



**United Nations
Environment
Programme**

Distr.
GENERAL

UNEP/OzL.Pro/ExCom/93/45
28 November 2023

ORIGINAL: ENGLISH



EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Ninety-third Meeting
Montreal, 15-19 December 2023
Item 9(d) of the provisional agenda¹

PROJECT PROPOSAL: CAMBODIA

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/93/1

Pre-session documents of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol are without prejudice to any decision that the Executive Committee might take following issuance of the document.

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

Cambodia

(I) PROJECT TITLE		AGENCY							
Kigali HFC implementation plan (stage I)		UNEP (lead), UNDP							
(II) LATEST ARTICLE 7 DATA (Annex F)		Year: 2022	615.07 mt	972,813 CO ₂ -eq tonnes					
(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (CO₂-eq tonnes)						Year: 2022			
Chemical	Aerosol	Foam	Firefighting	AC and refrigeration			Solvent	Other	Total sector consumption
				Manufacturing		Servicing			
				AC	Other				
HFC-32						7,898			7,898
HFC-134a						693,050			693,050
R-404A						52,000			52,000
R-407C						1,596			1,596
R-410A						218,269			218,269
(IV) AVERAGE 2020-2022 HFC CONSUMPTION IN SERVICING				594.56	943,127				
(V) CONSUMPTION DATA (CO₂-eq tonnes)									
Baseline: average 2020-2022 HFC consumption plus 65% of HCFC baseline			1,263,376	Starting point for sustained aggregate reductions			TBD		
CONSUMPTION ELIGIBLE FOR FUNDING									
Already approved			0	Remaining			TBD		
(VI) ENDORSED BUSINESS PLAN		2023	2024	2025	Total				
UNEP	HFC phase-down (CO ₂ -eq tonnes)		419,250	0	0	419,250			
	Funding (US \$)		0.0	0.0	0.0	0.0			
UNDP	HFC phase-down (CO ₂ -eq tonnes)		75,936	0	0	75,936			
	Funding (US \$)		0.0	0.0	0.0	0.0			
(VII) PROJECT DATA		2023	2024-2025	2026	2027	2028	2029	Total	
Consumption (CO ₂ -eq tonnes)	Montreal Protocol limits		n/a	1,263,376	1,263,376	1,263,376	1,263,376	1,137,038	n/a
	Maximum allowable		n/a	1,263,376	1,263,376	1,263,376	1,263,376	1,137,038	n/a
Amounts requested in principle (US \$)	UNEP	Project costs	126,300	0	108,000	0	0	44,500	278,800
		Support costs	16,419	0	14,040	0	0	5,785	36,244
	UNDP	Project costs	123,810	0	38,075	0	0		161,885
		Support costs	11,143	0	3,427	0	0		14,570
Amounts recommended in principle (US \$)	Total project costs		250,110	0	146,075	0	0	44,500	440,685
	Total support costs		27,562	0	17,467	0	0	5,785	50,814
	Total funds		277,672	0	163,542	0	0	50,285	491,499
(VIII) Request for approval of funding for the first tranche (2023)									
Implementing agency		Funds recommended (US \$)			Support costs (US \$)				
UNEP		126,300			16,419				
UNDP		123,810			11,143				
Total		250,110			27,562				
Secretariat's recommendation:		Individual consideration – all technical and cost issues resolved							

PROJECT DESCRIPTION

1. On behalf of the Government of Cambodia, 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 \$450,819, consisting of US \$242,800, plus agency support costs of US \$31,564 for UNEP and US \$161,885, plus agency support costs of US \$14,570 for UNDP, as originally submitted.²
2. The implementation of stage I of the KIP will assist Cambodia in meeting the target of 10 per cent reduction from its HFC baseline consumption by 1 January 2029.
3. The first tranche of stage I of the KIP being requested at this meeting amounts to US \$260,722, consisting of US \$111,300, plus agency support costs of US \$14,469 for UNEP and US \$123,810, plus agency support costs of US \$11,143 for UNDP, as originally submitted, for the period of January 2024 to December 2026.

Background

4. Cambodia ratified all the amendments to the Montreal Protocol, including the Kigali Amendment on 8 April 2021. Cambodia has an HCFC consumption baseline of 15 ODP tonnes or 272.2 metric tonnes (mt) and is set to completely phase out consumption of HCFCs by 1 January 2030 with a servicing tail up to 2035.³

Status of implementation of the HCFC phase-out management plan

5. The HCFC phase-out management plan (HPMP) for Cambodia was originally approved at the 61st meeting⁴ and revised at the 70th meeting⁵ to meet the 100 per cent reduction from the baseline by 2030, resulting in the phase-out of 15 ODP tonnes of HCFCs, at a total cost of US \$1,600,000, plus agency support costs. The HPMP will be completed by 31 December 2032, as stipulated in the Agreement between the Government of Cambodia and the Executive Committee.

Status of implementation of HFC-related activities

6. At the 74th meeting, Cambodia received funding for conducting a survey on the use of alternatives to ozone-depleting substances (ODS) (US \$35,000), completed in September 2017. At the 80th meeting the country received funding for implementing enabling activities for HFC phase-down (US \$150,000), which were completed in June 2019 and the final report was submitted. These activities assisted the country *inter alia* in ratifying the Kigali Amendment; facilitated the coordination of stakeholders; raised awareness on HFC phase-down and energy-efficiency improvement options; built the capacity of the national ozone unit (NOU), stakeholders in the servicing sector and end users to start considering HFC phase-down; developed training to address energy-efficiency challenges in installation of refrigeration and air-conditioning (RAC)

² As per the letter of 18 August 2023 from the Ministry of Environment of Cambodia to UNEP.

³ Except for those HCFCs allowed for a servicing tail between 2030 and 2035, where required, consistent with the Agreement between the Government of Cambodia and the Executive Committee.

⁴ Decision 61/40

⁵ Annex XII of UNEP/OzL.Pro/ExCom/70/59

systems; and identified regulatory and legislative needs to support the extension of the ODS import/export licensing system to include HFCs and HFC alternatives.

Stage I of the Kigali HFC implementation plan

Policy, regulatory and institutional frameworks

7. The Royal Government of Cambodia, through its NOU within the Ministry of Environment (MOE), controls the consumption of HFCs through the Sub-decree on ODS Management and Sub-decree on Prohibited and Restricted Goods, the main regulatory frameworks in Cambodia to implement the Montreal Protocol and the Kigali Amendment. The HCFC quota system and a mandatory labelling requirement for HCFC cylinders have been implemented since 2013. An electronic system for quota and license applications for substances controlled under the Sub-decree on ODS Management has been in place since March 2020.

