118,000
		Support costs	11,180	0	780	0	0	3,380	15,340
	Total project costs		169,500	0	87,500	0	0	68,000	325,000
	Total support costs		22,035	0	11,375	0	0	8,840	42,250
	Total funds		191,535	0	98,875	0	0	76,840	367,250

* Recommended for approval at the present meeting

Reduction from stage I in CO ₂ -eq tonnes	65,526
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Secretariat's recommendation:	Individual consideration (Secretariat presentation not required)
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PROJECT DESCRIPTION

1. The present document contains the following sections:
 - I. Summary of the proposal as submitted
 - II. Background: Implementation status of the country’s HCFC phase-out management plan
 - III. HFC consumption: Overview of the country’s HFC consumption levels, trends, and sectoral uses
 - IV. Stage I of the Kigali HFC implementation plan, as submitted: Overarching strategy and plan of implementation for the first tranche
 - V. Secretariat’s comments, including the agreed cost of activities
 - VI. Recommendation

I. Summary of the proposal as submitted

2. On behalf of the Government of Mozambique, UNEP as the lead implementing agency has submitted a request for stage I of the Kigali HFC implementation plan (KIP), at a total cost of US \$367,250, consisting of US \$207,000, plus agency support costs of US \$26,910 for UNEP and US \$118,000, plus agency support costs of US \$15,340 for UNDP, as originally submitted.²

3. The implementation of stage I of the KIP will assist the Government of Mozambique in meeting the target of 10 per cent reduction from its HFC baseline consumption by 1 January 2029.

4. The first tranche of stage I of the KIP being requested at this meeting amounts to US \$191,535, consisting of US \$83,500, plus agency support costs of US \$10,855 for UNEP and US \$86,000, plus agency support costs of US \$11,180 for UNDP, as originally submitted, for the period of June 2024 to June 2026.

II. Background

Status of implementation of the HCFC phase-out management plan

5. Table 1 presents information on the HPMP in Mozambique as of May 2024.

Table 1. HPMP implementation status for Mozambique

	Stage I	Stage II
Meetings when HPMP was approved/updated	66 th /83 rd	93 rd
Reduction from baseline	35% by 2020	100% by 2030
Total project cost (US \$)	332,500	737,500
Date of completion (actual/planned)	30 June 2023	31 December 2031

Status of implementation of previous HFC-related activities

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

² As per the letter of 26 January 2024 from the Ministry of Land and Environment of the Republic of Mozambique to the Secretariat.

Table 2. Previously approved HFC-related activities in Mozambique

Approval meeting	Project title	Implementing agency	Cost (US \$)	Date of completion
74 th	Survey of ODS alternatives	UNEP	70,000	August 2017
81 st	Enabling activities for HFC phase-down	UNEP	150,000	November 2021

III. HFC consumption overview

HFC consumption levels

7. Mozambique only imports HFCs for use in the servicing sector. The most consumed substances in 2022 were R-410A (33.1 per cent of total HFC consumption in CO₂-equivalent (CO₂-eq) tonnes), HFC-134a (31.5 per cent), R-407C (21.5 per cent), R-507A (8.6 per cent), and other HFCs (5.3 per cent). Table 3 presents the country's HFC consumption as reported to the Ozone Secretariat under Article 7 of the Montreal Protocol.

Table 3. HFC consumption in Mozambique (2020–2023 Article 7 data)

HFC	GWP	2020	2021	2022	2023
Metric tonnes (mt)					
HFC-32	675	30.20	17.80	14.00	31.90
HFC-134a	1,430	78.50	91.30	136.80	169.30
R-404A	3,922	4.70	3.80	6.00	47.00
R-407C	1,774	41.50	58.00	75.49	98.10
R-410A	2,088	59.36	76.00	98.73	141.60
R-507A	3,985	0.00	4.90	13.36	60.00
Total (mt)		214.26	251.80	344.38	547.90
CO₂-eq tonnes					
HFC-32	675	20,385	12,015	9,450	21,533
HFC-134a	1,430	112,255	130,559	195,624	242,099
R-404A	3,922	18,432	14,902	23,530	184,315
R-407C	1,774	73,615	102,883	133,908	174,015
R-410A	2,088	123,914	158,650	206,099	295,590
R-507A	3,985	0	19,527	53,240	239,100
Total (CO₂-eq tonnes)		348,600	438,536	621,850	1,156,651

HFC baseline

8. The Government of Mozambique reported the Article 7 data for 2020-2022. The country's HFC consumption baseline was established at 655,255 CO₂-eq tonnes by adding 65 per cent of its HCFC baseline (expressed in CO₂-eq tonnes) to its average HFC consumption in 2020-2022, as shown in table 4.

