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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 agenda<sup>1</sup>

**PROJECT PROPOSAL: CUBA**

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) UNDP

<sup>1</sup> UNEP/OzL.Pro/ExCom/93/1

## PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

## Cuba

<b>(I) PROJECT TITLE</b>				<b>AGENCY</b>						
Kigali HFC implementation plan (stage I)				UNDP						
<b>(II) LATEST ARTICLE 7 DATA (Annex F)</b>			<b>Year: 2022</b>	439.53 mt	882,672 CO <sub>2</sub> -eq tonnes					
<b>(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (CO<sub>2</sub>-eq tonnes)</b>							<b>Year: 2022</b>			
Chemical	Aerosol	Foam	Firefighting	AC and refrigeration			Solvent	Total sector consumption		
				Manufacturing		Servicing				
				AC	Other					
HFC-32						5,184		5,184		
HFC-125			455					455		
HFC-134a	32,561			5,863		247,004		285,428		
HFC-227ea			2,447					2,447		
HFC-236cb			13					13		
R-404A						231,884		231,884		
R-407A						8,344		8,344		
R-407C						69,677		69,677		
R-410A				4,384		170,277		174,661		
R-417A						46,498		46,498		
R-438A						50,972		50,972		
R-449A						2,541		2,541		
R-452A						64		64		
R-507A						4,503		4,503		
<b>(IV) AVERAGE 2020-2022 HFC CONSUMPTION IN SERVICING</b>					289.62 mt	597,983 CO <sub>2</sub> -eq tonnes				
<b>(V) CONSUMPTION DATA (CO<sub>2</sub>-eq tonnes)</b>										
Baseline: average 2020-2022 HFC consumption plus 65% of HCFC baseline			1,030,662	Starting point for sustained aggregate reductions			TBD			
<b>CONSUMPTION ELIGIBLE FOR FUNDING</b>										
Already approved			0	Remaining			TBD			
<b>(VI) ENDORSED BUSINESS PLAN</b>				<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total</b>			
UNDP	HFC phase-down (CO <sub>2</sub> -eq tonnes)			0	113,113	0	113,113			
	Funding (US \$)			1,127,155	*500,000	0	1,627,155			
*Investment project in the RAC and MDI sectors										
<b>(VII) PROJECT DATA</b>				<b>2023</b>	<b>2024-2025</b>	<b>2026</b>	<b>2027-2028</b>	<b>2029</b>	<b>Total</b>	
Consumption (CO <sub>2</sub> -eq tonnes)	Montreal Protocol limits			n/a	1,030,662	1,030,662	1,030,662	927,596	n/a	
	Maximum allowable			n/a	1,030,662	1,030,662	1,030,662	927,596	n/a	
Amounts requested in principle (US \$)	UNDP	Project costs			160,000	0	130,000	0	35,000	325,000
		Support costs			11,200	0	9,100	0	2,450	22,750
Amounts recommended in principle (US \$)	Total project costs			160,000	0	130,000	0	35,000	325,000	
	Total support costs			11,200	0	9,100	0	2,450	22,750	
	Total funds			171,200	0	139,100	0	37,450	347,750	
<b>(VIII) Request for approval of funding for the first tranche (2023)</b>										
<b>Implementing agency</b>			<b>Funds recommended (US \$)</b>			<b>Support costs (US \$)</b>				
UNDP			160,000			11,200				
<b>Secretariat's recommendation:</b>			Individual consideration							

## PROJECT DESCRIPTION

1. On behalf of the Government of Cuba, UNDP as the designated implementing agency has submitted a request for stage I of the Kigali HFC implementation plan (KIP), in the amount of US \$360,000, plus agency support costs of US \$25,200, as originally submitted.<sup>2</sup>
2. The implementation of stage I of the KIP will assist Cuba 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 \$180,000, plus agency support costs of US \$12,600 for UNDP, as originally submitted, for the period of January 2024 to December 2029.

### Background

4. The Government of Cuba ratified all amendments to the Montreal Protocol, including the Kigali Amendment on 20 June 2019. Cuba has an HCFC consumption baseline of 16.88 ODP tonnes or 283.62 metric tonnes (mt) and is set to completely phase out consumption of HCFCs by 1 January 2030.<sup>3</sup>

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

5. Stage I of the HCFC phase-out management plan (HPMP) for Cuba was approved at the 65<sup>th</sup> meeting of the Executive Committee<sup>4</sup> to meet the 35 per cent reduction from the baseline by 2020, resulting in the phase-out of 19.26 ODP tonnes of HCFCs,<sup>5</sup> at a total cost of US \$1,747,527, plus agency support costs. Stage I of the HPMP was completed in December 2021.
6. Stage II of the HPMP for Cuba was approved at the 86<sup>th</sup> meeting<sup>6</sup> to reduce HCFC consumption by 100 per cent from the baseline by 2030, at a total cost of US \$1,040,000, plus agency support costs. Stage II of the HPMP will be completed by December 2031, as stipulated in the Agreement between the Government of Cuba and the Executive Committee.

### Status of implementation of HFC-related activities

7. At the 75<sup>th</sup> meeting, the Government of Cuba received US \$70,000 in funding for conducting a survey on the use of alternatives to ozone-depleting substances (ODSs), completed in September 2017, and at the 81<sup>st</sup> meeting, US \$150,000 in funding for the implementation of enabling activities for HFC phase-down, which were completed in December 2022. These activities assisted the country *inter alia* in ratifying the Kigali Amendment, updating its licensing system to include HFCs and HFC blends, reporting HFC import data under Article 7 of the Montreal Protocol, and promoting the import of efficient technologies in accordance with the objectives of the Kigali Amendment.

### Stage I of the Kigali HFC implementation plan

#### Policy, regulatory and institutional frameworks

8. The bodies responsible for the implementation of the Montreal Protocol in Cuba are the Ozone Technical Office (OTOZ), embedded within the national Centre for Information Management and Energy

<sup>2</sup> As per the letter of 15 August 2023 from the Ministry of Science, Technology and Environment of Cuba to UNDP.

<sup>3</sup> Except for those HCFCs allowed for a servicing tail between 2030 and 2040, where required, consistent with the provisions of the Montreal Protocol.

<sup>4</sup> Decision 65/24

<sup>5</sup> Including 13.35 ODP tonnes of HCFC-141b contained in imported pre-blended polyols.

<sup>6</sup> Decision 86/66

Development at the Agency of Nuclear Energy and Advanced Technologies of the Ministry of Science, Technology and the Environment (CITMA); and CITMA’s Office of Environmental Regulation and Safety, a regulatory and control body for chemicals, including those that damage the ozone layer and cause global warming.