8. The Sub-decree on ODS Management was amended on 30 September 2021 to establish a licensing, data-reporting, and monitoring system for HFCs and all other refrigerants except ammonia, and RAC equipment relying on substances controlled under the sub-decree. This amendment also established the quota system for imports of HFCs and HFC-blends with the obligations under the Kigali Amendment included as an annex, which will ensure the annual quotas for HFCs and HFC-blends, set by the NOU, to be in compliance with Montreal Protocol targets. Other provisions under the amendment included restrictions on upgrading or establishing any manufacturing capacity using any types of HFCs and ODSs; requiring all servicing workshops, sellers, stocking, storage, recovery, recycling and reclamation centres, and distributors of refrigerants to have at minimum one certified technician; and restricting the sale of HFCs and HCFCs to only registered workshops or certified technicians.

9. The quota system for HFCs will come into force on 1 January 2024 and will be allocated in CO₂ equivalent-tonnes (CO₂-eq tonnes) based on the historical HFC imports of each registered importer during the HFC baseline years; however, import permits will be issued in metric tonnes to facilitate customs verification. Importers will be able to request for import permits for HFCs if the aggregate amount of all HFCs imported is below the allocated quota in CO₂-eq tonnes. Import licenses for HFCs (as well as HCFCs and RAC equipment) are issued on a per shipment basis. A registered importer needs to apply for an import/export permit from the NOU for each shipment and is required to show this permit along with other supporting documents before the shipment can be released.

HFC consumption

10. Cambodia imports HFCs predominantly for servicing RAC and mobile air-conditioning (MAC) equipment. In 2022, Cambodia consumed HFC-134a (71.24 per cent of total HFC consumption in CO₂-eq tonnes), R-410A (22.44 per cent), R-404A (5.35 per cent), HFC-32 (0.81 per cent), and R-407C (0.16 per cent). Table 1 presents the country's HFC consumption as reported under Article 7 to the Ozone Secretariat.

Table 1. HFC consumption in Cambodia (2019–2022 Article 7 data)

HFC	GWP*	2019	2020	2021	2022	Share of HFC consumption in 2022 (%)
mt						
HFC-32	675	1.35	2.85	0.00	11.70	1.90
HFC-134a	1,430	525.20	486.24	445.35	484.65	78.80
R-404A	3,922	4.90	2.56	14.70	13.26	2.16
R-407C	1,774	2.04	0.00	0.57	0.90	0.15
R-410A	2,088	152.92	91.93	123.27	104.56	17.00
R-507A	3,985	0.57	0.56	0.58	0.00	0.00
Total (mt)		686.98	584.14	584.47	615.07	100

HFC	GWP*	2019	2020	2021	2022	Share of HFC consumption in 2022 (%)
CO₂-eq tonnes						
HFC-32	675	911	1,924	0	7,898	0.81
HFC-134a	1,430	751,036	695,323	636,851	693,050	71.24
R-404A	3,922	19,216	10,039	57,648	52,000	5.35
R-407C	2,107	3,619	0	1,011	1,596	0.16
R-410A	2,088	319,221	191,904	257,326	218,269	22.44
R-507A	3,985	2,271	2,232	2,311	0	0
Total (CO₂-eq tonnes)		1,096,274	901,422	955,147	972,813	100

*Global warming potential

11. The consumption of HFCs in Cambodia decreased by 18 per cent in CO₂-eq tonnes 2020 during the COVID-19 pandemic; however, recovered modestly in 2021 (by 6 per cent) and 2022 (by 2 per cent). Originally, the Article 7 data which was the basis for the initial review of the KIP showed that Cambodia had reported a steep drop in HFC consumption 2019 and an increasing trend in 2020 to 2022. The Article 7 and CP data were both revised following an extensive survey conducted during the preparation of the KIP, which are reflected in table 1.

Country programme implementation report

12. The Government of Cambodia reported its HFC sector consumption data in the 2022 country programme implementation report that is consistent with the data reported under Article 7 of the Montreal Protocol.

HFC distribution by sector

13. Cambodia uses HFCs in the RAC and MAC servicing sector. The survey of HFC consumption conducted during the KIP preparation confirmed import and export data with that collected from importers of HFCs, importers of RAC equipment and the Department of Customs and Excise. A survey was also done from end users of RAC equipment, servicing workshops, and large end users of large RAC equipment to corroborate the data from the bottom up. Subsequently, the HFC consumption by sector is presented in table 3 below. There are some gaps between the sectoral consumption and validated import amount (reported under Article 7), which was explained by the use from previous year's imports. The data shows that HFCs are used for servicing in the MAC subsector (55.8 per cent in CO₂-eq tonnes and 62.9 per cent in mt), followed by the residential AC subsector (28 per cent in CO₂-eq tonnes and 22.6 per cent in mt), chillers (4.9 per cent in CO₂-eq tonnes and 5.1 per cent in mt), domestic refrigeration (4 per cent in CO₂-eq tonnes and 4.5 per cent in mt and), cold storage and industrial (3.2 per cent in CO₂-eq tonnes and 1.3 in mt) commercial (stand-alone) refrigeration (3 per cent in CO₂-eq tonnes and 3.2 in mt), and other subsectors (1 per cent in CO₂-eq tonnes and 0.4 in mt).

Table 3. Sectoral HFC consumption in the RAC servicing sector for 2022 in Cambodia

Sector	HFC-134a	HFC-32	R-404A	R-407C	R-410A	R-507A	Total	Share of total (%)
mt								
Refrigeration subsectors								
Domestic	31.55	0	0	0	0	0	31.55	4.5
Commercial	22.08	0	0.7	0	0	0	22.78	3.2
Cold storage and industrial	0	0	9.01	0	0	0.26	9.27	1.3
Condensing units	0	0	2.77	0	0	0.14	2.90	0.4
Transport	0	0	0.04	0	0	0	0.04	0.0

Sector	HFC-134a	HFC-32	R-404A	R-407C	R-410A	R-507A	Total	Share of total (%)
Air-conditioning subsectors								
Residential (Single-split and multi-split AC)	0	9.25	0	1.63	147.88	0	158.76	22.6
Chillers	27.92	0	0	0	7.73	0	35.65	5.1
Mobile	442.29	0	0	0	0	0	442.29	62.9
Total	523.84	9.25	12.52	1.63	155.61	0.4	703.25	100
CO₂-eq tonnes								
Refrigeration subsectors								
Domestic	45,117	0	0	0	0	0	45,117	4
Commercial	31,574	0	2,745	0	0	0	34,320	3
Cold storage and industrial	0	0	35,334	0	0	1036.1	36,370	3.2
Condensing units	0	0	10,863	0	0	557.9	11,421	1
Transport	0	0	157	0	0	0	157	0
Air-conditioning subsectors								
Residential (single-split and multi-split AC)	0	6,244	0	2,891	308,700	0	317,835	28
Chillers	39,926	0	0	0	16,136	0	56,062	4.9
Mobile	632,475	0	0	0	0	0	632,475	55.8
Total	749,091	6,244	49,098	2,891	324,836	1,594	1,133,755	100

14. The Government had reported that there are roughly 4,000 RAC technicians working in 881 RAC servicing workshops, in-house with hotels, resorts, and other commercial establishments, and working freelance in the country.