Table 4. HFC baseline calculation for Mozambique (CO₂-eq tonnes)

Baseline calculation components	2020	2021	2022
HFC annual consumption	348,600	438,536	621,850
HFC average consumption in 2020-2022			469,662
HCFC baseline (65%)			185,593
HFC baseline			655,255

Country programme implementation report

9. The sectoral HFC consumption data provided by the Government of Mozambique in its country programme (CP) implementation report for 2023 is consistent with the data reported under Article 7 of the Montreal Protocol.

HFC consumption trends

10. The consumption of HFCs has increased year over year from 2020, which is attributed to the intensification of ODS regulations, the licensing and quota system and awareness raising on HCFC phase-out, which have contributed to the increased uptake of HFC-based equipment and the need for servicing such equipment; and to a boom in economic activities after the recession created by the COVID-19 pandemic, that triggered an increase in consumption of HFCs in the refrigeration sector. In particular, the consumption of R-507A went from zero in 2020 to 4.9 mt in 2021, 13.36 mt in 2022 and to over four times in 2023. There was also a considerable increase in the consumption of HFC-134a. Its consumption was 78.5 mt in 2020, 136.8 mt in 2022, and reached 169.3 mt in 2023, attributed to its use in commercial refrigeration, increased imports of domestic refrigerators, freezers and water coolers based on this refrigerant, and to mobile air-conditioning (MAC) units in the country being solely dependent on this refrigerant. Other HFCs/blends also continued to increase, with R-404A augmenting almost eight times in 2023 compared to 2022.

HFC consumption by sector

11. HFCs are mainly consumed for servicing in the commercial air-conditioning (AC) subsector (44.3 per cent in mt and 45.0 per cent in CO₂-eq tonnes), followed by the commercial and industrial refrigeration (24.4 per cent in mt and 26.9 per cent in CO₂-eq tonnes), residential AC (11.9 per cent in mt and 12.4 per cent in CO₂-eq tonnes) and other subsectors, as shown in tables 5 and 6.

Table 5. HFC consumption in Mozambique in the refrigeration and AC servicing subsectors in mt (2022)

Sector	HFC-32	HFC-134a	R-404A	R-407C	R-410A	R-507A	Total	Share of total
Refrigeration subsectors								
Domestic refrigeration	0	50.70	0	0	0	0	50.7	14.7
Commercial/ industrial refrigeration	0	65.40	5.30	0	0	13.36	84.06	24.4
Air-conditioning subsectors								
Residential	0	5.20	0	15.49	20.23	0	40.92	11.9
Commercial	14.00	0	0	60.00	78.50	0	152.50	44.3
Mobile	0	15.50	0.70	0	0	0	16.20	4.7
Total	14.00	136.80	6.00	75.49	98.73	13.36	344.38	100.0

Table 6. HFC consumption in Mozambique in the refrigeration and AC servicing subsectors in CO₂-eq tonnes (2022)

Sector	HFC-32	HFC-134a	R-404A	R-407C	R-410A	R-507A	Total	Share of total
Refrigeration subsectors								
Domestic refrigeration	0	72,501	0	0	0	0	72,501	11.7
Commercial/ industrial refrigeration	0	93,522	20,784	0	0	53,240	167,546	26.9

Sector	HFC-32	HFC-134a	R-404A	R-407C	R-410A	R-507A	Total	Share of total
Air-conditioning subsectors								
Residential	0	7,436	0	27,477	42,230	0	77,143	12.4
Commercial	9,450	0	0	106,431	163,869	0	279,750	45.0
Mobile/transport	0	22,165	2,745	0	0	0	24,910	4.0
Total	9,450	195,624	23,530	133,908	206,099	53,240	621,850	100.0

Refrigeration and air-conditioning servicing sector

12. In Mozambique, there are approximately 2,580 RAC technicians with formal training (of which 10 per cent are women) and another 4,000 informal technicians that received on-the-job training. There are 319 workshops registered with the National Ozone Unit (NOU) and an undetermined number, which are not yet registered, consuming HFCs. Mozambique has a national RAC association that collaborates with the NOU during the organisation of trainings and offers support to technicians in the informal sector. Currently there is no certification scheme for RAC technicians; however, this is planned under stage II of the HPMP and will also be supported by the RAC association. Mozambique has three recognised vocational training schools, which train about 90 RAC technicians annually; however, the curriculum on good refrigeration practices does not sufficiently cover new technologies in the RAC sector.

Domestic, commercial, industrial and transport refrigeration servicing

13. The domestic refrigeration subsector is the fourth largest consumer of HFCs (11.7 per cent of the total consumption in 2022 in CO₂-eq tonnes) and the second largest consumer of HFC-134a. Other refrigerants used in the domestic sector include R-290 and R-600a, for which consumption was found to be increasing, but which still make up a small proportion of the stock of equipment in the county. These alternatives are slowly penetrating the market, but the issues of flammability and toxicity continue to impact their widespread adoption. Refrigeration servicing experts are being trained and awareness on the benefits of adopting these technologies is being created under the HPMP, which is expected to result into increased consumption of the technologies.