9. The main regulations addressing HFC imports, consumption and other issues related to the Kigali Amendment are Resolution 253/2021 (“Regulations for the handling of hazardous chemicals for industrial use, public consumption and hazardous waste”), providing instructions for prior registration (authorization/licensing) of entities intending to import HFCs, adopted on 17 February 2022; and Resolution 8/2022 (“Procedure for the implementation of the quota system for the importation of HFCs”), adopted on 26 April 2022, regarding the adoption of an annual quota reduction scheme, to be applied as of 2024 in accordance with the reduction schedule established by the Kigali Amendment.

10. Other relevant regulations include Resolution 235/2021 (“Procedure to guarantee the energy efficiency of energy end-use and generation equipment with renewable sources that are imported, manufactured, assembled and marketed in the country”), and Resolution 236/2021 (“Technical regulation on quality, energy efficiency, electrical safety and tropicalization for end-use energy and generation equipment with renewable sources”), both adopted on 8 November 2021.

#### HFC consumption

11. Cuba only imports HFCs for use in the refrigeration and air-conditioning (RAC) manufacturing and servicing sectors, the manufacture of pharmaceutical aerosols (i.e., metered-dose inhalers (MDIs)) and polyurethane (PU) foam, and in the firefighting sector. In 2022, the country consumed HFC-134a (32.3 per cent of total HFC consumption in CO<sub>2</sub>-equivalent (CO<sub>2</sub>-eq) tonnes), R-404A (26.3 per cent), R-410A (19.8 per cent), R-407C (7.9 per cent), and other HFCs (13.7 per cent). Table 1 presents the country’s HFC consumption as reported under Article 7 to the Ozone Secretariat.

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

HFC	GWP*	2019	2020	2021	2022	Share of HFC consumption in 2022 (%)
<b>mt</b>						
HFC-134a	1,430	335.22	222.41	198.47	199.60	45.41
R-404A	3,922	125.70	56.35	24.92	59.13	13.45
R-407C	1,774	66.53	14.65	3.33	39.28	8.94
R-410A	2,088	77.36	74.34	61.45	83.67	19.04
R-417A	2,346	1.67	5.91	0.38	19.82	4.51
R-438A	2,264	0.00	0.00	0.00	22.51	5.12
Other**		0.01	2.61	1.44	15.52	3.53
<b>Total (mt)</b>		<b>606.48</b>	<b>376.28</b>	<b>289.99</b>	<b>439.53</b>	<b>100.00</b>
<b>CO<sub>2</sub>-eq tonnes</b>						
HFC-134a	1,430	479,365	318,046	283,812	285,428	32.34
R-404A	3,922	492,966	220,982	97,726	231,884	26.27
R-407C	1,774	118,012	25,987	5,907	69,677	7.89
R-410A	2,088	161,481	155,185	128,277	174,661	19.79
A-417A	2,346	3,908	13,865	891	46,498	5.27
R-438A	2,264	0	0	0	50,972	5.77
Other**		4	5,593	3,031	23,551	2.66
<b>Total (CO<sub>2</sub>-eq tonnes)</b>		<b>1,255,737</b>	<b>739,658</b>	<b>519,644</b>	<b>882,672</b>	<b>100.00</b>

\*Global-warming potential

\*\*HFC-32, HFC-125, HFC-227ea, HFC-236cb, R-407A, R-449A, R-452A, R-507A, and R-508B

12. The annual HFC consumption levels in Cuba between 2015 and 2019 were on average 603 mt.<sup>7</sup> The reduction in HFC consumption in the last three years was due to the impact of the COVID-19 pandemic on the country's economy, especially on the tourism sector, which is a large consumer of refrigerants.

13. The increase in 2022 to 439 mt is still lower than the consumption levels in the pre-pandemic period. The country expects that the economy will continue to recover and that its dependence on HFCs will increase in the coming years, despite the ratification of the Kigali Amendment.

#### *Country programme implementation report*

14. The HFC sectoral consumption data provided by the Government of Cuba in its 2020 and 2022 country programme (CP) implementation reports is consistent with the data reported under Article 7 of the Montreal Protocol. However, differences of 95.71 mt and 91.45 mt were identified between the CP and the Article 7 reports for the years 2019 and 2021, respectively. Upon review, UNDP confirmed that the correct consumption was the one reported under Article 7, as in 2019 some figures had been accidentally omitted from the CP report, and in 2021 additional consumption (including 83.86 mt in the refrigeration servicing sector and 7.59 mt in the RAC manufacturing sector) had been mistakenly included. The Government of Cuba submitted the corrected CP reports for the years 2019 and 2021 on 8 November 2023.

#### HFC distribution by sector

15. HFCs are mainly consumed in the RAC servicing sector (93 per cent in mt and 95 per cent in CO<sub>2</sub>-eq tonnes), followed by the manufacturing of MDIs (5.2 per cent in mt and 3.7 per cent in CO<sub>2</sub>-eq tonnes), the manufacturing of RAC equipment (1.4 per cent in mt and 1.2 per cent in CO<sub>2</sub>-eq tonnes), and firefighting (0.2 per cent in mt and 0.3 per cent in CO<sub>2</sub>-eq tonnes), as shown in table 2. Cuba also uses imported pre-blended polyols containing HFCs for the manufacturing of PU foam.

**Table 2. HFC consumption by sector (2022)\***

Sector	HFC-134a	R-404A	R-410A	R-407C	R-417A	R-438A	Other HFCs	Total	Share of total (%)
<b>mt</b>									
<b>Manufacturing</b>									
RAC	4.10	0.00	2.10	0.00	0.00	0.00	0.00	6.20	1.4
PU foam	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Aerosol (MDI)	22.77	0.00	0.00	0.00	0.00	0.00	0.00	22.70	5.2
Firefighting	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.90	0.2
<b>Subtotal manufacturing</b>	<b>26.87</b>	<b>0.00</b>	<b>2.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.90</b>	<b>29.87</b>	<b>6.8</b>
<b>Refrigeration and air-conditioning servicing</b>									
<b>Refrigeration subsectors</b>									
Domestic	52.73	0.98	0.00	0.00	0.00	0.00	0.00	53.71	12.2
Commercial	95.00	57.00	0.00	0.00	0.00	0.00	4.82	156.82	35.7
Industrial	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Transport	0.00	1.15	0.00	0.00	0.00	0.00	0.00	1.15	0.3
<b>Air-conditioning subsectors</b>									
Residential	0.00	0.00	32.63	29.00	11.90	13.50	4.80	91.83	20.9
Commercial	0.00	0.00	48.94	10.28	7.92	9.01	5.00	81.15	18.5
Mobile	15.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	3.4
Chillers	10.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	2.3
<b>Subtotal servicing</b>	<b>172.73</b>	<b>59.13</b>	<b>81.57</b>	<b>39.28</b>	<b>19.82</b>	<b>22.51</b>	<b>14.62</b>	<b>409.66</b>	<b>93.2</b>
<b>Total (mt)</b>	<b>199.60</b>	<b>59.13</b>	<b>83.67</b>	<b>39.28</b>	<b>19.82</b>	<b>22.51</b>	<b>15.52</b>	<b>439.53</b>	<b>100.0</b>

<sup>7</sup> 647.88, 701.78, 485.04, 573.62, and 606.48 mt for each year, respectively, as presented in the submission.