Domestic, commercial, industrial and transport refrigeration servicing

15. In 2022, there were approximately 3.95 million domestic refrigerators in operation in the country. Of which, 74 per cent are based on R-134a and 26 per cent based on R-600a. The use of HFC-134a in servicing domestic refrigerators has been steady from 2018-2022. Domestic refrigeration is the fourth largest subsector in terms of total HFC consumption in both CO₂-eq tonnes and mt and the second largest consumer of HFC-134a.

16. The commercial refrigeration subsector consists of stand-alone refrigeration units (water-coolers, top-slide freezer, display cabinets and small ice making machines) which use both HCFCs and HFCs in the following proportions: HFC-134a (85 per cent), HCFC-22 (5 per cent), R-290 (4.2 per cent), R-404A (2.7 per cent), R-600a (2.6 per cent) and R-744 (0.3 per cent). In 2022, the subsector had the sixth largest consumption of HFCs in CO₂-eq tonnes and the fifth largest in mt.

17. The industrial refrigeration subsector comprises cold storage units and industrial refrigeration systems which are based on HCFC-22 (53 per cent), R-404A (39 per cent), R-507A (5 per cent) and ammonia (2 per cent) and condensing units based on HCFC-22 (52 per cent), R-404A (41 per cent), and R-507A (7 per cent). The capacity of cold storage units and industrial refrigeration systems ranges from 25 to 150 horsepower (HP, expressed in terms of cooling capacity). In 2022, the subsector had the fifth largest consumption of HFCs in terms of CO₂-eq tonnes and the sixth largest consumption in mt. R-404A based equipment in cold storage and industrial refrigeration has been increasing, due to replacement of HCFC-22-based equipment.

18. Transport refrigeration uses only R-404A in Cambodia. The survey did not find any alternatives to HFCs in this subsector. The sector accounted for less than 1 per cent of the consumption of HFCs in 2022 in both CO₂-eq tonnes and mt with 18 R-404A transport refrigeration units in operation.

Residential and commercial air-conditioning servicing

19. The residential AC sector is comprised of 1.53 million single-split and multi-split AC units and in 2022 was the second largest subsector in terms of HFC use both in CO₂-eq tonnes and mt. The survey revealed that single split AC units are based on either HCFC-22, HFC-32, R-407C or R-410A, while multi-split AC units are solely based on R-410A. Together the use of HCFCs and HFCs for residential AC units is as follows: R-410A (56 per cent) HCFC-22 (30 per cent), HFC-32 (13 per cent) and R-407C (1 per cent). The share of HFC use in multi-split air-conditioners is approximately 13 per cent of the total HFC consumption in this subsector. The refrigerants in the residential AC market that have replaced HCFC-22 are R-410A which has been taking a big share of the consumption and HFC-32 which has recently begun to gain some ground in Cambodia.

20. The commercial AC subsector is comprised of chillers with cooling capacities ranging from 100 to more than 1,000 HP which use HFC-134a (45 per cent), HCFC-22 and HCFC-123 (30 per cent) and R-410A (25 per cent). In 2022, chillers accounted for the third largest subsector in terms of HFC use in CO₂-eq tonnes and mt.

Mobile air-conditioning servicing

21. The MAC servicing subsector which uses solely HFC-134a accounted for the largest share of consumption in 2022 in both in CO₂-eq tonnes and in mt. In Cambodia, most vehicles are imported as second-hand. In the light vehicle category (i.e., small cars and minivans), about 55 per cent are imported as second-hand vehicles and the remaining 45 per cent are imported as new vehicles. For the heavy vehicle category, about 95 per cent of the imported vehicles are second-hand and 5 per cent are new. For imported second-hand vehicles, it is standard practice in Cambodia to evacuate the MAC system and refill these as there is a perception that the systems need cleaning, which leads to a higher use of HFC-134a. In addition, the bad road conditions in Cambodia have led to higher leakage rate of MAC systems in existing vehicles and a higher numbers of MAC systems that require servicing. MAC systems using HFO-1234yf has not yet entered the Cambodian market.

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

22. The Government of Cambodia is proposing two stages for the KIP. Stage I of the KIP is proposed from 2023-2029 and will be implemented simultaneously with the HPMP until 2030. Stage II is expected to cover a period of 15 years (from 2030 to 2045).

23. The overarching strategy for HFC phase-down up to 2045 is comprised of four key principles: to limit the supply of HFCs through the licensing and quota system and other regulatory instruments; to limit new demand for high-global-warming potential (GWP) HFCs and promote climate-friendly and energy-efficient equipment; to reduce the demand of HFCs for servicing existing equipment through training, and certification especially for the MAC sector; and to ensure the safe introduction of lower-GWP alternatives including capacity building for the safe handling, transportation, and storage of flammable refrigerants. The action plan for stage I of the KIP has taken into consideration the overlapping sectors which are targeted under the HPMP which is primarily the residential AC sector and prioritizes those subsectors which were not previously addressed under a national phase-out plan (i.e., the MAC sector and large RAC applications such as chillers, cold storage, industrial refrigeration, and condensing units).

Established HFC baseline and proposed reductions

24. The Government of Cambodia reported its Article 7 data for 2020–2022. By adding 65 per cent of the HCFC baseline (in CO₂-eq tonnes) to the average HFC consumption in 2020–2022, the established HFC baseline is 1,263,376 CO₂-eq tonnes.