14. The commercial and industrial refrigeration sectors were considered together in the sectoral survey and together accounted for the second highest consumption of HFCs among the subsectors. Commercial refrigeration equipment is mostly used in food processing industries such as fisheries, abattoirs, butcheries, supermarkets, and large kitchens run by hotels and hospitals. The equipment in these two subsectors is comprised mainly of stand-alone units and condenser units both of which rely primarily on HFC-134a (73 per cent and 82 per cent of these units respectively are based on HFC-134a) and R-507A (22 per cent and 12 per cent) with a small number using R-404A (5 per cent and 6 per cent) and centralized systems including cold rooms, chillers, and ice-making plants which rely on HFC-134a (89 per cent) and R-404A (11 per cent).

Residential and commercial air-conditioning servicing

15. The residential AC subsector is the third highest consumer of HFCs in terms of CO₂-eq tonnes. R-410A is the dominant refrigerant consumed in the subsector (49 per cent) followed by R-407A (36 per cent) and HFC-134a (10 per cent).

16. The commercial AC subsector has the highest consumption of HFCs in terms of CO₂-eq tonnes. R-410A is the dominant refrigerant consumed in the subsector (59 per cent) followed by R-407A (38 per cent) and HFC-32 (3 per cent).

Mobile air-conditioning servicing

17. The mobile/transport sector comprises refrigerated trucks and MAC in large and small vehicles. The refrigerated trucks are using HFC-134a and R-404A, while HFC-134 is the sole refrigerant used in the MAC subsector.

IV. Stage I of the Kigali HFC implementation plan as submittedInstitutional, policy and regulatory framework

18. The Government of Mozambique ratified the Kigali Amendment on 16 January 2020. Since then, the Government of Mozambique has reviewed and updated the ODS regulations to include a licensing and quota system for HFCs. The revised regulations were approved by the Minister of Environment in December 2023, endorsed by the Council of Ministers in March 2024, and will be operational since May 2024. Under the revised regulation all HFC refrigerant importers in Mozambique will be required to be registered with the NOU in order to acquire import permits for HFCs into the country. Customs enforcement officers will be trained to implement and enforce the HFC control measures at points of entry across the country. The NOU in collaboration with the National Ozone Committee and Steering Committee of the Montreal Protocol will set the annual total quotas for HFCs to be imported each year based on phase-down reduction targets as set out in the Montreal Protocol and the country's KIP.

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

19. The Government of Mozambique aims to follow the established Montreal Protocol reduction targets for HFCs to define the stages of the KIP. Stage I of the KIP will target a 10 per cent reduction from the baseline by 2029. The strategy in stage I is to foster an enabling environment that will allow for the smooth transition to zero/low-global-warming-potential (GWP) technology; build the capacity of technicians; ensure that the RAC curriculum at formal training institutions includes new technologies; increase awareness of stakeholders on HFC phase-down and on alternatives; introduce low-GWP technology through demonstration projects; and support the RAC association.

Proposed activities

20. The proposed activities for stage I of the KIP complement the measures and ensure continuity of the activities under the HPMP in order to maximize the efforts and optimize the outcomes. They will be delivered under four components, which are presented below with the related costs.

- (a) Regulatory framework and control mechanisms (UNEP) (US \$105,000): Stakeholder's consultations and awareness on the revised regulations to control HFCs to strengthen their enforcement; developing, revising and adopting standards and labeling of refrigerants; continuous market monitoring including surveys, a study and recommendations on illegal trade of HFCs; training programme for 140 customs and enforcement officers on control of HFCs and HFC-based equipment, and prevention of illegal trade (seven sessions with 20 officers trained each session); strengthening customs record keeping and reporting by enterprises; awareness programme for importers on revised regulations and on HFC phase-down;
- (b) Cross sectoral activities (UNEP) (US \$82,000): Update RAC codes of practice and RAC training curriculum to include service procedures for RAC systems, recovery and recycling of refrigerants, emission/venting of refrigerants, reducing energy consumption, the latest RAC technology, safety issues with alternatives, and encouraging gender equality; RAC

technician training programme for a total of 200 technicians in domestic, commercial and industrial refrigeration (eight sessions with 25 technicians trained each session); end-user awareness-raising campaigns on the benefit of using zero/low-GWP and energy efficiency technologies; support the RAC association in outreach to increase participation of informally trained RAC technicians in training and capacity-building activities under the KIP and encourage women technicians to join their local RAC association;

- (c) Refrigeration subsectors (UNDP) (US \$52,000): Provision of tools and equipment³ for training on refrigeration servicing; awareness raising campaign for small-and-medium-sized enterprises (SMEs) and other end users on the impact of high-GWP technologies and zero/low-GWP alternatives and their benefits; and
- (d) AC subsectors (UNDP) (US \$66,000): Technology demonstration project for a hundred R-290-based AC units to be installed in government institutions, monitoring performance of these units and disseminating results to demonstrate safety and energy savings; strengthening of MAC workshops by providing them with five recovery and recycling machines to promote recycling of HFC-134a in the MAC sector; coordinating a recycling programme in MAC sector workshops and the collection of replaced units for refrigerant recovery and proper disposal; and an awareness campaign for stakeholders using AC technology to inform them about the advantages of alternative zero/low-GWP technologies.