Sector	HFC-134a	R-404A	R-410A	R-407C	R-417A	R-438A	Other HFCs	Total	Share of total (%)
<b>CO<sub>2</sub>-eq tonnes</b>									
<b>Manufacturing</b>									
RAC	5,863	0	4,384	0	0	0	0	10,247	1.2
PU foam	0	0	0	0	0	0	0	0	0.0
Aerosol (MDI)	32,561	0	0	0	0	0	0	32,561	3.7
Firefighting	0	0	0	0	0	0	2,916	2,916	0.3
<b>Subtotal manufacturing</b>	<b>38,424</b>	<b>0</b>	<b>4,384</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,916</b>	<b>45,724</b>	<b>5.2</b>
<b>Refrigeration and air-conditioning servicing</b>									
<b>Refrigeration subsectors</b>									
Domestic	75,404	3,843	0	0	0	0	0	79,247	9.0
Commercial	135,850	223,531	0	0	0	0	6,803	366,184	41.5
Industrial	0	0	0	0	0	0	0	0	0.0
Transport	0	4,510	0	0	0	0	0	4,510	0.5
<b>Air-conditioning subsectors</b>									
Residential	0	0	68,115	51,442	27,917	30,570	6,775	184,819	20.9
Commercial	0	0	102,162	18,235	18,580	20,403	7,057	166,437	18.9
Mobile	21,450	0	0	0	0	0	0	21,450	2.4
Other	14,300	0	0	0	0	0	0	14,300	1.6
<b>Subtotal servicing</b>	<b>247,004</b>	<b>231,884</b>	<b>170,277</b>	<b>69,677</b>	<b>46,498</b>	<b>50,973</b>	<b>20,635</b>	<b>836,947</b>	<b>94.8</b>
<b>Total (CO<sub>2</sub>-eq tonnes)</b>	<b>285,428</b>	<b>231,884</b>	<b>174,661</b>	<b>69,677</b>	<b>46,498</b>	<b>50,973</b>	<b>23,551</b>	<b>882,671</b>	<b>100.0</b>

\* Not including 0.05 mt (48.20 CO<sub>2</sub>-eq tonnes) of HFC-365mfc/HFC-227ea contained in imported pre-blended polyols consumed in the PU foam sector.

16. The HFC consumption trends over the last five years, as presented in the submission, are summarized in table 3.

**Table 3. HFC consumption trends per sector in mt (2018-2022)**

Sector	2018	2019	2020	2021	2022
<b>Manufacturing</b>					
RAC	7.66	8.06	5.10	8.09	6.20
MDI	90.00	96.00	79.10	114.77	22.77
Firefighting	-	-	-	-	0.90
<b>Total manufacturing</b>	<b>97.66</b>	<b>104.06</b>	<b>84.20</b>	<b>122.86</b>	<b>29.87</b>
<b>Servicing</b>	<b>475.96</b>	<b>502.42</b>	<b>292.08</b>	<b>167.10</b>	<b>409.66</b>
<b>Total</b>	<b>573.62</b>	<b>606.48</b>	<b>376.28</b>	<b>289.96</b>	<b>439.53</b>
HFC contained in imported pre-blended polyols (PU foam)*	2.07	1.43	2.15	0.11	0.05

\* HFC-365mfc/HFC-227ea (93 per cent / 7 per cent) blend

#### *Refrigeration and air-conditioning manufacturing*

17. Four enterprises consume small amounts of HFCs for a variety of refrigeration and air-conditioning (AC) systems: Frioclima manufactures commercial grade air-cooled water chillers (HFC-134a) and AC split units (R-410A); FERV/SEGERE<sup>8</sup> manufactures water troughs and water boxes (HFC-134a); Caribbean Refrigeration (Technoblock) manufactures cold rooms (R-404A) and freezers (HFC-134a); and INPUD<sup>9</sup> manufactures domestic refrigerators, drinking fountains and freezers (HFC-134a). Consumption in the local installation and assembly subsector has been accounted for in the manufacturing sector, as some

<sup>8</sup> Refrigeration and ventilation equipment factory.

<sup>9</sup> Industria Nacional de Productos y Utensilios Domésticos, national industrial producer of domestic equipment.

of these enterprises focus on cold rooms or cold chain applications, including their assembly and installation.

#### *Aerosol and metered-dose inhaler manufacturing*

18. The BioCubaFarma industrial group manufactures two types of MDIs (salbutamol and fluticasone) using pharmaceutical grade HFC-134a, at a capacity of 5,000,000 doses per year. Although in 2022 this enterprise only consumed 22.77 mt of HFC-134a due to supply issues, it consumed 96.00 mt in 2019, 79.10 mt in 2020 and 114.77 mt in 2021. The introduction of alternatives in MDI manufacturing would require a lengthy (up to eight years) approval process from the medical and regulatory institutions.

#### *Polyurethane foam manufacturing*

19. With support from the Multilateral Fund, most large users in the PU foam manufacturing sector have previously converted to HFC-free alternatives, with Caribbean Refrigeration, Lancomet and INPUD using cyclopentane as a blowing agent, and IDA and Friarc enterprises using water-based systems.

20. One enterprise, Rensol, consumes the HFC-365mfc/HFC-227ea blend<sup>10</sup> contained in imported pre-blended polyols for rigid PU foam in the manufacturing of solar heaters. This consumption in the last five years is shown in table 3. The revised CP reports for 2019 to 2022 submitted on 8 November 2023 included this use, originally omitted from reporting.

#### *Firefighting*

21. In 2022, Cuba consumed limited amounts of HFC-125 (130 kg), HFC-227ea (760 kg) and HFC-236cb (10 kg) for use in portable extinguishers for communication centres and file storage facilities. This consumption is not expected to grow and will only be addressed at a future stage.

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

22. The RAC servicing sector is made up of the state sector in the form of workshops run by the Ministry of Domestic Trade and the private sector (self-employed technicians), who can either work alone or form cooperatives. Most of the estimated 6,100 technicians are qualified to provide services in both the domestic and commercial sectors. Becoming certified in best refrigeration practices is not mandatory for obtaining the self-employment license but is required in the state sector for both refrigeration technicians and mechanical engineers.

23. Out of the 29 technical schools in Cuba, 17 are vocational training centres offering courses in good refrigeration practices to technicians and skilled workers in the RAC sector. Seven of them have already received or will receive equipment under the HPMP to train technicians in the handling of hydrocarbon (HC) refrigerants, and the remaining 10 centres have yet to acquire the necessary technology. At present, there is no certification programme for RAC technicians in the country, but HPMP and KIP funds are being currently earmarked for its creation.