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

Baseline calculation	2020	2021	2022
HFC annual consumption	901,422	955,147	972,813
HFC average consumption 2020-2022	943,127		
HCFC baseline (65%)	320,249		
HFC baseline	1,263,376		

25. The Government of Cambodia and UNEP forecasted HFC consumption in an unconstrained scenario based on an annual average growth rate of 5.2 per cent⁶ and calculated the level of HFC reductions required to ensure compliance with the Montreal Protocol at different points in time. The forecast of HFC consumption in an unconstrained scenario is presented in table 5 and demonstrates that Cambodia would be at risk of potential non-compliance in 2027 and subsequent years without any actions to reduce growth.

Table 5. Unconstrained scenario of HFC consumption forecast at 5.2 per cent growth and required reductions (CO₂-eq tonnes)

Scenario	2022*	2023	2024	2025	2026	2027	2028	2029
HFC consumption growing at an annual rate of 5.2 per cent	972,813	1,023,399	1,076,616	1,132,600	1,191,495	1,253,453	1,318,633	1,387,201
HFCs phased in from HCFC phase-out ⁷	n/a	15,132	15,132	15,132	15,132	15,132	15,132	15,132
Total estimated HFC consumption with unconstrained demand of 5.2 per cent	n/a	1,038,531	1,091,748	1,147,732	1,206,627	1,268,585	1,333,765	1,402,334
Montreal Protocol limit according to the baseline	n/a	n/a	1,263,376	1,263,376	1,263,376	1,263,376	1,263,376	1,137,038
Required HFC reductions (under a scenario of 5.2 per cent growth rate in consumption)	n/a	n/a	0	0	0	5,209	70,389	265,295

* As per Article 7 data

26. Based on the analysis presented in table 5, in an unconstrained scenario, Cambodia would need to undertake activities to reduce HFC consumption by 265,295 CO₂-eq tonnes in 2029 to ensure compliance with the HFC consumption target. Table 5 also shows that Cambodia's 2022 HFC consumption is 30 per cent below the established baseline; however, by 2027 in a business-as-usual scenario of unconstrained growth Cambodia would be at risk of non-compliance.

⁶ Based on a World Bank projection for GDP growth for 2023; <https://www.worldbank.org/en/country/cambodia/overview>,

⁷ Estimated HFC consumption phased in from the HCFCs phased out is based on the percentage of refrigerants (HCFCs, HFCs and alternatives) consumed, as reported in the submission, in single-split and multi-split AC, chillers, commercial standalone, cold storage and industrial refrigeration, and condensing units. The increase in HFCs and alternatives is based on the per cent of HCFCs being phased out in each subsector (for instance HCFC-22 accounts for 30 per cent of consumption in single-split and multi-split AC, thus 30 per cent is redistributed to R-410A (24 per cent increase) and R-407C (5.6 per cent) and HFC-32 (0.4 per cent). The 2022 sectoral consumption was used to determine the mt amounts of the related per cent increases in each HFC for each subsector and multiplied by the GWP and summed to get the additional HFCs consumed if HCFCs were phased out.

27. Stage I of the KIP proposes to reduce HFC consumption by 10 per cent of the established baseline by 2029. Measures in 2024 and 2025 will ensure that the growth in HFC consumption will be limited and thus ensure compliance with the 2024 freeze and the 2029 reduction target.

Proposed activities

28. The activities under stage I of the KIP have been organized in line with the four key principles of the overarching strategy (see paragraph 23) through five main project components presented below with the related costs.

- (a) *Policy and regulations to support HFC phase-down:* establishing new regulations to limit the demand for high-GWP and energy-inefficient equipment including bans on the use of HFCs for manufacturing⁸ by 2026 and on the import of second-hand HFC-based RAC equipment by 2027, and a potential ban on the import of R-410A single-split AC units; preventing the use of high-GWP HFC-based equipment in new construction/renovation projects by introducing relevant procurement, investment, and construction policies which require the consideration of the GWP of the refrigerants for RAC systems in these new constructions; assessing the feasibility of introducing tax incentives to promote the import of lower-GWP refrigerants and lower-GWP-energy-efficient equipment (e.g., in the customs tariff on import duty); and the development of safety guidelines on handling, transportation and storage of flammable refrigerants (UNEP) (US \$18,000);
- (b) *Strengthening monitoring, reporting, verification, and enforcement of the HFC licensing system through an integrated approach:*
 - (i) Developing standard operating procedures (SOP) for the licencing and quota enforcement process (e.g., SOP for the safe management and handling of illegally imported HFCs, which might be flammable or toxic); strengthening the collaboration between bordering countries to prevent HFC import through illegal trade through border dialogues; training 150 customs officers in ten 2-day workshops for major customs' checkpoints (on SOP for the enforcement of the HFC licensing system, HFC-based RAC equipment, use of refrigerant identifiers, requirements under the Montreal Protocol, and updated/new regulations, import bans, and HS codes); updating the existing risk profiling systems to detect potential illegal trade of HFCs which will include a study visit to a neighboring country with an existing risk-profiling system for ODS/HFC trade control and post-clearance audit (UNEP) (US \$77,800);
 - (ii) Procurement of six refrigerant identifiers with capacity to detect HFC-32 and new blends for the NOU and major customs' checkpoints (UNDP) (US \$30,000);
- (c) *Assistance to the MAC servicing sector:*
 - (i) Provision of equipment to two technical and vocational education and training (TVET) centres to serve as MAC reference centres to support the delivery of a professional training programme for MAC technicians on good servicing practices and training support for using new refrigerants in MAC (i.e., HFO-1234yf) and on the new generation of electric cars (UNDP) (US \$93,810);
 - (ii) Developing standardized training modules and materials on MAC good servicing practices including for second-hand equipment; preparing a training video for

⁸ Cambodia does not use HFCs for manufacturing, and this ban is to ensure that no manufacturing will start.

trainers and translation into local the language for wider dissemination and use in Cambodian provinces; one in-person training workshop for 20 trainers and training for 260 MAC servicing technicians on good servicing practices; development of a standard assessment module for a competency-based certification for MAC technicians; training for 60 technicians on procedures for servicing second-hand vehicles; and the integration of good servicing practices for MACs into the national qualification framework, occupancy standard, and the curriculum and competency framework under the TVET centres (UNEP) (US \$108,000);

- (d) *Technical assistance for the RAC servicing sector:* implementing a pilot project to demonstrate the performance of low-GWP energy-efficient large refrigeration systems through the establishment of up to six R-290-based condensing units: half the units would be installed using the ‘baseline’ conditions (i.e., standard replacement of the HFC units with R-290 units to understand installation challenges, operational conditions, supply chain issues, maintenance costs, and energy consumption) and the other half will be installed under optimized conditions (i.e., aligned with improved controls, new heat exchanges and online monitoring) for a comparison of supply chain challenges, energy efficiency and other servicing conditions; results will be disseminated in the relevant sectors and will be used to inform future stages of the KIP (UNDP) (US \$38,075); and
- (e) *Public awareness and targeted outreach activities:* preparation of targeted information for various national stakeholders including importers, sellers, servicing technicians, and large end-users to increase the awareness on good servicing practices including for second-hand vehicles with MAC, and with industry on the ban of HFCs in the manufacturing sector and RAC equipment importers on energy efficiency requirements and restrictions on the import of second-hand HFC-based RAC equipment (UNEP) (US \$15,000).