Project implementation, coordination, and monitoring

21. The NOU, the National Ozone Committee and the RAC Association will be coordinating and monitoring the implementation of the project activities, and imports of HFCs and HFC-based equipment. The NOU shall be producing quarterly reports on the progress in the implementation of the KIP. Project coordination and monitoring activities are proposed at a cost of US \$20,000 for UNEP (US \$10,000 for coordination meetings with key stakeholders, US \$7,000 for monitoring and evaluation of implementation, and US \$3,000 for the preparation of a Gender Action Plan).

Gender policy implementation

22. During implementation of stage I of the KIP, gender equality and women's empowerment will be mainstreamed into the project components. UNEP confirmed the Government's intention that the KIP provide evidence of equal and meaningful participation of women and men in all project activities. Outreach activities including public forums and information sessions will target balanced gender participation. Gender disaggregated data will continue to be collected and reported and will be used to measure the participation of women, monitor project performance and to evaluate impact.

23. One of the activities under the cross-sectoral component for this stage is the updating of the RAC codes of practice. It is expected that the codes will include a section to encourage women technicians to work in the RAC sector and to promote gender equality. Efforts will be made to increase the participation of women in the training of RAC technicians and the training of customs and other enforcement officers, with a target of 20 per cent of women among participants.

24. The activities that will be conducted to raise awareness among end-users and importers on revised regulations on the control of HFCs, will include consideration of gender issues. A Gender Action Plan for

³ Including refrigerant identifiers and accessories; leak detectors for HCFC, HFC and HC; nitrogen kits; oxygen and acetylene portable welding sets; recycling equipment that works with oil separation and filtration; recovery cylinders; vacuum pumps; four-way ball valve manifolds with hoses; electronic refrigerant scales; digital vacuum gauges, thermometers and multimeter testers.

the implementation of the KIP is included in the budget for project coordination and management. It will be developed by a national consultant, in collaboration with the implementing agencies.

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

25. The implementation of the HPMP and the KIP will be simultaneous between 2024 and 2030. Activities for the phase-down of HFC consumption are designed to be harmonized with the phase-out of HCFC consumption to the extent possible, by identifying opportunities for complementary efforts and avoiding duplication. In line with decision 92/37(b)(i)d., the government intends to carry out training activities for refrigeration experts and enforcement agents in a coordinated manner under the HPMP and the KIP. Training programmes on HCFCs will include issues related to HFCs and vice versa. The government will also hold joint meetings for the review and issuance of quotas, to ensure coordination and consistency, and to maximise resources.

26. The proposed schedule of phase-down commitments and funding tranches under stage I of the KIP and the schedule of phase-out commitments and funding tranches under stage II of the HPMP are presented in annex I. Annex II provides an overview of activities both for stage II of the HPMP (2023-2030) and stage I of the KIP (2024-2030), showing that activities planned under the KIP either avoid duplication of activities under the HPMP or are adding a new element or focus which complements the HPMP activities.

Total cost of stage I of the Kigali HFC implementation plan

27. The budget for stage I has been proposed at US \$325,000. The costs of activities in the refrigeration servicing sector have been proposed in line with decision 92/37.

Implementation of the first tranche of stage I of the Kigali HFC implementation plan

28. The first funding tranche of stage I of the KIP, in the total amount of US \$169,500, will be implemented between June 2024 and June 2026 and will include the following activities:

- (a) Regulatory framework and control mechanisms (UNEP) (US \$40,500): Stakeholder consultations and awareness on the revised regulations to control HFCs to strengthen their enforcement; continuous market monitoring including surveys, a study and recommendations on illegal trade of HFCs; training programme for 40 customs and enforcement officers on control of HFCs and HFC-based equipment and prevention of illegal trade; strengthening customs record keeping for reporting; awareness programme for importers on revised regulations and HFC phase-down;
- (b) Cross sectoral activities (UNEP) (US \$36,000): Update RAC codes of practice and RAC training curriculum to include service procedures for RAC systems, recovery and recycling of refrigerants, emission/venting of refrigerants, reducing energy consumption, the latest RAC technology, safety issues with alternatives and encouraging gender equality; RAC technician training programme for a total of 50 technicians in domestic, commercial and industrial refrigeration; end-user awareness-raising campaigns on the benefit of using low-GWP and energy efficiency technologies; support the RAC association in outreach to increase participation of informally trained RAC technicians in training and capacity-building activities under the KIP and encourage women technicians to join their local RAC association;