24. HFCs are consumed in all RAC servicing subsectors, as described below.

#### *Domestic, commercial, industrial, and transport refrigeration servicing*

25. About 3.5 million domestic refrigerators being used in the country are charged predominantly with HFC-134a. Nineteen per cent of all units are charged with R-600a. Minibars, used mostly in the tourism sector, consume HFC-134a, R-404A and R-600a. It is estimated that the residential sector will see growing

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<sup>10</sup> Containing 93 per cent of HFC-365mfc and 7 per cent of HFC-227ea.

demand for domestic refrigerators in the coming years due to the aging of more than 2.5 million HFC-based refrigerators distributed during the 2006-2007 equipment replacement programme.

26. The use of commercial refrigeration equipment, found mainly in the tourism and retail sectors, is expected to increase due to the projected expansion of these industries, especially through the micro, small, and medium-sized enterprises (MSMEs). Cold rooms are mostly used in the education, health, and food industries. Seventy-four per cent of commercial systems use HFCs (mostly HFC-134a and R-404A), 19 per cent use HCFCs, and the remaining 7 per cent use HCs (63.4 per cent of which is R-600a and 36.6 per cent is R-290).

27. The use of HFCs as refrigerants in industrial refrigeration has grown to 79.8 per cent (73.5 per cent HFC-134a and 18 per cent R-404A), while only 16.2 per cent of the systems use HCFCs and 4 per cent use ammonia. The refrigerated transport (food distribution) subsector uses predominantly HFCs (84.1 per cent, mainly HFC-134a and R-404A), followed by HCFCs (mainly HCFC-22 and R-409A).

#### *Residential and commercial air-conditioning servicing*

28. Residential air conditioners are mainly used in households and public sector offices, with 61 per cent of them charged with HCFC-22, followed by R-410A (20 per cent), R-407C (14 per cent) and a small portion using R-290. Commercial and industrial AC equipment is used mostly in the tourism sector, as well as in all state sectors, consuming mainly R-410A (41.3 per cent), followed by HCFC-22 (35.8 per cent) and R-407C (19 per cent). The medical-pharmaceutical and biotechnological industry uses RAC equipment charged with HCFC-134a (66.5 per cent), R-410A (13.4 per cent) and R-404A (4.6 per cent).

#### *Mobile air-conditioning servicing*

29. The mobile air-conditioning (MAC) sector uses HFC-134a as a refrigerant, with the greatest presence in the ministries of tourism and transport for inter-provincial transfer of tourists. The largest consumers are air-conditioned cars (54 per cent), freight trucks (8 per cent), buses, and agricultural work and construction equipment.

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

##### *Overarching strategy*

30. The Government of Cuba is proposing two stages for the KIP implementation. Stage I will be implemented simultaneously with the HPMP until 2029, whereas stage II is expected to cover a period of the next 15 years (from 2030 to 2045).

##### *HFC baseline and proposed reductions*

31. The Government of Cuba reported its Article 7 data for 2020-2022. By adding 65 per cent of the HCFC baseline value (in CO<sub>2</sub>-eq tonnes) to the average HFC consumption over the 2020-2022 period, the HFC baseline for the country is 1,030,662 CO<sub>2</sub>-eq tonnes, as shown in table 4.

**Table 4. HFC baseline for Cuba (CO<sub>2</sub>-eq tonnes)**

Baseline calculation	2020	2021	2022	2020-2022 average
HFC annual consumption	739,658	519,644	882,672	713,991
HCFC baseline (65%)				316,671
HFC baseline				<b>1,030,662</b>



32. The established baseline value of 1,030,662 CO<sub>2</sub>-eq tonnes seemingly places the country in a position to comply with the mandatory freeze in 2024 and the 10 per cent reduction in 2029. However, because of the impact of the COVID-19 pandemic on the 2020-2022 consumption levels, the country expects an increase in consumption in the coming years to levels prior to the pandemic. Ongoing global inflation and increases in the costs of freight and transportation have negatively affected both tourism and biotechnology industries, meaning that the largest AC consumers and pharmaceutical aerosol manufacturers continue to function well below their capacity. National HFC consumption averaged 1,227,044 CO<sub>2</sub>-eq tonnes over the 2015-2019 period.

33. The Government of Cuba and UNDP have estimated the HFC consumption levels between 2023 and 2029 based on annual economic growth, using a 6 per cent increase in HFC demand between 2023 and 2027, and 2 per cent increase between 2027 and 2028. In this business-as-usual (BAU) scenario, HFC consumption in the country would exceed the Montreal Protocol target in 2024; therefore, immediate action is required to curb the growth of HFC consumption. The KIP proposes annual HFC consumption levels equal to the Montreal Protocol limits, as shown in table 5.

**Table 5. HFC consumption estimates and reductions proposed by stage I of the KIP**

Year	HFC consumption estimates (CO <sub>2</sub> -eq tonnes)			Proposed reductions in HFC consumption from baseline (%)
	BAU scenario*	Montreal Protocol limits	Proposed under the KIP	
2020-2022 average	713,991	n/a	n/a	n/a
2022	882,672	n/a	n/a	n/a
2023	935,632	n/a	n/a	n/a
2024	991,770	1,030,662	1,030,662	0
2025	1,051,276	1,030,662	1,030,662	0
2026	1,114,353	1,030,662	1,030,662	0
2027	1,181,214	1,030,662	1,030,662	0
2028	1,204,838	1,030,662	1,030,662	0
2029	1,228,935	927,596	927,596	10

\*Assuming an annual 6 per cent growth rate between 2023 and 2027, and 2 per cent between 2028 and 2029.

#### *Proposed activities*

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

34. Activities proposed in the RAC servicing sector are intended to expand the scope of activities implemented under the HPMP, and are grouped into four main components, namely: development of an institutional context to promote the use of low-GWP substances; strengthening of technical capacities for the safe use of low-GWP alternatives in RAC equipment; activities to reduce the demand for HFCs with high GWP; and activities to promote the reduction of emissions of HFCs throughout their life cycle.

35. In line with decision 92/37, the level of funds, as submitted, had been established at US \$360,000 based on average HFC consumption in servicing of 317.56 mt for the years 2020-2022, as reported in the CP reports. However, after the correction of an error in the 2021 CP report, this average became 289.62 mt, with an associated level of funds of US \$325,000. The proposed activities in the RAC servicing sector and their costs are summarized in table 6.