Project implementation, coordination, monitoring

29. Project implementation and monitoring activities will build upon the mechanisms established under the HPMP, where the NOU monitors activities, reports progress, and collaborates with stakeholders to phase out HFCs with supervision from UNEP at a cost of US \$24,000 as requested in the original submission, for travel within the country and for local experts.

Gender policy implementation

30. In line with decisions 84/92(d), 90/48(c) and 92/40(b), the NOU, UNEP and UNDP will apply the operational policy on gender mainstreaming throughout the KIP implementation. The project preparation survey for the KIP revealed that there are currently few women working in the RAC servicing sector thus the NOU and UNEP will work to encourage the participation of women in decision-making, monitoring and evaluation activities during KIP implementation, to increase women-applicants to technical and administrative positions in the RAC servicing sector, and to promote the participation of women in meetings, training workshops and outreach activities. Consideration will be given to the specific needs of women when designing training workshops, which will include discussions of gender-related issues. The NOU will also work closely with relevant associations to promote gender in the cooling sector and providing interested women with networking and mentoring opportunities.

Total cost of stage I of the Kigali HFC implementation plan

31. The budget for stage I was originally proposed at US \$380,685, plus project monitoring costs at US \$24,000 for a total of US \$404,685. Based on the cost established at US \$5.1/kg for the phase out of HFCs in the servicing sector in line with decision 92/37, the requested funding including the project

monitoring costs is associated with a phase-out 126,338 of CO₂-eq-tonnes HFCs to meet the 10 per cent reduction required for stage I of the KIP.

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

32. The Government of Cambodia is committed to harmonizing the implementation of HPMP and KIP activities to the extent possible, on the understanding that both multi-year projects will be governed by separate agreements between the country and the Executive Committee.

33. The remaining activities under the HPMP are those that relate to technician training and certification to promote good servicing practices and awareness raising activities to support the replacement of HCFC-using technologies with low-GWP alternatives. The activities that will be implemented in parallel under stage I of the KIP (e.g., MAC technician certification and training) are focused on sectors that have not received previous assistance under the HPMP and those that require new interventions in addition to those being implemented under the HPMP. The KIP will also build on the existing institutional, policy and capacity building frameworks that have been developed under HPMP and other projects that have been implemented under the Montreal Protocol in Cambodia.

34. Stage I of the KIP will be implemented in three tranches. The schedule of HFC phase-down and HCFC phase-out commitments, and the activities and associated costs of stage I of the KIP and the HPMP tranches is presented in annexes I and II, respectively, to the present document.

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

35. The first tranche of stage I of the KIP in the total amount of US \$235,110, as originally submitted will be implemented between January 2024 and December 2026 and will include the following activities:

- (a) *Policy and regulations to support HFC phase-down:* two consultation meetings regarding the proposed bans on the use of HFCs in manufacturing sectors by 2026 and on the import of second-hand HFC-based RAC equipment by 2027; one consultation meeting to develop guidelines for a future ban on the import of R-410A single-split AC units; two consultation meetings to introduce relevant procurement, investment, and construction policies to limit the GWP of refrigerants used in RAC systems for new construction projects; initiate the feasibility study on tax incentives to promote the import of lower-GWP refrigerants and lower-GWP-energy-efficient equipment; and development of safety guidelines on handling, transportation and storage of flammable refrigerants (UNEP) (US \$15,000);
- (b) *Strengthening monitoring, reporting, verification, and enforcement of licensing system through integrated approach:*
 - (i) Development of the SOP for the licencing and quota enforcement process; a 2-day border dialogue with neighboring countries on prevention of illegal trade and strengthening collaboration; training 60 customs officers in four 2-day workshops for major customs' check points (on SOP for the enforcement of the HFC licensing system, HFC-based RAC equipment, use of refrigerant identifiers, requirements under the Montreal Protocol, and updated/new regulations, import bans, and harmonized customs (HS) codes); one study visit to a neighboring country with an existing risk-profiling system for ODS/HFC trade control and post-clearance audit (UNEP) (US \$34,800);
 - (ii) Procurement of six refrigerant identifiers with capacity to detect HFC-32 and new blends for the NOU and major customs' checkpoints (UNDP) (US \$30,000);

- (c) *Assistance to the MAC servicing subsector:*
- (i) Provision of equipment⁹ to two TVET centres to serve as MAC reference centres including tools to support training on HFO-1234yf and the new generation of electric cars based on advice from a technical consultant (UNDP) (US \$93,810);
 - (ii) Development of standardized training modules and materials for MAC servicing including for second-hand equipment; preparation of training video for trainers and translation into the local language; one in-person training workshop for 20 trainers and training 80 MAC servicing technicians on good servicing practices; three specific training workshops for a total of 60 technicians on servicing second-hand vehicles (UNEP) (US \$47,500);
- (d) *Public awareness and targeted outreach activities:* targeted information for various national stakeholders including importers, sellers, servicing technicians, and large end users to increase the awareness on good servicing practices including for second-hand vehicles with MAC, and with industry on the ban of HFCs in the manufacturing sector and RAC equipment importers on energy efficiency requirements and restrictions on the import of second-hand HFC-based RAC equipment (UNEP) (US \$5,000) and
- (e) *Project implementation, coordination, and monitoring* to cover travel in the country and local experts (UNEP) (US \$9,000).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

36. The Secretariat reviewed stage I of the KIP for Cambodia in light of the existing policies and guidelines of the Multilateral Fund, including decision 92/37,¹⁰ the HPMP, and the 2023-2025 business plan of the Multilateral Fund.

Established HFC baseline, starting point for sustained reductions in HFC consumption and proposed reductions

37. The Government of Cambodia, based on its average HFC consumption reported under Article 7 for 2020-2022 and 65 per cent of its HCFC baseline, has an established HFC baseline of 1,263,376 CO₂-eq tonnes. The Secretariat notes that the starting point will be established once the Executive Committee decides on the methodology for determining the starting point.