- (c) Refrigeration subsectors (UNDP) (US \$34,000): Provision of tools and equipment⁴ for training on refrigeration servicing; awareness campaign for small-and-medium-sized enterprises (SMEs) and other end-users;
- (d) AC subsectors (UNDP) (US \$52,000): Technology demonstration project for 100 R-290-based AC units to be installed in government institutions, monitoring performance of these units and dissemination of results to demonstrate safety and energy savings; supply five recovery and recycling units to MAC workshops to promote the recycling of HFC-134a in the MAC sector; coordinate a recycling programme in MAC sector workshops and the collection of replaced units for refrigerant recovery and proper disposal; an awareness campaign for stakeholders using AC technology to inform them about the advantages of alternative zero/low-GWP technologies; and
- (e) Project coordination, management and monitoring (US \$7,000) (UNEP) allotted for coordination meetings (US \$4,000), and for preparation of a Gender Action Plan (US \$3,000).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

V. Comments

Overarching strategy

29. The observed increase in HFC consumption in 2023 in relation to the average 2020-2022 HFC consumption was explained by UNEP to be due -in addition to the strict implementation of ODS regulations and the licensing and quota system, as well as HCFC phase-out awareness raising, which have led to an increased uptake of HFC-based equipment- to the fast growth of Mozambique's economy over this period. There has been a large expansion of the hospitality industry and an intense increase in infrastructure developments (i.e., office complexes, hotels and resorts, commercial retail shops and modern dwellings) fitted with air conditioners, which resulted in an increase in the importation of HFC-based equipment. The Secretariat also acknowledges that the HFC consumption trends during the baseline years had been distorted by the COVID-19 pandemic and notes with appreciation the gradual reductions proposed by the Government between 2024 and 2029. Noting that an unknown portion of HFC consumption reported during the baseline years might still not be representative of the local market's regular consumption needs, and in line with similar cases of other KIPs considered at the 93rd meeting, the Secretariat and UNEP agreed that the Government of Mozambique would continue to monitor the country's HFC consumption to understand the extent to which consumption reported in baseline years was representative of the local market's needs, and to assess what future HFC demand would be, and that it would provide that analysis when submitting the second tranche of its KIP. Based on the information provided, the maximum allowable consumption limits for the remaining years of stage I of the KIP, contained in Appendix 2-A to the future Agreement between the Government of Mozambique and the Executive Committee, would be revised as necessary when the Committee considered the second tranche of the KIP.

30. The Secretariat requested UNEP to explain the measures taken to ensure that stage I of the KIP will be timely implemented, noting the longstanding delays in closing the UNIDO's component of stage I of the HPMP and the conditional approval of stage II of the HPMP.⁵ UNEP informed that stage I of the HPMP

⁴ Including recycling equipment that works with oil separation and filtration, recovery cylinders, refrigerant identifier, portable torches, manifold gauges with hoses, micron vacuum gauges, filter driers for RR systems.

⁵ At the 93rd meeting the first tranche of stage II was approved on the understanding that the Treasurer would be requested to transfer the approved funds to UNEP and UNDP only after the Secretariat had received confirmation that the equipment to be procured under the UNIDO stage I component had been distributed to the beneficiaries and

would be closed by 30 May 2024 and that the delayed procurement of equipment had been completed. The equipment will be handed over to the country and UNIDO will conduct the training in May 2024. UNEP also confirmed that Mozambique was ready to implement the KIP with support from the implementing agencies of stage II of the HPMP, including the support from the UNDP country office. The Secretariat noted the positive response from UNEP and the fact that stage I of the HPMP and stage I of the KIP have different cooperating agencies. The Secretariat further noted the immediate need for the country to implement the KIP, thus the funding, in order to control the consumption growth.

Institutional, policy and regulatory framework

HFC licensing and quota system

31. In line with decision 87/50(g), UNEP has confirmed that Mozambique has an established and enforceable system of licensing and quotas for monitoring HFC imports/exports in place. The government reviewed and updated the ODS regulations to include the licensing and quota system for HFCs. The revised regulations were endorsed by the Council of Ministers in March 2024 and will become operational in May 2024. Noting that the regulations on the HFC quota system are expected to enter into force in May 2024, the Secretariat requested clarification on the status of application of the quota system. UNEP explained that the HFC import quota system was based on the currently operating HCFC quotas system. Under the revised regulations, all HFC refrigerant importers will be required to register with the NOU in order to be granted HFC import permits. Customs enforcement officers will be trained to implement and enforce the HFC control measures at points of entry across the country. The NOU in collaboration with the National Ozone Committee and Steering Committee of the Montreal Protocol will set the annual total quotas for HFCs to be imported each year based on phase-down reduction targets. UNEP mentioned that the government will also hold joint meetings for the review and issuance of HCFC and HFC quotas, to ensure coordination and consistency, and to maximise resources.