**Table 6. Proposed activities in the servicing sector under stage I of the KIP for Cuba**

KIP component	Cost as submitted (US \$)	Adjusted cost (US \$)
<b>I. Development of an institutional context to promote the use of low-GWP substances</b>		
<i>Development of coordination mechanisms:</i> Two training workshops for institutional stakeholders on the monitoring and control of HFC consumption; development and	20,000	20,000

<b>KIP component</b>	<b>Cost as submitted (US \$)</b>	<b>Adjusted cost (US \$)</b>
implementation of the gender equality policy, and three meetings with government stakeholders to strengthen inter-institutional coordination.		
<i>Strengthening of the control of trade and consumption of HFCs and HFC-based equipment:</i> Training of 100 customs officers and 80 customs brokers and importers on legal instruments and measures to control and reduce HFC emissions and consumption; assessment and identification of possible regulatory adjustments for reducing HFC consumption through three meetings with major HFC consumers and government stakeholders; four meetings with stakeholders to raise awareness on the HFC quota system and the harmonized customs code.	25,000	25,000
<i>Dissemination of information and raising awareness on the use of low-GWP refrigerants:</i> National awareness-building campaigns on alternative technologies and energy efficiency, including design, production, and distribution of three sets of printed materials.	20,000	20,000
<b>Subtotal for I</b>	<b>65,000</b>	<b>65,000</b>
<b>II. Strengthening of technical capacities for the safe use of low-GWP refrigerants in RAC systems</b>		
<i>Strengthening of capacities to train RAC technicians in the use of natural refrigerants:</i> Distribution to 10 additional training centres of training equipment sets for the safe handling of HCs, including R-290-based AC training units, R-600a-based domestic refrigeration units with inverter systems, R-290-based commercial horizontal freezers, and R-290-based refrigeration systems for cold rooms.	90,000	90,000
<i>Development of technician certification in the safe handling of RAC equipment:</i> In coordination with the National Standardization Office, formulation or modification of sectorial labor competency standards (NSCL) for technicians in the RAC sector on the safe handling of HCs; development of training plans for evaluators; training evaluators on the review, validation and evaluation of the formulated NSCL; certification of at least 100 technicians; and four awareness-raising activities and workshops to promote the newly formulated NSCL in the RAC sector.	17,500	17,500
<b>Subtotal for II</b>	<b>107,500</b>	<b>107,500</b>
<b>III. Activities to reduce demand for high-GWP HFCs</b>		
<i>Training and building awareness on the adoption of low-GWP technologies among end users:</i> Technical assistance to enterprises involved in the engineering, design, servicing and maintenance of refrigeration systems, contractors, and large end users on technology selection and better practices in the design, installation, operation and maintenance of RAC systems; and four workshops to promote low-GWP, non-HFC-based technologies and best practices for large end users.	30,000	30,000
<i>Promotion of the use of HC-based decentralized commercial refrigeration systems:</i> Design and production of technical promotional materials on the safe use of decentralized HC-based commercial refrigeration systems; performance demonstration of a decentralized HC-based commercial refrigeration system followed by four workshops to disseminate the results; and technology tour on non-HFC-based, low-GWP technologies.	30,000	30,000
<b>Subtotal for III</b>	<b>60,000</b>	<b>60,000</b>
<b>IV. Activities to reduce HFC emissions throughout their life cycle</b>		
<i>Support for refrigerant recovery and recycling at large end users:</i> Distribution of 27 recovery and recycling units (including oil separation and filtration machine and two recovery tanks) to selected large end users.	32,950	30,000
<i>Support for refrigerant recovery and recycling in the MAC servicing subsector:</i> Identification of equipment needs of 10 selected MAC servicing and maintenance shops with a high volume of operations; distribution of 10 equipment kits, <sup>11</sup> and monitoring and recording of the recovered quantities of HFCs by participating servicing workshops.	61,823	32,955
<b>Subtotal for IV</b>	<b>94,773</b>	<b>62,955</b>
<b>Total for activities in the servicing sector</b>	<b>327,273</b>	<b>295,455</b>
<b>Project coordination and management:</b> National consultant (US \$2,727), monitoring trips (US \$15,000) and stakeholder meetings (US \$15,000).	<b>32,727</b>	<b>29,545</b>
<b>Total for stage I of the KIP</b>	<b>360,000</b>	<b>325,000</b>

<sup>11</sup> Including at least one automatic recovery/recycling/reloading machine, pressure gauge, electronic leak detector, infrared thermometer, set of fittings and valves for MAC, five 30 lb recovery cylinders, two 123 lb recovery cylinders, and two sets of safety goggles and gloves.

*Manufacturing sectors*

36. Within the timeframe of stage I of the KIP, the Government of Cuba intends to prepare and implement investment projects in four RAC manufacturing enterprises and at one PU foam manufacturer, and to prepare an investment project for one MDI manufacturing enterprise to be implemented during stage II. The enterprises to be assisted are listed in table 7; eligibility and project costs will be determined once the projects are formulated.

**Table 7. Planned conversions in the manufacturing sector under stage I of the KIP**

Sector	Enterprise	HFCs consumed	Application
RAC	Frioclima	HFC-134a	Chillers, split air conditioners
	Caribbean Refrigeration	HFC-134a, R-404A	Cold rooms, freezers
	INPUD	HFC-134a	Domestic refrigerators
	SEGERE	HFC-134a	Drinking fountains, water boxes
PU foam	Rensol	HFC-365mfc/HFC-227ea contained in imported pre-blended polyols	Solar heaters
Aerosol*	BioCubaFarma	HFC-134a	MDIs

\*To be formulated in stage I and implemented in stage II

*Project implementation, coordination, and monitoring*

37. The implementation of stage I of the KIP will be coordinated by CITMA through OTOZ, which will be responsible for establishing the relevant work plans, preparing annual budgets, and managing their inclusion in the National Economy Plan, following up on work plans' implementation and compliance with commitments, and preparing periodic reports. Other bodies involved in the KIP include the Customs Department and the Ministries of Education, Energy and Mines, Domestic Trade, and Foreign Affairs.

*Gender policy implementation*

38. Through the implementation of the KIP, the Government of Cuba will continue addressing and reducing the gender inequality gap, recognizing women's skills, and promoting and encouraging their participation in the refrigeration servicing sector. An analysis of the potential for increasing the participation of women working as technicians, system designers and installers, teachers, and technical managers in the RAC sector enterprises will be made, and motivational workshops will be held to increase interest, build capacity, and open up options for women in the RAC sector and all HFC phase-down activities.

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

39. The Government of Cuba intends to harmonize the ongoing implementation of the HPMP and the KIP activities to the extent possible. The KIP is designed to strengthen and expand the ongoing HPMP activities, such as the training of technicians in good refrigeration practices, refrigerant recovery, recycle and reclaim (RRR), creation of a certification system for RAC technicians, and strengthening of the vocational training institutions by addressing such issues associated with low-GWP alternatives as flammability, toxicity or high operating pressures during refrigerant transportation, storage, installation, servicing and disposal.

40. Even though the HPMP did not promote the use of HFCs, the development of the market led to an increase in their consumption. The KIP will support the recovery and recycling of HFCs in installed systems and promote the use of low-GWP alternatives to HCFCs and HFCs, with a focus on HCs during stage I, and carbon dioxide during stage II. The KIP will also address good servicing practices and refrigerant recovery and recycling in the MAC sector, which is not addressed in the HPMP.