38. Based on the estimated values in table 5, the country's HFC consumption could increase from 972,813 CO₂-eq tonnes in 2022 to 1,091,748 CO₂-eq tonnes in 2024, which is lower than the country's baseline. After that, the country would ensure sustained reductions of HFC consumption to reduce an estimated 265,295 CO₂-eq tonnes of potential growth in HFC consumption by 2029 in order to meet the HFC consumption compliance target under the Kigali Amendment. Stage I of the KIP would help the Government of Cambodia meet these reduction levels.

⁹ Equipment will include MAC unit for training (single zone, HFC-134a), MAC unit for training (dual zone HFO-1234yf), digital multi-refrigerant gauge manifold, MAC recovery/recharging unit (dual refrigerant), 13.6 lbs cylinder, refrigerant leak detector, tube flaring, cutting and repair tool kits, ODS/HFC-free flushing kit and puncture taps/valve core removers.

¹⁰ Level and modalities of funding for HFC phase-down in the refrigeration servicing sector.

Policy, regulatory and institutional frameworks*HFC licensing and quota system*

39. In line with decision 87/50(g), the Government of Cambodia confirmed that the country has an established and enforceable national system of licensing and quotas for monitoring HFC imports/exports in place. The Sub-decree on ODS Management was amended on 30 September 2021 to establish an HFC licensing, data reporting and monitoring system and HFC imports are now controlled albeit without quotas. The Government will start issuing import quotas for HFCs in 2024 at a level of 1,263,376 CO₂-eq tonnes, consistent with the Montreal Protocol control targets.

Technical and cost-related issues

40. During the project review, UNEP indicated that the cost for project coordination and monitoring had inadvertently been included in the funding calculation for the reduction in stage I and requested whether as a non-low-volume-consuming country, consideration could be given for Cambodia to have the project coordination and monitoring costs in addition to the funding for the 10 per cent reduction in line with decision 92/37. UNEP further indicated that the difference in funding would be added to those activities required for stage I.

41. On this basis, UNEP adjusted the requested funding to US \$ 404,685 plus project monitoring costs of US \$36,000 for a total of US \$440,685. Adjustments in the funding were made to the following components: policy and regulations to support HFC phase-down was increased from US \$18,000 to US \$26,000 (UNEP); developing standardized modules for the MAC sector was increased from US \$201,810 to US \$214,810 (in UNEP component); and public awareness and outreach was increased from US \$15,000 to US \$18,000 (UNEP). Project coordination and monitoring costs were requested at 9 per cent of the total cost at US \$36,000. The Secretariat noted that the requested changes and activities were well within the current guidelines as further detailed below.

Policy and regulations to support HFC phase-down

42. The Secretariat sought clarification on how the policy to impose limits on the GWP of refrigerants to be used during procurement would be operationalized, and asked whether this would include equipment labelling. UNEP explained that this will be developed only for implementation as part of the government's public procurement programme and for new investment/construction projects that will require clearance from the Government. For government procurement, the policy will be developed and implemented through the General Department of Public Procurement of the Ministry of Economy and Finance and would ensure that any RAC equipment using refrigerant with GWP higher than the limit would not be eligible for procurement by government ministries/agencies. The policy is expected to be synchronized with new requirements for energy efficiency of equipment to be done in collaboration with the Department of Energy Efficiency of the Ministry of Mines and Energy. For new investment/construction projects the government will require prior clearance from the MOE on RAC technologies to be installed as part of approval from the Council for the Development of Cambodia and the Ministry of Land Management, Urban Planning and Construction respectively.

43. In response to the Secretariat's request for further clarification on the feasibility study for introducing fiscal incentives to promote the import of lower-GWP refrigerants and lower-GWP-energy-efficient equipment, UNEP explained that the study would analyse import data to understand the potential benefits and implications for a tax incentive programme.

Strengthening monitoring, reporting, verification and enforcement of the licensing system through an integrated approach

44. The Secretariat sought UNEP's explanation on the added value for stage I of the KIP for this component as some activities outlined were like those that had been implemented under the HPMP. UNEP clarified that the remaining funding and activities under the HPMP do not include further capacity building for customs and enforcement officers which is considered an essential part of KIP implementation especially with the new policies and regulations that are expected to be in place to control HFCs. UNEP emphasized the importance of having SOP for HFC monitoring to strengthen enforcement of the licensing and quota system based on lessons learned from HPMP implementation. This component will develop standardized procedures in the enforcement process and support the training of customs officers and it was further noted that limiting imports of HFCs will be the first step in their reduction.

45. UNEP also explained that strengthening the existing risk profiling system to accommodate control for HFCs is necessary as the current system ensures that the descriptions and HS codes used in shipments are consistent with HCFC or HFC import amounts on the permit. Presently customs officers at checkpoints must verify documents and perform a physical inspection of goods depending on importer profiles. The changes to the system would involve the inclusion of indicators to target importers who might not declare a commodity or HS code in order to avoid the system. This will enable Cambodian Customs to identify potential illegal or smuggled shipments of HFCs.

Assistance for mobile air-conditioning servicing sector

46. The Secretariat noted that activities for the MAC sector, especially the training components, comprise more than 50 per cent of the total funds being requested for stage I, this is consistent with the importance of the sector which has the largest share of HFC consumption. In explaining how the training of MAC technicians will be integrated into the certification programme for service technicians, UNEP indicated that the first step in stage I will be to develop a module for competency-based assessment of MAC technicians. Once this is done, good servicing practices for MAC can be integrated into the national qualification framework, occupancy standard, and curriculum and competency unit under the TVET centres. This will follow the competency-based approach for RAC service technicians. UNEP further added that supporting training on good servicing practices for MAC technicians is a priority since the recovery and reuse of HFC-134a is not common in the country. As HFC-134a is still the predominant refrigerant for MACs where second-hand cars are in broad use and there is currently no replacement for this refrigerant in vehicles, thus containment and reuse are important activities and will be central to the good servicing training for MAC technicians. The component will also seek to improve the default servicing practice for imported second-hand vehicles in which the refrigerant remaining in the car is vented and the MAC system is fully recharged before being transferred to the end user.