32. The national quota for HFC imports in 2024 and 2025 was established at 655,255 CO₂-eq tonnes in line with the Montreal Protocol limits.

Technical issues

Demonstration project in the AC sector and recycling programme in the MAC sector

33. To demonstrate the installation, operation, performance, servicing and energy use, in support of the introduction of low-GWP technology, UNDP will implement a technology demonstration project for 100 R-290-based AC units to be installed in government institutions. The agencies explained that the demonstration, needed to showcase the safety and good operation of the technology, will, by appropriate monitoring of the performance of the units, help demonstrate the energy efficiency advantages and the corresponding savings. The activity will identify the needs in terms of capacity and the targeted recipients, coordinate with relevant stakeholders including the relevant ministries, and the association of technicians, coordinate with refrigerant suppliers to stock lower GWP refrigerants for future servicing needs, coordinate the timing of installation of the units with technician training activities, in particular those relating to the use of low-GWP, energy efficiency activities, coordinate the collection of replaced units and deliver them to a collection location for recovery of refrigerant and proper disposal, and coordinate action with the awareness raising activities under the project. The agencies highlighted the project's potential for replication in the commercial and residential AC sectors.

34. The end user will provide the necessary infrastructure, finance customs clearance of the units, and take care of the installation costs, safe disposal of the old units and recovery of the refrigerant, while the

relevant training had taken place (decision 93/44(e)(ii)). At the time of writing this document, the funding is still being withheld.

project will fund equipment. In line with decision 92/36(g), the Secretariat requested UNDP, upon completion of the project, to submit a final report on its implementation, including the HFC phase-out and energy-efficiency gains achieved.

35. The recycling programme in the MAC sector aims at having the economic feasibility of reclamation facilities determined. The agencies clarified that the activity will promote recycling of HFC-134a in the MAC sector. In the planning stage of this activity the main automotive dealers' workshops and other major workshops will be contacted, and focal points identified, to coordinate the programme, determine the potential for recycling, and confirm the number of recycling machines and recovery cylinders that will be needed. The activity will be coordinated with the activity on technician training to ensure proper training on the recovery and recycling machines.

Total project cost

36. The total cost for stage I of the KIP for Mozambique (without support costs) amounts to US \$325,000. This is in line with decision 92/37 based on the average HFC consumption in the refrigeration servicing sector for the years 2020-2022. The activities and level of funds are agreed, as submitted.

Tranche distribution

37. Stage I of the KIP will be implemented in three tranches, originally planned for 2024, 2027 and 2029. Noting the funding tranches in stage II of the HPMP are planned for 2023, 2026 and 2030, upon discussion with UNEP on ways to reduce reporting and administrative burden, the KIP and HPMP tranches were synchronized to 2024, 2026 and 2030.

Co-financing

38. For the technology demonstration project for 100 R-290-based air conditioning units to be installed in government institutions, the government will finance customs clearance of the units, the installation cost and the safe disposal of the old units including recovery of the refrigerant.

2024-2026 business plan of the Multilateral Fund

39. UNEP and UNDP are requesting US \$325,000, plus agency support costs, for the implementation of stage I of the KIP for Mozambique. The total value of US \$191,535, including agency support costs, requested for the period of 2024–2026, is US \$37,819 above the amount in the business plan.

Sustainability of the HFC phase-down and assessment of risks

40. The commitment and results of the activities under stage I of the KIP will be sustained over time with the continued implementation of the licensing and quota system for HFCs; awareness raising and consultations with importers, end users and other stakeholders on promoting the adoption of zero/low-GWP alternatives to HFCs in different applications and implementation and monitoring of activities under the KIP that aim at reducing the demand for HFCs. To avoid the risk of delay in implementation, the Government has already mainstreamed Montreal Protocol programmes into its national budgeting framework, aiming at making key activities sustainable after the projects are completed. The curricula of refrigeration training institutes will be continuously updated to cover good servicing practice for HFC-based equipment and alternatives, recycling and recovery of refrigerants and reducing energy consumption. The capacity of enforcement officers will continue to be strengthened by the customs department upon completion of the KIP, to ensure the adequate implementation of the regulatory frameworks in the country to ensure compliance with the Montreal Protocol.

Impact on the climate

41. The activities proposed, including the enforcement of the HFC quota system and efforts to continue implementation of control mechanisms for HFCs and HFC-based equipment, technician training in good servicing practices and the demonstration of low-GWP technologies, indicate that implementation of stage I of the KIP will reduce refrigerant emissions into the atmosphere, resulting in climate benefits. While the Secretariat is not able to provide an estimate of the avoided emissions from the implementation of the KIP at the present meeting,⁶ by 2029, Mozambique will have reduced its annual HFC emissions by approximately 65,526 million CO₂-eq tonnes, calculated as the difference between the HFC baseline for compliance and the 2029 target, assuming that all consumed HFCs will have eventually been emitted.