41. Stage I of the KIP will be implemented in three tranches. The schedule of HFC phase-down and HCFC phase-out commitments and of the KIP and HPMP tranches is presented in annex I to the present

document, and the activities to be implemented simultaneously under the HPMP and the KIP are listed in annex II.

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

42. The first funding tranche of stage I of the KIP, requested as submitted at US \$180,000 and adjusted to US \$160,000, will be implemented between January 2024 and December 2026 and will include the activities described in table 8.

**Table 8. Proposed activities in the servicing sector under the first tranche of stage I of the KIP**

<b>KIP component</b>	<b>Cost as submitted (US \$)</b>	<b>Adjusted cost (US \$)</b>
<b>I. Development of an institutional context to promote the use of low-GWP substances</b>		
<i>Development of coordination mechanisms:</i> One training workshop for institutional stakeholders on the monitoring and control of HFC consumption; one inter-institutional coordination meeting.	9,396	9,396
<i>Strengthening of the control of trade and consumption of HFCs and HFC-based equipment:</i> Training of 60 customs officers and 60 customs brokers and importers on the national and international legal instruments and measures to control and reduce HFC emissions and consumption; two meetings held with major HFC consumers and government stakeholders to evaluate possible regulatory adjustments for reducing HFC consumption; three meetings with stakeholders to raise awareness on the HFC quota system and the harmonized customs code.	15,150	15,150
<i>Dissemination of information and raising awareness on the use of low-GWP refrigerants:</i> National awareness-building campaigns on alternative technologies and energy efficiency, including the design, production, and distribution of three sets of printed materials.	13,140	13,140
<b>Subtotal for I</b>	<b>37,686</b>	<b>37,686</b>
<b>II. Strengthening of technical capacities for the safe use of low-GWP refrigerants in RAC systems</b>		
Distribution to 10 training centres of training equipment sets for the safe handling of HCs, including R-290-based AC training units, R-600a-based domestic refrigeration units with inverter systems, R-290-based commercial horizontal freezers, and R-290-based refrigeration systems for cold rooms.	<b>45,000</b>	<b>45,000</b>
<b>III. Activities to reduce demand for high-GWP HFCs</b>		
Performance demonstration for a decentralized HC-based commercial refrigeration system followed by two workshops and production of technical promotional materials on the safe use of decentralized HC-based commercial refrigeration systems; and technology tour on non-HFC-based, low-GWP technologies.	<b>20,000</b>	<b>20,000</b>
<b>IV. Activities to reduce HFC emissions throughout their life cycle</b>		
<i>Support for refrigerant recovery and recycling at large end users:</i> Distribution of 27 recovery and recycling units.	31,050	28,750
<i>Support for recovery and recycling in the MAC servicing subsector:</i> Identification of equipment needs of 10 selected MAC servicing and maintenance shops with high volume of operations, and distribution of equipment kits to five servicing workshops.	29,900	14,019
<b>Subtotal for IV</b>	<b>60,950</b>	<b>42,769</b>
<b>Project coordination and management:</b> National consultant (US \$1,364), monitoring and stakeholders' visits (US \$13,181).	<b>16,364</b>	<b>14,545</b>
<b>Total for activities in the servicing sector</b>	<b>180,000</b>	<b>160,000</b>

## SECRETARIAT'S COMMENTS AND RECOMMENDATION

### COMMENTS

43. The Secretariat reviewed stage I of the KIP for Cuba in light of the existing policies and guidelines of the Multilateral Fund, including decisions 91/38<sup>12</sup> and 92/37,<sup>13</sup> stage II of the HPMP, and the 2023-2025 business plan of the Multilateral Fund.

#### Policy, regulatory and institutional frameworks

##### *HFC licensing and quota system*

44. Decision 87/50(g) requests the bilateral and implementing agencies, when submitting stage I of the KIPs, to include confirmation that the country has an established and enforceable national system of licensing and quotas for monitoring HFC imports/exports in place, consistent with decision 63/17. UNDP reported that in Cuba, HFC import quotas will be provided to importers in CO<sub>2</sub>-eq tonnes, with flexibility to import any HFC as long as the quota is not surpassed. UNDP considers that under this system, national HFC consumption will most likely grow, but with a preference for HFCs with lower average GWP. UNDP also informed the Secretariat that the national HFC import quotas for 2024 were not available yet but would be established by the end of the year in line with the Kigali Amendment limits.

#### Starting point for sustained reductions in HFC consumption

45. As shown in table 4 above, the established baseline for HFC consumption in Cuba is 1,030,662 CO<sub>2</sub>-eq tonnes. The methodology to calculate the starting point for sustained reductions in HFC consumption is still under discussion. The Secretariat notes that the starting point will be established once the Executive Committee decides on the methodology for determining the starting point.

#### Risk of non-compliance and flexibility provided by the Meeting of the Parties (decision XXXV/16)

46. As shown in table 3 above, HFC consumption in Cuba decreased substantially during the baseline years, especially in the servicing sector, and is expected to return to the 2018 and 2019 levels in 2024, posing a risk of non-compliance. At the 35<sup>th</sup> Meeting of the Parties to the Montreal Protocol, the parties addressed the impact of the COVID-19 pandemic on the HFC baseline of countries that (a) have experienced demonstrated reductions in their respective levels of consumption of HFCs during the years 2020-2022, as compared to 2018-2019; (b) are expected to have calculated levels of consumption of HFCs in 2024 that exceed their respective calculated baselines; and (c) have expressed concern in writing to the Ozone Secretariat regarding the impact of the COVID-19 pandemic on their baselines. Accordingly, decision XXXV/16 established *inter alia* that the Implementation Committee under the Non-Compliance Procedure of the Montreal Protocol should defer, until 2026 data becomes available, any consideration of compliance status with regard to control measures for consumption of HFCs for eight countries, including Cuba, on the understanding that the countries will continue to make every effort to comply with these control measures.

47. The Secretariat notes that the Government of Cuba intends to make every effort to comply with the Montreal Protocol control measures and that it has proposed in its KIP, as presented in table 5 above, that its annual HFC consumption levels do not surpass the Montreal Protocol targets.

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<sup>12</sup> In the absence of the cost guidelines for HFC phase-down, to consider HFC individual investment projects and stage I of KIPs on a case-by-case basis, without setting a precedent for the cost guidelines or any future HFC individual investment projects and stage I of KIPs.

<sup>13</sup> Level and modalities of funding for HFC phase-down in the refrigeration servicing sector.

48. In light of decision XXXV/16, the Secretariat would seek guidance from the Executive Committee on the procedure to be followed if the HFC consumption level in any of the years 2024 to 2026 is above the Montreal Protocol target.