Assistance to the refrigeration and air-conditioning servicing sector

47. The Secretariat sought further clarification for this component noting that the main activity is a pilot project to be implemented for the commercial refrigeration sector which uses high GWP HFCs. The Secretariat also noted that this component did not include any training of technicians for servicing RAC equipment, and asked UNEP to explain why this was not needed in stage I of the KIP. UNEP explained that this activity will focus on small condensing units (CDUs) designed for medium- and low-temperature, walk-in coolers, freezers and display cases (reach-in refrigerators) and are commonly found in convenience stores and restaurants in Cambodia. Currently, this equipment uses high GWP HFCs (R-404A). This component will look at replacing whole HFC-based CDU with a new, properly designed CDU pre-charged with R-290. The objective of this limited pilot activity will be to inform the installers and end users about this specific alternative, the challenges for its set up and opportunities resulting from the investment versus payback and energy gains. The results are expected to be used in future stages of the KIP to upscale the technology for the country to help the sector to avoid the growth in consumption of R-404A.

48. For stage I of the KIP, training will be provided to the beneficiaries opting to participate in the demonstration project for R-290-based condensing units which will be done under the UNDP component under a future tranche.

49. With regard to the training of technicians in the RAC sector, UNEP explained that this will continue under the HPMP until 2030, work is also ongoing to institutionalize good servicing practices into the TVET centres and adding the servicing of condensing units to the RAC curriculum as part of Cambodia's robust competency-based training programme for technicians, this training will also include servicing of equipment that use HFCs in support of stage I of the KIP.

50. In responding to whether this should be considered an end-user project under decision 92/36, UNEP explained that the objective of this component is not the large-scale deployment of the technology to a high number of end-users using an incentive-based mechanism but rather to demonstrate the real working conditions of the technology that is yet to penetrate the Cambodian market, hence this should not be considered an end-user project. It will also measure the conditions of use, maintenance and energy efficiency of the new CDUs. The output expected is a comprehensive feasibility report that analyses the application of the technology, capital and operating expenditures required to make a case how this technology deployment can be later scaled up. UNEP agreed that a final report would be prepared after completion of the demonstration project.

Total project cost

51. The total cost for stage I of the KIP was adjusted at US \$440,685 for the reduction of 126,338 CO₂-eq tonnes to meet the 10 per cent reduction in 2029. Based on the 2020-2022 average HFC consumption, this would correspond to a deduction of 79.64 mt of HFCs.

52. The overall cost of activities to be implemented in the first tranche was adjusted to US \$250,110.

Impact on the climate

53. The activities proposed, including efforts to promote low-GWP alternatives and technician training in MAC good servicing practices, indicate that the implementation of stage I of the KIP will reduce the emissions of HFCs into the atmosphere, resulting in climate benefits. A calculation of the impact on the climate of the activities in the KIP indicates that the Cambodia will achieve an emission reduction of at least 126,338 CO₂ eq tonnes of HFCs from its baseline when the final target in stage I of its KIP is achieved, calculated as the difference between the HFC baseline and the final target set in stage I.

Sustainability of the HFC phase-down and assessment of risks

54. The Government of Cambodia is committed to ensuring that the activities under stage I of the KIP will be sustained over time with the implementation of the quota system for HFCs, establishment of bans on the use of HFCs for the manufacturing sector and on the import of second-hand HFC-based RAC equipment. Studies are also being undertaken to consider a ban on the import of R-410A single-split units and the feasibility of providing financial incentives for the import of low-GWP refrigerants and lower-GWP-energy-efficient equipment. These policy measures along with the close monitoring of all the activities being implemented under the KIP will ensure the sustainability of activities implemented under stage I.

55. UNEP provided a detailed risk assessment of stage I of the KIP and noted the commitment of the Government of Cambodia to implement the strategies and action plan outlined for stage I and to support the initiatives under the KIP by ensuring the participation of all relevant government agencies to implement the measures in coordination with the NOU. UNEP also noted that to counter possible delays in

implementation that may be caused by slow procurement, advance identification of equipment specifications and the use of regional long-terms agreements will be done to ensure timely procurement.

56. UNEP also confirmed that quotas for imports of HFCs will be established in 2024 putting in place the necessary controls on the amounts of substances that may be imported to support compliance with the targets of the Montreal Protocol.

Co-financing

57. The co-financing for stage I of the KIP for Cambodia will be in the form of in-kind contribution from the Royal Government of Cambodia including human resources constituting management and support level officers in the NOU who oversees KIP implementation. The contribution will also include office space, telecommunication, transportation, and administrative procedures for the implementation of KIP activities.

2023-2025 business plan of the Multilateral Fund

58. UNEP and UNDP are requesting US \$440,685, plus agency support costs, for the implementation of stage I of the KIP for Cambodia. The total value of US \$277,672 including agency support costs, requested for the period of 2023–2025, is US \$217,514 below the amount in the business plan.

Draft Agreement

59. A draft Agreement between the Government of Cambodia 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.

60. If the Executive Committee so wishes, the funds for stage I of the KIP for Cambodia 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.

RECOMMENDATION

61. The Executive Committee may wish to consider:

- (a) Approving, in principle, stage I of the Kigali HFC implementation plan (KIP) for Cambodia for the period of 2023-2029 to reduce HFC consumption by 10 per cent of the country's baseline in 2029, in the amount of US \$491,449, consisting of US \$278,800, plus agency support costs of US \$36,244 for UNEP and US \$161,885, plus agency support costs of US \$14,570 for UNDP, as reflected in the schedule contained in annex I of the present document;
- (b) Noting:
 - (i) That the Government of Cambodia will establish its starting point for sustained aggregate reductions in HFC consumption based on guidance provided by the Executive Committee;
 - (ii) That, once the cost guidelines for HFC phase-down are agreed by the Executive Committee, the reductions from the country's remaining HFC consumption eligible for funding will be determined in line with these guidelines;

- (iii) That the reductions from the country's remaining HFC consumption eligible for funding referred to in subparagraph (b)(ii) above will be deducted from the starting point referred to in subparagraph (b)(i);
 - (iv) That upon completion of the end-user technology demonstration project in the commercial refrigeration sector included in stage I of the KIP, UNDP will submit a final report on the implementation of this project, including the HFC phase-out and energy efficiency gains achieved, in line with decision 92/36(g);
- (c) Approving the first tranche of stage I of the KIP for Cambodia and the corresponding tranche implementation plan, in the amount of US \$277,672, consisting of US \$126,300, plus agency support costs of US \$16,419, for UNEP and US \$123,810, plus agency support costs of US \$11,143, for UNDP; and
- (d) Requesting the Government of Cambodia, UNEP, UNDP, and the Secretariat to finalize the draft Agreement between the Government of the Cambodia 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 CAMBODIA**