Draft Agreement

42. A draft Agreement between the Government of Mozambique and the Executive Committee for stage I of the KIP has not been prepared as the Agreement template is still under consideration by the Executive Committee.

43. If the Executive Committee so wishes, the funds for stage I of the KIP for Mozambique could be approved in principle, and funds for the first tranche could be approved on the understanding that the Agreement would be prepared and presented at a future meeting, before the submission of the second tranche, and once the Agreement template has been approved.

VI. Recommendation

44. The Executive Committee may wish to consider:

- (a) Approving, in principle, stage I of the Kigali HFC implementation plan (KIP) for Mozambique for the period 2024-2030 to reduce HFC consumption by 10 per cent of the country's baseline by 2029, in the amount of US \$367,250, consisting of US \$207,000, plus agency support costs of US \$26,910, for UNEP and US \$118,000, plus agency support costs of US \$15,340, for UNDP, as reflected in the schedule contained in annex I to the present document;
- (b) Noting that, upon completion of the demonstration project in the air-conditioning sector included in stage I of the KIP, UNDP will submit a final report on its implementation, including the HFC phase-out and energy-efficiency gains achieved, in line with decision 92/36(g);
- (c) Noting also:
 - (i) That the Government of Mozambique will continue to monitor its HFC consumption to understand the extent to which reported consumption in baseline years was representative of the local market's needs and to assess future HFC demand, and that it will provide this analysis when submitting the second tranche of the KIP;
 - (ii) That, on the basis of the information provided in subparagraph (c)(i) above, the maximum allowable consumption limits for the remaining years of stage I of the KIP, as contained in Appendix 2-A to the future Agreement between the

⁶ As noted in document UNEP/OzL.Pro/ExCom/94/14, Overview of issues identified during project review, the Secretariat is in the process of developing a methodology to estimate the avoided emissions from the implementation of HFC phase-down projects supported by the Multilateral Fund

Government of Mozambique and the Executive Committee would be revised, if appropriate, when the Committee considered the second tranche of the KIP;

- (d) Approving the first tranche of stage I of the KIP for Mozambique and the corresponding tranche implementation plan, in the amount of US \$191,535, consisting of US \$83,500, plus agency support costs of US \$10,855, for UNEP and US \$86,000, plus agency support costs of US \$11,180, for UNDP; and
- (e) Requesting the Government of Mozambique, UNEP, UNDP and the Secretariat to finalize the draft Agreement between the Government of Mozambique and the Executive Committee for the reduction in consumption of HFCs, including the information contained in the annex referred to in subparagraph (a) above, and to submit it to a future meeting once the KIP Agreement template has been approved by the Executive Committee.

Annex I

**SCHEDULE OF HFC PHASE-DOWN AND HCFC PHASE-OUT COMMITMENTS AND FUNDING TRANCHES
UNDER THE KIGALI HFC IMPLEMENTATION PLAN AND THE HCFC PHASE-OUT MANAGEMENT PLAN FOR MOZAMBIQUE**

Kigali HFC implementation plan (stage I)

Row	Particulars	2024	2025	2026	2027	2028	2029	2030	Total
1.1	Montreal Protocol reduction schedule of Annex F substances (CO ₂ -eq tonnes)	655,255	655,255	655,255	655,255	655,255	589,730	589,730	n/a
1.2	Maximum allowable total consumption of Annex F substances (CO ₂ -eq tonnes)	655,255	655,255	655,255	655,255	655,255	589,730	589,730	n/a
2.1	Lead IA (UNEP) agreed funding (US \$)	83,500	0	81,500	0	0	0	42,000	207,000
2.2	Support costs for Lead IA (US \$)	10,855	0	10,595	0	0	0	5,460	26,910
2.3	Cooperating IA (UNDP) agreed funding (US \$)	86,000	0	6,000	0	0	0	26,000	118,000
2.4	Support costs for Cooperating IA (US \$)	11,180	0	780	0	0	0	3,380	15,340
3.1	Total agreed funding (US \$)	169,500	0	87,500	0	0	0	68,000	325,000
3.2	Total support costs (US \$)	22,035	0	11,375	0	0	0	8,840	42,250
3.3	Total agreed costs (US \$)	191,535	0	98,875	0	0	0	76,840	367,250

HCFC phase-out management plan (stage II)