#### Overarching strategy

##### *Investment projects in the refrigeration and air-conditioning manufacturing sector*

49. The Secretariat noted that the investment projects proposed for stage I of the KIP were not formulated during the preparation of the plan, as explained by UNDP, because there were no cost guidelines defined for the sectors and the enterprises were still recovering from the economic slowdown. Because new stages of performance-based agreements are expected to be submitted with fully developed projects, providing a complete set of reductions to be achieved, Cuba would only be able to include these projects in stage II of the KIP. However, given the specific circumstances faced by the country, including the risk of non-compliance due to low consumption in the baseline years and noting decision XXXV/16, the Secretariat recommends that during the implementation of stage I of the KIP, the Government of Cuba is allowed, on an exceptional basis, to submit investment projects in the RAC sector to achieve additional HFC reductions, when the enterprises have further recovered from the economic slowdown and the accessibility of low-GWP alternative technologies has improved. This flexibility would help the country achieve additional HFC reductions during the stage I implementation period, if needed.

##### *Investment project in the polyurethane foam sector*

50. At its 61<sup>st</sup> meeting, the Executive Committee decided to approve funding for the phase-out of HCFC-141b contained in imported pre-blended polyols used by PU foam enterprises and established the conditions for requesting this funding (decisions 61/47 and 63/15), including for some countries, on an exceptional basis and subject to several conditions, flexibility in the submission of these projects at any time during the ongoing stage of the HPMP, when alternative technologies became available.

51. The Secretariat notes that the Government of Cuba intends to submit to a future meeting during stage I of the KIP a project to phase out the use of HFCs contained in pre-blended polyols in one foam enterprise. Noting that there are more countries using HFCs contained in imported pre-blended polyols, the Executive Committee may wish to consider whether it will fund activities to phase out HFCs contained in imported pre-blended polyols in Article 5 countries, as done for HCFCs. The consideration of a project in the PU foam sector in Cuba would be subject to the consideration of this issue by the Executive Committee, which is presented in document UNEP/OzL.Pro/ExCom/93/31, Overview of issues identified during project review.

##### *Refrigeration servicing sector*

52. The Secretariat notes that the activities proposed in the servicing sector are consistent with the activities in the HPMP and the plan to expand their scope. In providing detail on the promotion of the use of HC refrigerants in decentralized refrigeration systems, UNDP explained that the use of HC in cabinets and cold rooms for refrigeration and freezing in supermarkets and large restaurants would ensure lower refrigerant charge and allow greater efficiency due to the optimized parameterization of evaporators. The potential users to be addressed through this project are supermarkets, which will provide co-financing. Overall performance, leakage rates, servicing needs and energy consumption levels would be the basis for comparison for one year. The results of the demonstrations will be promoted to be applied in other supermarkets. In line with decision 92/36, UNDP was requested to report, upon completion of this project, on the achieved HFC phase-out and energy-efficiency gains.

Total project cost and implementation plan for the first tranche of the Kigali HFC implementation plan

53. The estimated funding for stage I of the KIP for Cuba, as submitted, was US \$360,000, based on the average HFC consumption in the refrigeration servicing sector for the years 2020-2022, in line with decision 92/37. However, upon correction of the 2021 data, the average consumption in the servicing sector during the baseline years decreased from 317.56 mt to 289.62 mt, and the funding for stage I of the KIP for Cuba was adjusted to US \$325,000. Accordingly, the funds and activities planned under the first tranche have also been slightly adjusted, including a reduction from 27 to 25 in the number of recovery and recycling modules to be distributed to large end users, and a reduction from 10 to six in the number of recovery and recycling equipment units to be distributed to MAC end users. The cost breakdown of stage I of the KIP and of its first tranche are presented in tables 6 and 8 above. The differences in consumption reported for Cuba for the 2020-2022 period and the related cost adjustments in line with decision 92/37 are shown in table 9.

**Table 9. HFC consumption in the refrigeration servicing sector in Cuba (mt)**

Source	2020	2021	2022	Average 2020-2022	Eligible level of funding (US \$)
CP report as submitted	292.07	250.96	409.66	317.56	360,000
CP report corrected	292.07	167.13	409.66	289.62	325,000

Impact on the climate

54. The activities planned by the Government of Cuba, including its efforts to promote low-GWP alternatives, training of technicians in good servicing practices as well as refrigerant recovery and recycling, indicate that the implementation of stage I of the KIP will reduce the emission of HFCs into the atmosphere, resulting in climate benefits. A calculation of the impact on the climate of the activities under the KIP indicates that Cuba will have achieved annual emission reductions of 103,066 CO<sub>2</sub>-eq tonnes of HFCs when the final target in stage I of the KIP is achieved, calculated based on the difference between the HFC baseline and the final target set in stage I.

Sustainability of the HFC phase-down and assessment of risks

55. The KIP for Cuba was prepared in the context of the country's commitments under the Kigali Amendment and the National Decarbonization strategy, developed in line with the Nationally Determined Contributions (NDCs) under the Paris Agreement. The implementation of the KIP will contribute to reaching the country's NDCs. Accordingly, OTOZ will ensure that the initiatives, proposals, and activities conducted under the project will have institutional support and sustainability over time.

56. As described in detail in paragraphs 46 to 49, the potential risk of non-compliance with the Montreal Protocol targets due to the low consumption in baseline years caused by the COVID-19 pandemic, followed by the expected consumption increase in the coming years to pre-pandemic levels, is being addressed through the application of decision XXXV/16, and if flexibility is provided to the country in submitting investment projects in the RAC manufacturing sector during stage I to achieve additional HFC reductions. OTOZ will closely monitor HFC consumption and work with stakeholders to promote alternative solutions, so demand could be managed within the threshold established by the KIP.

57. Other potential risks to the implementation of the KIP include delays in the implementation of activities, which will be mitigated by planning the equipment procurement process in advance, using UNDP's regional long-term agreement to facilitate and speed up the process, and by conducting regular meetings and following up with decision makers to maintain the political will and foster timely decisions.

58. The potential risk of low commitment and capability of key partners will be mitigated by ensuring a close follow-up to each activity in the project, holding early discussions with enterprises involved, and

providing clear information to stakeholders on project requirements and needs. The risk of low market availability of alternative technologies being promoted will be addressed by searching for suppliers during field visits, fairs, and technical training sessions, to ensure an ample offer of tools and equipment.

#### Co-financing

59. The Ministry of Education will support with their expertise the establishment of a certification scheme based on labor competencies for technicians in the RAC sector. The beneficiary institutions will contribute their time, managerial capacity, and transport costs of equipment to be received. The Government will also provide in-kind co-financing through the provision of personnel, office and storage space, communications, transportation, and administration.

#### 2023-2025 business plan of the Multilateral Fund

60. UNDP is requesting US \$325,000, plus agency support costs, for the implementation of stage I of the KIP for Cuba. The total value of US \$171,200, including agency support costs, requested for the period of 2023–2025, is US \$1,455,955 below the amount in the business plan.