Kigali HFC implementation plan (stage I)

Row	Particulars	2023	2024	2025	2026	2027	2028	2029	Total
1.1	Montreal Protocol reduction schedule of Annex F substances (CO ₂ -eq tonnes)	n/a	1,263,376	1,263,376	1,263,376	1,263,376	1,263,376	1,137,038	n/a
1.2	Maximum allowable total consumption of Annex F substances (CO ₂ -eq tonnes)	n/a	1,263,376	1,263,376	1,263,376	1,263,376	1,263,376	1,137,038	n/a
2.1	Lead IA (UNEP) agreed funding (US \$)	126,300	0	0	108,000	0	0	44,500	278,800
2.2	Support costs for Lead IA (US \$)	16,419	0	0	14,040	0	0	5,785	36,244
2.3	Cooperating IA (UNDP) agreed funding (US \$)	123,810	0	0	38,075	0	0	0	161,885
2.4	Support costs for Cooperating IA (US \$)	11,143	0	0	3,427	0	0	0	14,570
3.1	Total agreed funding (US \$)	250,110	0	0	146,075	0	0	44,500	440,685
3.2	Total support costs (US \$)	27,562	0	0	17,467	0	0	5,785	50,814
3.3	Total agreed costs (US \$)	277,672	0	0	163,542	0	0	50,285	491,499

HCFC phase-out management plan

Row	Particulars	2010	2011-2012	2013	2014-2015	2016	2017-2018	2019	2020-2021	2022	2023-2024 ¹	2025	2026-2029	2030	2031	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	n/a	n/a	15.0	13.5	13.5	13.5	13.5	9.75	9.75	9.75	4.88	4.88	0.38	0.38	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	n/a	n/a	15.0	13.5	13.5	13.5	13.5	9.75	9.75	9.75	4.88	4.88	0.38	0.38	n/a
2.1	Lead IA [UNEP] agreed funding (US \$)	150,000	0	100,000	0	150,000	0	100,000	0	200,000	0	200,000	0	0	50,000	950,000
2.2	Support cost for Lead IA (US \$)	19,500	0	13,000	0	19,500	0	13,000	0	26,000	0	26,000	0	0	6,500	123,500
2.3	Cooperating IA [UNDP] agreed funding (US \$)	200,000	0	200,000	0	100,000	0	150,000	0	0	0	0	0	0	0	650,000
2.4	Support cost for Cooperating IA (US \$)	15,000	0	15,000	0	7,500	0	11,250	0	0	0	0	0	0	0	48,750
3.1	Total agreed funding (US \$)	350,000	0	300,000	0	250,000	0	250,000	0	200,000	0	200,000	0	0	50,000	1,600,000
3.2	Total support cost (US \$)	34,500	0	28,000	0	27,000	0	24,250	0	26,000	0	26,000	0	0	6,500	172,250
3.3	Total agreed costs (US \$)	384,500	0	328,000	0	277,000	0	274,250	0	226,000	0	226,000	0	0	56,500	1,772,250
4.1.1	Total phase-out of HCFCs agreed to be achieved under this agreement (ODP tonnes)															15
4.1.2	Phase-out of HCFCs to be achieved in previously approved projects (ODP tonnes)															0
4.1.3	Remaining eligible consumption for HCFCs (ODP tonnes)															0

Annex II

**IMPLEMENTATION OF BOTH THE HCFC PHASE-OUT MANAGEMENT PLAN (HPMP)
AND THE KIGALI HFC IMPLEMENTATION PLAN (KIP) IN Cambodia**

Category of activity	HPMP		KIP – stage I		Combined cost for HPMP+KIP (US \$)
	Activity	Cost * (US \$)	Activity	Cost (US \$)	
Policy and Regulations to Support HCFC Phase-out / HFC Phase-down		0	- Establishment of policy/regulation to limit new demand of high GWP and energy inefficient equipment - Inclusion of GWP limit of refrigerants used in RAC systems in relevant, procurement/investment /construction policies - Feasibility study on introducing fiscal incentive for the import of (i) lower GWP refrigerants and (ii) energy efficient equipment relying on lower GWP refrigerant	21,000	21,000
Training of AC technicians	Seven (7) training sessions on good servicing practices for 210 AC technicians	38,750		0	38,750
Training of MAC technicians		0	- One MAC train-the-trainer workshop for 20 trainees and production of training modules and video record of the workshop - Thirteen (13) training workshops of MAC technicians on good servicing practices for MAC servicing for 260 MAC technicians - Sensitize practices in servicing imported second-hand vehicles through consultation and three (3) specific training workshops for 60 participants	102,500	102,500
Improvement of capacities through procurement of training equipment for training centres		0	Improvement of capacities through procurement of MAC training equipment for MAC training centres	93,810	93,810
Development of code of practice		0	Integration of good servicing practices for MAC servicing into technical vocational education and training (TVET)	5,000	5,000

	HPMP		KIP – stage I		Combined cost for HPMP+KIP (US \$)
Category of activity	Activity	Cost * (US \$)	Activity	Cost (US \$)	
Technology demonstration		0	Demonstration on low-GWP and energy efficient refrigeration system	38,075	38,075
Strengthening licensing		0	- Development of Standard Operating Procedures (SOP) from the beginning to the end of enforcement process - Border dialogue with neighboring countries	37,800	37,800
Provision of tools to customs		0	Acquisition of 6 units of new refrigerant identifiers	30,000	30,000
Training of customs officers		0	Ten (10) training workshops for customs officers at major customs check points for 150 participants	30,000	30,000
Improving monitoring		0	Strengthening risk profiling and post-clearance audit through study visits to neighboring countries or visit of expert to Cambodia	10,000	10,000
Certification of technicians	Support for competency-based certification of AC technicians	16,250	Development of certification module for MAC servicing	13,500	29,750
Standards & labeling		0	Development of safety guidelines on handling, including transportation and storage of flammable refrigerants	5,000	5,000
Awareness	Awareness-raising and communication to relevant stakeholders under HPMP	64,000	Awareness-raising and communication to relevant stakeholders under KIP Stage I	18,000	82,000
Coordination & monitoring	Staff, domestic travel, operational expenses	131,000*	Domestic travel, operational expenses	36,000	167,000
Total		250,000		440,685	690,685
Percentage of total (%)		36.2%		63.8%	100%

* The cost of HPMP is calculated based on remaining budget of the approved HPMP in the project document against the cumulative funds approved in previously approved tranches. Funding might be reallocated to other activities upon submission of the future tranche.