Row	Particulars	2023	2024	2025	2026	2027-2029	2030	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	5.65	5.65	2.82	2.82	2.82	0	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	2.30	2.30	1.60	1.60	1.60	0	n/a
2.1	Lead IA (UNEP) agreed funding (US \$)	315,000	0	0	160,000	0	106,250	581,250
2.2	Support costs for Lead IA (US \$)	40,069	0	0	20,353	0	13,515	73,937
2.3	Cooperating IA (UNDP) agreed funding (US \$)	55,000	0	0	101,250	0	0	156,250
2.4	Support costs for Cooperating IA (US \$)	4,950	0	0	9,113	0	0	14,063
3.1	Total agreed funding (US \$)	370,000	0	0	261,250	0	106,250	737,500
3.2	Total support costs (US \$)	45,019	0	0	29,466	0	13,515	88,000
3.3	Total agreed costs (US \$)	415,019	0	0	290,716	0	119,765	825,500

Annex II

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

Category of activity	HPMP – stage II		KIP – stage I		HPMP+KIP combined cost (US \$)
	Activity	Cost (US \$)	Activity	Cost (US \$)	
Regulatory framework			Stakeholder consultations and awareness on the revised regulations to control HFCs to strengthen their enforcement	25,000	25,000
National standards and labelling	Develop standards on the safe handling of energy-efficient low-GWP RAC technologies; consider provisions for the certification process; five capacity building sessions for NOU, environmental inspectors and other stakeholders; eight workshops for RAC technicians, importers, industries and the public; monitoring compliance with the standards on imported RAC equipment through inspections; development of policies that support green procurement in public institutions; four workshops for procurement officers on “green” RAC systems; disseminating brochures and airing publicity spots on the radio on the benefits of using low-GWP technologies	130,000			130,000
Strengthen the enforcement of ODS regulations	Training of 10 trainers; facilitate one border dialogue; review the customs training curriculum; eight training sessions for 160 enforcement officers on identification of controlled substances, legal frameworks, and the informal Prior Informed Consent (iPIC)	91,250	Continuous market monitoring including surveys, a study and recommendations on illegal trade of HFCs; training programme for 140 customs and enforcement officers on control of HFCs and prevention of illegal trade; strengthening customs’ record keeping for reporting; awareness program on revised regulations and HFC phase down for importers	64,000	155,250

Category of activity	HPMP – stage II		KIP – stage I		HPMP+KIP combined cost (US \$)
	Activity	Cost (US \$)	Activity	Cost (US \$)	
Update national codes of conduct for RAC servicing technicians	Update the national codes for RAC servicing technicians and revising the national RAC training curriculum	20,000	Update RAC codes of practice and RAC training curriculum to include service procedures for RAC systems, recovery and recycling of refrigerants, emission/venting of refrigerants, reducing energy consumption, the latest RAC technology, safety issues with alternatives and encouraging gender equality	18,000	38,000
RAC technician training	Conduct 10 training sessions for RAC technicians on good servicing practices	80,000	RAC technician training programme for a total of 200 technicians in domestic, commercial and industrial refrigeration	40,000	120,000
Targeted awareness to strengthen the capacity of RAC technicians, end users and the RAC association	Conduct targeted awareness for 200 RAC experts, importers and end users about the need for the introduction of new low-GWP technologies	20,000	End-user awareness-raising campaigns on the benefit of using low-GWP and energy-efficient technologies; support the RAC association in outreach to increase participation of informally trained RAC technicians in training and capacity-building activities under the KIP and encourage women technicians to join their local RAC association; awareness campaign for SMEs and other end users; an awareness campaign for industries using AC technology to inform them about the advantages of alternative low-GWP technologies	42,000	62,000
Strengthen the capacity of RAC technicians and the RAC association	Procure service tools for RAC association and RAC training institutes	40,000	Provide tools and equipment for training on refrigeration servicing	40,000	80,000
Implementation of a certification scheme	Develop standards and design a process for establishing a certification scheme by 2025 and certify 200 technicians per year	30,000			30,000
Strengthen the centres of excellence and technical assistance	Business model for refrigerant recovery and re-use infrastructure; establish two recovery and re-use centres; tools and equipment to centres of excellence	156,250			156,250

Category of activity	HPMP – stage II		KIP – stage I		HPMP+KIP combined cost (US \$)
	Activity	Cost (US \$)	Activity	Cost (US \$)	
Technology demonstration project			Technology demonstration project for 100 R-290-based AC units to be installed in government institutions, monitoring performance of these units and dissemination of results to demonstrate safety and energy savings	40,000	40,000
Support for the MAC sector			Supply five recovery units to MAC workshops to promote recycling of HFC-134a in the MAC sector; designating a focal point to coordinate a recycling programme and determine the equipment needs	20,000	20,000
Activities to maintain energy efficiency	Implementation of minimum energy performance standards (MEPS), and adoption and implementation of labelling for refrigerating appliances; stakeholder outreach and impact assessment	120,000	Developing, revising and adopting standards & labeling of refrigerants	16,000	136,000
Coordination and monitoring		50,000		20,000	70,000
Total	n/a	737,500	n/a	325,000	1,062,500