#### Draft Agreement

61. A draft Agreement between the Government of Cuba 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.

62. If the Executive Committee so wishes, the funds for stage I of the KIP for Cuba 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**

63. The Executive Committee may wish to consider:

- (a) Approving, in principle, stage I of the Kigali HFC implementation plan (KIP) for Cuba for the period 2023-2029 to reduce HFC consumption by 10 per cent of the country's baseline by 2029, in the amount of US \$325,000, plus agency support costs of US \$22,750, for UNDP, as reflected in the schedule contained in annex I of the present document;
- (b) Noting:
  - (i) That the Government of Cuba 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 eligibility 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, if the HFC consumption level for Cuba in any of the years 2024 to 2026 is above the Montreal Protocol control limits, the Secretariat would inform and seek guidance from the Executive Committee on the procedure to follow in light of decision XXXV/16;
  - (v) That during the implementation of stage I of the KIP, the Government of Cuba will be allowed on an exceptional basis to submit investment projects in the refrigeration and air-conditioning sector to achieve additional HFC reductions;
  - (vi) That a project to phase out HFC contained in imported pre-blended polyols in the polyurethane foam sector in Cuba would be subject to the Executive Committee consideration on whether it will fund the phase-out of HFCs contained in imported pre-blended polyols;
  - (vii) That upon completion of the end-user technology demonstration project in commercial refrigeration 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) Approving the first tranche of stage I of the KIP for Cuba, and the corresponding tranche implementation plan, in the amount of US \$160,000, plus agency support costs of US \$11,200, for UNDP; and
- (d) Requesting the Government of Cuba, UNDP, and the Secretariat to finalize the draft Agreement between the Government of Cuba 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 CUBA**

**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 <sub>2</sub> -eq tonnes)	n/a	1,030,662	1,030,662	1,030,662	1,030,662	1,030,662	927,596	n/a
1.2	Maximum allowable total consumption of Annex F substances (CO <sub>2</sub> -eq tonnes)	n/a	1,030,662	1,030,662	1,030,662	1,030,662	1,030,662	927,596	n/a
2.1	Lead IA (UNDP) agreed funding (US \$)	160,000	0	0	130,000	0	0	35,000	325,000
2.2	Support costs for Lead IA (US \$)	11,200	0	0	9,100	0	0	2,450	22,750
3.1	Total agreed funding (US \$)	160,000	0	0	130,000	0	0	35,000	325,000
3.2	Total support costs (US \$)	11,200	0	0	9,100	0	0	2,450	22,750
3.3	Total agreed costs (US \$)	171,200	0	0	139,100	0	0	37,450	347,750

**HCFC phase-out management plan (stage II)**

Row	Particulars	2023	2024	2025	2026	2027	2028	2029	2030	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	10.97	10.97	5.49	5.49	5.49	5.49	5.49	0	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	10.97	10.97	5.49	5.49	5.49	5.49	5.49	0	n/a
2.1	Lead IA (UNDP) agreed funding (US \$)	260,000	0	208,000	0	0	208,000	0	104,000	780,000
2.2	Support costs for Lead IA (US \$)	18,200	0	14,560	0	0	14,560	0	7,280	54,600
3.1	Total agreed funding (US \$)	260,000	0	208,000	0	0	208,000	0	104,000	780,000
3.2	Total support costs (US \$)	18,200	0	14,560	0	0	14,560	0	7,280	54,600
3.3	Total agreed costs (US \$)	278,200	0	222,560	0	0	222,560	0	111,280	834,600



**Annex II**

**COMBINED IMPLEMENTATION OF THE HCFC PHASE-OUT MANAGEMENT AND THE KIGALI HFC IMPLEMENTATION PLANS  
IN CUBA**

<b>Areas of work</b>	<b>HPMP stage II</b>	<b>Cost (US \$)</b>	<b>KIP stage I</b>	<b>Cost (US \$)</b>	<b>Combined cost (US \$)</b>
Strengthening of the institutional and legal framework	Review, update and enforcement of additional standards and technical regulations to control the trade and use of HCFCs; evaluation of the implementation of the quota and licensing system for HCFC imports; and establishment of an electronic link with the customs.	45,000	Development of standards and policies for the control of HFCs and HFC-containing equipment.	0	45,000
			Development of inter-institutional coordination mechanisms to facilitate the implementation of the Kigali Amendment agreements (2 workshops, development of local gender policy, 3 follow-up meetings).	20,000	20,000
			Support to national capacities for the control of trade in HFCs and equipment containing them (7 meetings with HFC consumers and key stakeholders, training of 100 customs officers and 80 brokers and importers).	25,000	25,000
Training and certification of RAC technicians	Training of 40 trainers and 5,000 technicians; and establishing a certification system for technicians in the RAC sector.	225,000	Training and certification of 100 technicians in the use of HC refrigerants and four awareness-raising workshops to promote the certification system.	17,500	242,500
Strengthening of RAC training institutes	Provision of equipment and tools to the teaching laboratories of 7 RAC training institutes and establishment of formal agreements to incorporate the subjects of the HPMP training programme into their curricula.	185,000	Strengthening of 10 additional training institutes with technology for training in the safe use of HC-based refrigerants.	90,000	275,000
Strengthening of the refrigerant RRR network	Procurement of equipment modules and tools to enable the existing network to continue to provide RRR services throughout the RAC sector.	130,000	Distribution of 27 recovery and recycling units to selected large end users.	30,000	160,000
	Training of 320 refrigerant RRR technicians.				
	Development of a refrigerant containment strategy for the introduction of best practices to avoid refrigerant emissions.				

Areas of work	HPMP stage II	Cost (US \$)	KIP stage I	Cost (US \$)	Combined cost (US \$)
MAC sector			Benefit 10 end users in the MAC sector with technology for the recovery and recycling of refrigerants.	32,955	32,955
Activities to reduce the use of high-GWP technologies and promote the use of low-GWP alternatives	Ten training seminars on alternative technologies for 200 RAC end users. Development of technical brochures on the best options for the conservation, replacement and proper disposal of HCFC-based RAC equipment.	225,000	Technical assistance to enterprises involved in the engineering, design, servicing and maintenance of refrigeration systems, contractors, and large end users on technology selection and better design, installation, operation and maintenance of RAC systems; and 4 workshops to promote low-GWP, non-HFC-based technologies and best practices for large end users.	60,000	285,000
	Promotion of voluntary agreements with end users.		Promotion of the use of decentralized commercial refrigeration systems based on HC.		
Awareness	Fifteen awareness campaigns to promote responsible HCFC consumption, targeting end users of HCFC-based RAC equipment and decision makers in government institutions; and associated distribution of awareness material.	90,000	Awareness campaign to disseminate control measures for HFCs and new low-GWP, energy-efficient alternative refrigerants and technologies.	20,000	110,000
Coordination		140,000		29,545	169,545
<b>Grand total</b>		<b>1,040,000</b>		<b>325,000</b>	<b>1,365,000</b>